



31 July 2019

Development Assessment Team  
Douglas Shire Council  
PO Box 723 Mossman QLD 4873

Our ref:41-32458-03-SP1-RPT-0005

Attention: Paul Hoye and Neil Beck

Dear Paul and Neil

## **Environment Assessment Stage 2 Wangetti Trail Wangetti Trail SP1 - Combined Development Application**

### **1 Introduction**

We act on behalf of our client, The Department of Innovation, Tourism Industry Development and the Commonwealth Games (DITID) and have been request to submit a combined development application for a Material Change of Use (MCU) and operational works for interfering / disturbing marine plants and works for prescribed tidal works or work in a CMD. The purpose of the development application is to facilitate the construction of the Wangetti Trail SP1 between Nautilus Street, Port Douglas and the Mowbray River.

DITID is the applicant for the combined development application. The lots in which the development application is proposed for are identified in Table 1.

### **2 Project Description**

DITID is proposing to establish the Wangetti Trail; a 94 km dual use trail (mountain bikers and hikers) from Palm Cove in the south to Port Douglas in the north. The project is split into two sections, with section 1 (SP1) located between Nautilus Street, Port Douglas to the Mowbray River. SP1 involves the following:

- New pedestrian multi-span bridge constructed over the Mowbray River and removal of the existing damaged piers
- New pedestrian single-span bridge at the northern section of Lot 5 AP13754 referred to as B38
- New pedestrian single-span bridge located on unnamed road reserve (Four Mile Beach) referred to as B39
- New pedestrian single-span crossing located south-east of Andreassen Road, on an unnamed tributary of the Mowbray River (details of the design are still being determined, however we have allowed 100 m<sup>2</sup> for the development of the crossing)
- Visitors' carpark within Captain Cook Highway road reserve near Mowbray River that will have 45 informal car-parking spaces and 4 informal 20-seater bus spaces

- Observation viewing platform comprising an elevated and piled structure on the banks of the Mowbray River to provide a functional viewing platform overlooking Mowbray River and that maintains public safety
- 1.36 km of mangrove experience boardwalk
- 3.95 km of dual-use trail
- Mowbray River Bridge underpass

## **2.1 Proposed works within the Project footprint**

This section provides a description of the proposed works for SP1. SP1 has been designed based on the following objectives:

- To be sympathetic to the terrain and topography by blending into the landscape and creating a sense of purpose and movement through the landscape.
- Using existing roads, vehicle tracks or walking tracks if they provide the right experience and are sustainable. This ensures good value for money and improved environmental outcomes by preventing unnecessary trail construction.
- To showcase the beauty of the terrain by taking riders and walkers to the best places and provide access to the most scenic features possible.
- To avoid areas of highest environmental significance where possible and this best achieved in the ground-truthing stage, when the exact trail alignments are being determined, by engaging qualified ecologists to assist in determining the best alignment, to ensure that the trail avoids areas of concern.
- To be built to modern best-practice standards for sustainable trail construction by using the work of the International Mountain Bicycling Association is generally accepted as best practice for sustainable trail construction.
- To have a consistent 'look and feel' – from end-to-end and along the various link trails and for the same construction styles, signage, materials and techniques to be used again and again to ensure consistency.

SP1 is expected to have a total trail length of 3.95 km and a total boardwalk length of 1.36 km.

The SP1 Project area encompasses the lots identified in Table 1.

**Table 1 Lots intersected by SP1 Project area**

| <b>Lot Plan</b>              | <b>Property description</b>             | <b>Ownership details</b>  | <b>Tenure details</b>  |
|------------------------------|---|---|------------------------|
| Nautilus Street road reserve | Nautilus Street                         | DNRME<br>Managed by Douglas Shire Council   | Local road reserve     |
| Four Mile Beach              | Four Mile Beach                         | State of QLD (represented by DNRME)   | Unallocated state land |
| Unnamed road reserve         | Unnamed road reserve - Four Mile Beach  | DNRME<br>Managed by Douglas Shire Council   | Local road reserve     |
| Esplanade                    | Esplanade - Four Mile Beach             | DNRME<br>Managed by Douglas Shire Council   | Local road reserve     |
| Esplanade                    | Esplanade – Sagiba Avenue               | DNRME<br>Managed by Douglas Shire Council   | Local road reserve     |
| Lot 5 AP13754                | Mitre Street                            | State of QLD (represented by the former Department of Natural Resources and Water, now DNRME) | State land             |
| Esplanade                    | Esplanade - Adjoining the Mowbray River | DNRME<br>Managed by Douglas Shire Council   | Local road reserve     |
| Andreassen Road road reserve | Andreassen Road                         | Douglas Shire Council   | Local road reserve     |
| Lot 24 SR423                 | 24 Andreassen Road, Craiglie            | Private Property  | Freehold               |
| Captain Cook Highway         | Captain Cook Highway                    | Department of Transport and Main Roads (TMR)  | State controlled road  |
| Lot 161 SR673                | Captain Cook Highway                    | State of QLD (represented by DNRME)<br>Douglas Shire Council is trustee.                      | Reserve                |
| Lot 164 SR673                | Captain Cook Highway                    | State of QLD (represented by DNRME)   | Reserve                |

|               |               |                                     |                        |
|---------------|---------------|-------------------------------------|------------------------|
|               |               | Douglas Shire Council is trustee    |                        |
| Mowbray River | Mowbray River | State of QLD (represented by DNRME) | Unallocated state land |

### 3 Information supplied

The following documents and supporting information have been prepared and are attached to this letter:

- DA Form 1
- Letter from DITID confirming that GHD is acting on their behalf for the development application
- Supporting documentation for the development application including:
  - Planning Report for Material Change of Use
  - Planning report for operational works involving prescribed tidal works and works in a CMD
  - Planning report for works involving the destruction, removal or interference with marine plants

DITID has been in discussions with Department of Transport and Main Roads (TMR) regarding the proposed works within the Captain Cook Highway road reserve which is classified as a state-controlled road. The Mowbray Bridge abutments, underpass, carpark and crocodile viewing platform are proposed within the state-controlled road reserve. TMR has been consulted during the design phase and has reviewed the proposed works within the road reserve and support the project. TMR have confirmed via pre-lodgement meeting minutes that a road corridor permit under section 50 and approval under section 33 of the *Transport and Infrastructure Act 1994*.

DITID will be receiving owner's consent for the properties owners of Lot 24 SR423 this week and this will be sent through to Council once it is received. Please note an application for owners consent has been submitted to DNRME for the proposed works on state land and we are waiting for this to be approved by DNRME. We understand that the development application requires owner's consent in order for the development application to be properly made, however as discussed in the pre-lodgement meeting in May this project has tight timeframes and is a major ecotourism development for the region. DITID seeks Council's and DSDMIP's support in reviewing the content of the development application in the meantime and to informally advise GHD if they have any questions about the development application that needs to be addressed.

We also request that Council sends through an invoice for the development application fee for this development application so that it can be paid by the applicant.

We trust the above information is to your satisfaction. Should you require any additional information in relation to this matter, please contact the undersigned or Sarah Wilson on +61 7 5413 8133 or Sarah.Wilson@ghd.com.

Sincerely  
GHD

A handwritten signature in blue ink, appearing to read 'S. Wilson'.

**Sarah Wilson**  
Senior Town Planner  
5413 8133

# DA Form 1 – Development application details

Approved form (version 1.1 effective 22 JUNE 2018) made under section 282 of the Planning Act 2016.

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

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

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

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

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

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

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

## PART 1 – APPLICANT DETAILS

| 1) Applicant details                                       |  |
|--|--|
| Applicant name(s) <i>(individual or company full name)</i> | Department of Innovation, Tourism Industry Development and the Commonwealth Games (DITID)                            |
| Contact name <i>(only applicable for companies)</i>        | Department of Innovation, Tourism Industry Development and the Commonwealth Games (DITID), c/- of Sarah Wilson (GHD) |
| Postal address <i>(P.O. Box or street address)</i>         | Level 13 – The Rocket, 203 Robina Town Centre Drive  |
| Suburb   | Robina   |
| State  | QLD  |
| Postcode   | 4226   |
| Country  | Australia  |
| Contact number   | 07 5413 8133   |
| Email address <i>(non-mandatory)</i>                       | sarah.wilson@ghd.com   |
| Mobile number <i>(non-mandatory)</i>                       | 0459 813 589   |
| Fax number <i>(non-mandatory)</i>                          | N/A  |
| Applicant's reference number(s) <i>(if applicable)</i>     | 1905-10980 SPL   |

### 2) Owner's consent

2.1) Is written consent of the owner required for this development application?

- Yes – the written consent of the owner(s) is attached to this development application  
 No – proceed to 3)

## PART 2 – LOCATION DETAILS

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

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

#### 3.1) Street address and lot on plan

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

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

|    |          |            |  |                          |
|----|----------|------------|--|--------------------------|
| a) | Unit No. | Street No. | Street Name and Type   | Suburb                   |
|    |          |            | Refer to attached covering letter and section 2.3 of the attached planning report. |                          |
|    | Postcode | Lot No.    | Plan Type and Number (e.g. RP, SP)   | Local Government Area(s) |
|    |          |            |  |                          |
| b) | Unit No. | Street No. | Street Name and Type   | Suburb                   |
|    |          |            |  |                          |
|    | Postcode | Lot No.    | Plan Type and Number (e.g. RP, SP)   | Local Government Area(s) |
|    |          |            |  |                          |

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

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

Coordinates of premises by longitude and latitude

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

Coordinates of premises by easting and northing

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

#### 3.3) Additional premises

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

Not required

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

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

Name of water body, watercourse or aquifer:

Mowbray River

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

Lot on plan description of strategic port land:

Name of port authority for the lot:

In a tidal area

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

Douglas Shire Council

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

On airport land under the *Airport Assets (Restructuring and Disposal) Act 2008*

Name of airport:

|   |  |
|---|--|
| <input type="checkbox"/> Listed on the Environmental Management Register (EMR) under the <i>Environmental Protection Act 1994</i> |  |
| EMR site identification:  |  |
| <input type="checkbox"/> Listed on the Contaminated Land Register (CLR) under the <i>Environmental Protection Act 1994</i>        |  |
| CLR site identification:  |  |

**5) Are there any existing easements over the premises?**

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

- Yes – All easement locations, types and dimensions are included in plans submitted with this development application
- No

## PART 3 – DEVELOPMENT DETAILS

### Section 1 – Aspects of development

#### 6.1) Provide details about the first development aspect

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

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

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

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

c) What is the level of assessment?

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

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

Department of Innovation, Tourism Industry Development and the Commonwealth Games (DITID) is proposing to establish the Wangetti SP1 Mowbray North adventure based ecotourism development which involves a dual use trail (mountain bike and hikers) from Nautilus Street, Port Douglas to the Mowbray River. The SP1 Mowbray North trail encompasses an area from Four Mile Beach in Craiglie in the north to the Mowbray River in the south with a total trail length of 5.55 km. Key elements of the project are summarised below:

- New pedestrian multi-span bridge constructed over the Mowbray River and removal of the existing damaged piers
- New pedestrian single-span bridge at the northern section of Lot 5 AP13754 referred to as B38
- New pedestrian 8 m single-span bridge located on unnamed road reserve (Four Mile Beach) referred to as B39
- Visitors' carpark within Captain Cook Highway road reserve near Mowbray River that will have 45 informal car-parking spaces and 4 informal 20-seater bus spaces
- Observation viewing platform comprising an elevated and piled structure on the banks of the Mowbray River to provide a functional viewing platform overlooking Mowbray River and that maintains public safety
- 1.36 km of mangrove experience boardwalk
- 3.95 km of dual-use trail
- Mowbray River Bridge underpass
- New pedestrian single-span crossing located south-east of Andreassen Road, on an unnamed tributary of the Mowbray River (details of the design are still being determined, however we have allowed 100 m<sup>2</sup> for the development of the crossing)

e) Relevant plans

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

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

#### 6.2) Provide details about the second development aspect

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



|  |  |  |  |
|--|--|--|--|
| <input type="checkbox"/> Material change of use  | <input type="checkbox"/> Reconfiguring a lot                                     | <input checked="" type="checkbox"/> Operational work                             | <input type="checkbox"/> Building work |
| b) What is the approval type? <i>(tick only one box)</i>   |  |  |  |
| <input checked="" type="checkbox"/> Development permit   | <input type="checkbox"/> Preliminary approval                                    | <input type="checkbox"/> Preliminary approval that includes a variation approval |  |
| c) What is the level of assessment?  |  |  |  |
| <input type="checkbox"/> Code assessment   | <input type="checkbox"/> Impact assessment <i>(requires public notification)</i> |  |  |
| d) Provide a brief description of the proposal <i>(e.g. 6 unit apartment building defined as multi-unit dwelling, reconfiguration of 1 lot into 3 lots)</i> :  |  |  |  |
|  |  |  |  |
| e) Relevant plans  |  |  |  |
| <b>Note:</b> <i>Relevant plans are required to be submitted for all aspects of this development application. For further information, see <a href="#">DA Forms Guide: Relevant plans</a>.</i>  |  |  |  |
| <input checked="" type="checkbox"/> Relevant plans of the proposed development are attached to the development application   |  |  |  |
| <b>6.3) Additional aspects of development</b>  |  |  |  |
| <input checked="" type="checkbox"/> Additional aspects of development are relevant to this development application and the details for these aspects that would be required under Part 3 Section 1 of this form have been attached to this development application |  |  |  |
| <input type="checkbox"/> Not required  |  |  |  |

## Section 2 – Further development details

|   |   |
|---|---|
| <b>7) Does the proposed development application involve any of the following?</b> |   |
| Material change of use  | <input checked="" type="checkbox"/> Yes – complete division 1 if assessable against a local planning instrument |
| Reconfiguring a lot   | <input type="checkbox"/> Yes – complete division 2  |
| Operational work  | <input type="checkbox"/> Yes – complete division 3  |
| Building work   | <input type="checkbox"/> Yes – complete <i>DA Form 2 – Building work details</i>                                |

### Division 1 – Material change of use

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

| <b>8.1) Describe the proposed material change of use</b>  |  |   |   |
|---|--|---|---|
| Provide a general description of the proposed use   | Provide the planning scheme definition <i>(include each definition in a new row)</i> | Number of dwelling units <i>(if applicable)</i> | Gross floor area (m <sup>2</sup> ) <i>(if applicable)</i> |
| Under the Planning Scheme, SP1 meets the use definition of an 'environment facility', being a facility for the 'conservation, interpretation and appreciation of areas of environmental, cultural or heritage value' and includes SP1 components that comprise nature-based attractions, walking tracks, boardwalks, observation decks, etc. Under the Planning Scheme, development of an environment facility within conservation and rural zoning is code assessable. | Environment Facility   | N/A   | N/A   |
|   |  |   |   |
|   |  |   |   |
| <b>8.2) Does the proposed use involve the use of existing buildings on the premises?</b>  |  |   |   |
| <input type="checkbox"/> Yes  |  |   |   |

|  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> No |  |  |
|--|--|--|

### Division 2 – Reconfiguring a lot

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

|  |  |
|--|--|
| <b>9.1) What is the total number of existing lots making up the premises?</b>          |  |
|  |  |
| <b>9.2) What is the nature of the lot reconfiguration? (tick all applicable boxes)</b> |  |
| <input type="checkbox"/> Subdivision (complete 10))                                    | <input type="checkbox"/> Dividing land into parts by agreement (complete 11))  |
| <input type="checkbox"/> Boundary realignment (complete 12))                           | <input type="checkbox"/> Creating or changing an easement giving access to a lot from a construction road (complete 13)) |

|  |             |            |            |                        |
|--|-------------|------------|------------|------------------------|
| <b>10) Subdivision</b>   |             |            |            |                        |
| <b>10.1) For this development, how many lots are being created and what is the intended use of those lots:</b> |             |            |            |                        |
| Intended use of lots created   | Residential | Commercial | Industrial | Other, please specify: |
|  |             |            |            |                        |
| Number of lots created   |             |            |            |                        |
| <b>10.2) Will the subdivision be staged?</b>   |             |            |            |                        |
| <input type="checkbox"/> Yes – provide additional details below  |             |            |            |                        |
| <input type="checkbox"/> No  |             |            |            |                        |
| How many stages will the works include?  |             |            |            |                        |
| What stage(s) will this development application apply to?  |             |            |            |                        |

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

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

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

### Division 3 – Operational work

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

|  |
|--|
| <b>14.1) What is the nature of the operational work?</b> |
|--|

|   |   |  |
|---|---|--|
| <input type="checkbox"/> Road work                          | <input type="checkbox"/> Stormwater   | <input type="checkbox"/> Water infrastructure  |
| <input type="checkbox"/> Drainage work                      | <input type="checkbox"/> Earthworks   | <input type="checkbox"/> Sewage infrastructure |
| <input type="checkbox"/> Landscaping                        | <input type="checkbox"/> Signage  | <input type="checkbox"/> Clearing vegetation   |
| <input checked="" type="checkbox"/> Other – please specify: | — Operational works for interfering / disturbing marine plants<br>— Operational works for prescribed tidal works or work in a CMD |  |

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

Yes – specify number of new lots:

No

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

Cost estimates have been developed for the proposed operational works associated with SP1, these are:

| Proposed works   | Estimate Cost |
|--|---------------|
| Dual-use trail and mangrove experience boardwalk   | \$15,543,552  |
| New pedestrian single-span 18 m bridge at the northern section of Lot 5 AP13754 referred to as B38 | \$100,000     |
| 8 m single span bridge referred to as B39 located on unnamed road reserve (Four Mile Beach)        |               |
| Mowbray River Road Bridge underpass  | \$110,000     |
| Observation viewing platform   | \$125,000     |
| New pedestrian multi-span bridge constructed over the Mowbray River                                | \$365,000     |
| The removal of the existing damaged piers  |               |

## PART 4 – ASSESSMENT MANAGER DETAILS

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

Douglas Shire Council

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

Yes – a copy of the decision notice is attached to this development application

Local government is taken to have agreed to the superseded planning scheme request – relevant documents attached

No

## PART 5 – REFERRAL DETAILS

17) Do any aspects of the proposed development require referral for any referral requirements?

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

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

Matters requiring referral to the **Chief Executive of the Planning Regulation 2017:**

Clearing native vegetation

Contaminated land (*unexploded ordnance*)

Environmentally relevant activities (ERA) (*only if the ERA have not been devolved to a local government*)

Fisheries – aquaculture

Fisheries – declared fish habitat area

- Fisheries – marine plants
- Fisheries – waterway barrier works
- Hazardous chemical facilities
- Queensland heritage place *(on or near a Queensland heritage place)*
- Infrastructure – designated premises
- Infrastructure – state transport infrastructure
- Infrastructure – state transport corridors and future state transport corridors
- Infrastructure – state-controlled transport tunnels and future state-controlled transport tunnels
- Infrastructure – near a state-controlled road intersection
- On Brisbane core port land near a State transport corridor or future State transport corridor
- On Brisbane core port land – ERA
- On Brisbane core port land – tidal works or work in a coastal management district
- On Brisbane core port land – hazardous chemical facility
- On Brisbane core port land – taking or interfering with water
- On Brisbane core port land – referable dams
- On Brisbane core port land - fisheries
- Land within Port of Brisbane’s port limits
- SEQ development area
- SEQ regional landscape and rural production area or SEQ rural living area – tourist activity or sport and recreation activity
- SEQ regional landscape and rural production area or SEQ rural living area – community activity
- SEQ regional landscape and rural production area or SEQ rural living area – indoor recreation
- SEQ regional landscape and rural production area or SEQ rural living area – urban activity
- SEQ regional landscape and rural production area or SEQ rural living area – combined use
- Tidal works or works in a coastal management district
- Reconfiguring a lot in a coastal management district or for a canal
- Erosion prone area in a coastal management district
- Urban design
- Water-related development – taking or interfering with water
- Water-related development – removing quarry material *(from a watercourse or lake)*
- Water-related development – referable dams
- Water-related development – construction of new levees or modification of existing levees *(category 3 levees only)*
- Wetland protection area

**Matters requiring referral to the local government:**

- Airport land
- Environmentally relevant activities (ERA) *(only if the ERA have been devolved to local government)*
- Local heritage places

**Matters requiring referral to the chief executive of the distribution entity or transmission entity:**

- Electricity infrastructure

**Matters requiring referral to:**

- The **Chief executive of the holder of the licence**, if not an individual
- The **holder of the licence**, if the holder of the licence is an individual
- Oil and gas infrastructure

**Matters requiring referral to the Brisbane City Council:**

- Brisbane core port land

**Matters requiring referral to the Minister under the *Transport Infrastructure Act 1994*:**

- Brisbane core port land (inconsistent with Brisbane port LUP for transport reasons)
- Strategic port land

**Matters requiring referral to the relevant port operator:**

- Land within Port of Brisbane’s port limits (below high-water mark)

|   |
|---|
| Matters requiring referral to the <b>Chief Executive of the relevant port authority:</b><br><input type="checkbox"/> Land within limits of another port (below high-water mark) |
| Matters requiring referral to the <b>Gold Coast Waterways Authority:</b><br><input type="checkbox"/> Tidal works, or work in a coastal management district in Gold Coast waters |
| Matters requiring referral to the <b>Queensland Fire and Emergency Service:</b><br><input type="checkbox"/> Tidal works marina ( <i>more than six vessel berths</i> )           |

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

## PART 6 – INFORMATION REQUEST

|  |
|--|
| <b>19) Information request under Part 3 of the DA Rules</b>  |
| <input checked="" type="checkbox"/> I agree to receive an information request if determined necessary for this development application<br><input type="checkbox"/> I do not agree to accept an information request for this development application<br><b>Note:</b> <i>By not agreeing to accept an information request I, the applicant, acknowledge:</i> <ul style="list-style-type: none"> <li>that this development application will be assessed and decided based on the information provided when making this development application and the assessment manager and any referral agencies relevant to the development application are not obligated under the DA Rules to accept any additional information provided by the applicant for the development application unless agreed to by the relevant parties</li> <li>Part 3 of the DA Rules will still apply if the application is an application listed under section 11.3 of the DA Rules.</li> </ul> <i>Further advice about information requests is contained in the <a href="#">DA Forms Guide</a>.</i> |

## PART 7 – FURTHER DETAILS

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

|  |                      |                    |
|--|----------------------|--------------------|
| <b>21) Has the portable long service leave levy been paid? (only applicable to development applications involving building work or operational work)</b>   |                      |                    |
| <input type="checkbox"/> Yes – a copy of the receipted QLeave form is attached to this development application<br><input type="checkbox"/> No – I, the applicant will provide evidence that the portable long service leave levy has been paid before the assessment manager decides the development application. I acknowledge that the assessment manager may give a development approval only if I provide evidence that the portable long service leave levy has been paid<br><input checked="" type="checkbox"/> Not applicable ( <i>e.g. building and construction work is less than \$150,000 excluding GST</i> ) |                      |                    |
| Amount paid  | Date paid (dd/mm/yy) | QLeave levy number |
|  |                      |                    |

|    |  |  |
|----|--|--|
| \$ |  |  |
|----|--|--|

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

- Yes – show cause or enforcement notice is attached  
 No

23) Further legislative requirements

**Environmentally relevant activities**

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

- Yes – the required attachment (form ESR/2015/1791) for an application for an environmental authority accompanies this development application, and details are provided in the table below  
 No

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

|                      |  |                         |  |
|----------------------|--|-------------------------|--|
| Proposed ERA number: |  | Proposed ERA threshold: |  |
|----------------------|--|-------------------------|--|

|                    |  |
|--------------------|--|
| Proposed ERA name: |  |
|--------------------|--|

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

**Hazardous chemical facilities**

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

- Yes – Form 69: Notification of a facility exceeding 10% of schedule 15 threshold is attached to this development application  
 No

**Note:** See [www.business.qld.gov.au](http://www.business.qld.gov.au) for further information about hazardous chemical notifications.

**Clearing native vegetation**

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

- Yes – this development application includes written confirmation from the chief executive of the *Vegetation Management Act 1999* (s22A determination)  
 No

**Note:** 1. Where a development application for operational work or material change of use requires a s22A determination and this is not included, the development application is prohibited development.  
2. See <https://www.qld.gov.au/environment/land/vegetation/applying> for further information on how to obtain a s22A determination.

**Environmental offsets**

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

- Yes – I acknowledge that an environmental offset must be provided for any prescribed activity assessed as having a significant residual impact on a prescribed environmental matter  
 No

**Note:** The environmental offset section of the Queensland Government’s website can be accessed at [www.qld.gov.au](http://www.qld.gov.au) for further information on environmental offsets.

**Koala conservation**

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

- Yes  
 No

**Note:** See guidance materials at [www.des.qld.gov.au](http://www.des.qld.gov.au) for further information.

### Water resources

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

- Yes – the relevant template is completed and attached to this development application and I acknowledge that a relevant authorisation or licence under the *Water Act 2000* may be required prior to commencing development
- No

**Note:** Contact the Department of Natural Resources, Mines and Energy at [www.dnrme.qld.gov.au](http://www.dnrme.qld.gov.au) for further information.

DA templates are available from <https://planning.dsdmip.qld.gov.au/>. If the development application involves:

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

### Waterway barrier works

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

- Yes – the relevant template is completed and attached to this development application
- No

DA templates are available from <https://planning.dsdmip.qld.gov.au/>. For a development application involving waterway barrier works, complete DA Form 1 Template 4.

### Marine activities

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

- Yes – an associated resource allocation authority is attached to this development application, if required under the *Fisheries Act 1994*
- No

**Note:** See guidance materials at [www.daf.qld.gov.au](http://www.daf.qld.gov.au) for further information.

### Quarry materials from a watercourse or lake

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

- Yes – I acknowledge that a quarry material allocation notice must be obtained prior to commencing development
- No

**Note:** Contact the Department of Natural Resources, Mines and Energy at [www.dnrme.qld.gov.au](http://www.dnrme.qld.gov.au) and [www.business.qld.gov.au](http://www.business.qld.gov.au) for further information.

### Quarry materials from land under tidal waters

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

- Yes – I acknowledge that a quarry material allocation notice must be obtained prior to commencing development
- No

**Note:** Contact the Department of Environment and Science at [www.des.qld.gov.au](http://www.des.qld.gov.au) for further information.

### Referable dams

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

- Yes – the 'Notice Accepting a Failure Impact Assessment' from the chief executive administering the *Water Supply Act* is attached to this development application
- No

**Note:** See guidance materials at [www.dnrme.qld.gov.au](http://www.dnrme.qld.gov.au) for further information.

### Tidal work or development within a coastal management district

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

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

|  |           |
|--|-----------|
| <input checked="" type="checkbox"/> A certificate of title<br><input type="checkbox"/> No<br><i>Note: See guidance materials at <a href="http://www.des.qld.gov.au">www.des.qld.gov.au</a> for further information.</i>  |           |
| <b>Queensland and local heritage places</b><br>23.13) Does this development application propose development on or adjoining a place entered in the <b>Queensland heritage register</b> or on a place entered in a local government's <b>Local Heritage Register</b> ?<br><input type="checkbox"/> Yes – details of the heritage place are provided in the table below<br><input checked="" type="checkbox"/> No<br><i>Note: See guidance materials at <a href="http://www.des.qld.gov.au">www.des.qld.gov.au</a> for information requirements regarding development of Queensland heritage places.</i> |           |
| Name of the heritage place:  | Place ID: |
| <b>Brothels</b><br>23.14) Does this development application involve a <b>material change of use for a brothel</b> ?<br><input type="checkbox"/> Yes – this development application demonstrates how the proposal meets the code for a development application for a brothel under Schedule 3 of the <i>Prostitution Regulation 2014</i><br><input checked="" type="checkbox"/> No  |           |
| <b>Decision under section 62 of the <i>Transport Infrastructure Act 1994</i></b><br>23.15) Does this development application involve new or changed access to a state-controlled road?<br><input type="checkbox"/> Yes - this application will be taken to be an application for a decision under section 62 of the <i>Transport Infrastructure Act 1994</i> (subject to the conditions in section 75 of the <i>Transport Infrastructure Act 1994</i> being satisfied)<br><input checked="" type="checkbox"/> No   |           |

## PART 8 – CHECKLIST AND APPLICANT DECLARATION

|  |  |
|--|--|
| <b>24) Development application checklist</b>   |  |
| I have identified the assessment manager in question 15 and all relevant referral requirement(s) in question 17<br><i>Note: See the Planning Regulation 2017 for referral requirements</i>   | <input checked="" type="checkbox"/> Yes  |
| If building work is associated with the proposed development, Parts 4 to 6 of <i>DA Form 2 – Building work details</i> have been completed and attached to this development application  | <input type="checkbox"/> Yes<br><input checked="" type="checkbox"/> Not applicable |
| Supporting information addressing any applicable assessment benchmarks is with development application<br><i>Note: This is a mandatory requirement and includes any relevant templates under question 23, a planning report and any technical reports required by the relevant categorising instruments (e.g. local government planning schemes, State Planning Policy, State Development Assessment Provisions). For further information, see <a href="#">DA Forms Guide: Planning Report Template</a>.</i>   | <input checked="" type="checkbox"/> Yes  |
| Relevant plans of the development are attached to this development application<br><i>Note: Relevant plans are required to be submitted for all aspects of this development application. For further information, see <a href="#">DA Forms Guide: Relevant plans</a>.</i>   | <input checked="" type="checkbox"/> Yes  |
| The portable long service leave levy for QLeave has been paid, or will be paid before a development permit is issued ( <i>see 21</i> )   | <input type="checkbox"/> Yes<br><input checked="" type="checkbox"/> Not applicable |
| <b>25) Applicant declaration</b>   |  |
| <input checked="" type="checkbox"/> By making this development application, I declare that all information in this development application is true and correct<br><input checked="" type="checkbox"/> Where an email address is provided in Part 1 of this form, I consent to receive future electronic communications from the assessment manager and any referral agency for the development application where written information is required or permitted pursuant to sections 11 and 12 of the <i>Electronic Transactions Act 2001</i><br><i>Note: It is unlawful to intentionally provide false or misleading information.</i> |  |



**Privacy** – Personal information collected in this form will be used by the assessment manager and/or chosen assessment manager, any relevant referral agency and/or building certifier (including any professional advisers which may be engaged by those entities) while processing, assessing and deciding the development application. All information relating to this development application may be available for inspection and purchase, and/or published on the assessment manager's and/or referral agency's website.

Personal information will not be disclosed for a purpose unrelated to the *Planning Act 2016*, Planning Regulation 2017 and the DA Rules except where:

- such disclosure is in accordance with the provisions about public access to documents contained in the *Planning Act 2016* and the Planning Regulation 2017, and the access rules made under the *Planning Act 2016* and Planning Regulation 2017; or
- required by other legislation (including the *Right to Information Act 2009*); or
- otherwise required by law.

This information may be stored in relevant databases. The information collected will be retained as required by the *Public Records Act 2002*.

## PART 9 – FOR OFFICE USE ONLY

Date received:  Reference number(s):

### Notification of engagement of alternative assessment manager

|   |  |
|---|--|
| Prescribed assessment manager                           |  |
| Name of chosen assessment manager                       |  |
| Date chosen assessment manager engaged                  |  |
| Contact number of chosen assessment manager             |  |
| Relevant licence number(s) of chosen assessment manager |  |

### QLeave notification and payment

*Note: For completion by assessment manager if applicable*

|  |  |
|--|--|
| Description of the work                          |  |
| QLeave project number                            |  |
| Amount paid (\$)                                 |  |
| Date paid  |  |
| Date received form sighted by assessment manager |  |
| Name of officer who sighted the form             |  |

Attachment 3

15 July 2019

Administration Office  
64 - 66 Front St Mossman  
P 07 4099 9444  
F 07 4098 2902

GHD  
Level 13  
203 Robina Town Centre Drive  
ROBINA QLD 4226

**Attention:** Sarah Wilson

Dear Madam,

**Wangetti Trail SP 1 Project – Council Managed Properties**

Reference is made to email correspondence received by Council on Monday 15 July 2019 seeking comment on a number of reserve lots for which Council is the nominated Trustee for the purposes of obtaining Owners consent from Department of Natural Resources Mines & Energy for the development application.

As you aware, Council is a key stakeholder for this project and is supportive of the proposed Wangetti Trail SP1 Project with respect to property management considerations for the lands in question.

Council's Property Department has advised that Lots 161 & Lot 164 on SR673 are subject to a Native Title Claim and therefore a Issue Future Act Notice is required under the Native Title Act. The Property Department recommends that a Cultural Heritage search also be undertaken.

Please don't hesitate to contact Mr. Neil Beck of Environment & Planning on 40999451 should you require anything further.

Yours faithfully

  
Paul Hoyer  
Manager Environment & Planning

**From:** [Sarah Wilson](#)  
**To:** [Neil Beck \(InTouch\)](#); [Paul Hove \(InTouch\)](#)  
**Cc:** [Timothy Hertz \(InTouch\)](#)  
**Subject:** RE: Wangetti Trail SP 1 owners consent and tenure arrangements  
**Date:** Monday, 15 July 2019 2:28:00 PM  
**Attachments:** [Fig 1-1\\_4132458\\_034\\_WT\\_SP1\\_OW\\_MCU\\_Locality\\_Rev0.pdf](#)  
[Council managed properties SP1 project area.pdf](#)

Hi Neil and Paul

Just getting back to you on Wangetti Trail SP1 project, we have been on the process of working with design team to progress of the design drawings for SP1 and finalising the MCU planning report for the development application.

I can confirm that SP1 component will incorporate the following infrastructure:

- New pedestrian multi-span bridge constructed over the Mowbray River and removal of the existing damaged piers
- New pedestrian single-span bridge at the northern section of Lot 5 AP13754 referred to as B38 - **partly located within Council managed properties**
- New pedestrian 8 m single-span bridge located on unnamed road reserve (Four Mile Beach) referred to as B39 - **partly located within Council managed properties**
- Visitors' carpark within Captain Cook Highway road reserve near Mowbray River that will have 45 informal car-parking spaces and 4 informal 20-seater bus spaces
- Observation viewing platform comprising an elevated and piled structure on the banks of the Mowbray River to provide a functional viewing platform overlooking Mowbray River and that maintains public safety
- 1.35 km of mangrove experience boardwalk - **partly located within Council managed properties**
- 4.04 km of dual-use trail – **partly located within Council managed properties**
- Mowbray River Bridge underpass

The table below lists the Council managed properties impacted by SP1 proposed works.

| Affected Property Lot on Plan           | Address/Coordinates  | Property Owner Details                  | Tenure                 | Locality | Comments   |
|---|--|---|------------------------|----------|--|
| Nautilus Street                         | Nautilus Street<br>Lat: -16.5273 Long: 145.4765  | Douglas Shire Council                   | Road reserve           | Craiglie | <p>Owners consent is required from DNRME for this property as the road is managed by Douglas Shire Council but is owned by DNRME under the Land Act 1994. Owners consent is required from DNRME as the proposed works triggers a material change of use development application.</p> <p>The dual-use single track trail to accommodate both mountain bike users and hikers is proposed on this property. However, no formalised track is required on this property.</p>  |
| Four Mile Beach                         | Four Mile Beach  | Unallocated state land managed by DNRME | Unallocated State Land | Craiglie | <p>Owners consent is required from DNRME for this property as the land is managed by DNRME under the Land Act 1994. Owners consent is required from DNRME as the proposed works triggers a material change of use development application.</p> <p>The trail is proposed on this land however no formalised track is required on this property.</p>   |
| Unnamed road reserve - Four Mile Beach  | Unnamed road reserve - Four Mile Beach:<br>Lat: -16.5308 Long : 145.4783<br>Lat: -16.5304 Long: 145.4780<br>Lat: -16.5295 Long: 145.4776<br>Lat – 16.5285 Long: 145.4771 | Douglas Shire Council                   | Road reserve           | Craiglie | <p>Owners consent is required from DNRME for this property as the road is managed by Douglas Shire Council but is owned by DNRME under the Land Act 1994. Owners consent is required from DNRME as the proposed works triggers a material change of use development application.</p> <p>The following works are proposed on this land:</p> <ul style="list-style-type: none"> <li>— Dual-use single track trail to accommodate both mountain bike users and hikers.</li> <li>— Proposed single span bridge</li> <li>— Mangrove experience boardwalk</li> </ul> |
| Esplanade - Four Mile Beach             | Esplanade - Four Mile Beach<br>Lat: -16.5273 Long: 145.4765<br>Lat: -16.5252 Long:145.4754   | Douglas Shire Council                   | Road reserve           | Craiglie | <p>Owners consent is required from DNRME for this property as the road is managed by Douglas Shire Council but is owned by DNRME under the Land Act 1994. Owners consent is required from DNRME as the proposed works triggers a material change of use development application.</p> <p>The following works are proposed on this land:</p> <ul style="list-style-type: none"> <li>— Dual-use single track trail to accommodate both mountain bike users and hikers.</li> <li>— Proposed single span bridge</li> </ul>  |
| Esplanade Sagiba Avenue                 | Esplanade Sagiba Avenue<br>Lat: -16.5261 Long: 145.4758  | Douglas Shire Council                   | Road reserve           | Craiglie | <p>Owners consent is required from DNRME for this property as the road is managed by Douglas Shire Council but is owned by DNRME under the Land Act 1994. Owners consent is required from DNRME as the proposed works triggers a material change of use development application.</p> <p>The following works are proposed on this land:</p> <ul style="list-style-type: none"> <li>— Dual-use single track trail to accommodate both mountain bike users and hikers.</li> </ul>   |
| Esplanade (adjoining the Mowbray River) | Esplanade (adjoining the Mowbray River)<br>Lat: -16.54509 Long: 145.48105<br>Lat: -16.546511 Long: 145.4793<br>Lat: -16.54801 Long: 145.4782                             | Douglas Shire Council                   | Road reserve           | Craiglie | <p>Owners consent is required from DNRME for this property as the road is managed by Douglas Shire Council but is owned by DNRME under the Land Act 1994. Owners consent is required from DNRME as the proposed works triggers a material change of use development application.</p> <p>The dual-use single track trail to accommodate both mountain bike users and hikers is proposed on this property. A mangrove experience boardwalk is also proposed.</p>   |

|                 |  |                                     |              |          |   |
|-----------------|--|-------------------------------------|--------------|----------|---|
| Andreassen Road | Andreassen Road<br>Lat: -16.545447 Long:145.477378 | Douglas Shire Council               | Road reserve | Craiglie | Owners consent is required from DNRME for this property as the road is managed by Douglas Shire Council but is owned by DNRME under the Land Act 1994. Owners consent is required from DNRME as the proposed works triggers a material change of use development application.<br><br>The dual-use single track trail to accommodate both mountain bike users and hikers is proposed on this property. |
| Lot 161 SR673   | Captain Cook Highway                               | State of QLD (represented by DNRME) | Reserve      | Craiglie | Owners consent is required from DNRME as the proposed works triggers a material change of use development application.<br><br>Dual-use single track trail to accommodate both mountain bike users and hikers is proposed on this property.  |
| Lot 164 SR673   | Captain Cook Highway                               | State of QLD (represented by DNRME) | Reserve      | Craiglie | Owners consent is required from DNRME as the proposed works triggers a material change of use development application.<br><br>Dual-use single track trail to accommodate both mountain bike users and hikers and the mangrove boardwalk are proposed on this property.  |

| Lot Plan  | Property description                    | Ownership details  | Tenure details         |
|---|---|--|------------------------|
| Nautilus Street road reserve<br>• Lat: -16.5273 Long: 145.4765  | Nautilus Street                         | DNRME<br>Managed by Douglas Shire Council                                    | Local road reserve     |
| Four Mile Beach   | Four Mile Beach                         | State of QLD (represented by DNRME)  | Unallocated state land |
| Unnamed road reserve<br>• Lat: -16.5308 Long : 145.4783<br>• Lat: -16.5304 Long: 145.4780<br>• Lat: -16.5295 Long: 145.4776<br>• Lat – 16.5285 Long: 145.4771 | Unnamed road reserve - Four Mile Beach  | DNRME<br>Managed by Douglas Shire Council                                    | Local road reserve     |
| Esplanade<br>• Lat: -16.5273 Long: 145.4765<br>• Lat: -16.5252 Long:145.4754  | Esplanade - Four Mile Beach             | DNRME<br>Managed by Douglas Shire Council                                    | Local road reserve     |
| Esplanade<br>Lat: -16.5261 Long: 145.4758   | Esplanade – Sagiba Avenue               | DNRME<br>Managed by Douglas Shire Council                                    | Local road reserve     |
| Esplanade<br>• Lat: -16.54509 Long: 145.48105<br>• Lat -16.546511 Long: 145.4793<br>• Lat: -16.54801 Long: 145.4782   | Esplanade - Adjoining the Mowbray River | DNRME<br>Managed by Douglas Shire Council                                    | Local road reserve     |
| Andreassen Road road reserve<br>Lat: -16.545447 Long:145.477378   | Andreassen Road                         | DNRME<br>Managed by Douglas Shire Council                                    | Local road reserve     |
| Lot 161 SR673   | Captain Cook Highway                    | State of QLD (represented by DNRME)<br><br>Douglas Shire Council is trustee. | Reserve                |
| Lot 164 SR673   | Captain Cook Highway                    | State of QLD (represented by DNRME)<br><br>Douglas Shire Council is trustee  | Reserve                |

We have identified above which of the proposed infrastructure will be proposed on Council managed properties. For your information I have attached a copy of the locality plan showing the location of the proposed SP1 alignment and the properties being impacted (refer to Fig 1-1 MCU locality plan). We have also identified the properties within SP1 project area that are managed by Council and they are shown on the attached – Council managed properties SP1 project area pdf. I trust the

plans make a easy to see which properties will be impacted by the project.

The table above lists the Council managed properties within SP1 project area. It is acknowledged that whilst Douglas Shire Council is not the registered owner of these properties, Council is either the trustee or manages the land on behalf of the State (as outlined in the table above) and a letter from Council is required to demonstrate to DNRME that Council has no objections with the proposed development SP1 being proposed on the properties outlined in the table below as part of the DITID Wangetti Trail project.

This information will be included in the DNRME Application for owners consent to development applications Part B in order to obtain owners consent from DNRME for the state land. DNRME Owner's consent will address Section 2 of the DA form 1 as part of MCU development application. Therefore, on behalf of DITID we request that Council provides us with a letter as the trustee/manager for the properties listed in the tables noting that Council has no objections with the proposed development SP1 being proposed on the properties outlined in the table below as part of the DITID Wangetti Trail project.

We request if Council could please address this for DITID this week as we are in the process of the finalising the combined MCU application to lodge with Council. In addition, we would like to confirm the application fee triggered by the combined development application for code assessable MCU and operational works for interfering / disturbing marine plants, operational works for prescribed tidal works or work in a CMD and operational work on premises near a State transport corridor. We are in the process of confirming the referral fees with SARA.

We appreciate, Council's assistance with addressing the above matters for SP1 project. IF Council requires further information p[lease let me know.

Kind regards

**Sarah Wilson**

Senior Town Planner

**GHD**

Mob: 0459813589 | Tel: 07 5413 8133 | E: [sarah.wilson@ghd.com](mailto:sarah.wilson@ghd.com)  
Level 13 – The Rocket, 203 Robina Town Centre Drive Robina QLD 4226 Australia | [www.ghd.com](http://www.ghd.com)

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Please consider our environment before printing this email

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**From:** Neil Beck <[Neil.Beck@douglas.qld.gov.au](mailto:Neil.Beck@douglas.qld.gov.au)>  
**Sent:** Thursday, 4 July 2019 11:13 AM  
**To:** Paul Hoyer (InTouch) <[paul.hoyer@douglas.qld.gov.au](mailto:paul.hoyer@douglas.qld.gov.au)>; Sarah Wilson <[Sarah.Wilson@ghd.com](mailto:Sarah.Wilson@ghd.com)>  
**Subject:** RE: Wangetti Trail SP 1 owners consent and tenure arrangements

Hi Sarah,

I would have thought DNRM would sign as owners for the areas of esplanade, road reserves etc. While Council maybe trustee, Council is not the owner.

There has been conjecture on this issue before but my understanding is that DNRM is the owner for the purpose of the development application.

Are you of a different view?

Cheers

NB

---

**From:** Paul Hoyer  
**Sent:** Thursday, 4 July 2019 10:57 AM  
**To:** 'Sarah.Wilson@ghd.com' <[Sarah.Wilson@ghd.com](mailto:Sarah.Wilson@ghd.com)>  
**Cc:** Neil Beck <[Neil.Beck@douglas.qld.gov.au](mailto:Neil.Beck@douglas.qld.gov.au)>  
**Subject:** FW: Wangetti Trail SP 1 owners consent and tenure arrangements

Hi Sarah,

Is there an actual map showing the GPS points/survey?

Thanks

**Paul Hoyer | Manager Environment and Planning**  
**Douglas Shire Council**  
**P:** 07 4099 9473  
**E:** [paul.hoyer@douglas.qld.gov.au](mailto:paul.hoyer@douglas.qld.gov.au) | **W:** [www.douglas.qld.gov.au](http://www.douglas.qld.gov.au)  
**Mail:** PO Box 723, Mossman Q 4873 | **Office:** 64-66 Front Street, Mossman Q 4873



---

**From:** HORTZ Timothy [<mailto:Timothy.Hortz@ditid.qld.gov.au>]  
**Sent:** Thursday, 4 July 2019 10:12 AM  
**To:** Paul Hoyer <[Paul.Hoyer@douglas.qld.gov.au](mailto:Paul.Hoyer@douglas.qld.gov.au)>; Neil Beck <[Neil.Beck@douglas.qld.gov.au](mailto:Neil.Beck@douglas.qld.gov.au)>  
**Subject:** FW: Wangetti Trail SP 1 owners consent and tenure arrangements

Hi guys

See below and attached – I'll call you about this later today.

Tim

---

**From:** Sarah Wilson <[Sarah.Wilson@ghd.com](mailto:Sarah.Wilson@ghd.com)>  
**Sent:** Friday, 28 June 2019 1:18 PM

**To:** HORTZ Timothy  
**Cc:** NISBET Kerry; Geraldine Squires  
**Subject:** Wangetti Trail SP 1 owners consent and tenure arrangements

Hi Tim  
 Just getting back to you on SP1, are you able to assist with the following matters for SP1:

**Development application**

Please find attached the owner's consent letter for your review and for Douglas Shire Council to complete in order to form part of the development application for DA Form 1.

**DNRME Owners Consent Application**

As part of the application we also request a letter from DITID, advising that GHD acting on a DITID's behalf for the project. This will be included in the submission of the development application.

As part of the application, a letter is required from Douglas Shire Council providing owners consent for SP1 to occur over the following properties:

- Esplanade (adjoining the Mowbray River) Council road reserve:
  - Lat: -16.54509 Long: 145.48105
  - Lat -16.546511 Long: 145.4793
  - Lat: -16.54801 Long: 145.4782
- Unnamed road reserve (Four Mile Beach):
  - Lat: -16.5308 Long : 145.4783
  - Lat: -16.5304 Long: 145.4780
  - Lat: -16.5295 Long: 145.4776
  - Lat – 16.5285 Long: 145.4771
- Esplanade (Four Mile Beach)
  - Lat: -16.5273 Long: 145.4765
  - Lat: -16.5252 Long:145.4754
- Esplanade Sagiba Avenue Lat: -16.5261 Long: 145.4758
- Nautilus Street Lat: -16.5273 Long: 145.4765
- Lot 161 SR673 (Captain Cook Hwy) – Douglas Shire Council is the registered trustee
  - Lot 164 SR673 (Captain Cook Hwy) – Douglas Shire Council is the registered trustee

Is there any existing correspondence from TMR that provide their support for SP1 works that we could include with the application?

For your information here is the table listing the properties within SP1 that the require owners consent from DNRME.

| Affected Property Lot on Plan | Address                     | Property Owner Details  | TENURE                 | Locality | Zoning (local government land use) | State resources requiring owner's consent |
|-------------------------------|-----------------------------|---|------------------------|----------|------------------------------------|---|
| Mowbray River                 | Mowbray River               | Unallocated State Land  | Unallocated State Land |          | River                              | Yes                                       |
| Four Mile Beach               | Four Mile Beach             | Unallocated State Land  | Unallocated State Land |          |                                    | Yes                                       |
| Lot 161 SR673                 | Captain Cook Hwy            | State of QLD (represented by DNRM)                                      | Reserve                | Mowbray  | Conservation                       | Yes                                       |
| Lot 164 SR673                 | Captain Cook Hwy            | State of QLD (represented by DNRM)                                      | Reserve                | Mowbray  | Conservation                       | Yes                                       |
| Lot 5 AP13754                 | Mitre Street                | State of QLD (represented by Department of Natural Resources and Water) | State Land             | Craiglie | Conservation                       | Yes                                       |
| Captain Cook Highway          | Captain Cook Highway        | Department of Transport and Main Roads                                  | State controlled road  |          | State Controlled Road              | No  |
| Esplanade                     | Adjoining the Mowbray River | Douglas Shire Council   | Road reserve           |          | Unformed Council road reserve      | No  |
| Unnamed road reserve          | Four Mile Beach             | Douglas Shire Council   | Road reserve           |          | Unformed Council road reserve      | No  |
| Nautilus Street               | Nautilus Street             | Douglas Shire Council   | Road reserve           |          | Council road reserve               | No  |

**Tenure matters**

In addition, can you please discuss internally how DITID would like to approach the mater about tenure for SP1. DNRME noted in the pre-lodgement meeting minutes that SP1 will traverse multiple tenures, including freehold, unallocated state land, reserves and state land (Mowbray River) and there are multiple tenure options available for both freehold land and state owned land to facilitate the proposed trail.

Owner's consent from DNRME for certain aspects associated with the proposed development (including work in local roads, USL and land below the high water mark (HWM)) and we are addressing the documentation at the moment.

DNRME noted the following:

- For reserves with the project area, the development would be considered consistent with the purpose of the lease.
- There is the opportunity for road opening to be created through USL. DITID will need to consider about whether they would change the tenure through USL (Mowbray River) – *Would DITID be considering this? This may require further direct discussions with DNRME.*
- DNRME noted that there is no tenure requirements should the viewing platform be located wholly within the state-controlled road corridor. The location of the viewing platform within the road corridor is acceptable with regard to tenure and TMR support this. If the platform is relocated outside of the state-controlled road corridor, tenure under the Land Act 1994 may be required for any infrastructure located within the Mowbray River.
- DNRME have advised that tenure under the Land Act 1994 is not required for the proposed removal/replacement of the bridge piles associated with the Wangetti trail.

Can you advise on how tenure over unallocated state land (USL) will be addressed by DITID. Refer to the attachment from DNRME that provides details about tenure options.

If you require any more information please let me know. Thanks for your help.

Kind regards  
**Sarah Wilson**  
 Senior Town Planner

**GHD**

Mob: 0459813589 | Tel: 07 5413 8133 | E: [sarah.wilson@ghd.com](mailto:sarah.wilson@ghd.com)  
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Department of  
Innovation,  
Tourism Industry  
Development and the  
Commonwealth Games

Ms Sarah Wilson  
Senior Town Planner, GHD  
L13 – The Rocket  
203 Robina Town Centre Drive  
ROBINA QLD 4226

Dear Ms Wilson

*Sarah*

I am writing this letter to confirm that GHD have been engaged by the Tourism Development Projects Divisions within the Department of Innovation, Tourism Industry Development and the Commonwealth Games to prepare and lodge development applications for the Wangetti Trail Project including, but not limited to, the Mowbray North Separable Portion (SP1) sub-project and other subsequent applications.

Yours sincerely

A handwritten signature in blue ink, appearing to read "David Edwards".

David Edwards  
**Projects Chief Executive**



Department of Innovation, Tourism Industry  
**Development and the Commonwealth Games**

Environment Assessment Stage 2 Wangetti Trail Planning  
Planning Report for Operational Work - SP1

Marine Plant Disturbance

41-32458-08-SP1-RPT-0003

July 2019

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# Appendices

Appendix A - State Code 11

Appendix B - Detailed drawings

# Abbreviations and acronyms

| Abbreviation / acronym | Definition  |
|------------------------|---|
| DA                     | Development Assessment  |
| DCS                    | Douglas Shire Council   |
| DIRDC                  | Department of Infrastructure, Regional Development and Cities                         |
| DITID                  | The Department of Innovation, Tourism Industry Development and the Commonwealth Games |
| DNRME                  | Department of Natural Resources, Mines and Energy                                     |
| DSDMIP                 | Department of State Development, Manufacturing, Infrastructure and Planning           |
| EMP                    | Environmental Management Plan   |
| EMP(C)                 | Environmental Management Plan Construction  |
| EPBC Act               | (Commonwealth) <i>Environment Protection and Biodiversity Conservation Act 1999</i>   |
| ESCP                   | Erosion and Sediment Control Plan   |
| HAT                    | Highest Astronomical Tide   |
| km                     | kilometre   |
| LGA                    | Local Government Area   |
| m                      | metre   |
| MNES                   | Matter of National Environmental Significance   |
| RGF                    | Regional Growth Fund  |
| SARA                   | State Assessment Referral Agency  |
| SDAP                   | State Development Assessment Provisions   |
| SP                     | Separable Portion   |
| SPU                    | Special Projects Unit   |
| TEC                    | Threatened Ecological Community   |

# 1. Introduction

## 1.1 Project context

The Department of Innovation, Tourism Industry Development and the Commonwealth Games (DITID) is proposing to establish the Wangetti Trail, a 94-kilometer (km) dual use trail from Port Douglas in the north to Palm Cove in the south (the project). The project will also include accommodation nodes and supporting ancillary facilities. The project is named after the township of Wangetti, which is located approximately halfway between Port Douglas and Palm Cove.

In 2018, DITID completed Stage 1, an Initial application, to the Department of Infrastructure, Regional Development and Cities' (DIRDC) Regional Growth Fund (RGF) for the purpose of gaining funding for the construction of the Wangetti Trail. Following on from this, a Business Case was developed to assist the funding applications and to inform the Commonwealth and Queensland Governments on the costs and benefits of constructing the Wangetti Trail. Following on from Stage 1, Stage 2 is now being progressed to continue developing the planning and environmental assessment of the trail, and to gain the appropriate approvals required.

The dual use trail will provide walkers and mountain bike riders with a unique experience to traverse through natural areas of north Queensland covering bushland and coastal areas, including the Wet Tropics of Queensland (Wet Tropics), national parks and Great Barrier Reef World Heritage areas. The portion of the project between Port Douglas and Wangetti will be dual use accommodating both walkers and mountain bike riders, while the section between Wangetti and Palm Cove is limited to mountain bike riders.

The project comprises two separable portions (SPs):

- SP1 – Mowbray North
- SP2 – remainder of the trail referred to as Wangetti Balance.

SP1 Mowbray North, the subject of this assessment, is a length of 5.55 km, encompassing an area from Four Mile Beach in the north to near the Mowbray River in the south (refer to Figure 1-1 for the Wangetti Trail Locality and Figure 1-2 for the SP1 locality plan). SP1 will include the following:

- New pedestrian multi-span bridge constructed over the Mowbray River and removal of the existing damaged piers
- New pedestrian single-span bridge at the northern section of Lot 5 AP13754 referred to as B38
- New pedestrian single-span bridge on unnamed road reserve (Four Mile Beach) referred to as B39
- New pedestrian single-span crossing located south-east of Andreassen Road, on an unnamed tributary of the Mowbray River (details of the design are still being determined, however we have allowed 100 m<sup>2</sup> for the development of the crossing)
- Visitors' carpark within Captain Cook Highway road reserve near Mowbray River that will have 45 informal car-parking spaces and 4 informal bus spaces
- Observation viewing platform comprising an elevated and piled structure on the bank of the Mowbray River to provide a functional viewing platform overlooking Mowbray River and that maintains public safety

- 1.36 km of mangrove experience boardwalk
- 3.95 km of dual-use trail
- Mowbray River Road Bridge Underpass

Construction is expected to start in November 2019 and will continue for approximately six months, subject to weather conditions and material availability.

SP1 requires clearing to provide access to and construction of the trail and related infrastructure. The works are located within areas below Highest Astronomical Tide (HAT) and therefore will result in the disturbance of marine plants, as defined under the *Fisheries Act 1994*. The construction of all components of SP1 are the subject of this development application as outlined in Table 1-1. Design drawings of the development are provided in Appendix B.

**Table 1-1 Proposed development details**

| Proposed Development Details     |   |
|----------------------------------|---|
| <b>Proposed development</b>      | Marine plant disturbance  |
| <b>Type of approval sought</b>   | Development Permit for operational works for marine plant disturbance   |
| <b>Site address</b>              | Located between Nautilus Street, Port Douglas and the Mowbray River   |
| <b>Real property description</b> | Unnamed road reserve (Four Mile Beach)<br>Lot 5 AP13754<br>Esplanade (adjoining the Mowbray River)<br>Captain Cook Highway<br>Lot 161 SR673<br>Lot 164 SR673<br>Mowbray River |
| <b>Site area</b>                 | Permanent disturbance: 0.58 ha<br>Temporary disturbance: 0.27 ha<br><b>Total disturbance area: 0.86 ha</b>  |
| <b>Assessment manager</b>        | Douglas Shire Council   |
| <b>Owner details</b>             | DNRME   |
| <b>Applicant details:</b>        | DITID c/-GHD  |

## 1.2 Purpose of this report

The purpose of this report is to collate, present and consider all aspects of the application in accordance with the requirements of the *Planning Act 2016* and the *Fisheries Act 1994* to support assessment of the proposed SP1 works. Specifically, the objectives of this report are as follows:

- To provide information on the existing environment and the marine plants anticipated to be impacted by the proposed works (Section 2)
- To set out a description of the purpose of the works, methods of construction and onsite mitigation actions to minimise impacts to marine plants (Section 3)

- To assess compliance of the proposal with the relevant assessment matters detailed in State Code 11: Removal, destruction or damage of marine plants (Section 4)
- To identify offset measures proposed to offset residual impacts from any permanent loss of or damage to marine plants (Section 5).

### 1.3 Legal framework

The proposed SP1 Project includes operational work defined under Schedule 10, Part 11, of the *Planning Regulation 2017* as assessable development for the removal, destruction or damage of a marine plant.

The definition of a 'marine plant' is provided in Section 8 of the *Fisheries Act 1994* as follows:

*Marine plant includes the following –*

- (i) *A plant (a tidal plant) that usually grows on, or adjacent to, tidal land, whether it is living, dead, standing or fallen.*
- (ii) *Material of a tidal plant or other plant material on tidal land.*
- (iii) *A plant, or material of a plant, prescribed under a regulation or management plan to be a marine plant.*

*Marine plants include mangroves, seagrasses, samphires, saltcouch, saltmarsh plants, algae and other tidal plants growing adjacent to the tidal zone (landward and seaward).*

The operational works relating to marine plant disturbance will be assessed by Douglas Shire Council with referral to the State Assessment Referral Agency (SARA) against the State Development Assessment Provisions (SDAP), being State Code 11: Removal, destruction or damage of marine plants.

### 1.4 Project timing

Construction of SP1 is expected to commence in November 2019 with the construction of the viewing platform, underpass and bridge infrastructure. The trail, boardwalk and carpark areas will initiate construction in April 2020, with the entirety of SP1 expected to be in operation by September 2020. Timing of construction and operation for each aspect of SP1 is listed in Table 1-2.

**Table 1-2 SP1 timing of construction and operation activities**

|                              | Construction  | Operation      |
|------------------------------|---------------|----------------|
| Trail                        | April 2020    | September 2020 |
| Boardwalk                    | April 2020    | September 2020 |
| Carpark                      | April 2020    | September 2020 |
| Observation viewing platform | November 2019 | April 2020     |
| Underpass                    | November 2019 | April 2020     |
| Bridge                       | November 2019 | April 2020     |



## 1.5 Pre-lodgement meeting outcomes

A pre-lodgement meeting was held with the State Assessment and Referral Agency on the 15<sup>th</sup> May 2019. The Department of Agriculture and Fisheries was present and provided advice as detailed in Table 1-3 in regards to removal, destruction or damage of marine plants.

**Table 1-3 Pre-lodgement meeting outcomes**

| DAF requirement   | Response  |
|---|---|
| Application will be assessed against State code 11: Removal, destruction or damage of marine plants.  | See section 4   |
| Provide plans showing: <ul style="list-style-type: none"> <li>The exact SP1 alignment of the structure where possible</li> <li>The total amount of marine plants that will be disturbed, identifying portion of permanent and/or temporary disturbance (in square meters or hectares)</li> <li>The location of the marine plants to be disturbed in relation to the development works</li> <li>The level of HAT, mean high water spring tide, and low water spring tide</li> <li>If applicable, a plan clearly showing the location of the marine plants to be disturbed that will result in a significant residual impact</li> </ul> | See Appendix B  |
| The design of the SP1 boardwalk should: <ul style="list-style-type: none"> <li>Avoid disturbance where possible</li> <li>Incorporate a 1 m buffer on either side of the boardwalk to allow for future maintenance</li> <li>Minimise widths, this could be done by incorporating 'step aside' sections</li> <li>Allow for sufficient light infiltration (40%) under structure, this could be achieved by considering height that allows light to enter from sides</li> </ul>   | <p>The design of the SP1 boardwalk has avoided marine plant disturbance where possible (Sections 3.1 and 3.5)</p> <p>A 0.5 m buffer on either side of the boardwalk has been allowed for future maintenance and is included as permanent disturbance making the boardwalk disturbance footprint 2.5 m wide</p> <p>Step aside sections have not been incorporated for SP1 however widths have been minimised wherever possible</p> |
| The application should consider how disturbance during construction can be minimised  | See section 3.5   |

| DAF requirement   | Response   |
|---|--|
| A rehabilitation plan should be detailed in the application                     | The SP1 permanent footprint will not be rehabilitated. The SP1 construction footprint will be reinstated and marine plants allowed to re-establish naturally |
| Photos and/or drone footage may be useful for inclusion in application material | Site photos are included in Section 2  |

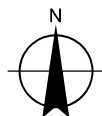
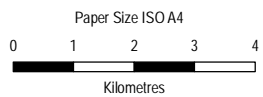
## 1.6 Scope and limitations

This report has been prepared by GHD for DITID and may only be used and relied on by DITID for the purpose agreed between GHD and the DITID as set out in Section 1.2 of this report. GHD otherwise disclaims responsibility to any person other than DITID arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible. The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared. The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

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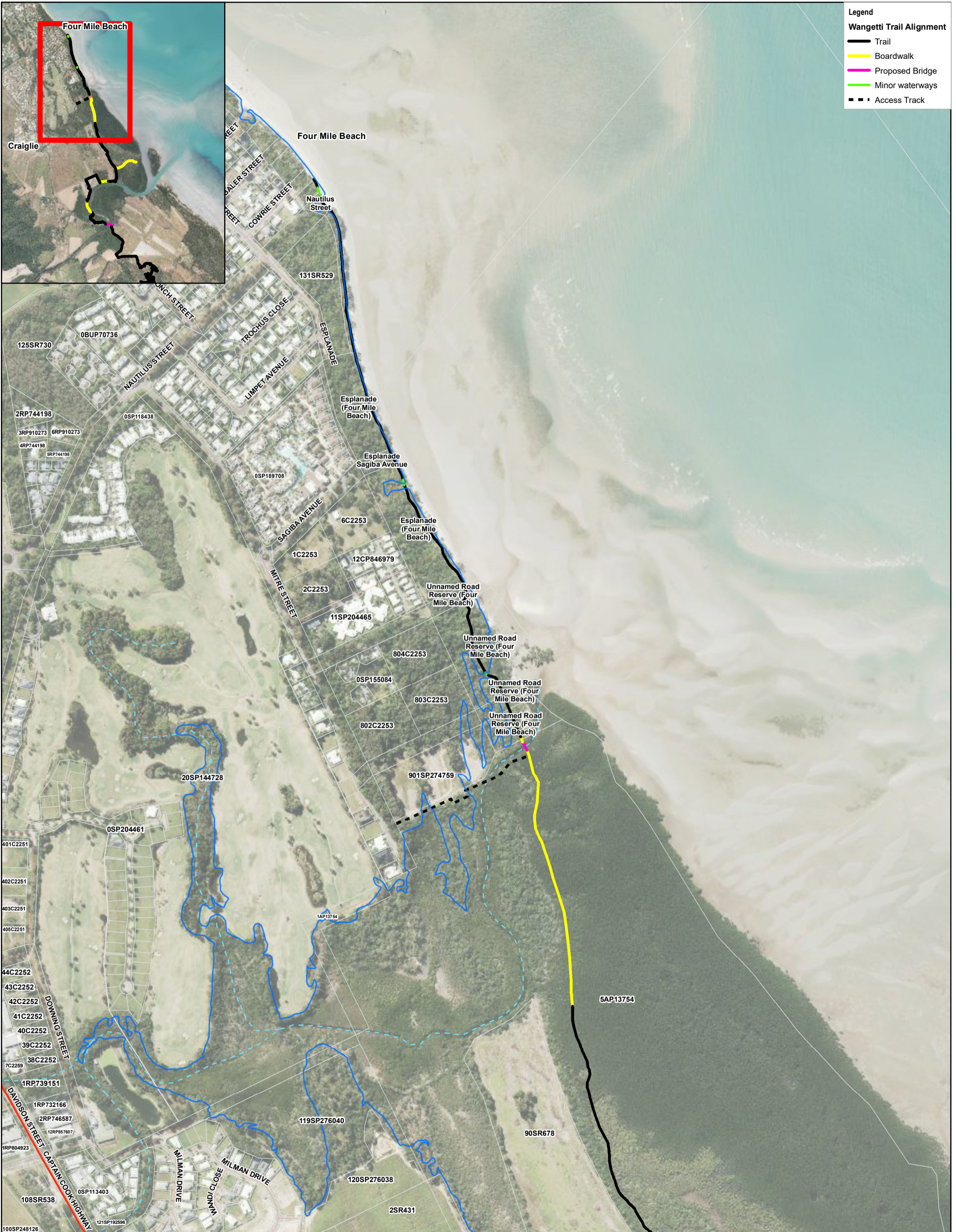
DITID  
Environment Assessment Stage 2 Wangetti Trail

Project No. 41-32458  
Revision No. 0  
Date 10/07/2019

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 55

Wangetti Trail Locality

FIGURE 1-1



- Legend**
- Wangetti Trail Alignment**
- Trail
  - Boardwalk
  - Proposed Bridge
  - Minor waterways
  - Access Track

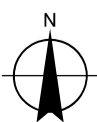
- Legend**
- Highest Astronomical Tide
  - Minor Watercourse
  - Highway
  - Street/Local Road
  - Cadastre

Paper Size ISO A3

0 50 100 150 200

Metres

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 55

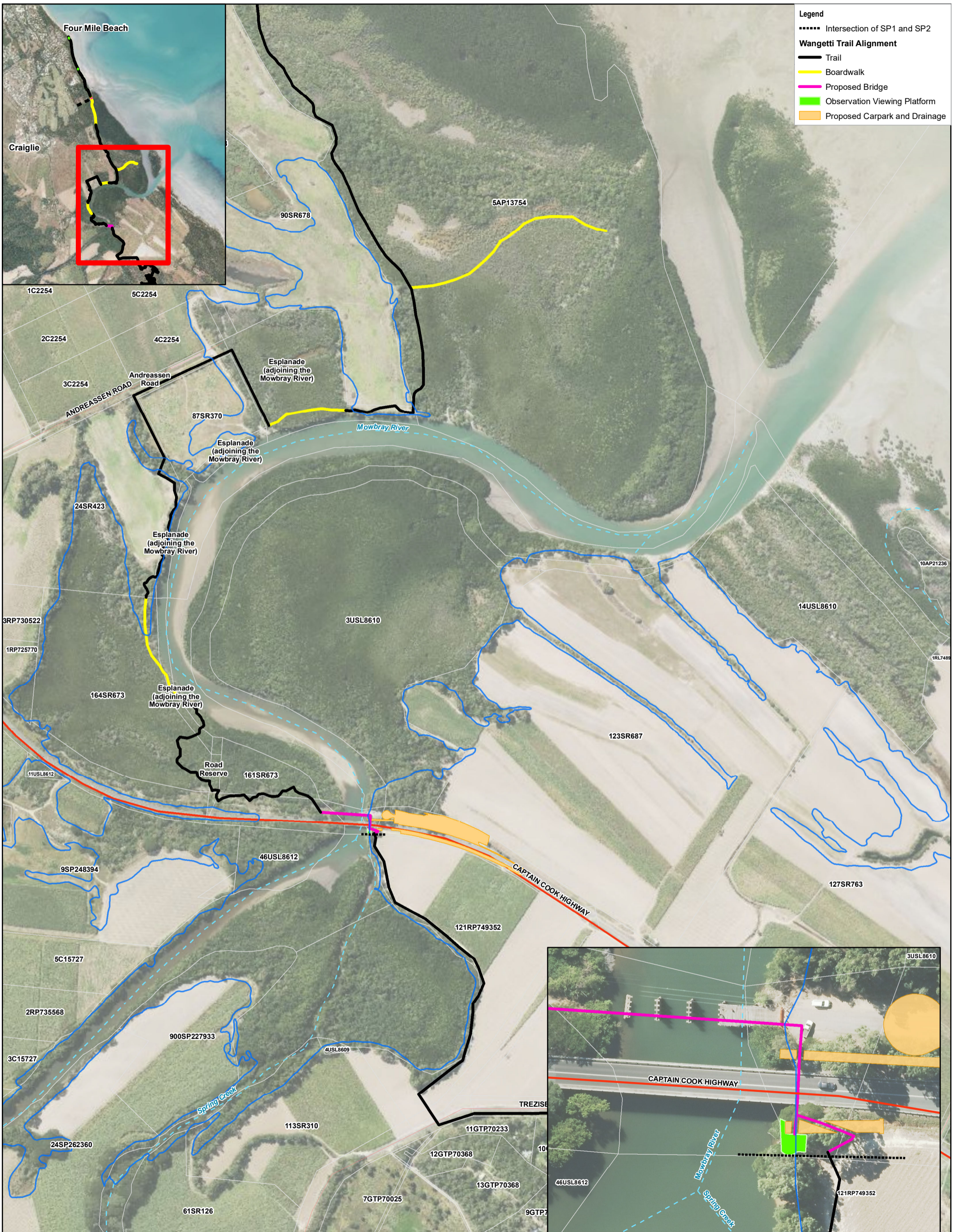


DITID  
Environment Assessment Stage 2 Wangetti Trail

Project No. 41-32458  
Revision No. 2  
Date 23/07/2019

Locality SP1 - North

**FIGURE 1-2**  
(sheet 1 of 2)



- Legend**
- ..... Intersection of SP1 and SP2
  - Wangetti Trail Alignment**
  - Trail
  - Boardwalk
  - Proposed Bridge
  - Observation Viewing Platform
  - Proposed Carpark and Drainage

- Legend**
- Highest Astronomical Tide
  - Minor Watercourse
  - Highway
  - Street/Local Road
  - Cadastre

Paper Size ISO A3

0 50 100 150 200  
Metres

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 55



DITID  
Environment Assessment Stage 2 Wangetti Trail

Project No. 41-32458  
Revision No. 2  
Date 23/07/2019

Locality SP1 - South

**FIGURE 1-2**  
(sheet 2 of 2)

Based on or contains data provided by the State of QLD (DNRME) 2019. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for marketing or be used in breach of the privacy laws.

Data source: DITID and GHD: Wangetti Trail Alignment (07/2019); DNRME: Place Names Gazetteer (2019), Cadastre (Jan 2019), Roads (2016), Watercourse (2014), Imagery (2015), Highest Astronomical Tide (2013), GHD: Proposed Carpark and Drainage(2019), Observation viewing platform (2019). Created by: hamilton

G:\4132458\CIS\Map\MXD\4132458\_034\_WT\_Sp1\_OW\_MCU\_Locality\_Rev2.mxd  
Print date: 24 Jul 2019 - 15:38

## 2. Existing Environment

This section provides a description of the existing environment throughout the extent of SP1 and describes the extent and characteristics of marine plants within the area.

### Assessment methods


A desktop review was undertaken to identify and collate existing information on the known ecological values of the environments within SP1 and the surrounding landscape.


An ecological field survey was undertaken by three ecologists on 25 and 26 February 2019. The survey involved traversing the study area whilst recording information relevant to vegetation communities and flora and fauna species, including mapping marine plants.

Subsequently, a second ecological field survey was undertaken on 30 and 31 May 2019. The broad objective of the survey was to identify key ecological values present within the amended SP1 trail alignment. The raw data collected in the field was captured on the collector app, including locational and supplementary information such as characteristics of the marine plant populations and habitats.

A description of the general environmental characteristics and marine plant disturbance across the SP1 alignment is provided in Table 2-1, Table 2-2, Table 2-3 and Table 2-4. Locations of marine plant disturbance within SP1 are displayed in Figure 2-1.

**Table 2-1 Environmental characteristics of SP1 trail between Nautilus Street and B38**

| Environmental Characteristics |  |
|-------------------------------|--|
| <b>Nautilus Street to B38</b> |  |
| <b>Locality</b>               |    |
| <b>Environment</b>            | <p>The northern most extent of SP1, from Nautilus Street to B38, is located along the foreshore and within the disturbed beach scrub of Four Mile Beach. Soil characteristics are typical of a coastal environment, with soft, friable sandy soils and dense leaf litter within the beach scrub. Vegetation is absent within the foreshore area with the beach scrub containing canopy vegetation dominated by palms and she oaks and dense shrub dominated by juvenile palms and ferns.</p> |

|                      |   |
|----------------------|---|
|                      | <p>The ecological values of the area, recorded during field surveys undertaken in February and May 2019, identified the foreshore area as a nesting and foraging habitat for shorebirds and a foraging habitat for raptors. There was also an abundance of crabs and marine worms within the open beach area. Two conservation significant species were recorded during the field surveys, including the Eastern curlew and the Whimbrel, both listed under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act).</p> <p>During these field surveys the beach scrub area was recorded as having nesting and foraging habitat for doves, honeyeaters, friarbirds, figbirds and parrots. The area also contained refuge and foraging habitat for skinks, snakes and rodents and foraging habitat for bats. An abundance of fruit, berries and nuts was identified within the beach scrub, representing an abundant food supply for frugivorous birds and mammals. No conservation significant species were recorded within the beach scrub.</p> <p>No specific clearing or construction is required for the trail along the foreshore area, as the beach will provide open trail access. An on-ground trail will be created within the beach scrub and, while moderate disturbance currently exists, some additional disturbance will be generated as a result of SP1. No marine plant disturbance will occur as a result of the trail however, as no marine plants are present within the area.</p> |
| <b>Marine Plants</b> | No marine plants are present within this section of of SP1.   |
| <b>Photographs</b>   | <p>Beach foreshore</p>    |

Disturbed beach scrub



**Table 2-2 Environmental characteristics of SP1 trail between B38 and Lot 5 AP13754**

| Environmental Characteristics |   |
|-------------------------------|---|
| <b>B38 to Lot 5 AP13754</b>   |   |
| <b>Locality</b>               |   |
| <b>Environment</b>            | <p>The SP1 trail extent, between waterway crossing B38 and the southern boundary of Lot 5 AP13754, is the initial area whereby the trail transitions from an open beach to an inland coastal environment. Soil characteristics in the area are consistent with soft, friable sandy soils and, as the trail is within vegetated areas, leaf litter is also present. Two distinct habitat types are present within the area; Littoral vine forest and mangroves.</p> <p>The Littoral vine forest is characterised by a closed canopy dominated by rainforest species, a dense viney understorey and a dense shrub layer dominated by palms, ferns and vines. This environment also has occasional large, hollow bearing trees and an abundance of fruit and berries for frugivorous birds and mammals. Similarly to the beach scrub, the environment provides nesting and foraging habitat for doves,</p> |



honeyeaters, friarbirds, figbirds and parrots; with refuge and foraging habitats for rodents and foraging habitat for bats and pigs. While no conservation significant species were identified within the area during the field surveys in February and May 2019, the southern cassowary is likely to occur, based on a Likelihood of Occurrence assessment undertaken in June 2019.

The mangrove environment is characterised by a closed canopy layer dominated by mangrove tree species with a dense shrub and understorey layer dominated by juvenile mangrove trees. Patches of salt couch are also present within the environment. Unlike the Littoral vine forest, the mangrove environment is subject to tidal cycles and as such, contains highly productive muddy marine sediments. The habitat is also highly abundance with marine invertebrates, fish and shellfish and represents foraging, roosting and nesting habitat for mangrove specialist honeyeaters, gerygones, kingfishers and doves. The environment is roosting habitat for some species of herons, shorebirds and water rats. During the February field survey one osprey, a conservation significant species under the EPBC Act, was also observed in flight above the mangrove habitat.

The SP1 trail is predominantly natural soils to avoid unnecessary environmental disturbance and emphasise a nature experience, however, boardwalks will be constructed in the low-lying, mangrove areas to enable greater visitor access and minimise long-term disturbance to marine plants. Two areas of boardwalks will be constructed within the B38 to Lot 5 AP13754 section of SP1, as shown in Figure 2-1; with a boardwalk proposed in the northern extent of the mangrove environment and a boardwalk trail to a coastal viewing area near the Mowbray River. A bridge crossing will also need to be constructed over the waterway present within the B38 site. A temporary access track will adjoin the southern entrance of the bridge crossing. This track will allow for the temporary access of construction machinery and vehicles, with a laydown area proposed at the site. Construction of the bridge crossing, temporary access path and laydown area will impact marine plants, although the locations of these elements have been strategically designed to maximise construction efficiency and minimise impact to the overall site. The ecological field surveys undertaken during February and May 2019 also confirmed the TEC listed as 'Littoral rainforests and coastal vine thickets of eastern Australia' within the SP1 Project area. Although the SP1 alignment has been designed to predominantly avoid areas of TEC, the trail intersects with a small area of TEC, located approximately 600 m north of the Mowbray River.

**Marine  
Plants**

The most commonly recorded mangrove species were *Ceriops tagal* (yellow mangrove), *Rhizophora stylosa* (stilted mangrove) and *Avicennia marina* (grey mangrove). Other marine plant species recorded included:

- *Aegialitis annulata* (club mangrove)
- *Aegiceras corniculatum* (river mangrove)
- *Bruguiera sexangulare* (northern large-leafed mangrove)
- *Bruguiera gymnorhiza* (large-leafed orange mangrove)
- *Clerodendrum inerme* (scrambling clerodendrum)
- *Excoecaria agallocha* (milky mangrove)
- *Lumnitzera littorea* (red-flowered black mangrove)
- *Sesuvium portulacastrum* (sea purslane)
- *Sporobolus virginicus* (salt couch grass)
- *Xylocarpus granatum* (cannonball mangrove)

The mangrove communities ranged in height from 4 to 10 m with an average height of 8 m. Given the dense canopy cover recorded within these communities and the extent of pneumatophores/root material observed, it is reasonable to assume that marine plants cover 100% of the construction footprint within the mapped extent of these communities. The extent of salt couch and samphire vegetation observed along the alignment was negligible.

Marine plant communities were generally assessed to be in a healthy condition, with high density stands prevalent. Plants generally appeared to be in good health (see photograph below). Leaf chlorosis (yellowing) and leaf curl and pest attack was evident on a low number of individuals but this did not appear to be having significant health impacts for plants. Reduced canopy cover and weeds were observed on margins of disturbed areas; however, the alignment largely avoided such areas.

**Photographs**

B38 tributary creek crossing



Start of mangrove habitat




Dense mangrove habitat





Waterway at B38 location looking south




**Table 2-3 Environmental characteristics of SP1 trail between Lot 5 AP13754 and Captain Cook Highway**

| Environmental Characteristics                |   |
|--|---|
| <b>Lot 5 AP13754 to Captain Cook Highway</b> |   |
| <b>Locality</b>                              |   |
| <b>Environment</b>                           | <p>The SP1 trail, between the southern boundary of Lot 5 AP13754 and the Captain Cook Highway, is the initial area whereby the alignment transitions from a densely vegetated inland coastal environment to a tidal estuary. Soil characteristics in the area are consistent with sandy, friable soils and tidal mudflats. Vegetation in the area is consistent with two main habitat types; tidal estuary and disturbed farmland.</p> <p>As recorded by the February and May ecological field surveys, the tidal estuary environment, located along the banks of the Mowbray River, has an abundance of marine invertebrates, fish and shellfish, with foraging habitat for shorebirds, estuarine specialist forest birds and fish-eating raptors. This environment is also fringed by mature mangrove vegetation. During the February ecological field survey a bar-tailed godwit, listed as a conservation significant species under the EPBC Act, was recorded foraging the mudflats around the mouth of the Mowbray River. The February survey also recorded a resident 3 m male estuarine crocodile on two occasions in close proximity to the highway bridge crossing the Mowbray River. Two crocodiles were also observed on the bank on the southern side of the Mowbray River bridge during the May survey.</p> <p>Disturbed farmland is also present within the area, with this environment characterised by intensive historical disturbance and a ground layer subject to agriculture or dense grassy weeds with an absence of canopy and shrub layers. This environment represents foraging and nesting habitat for finches, grassbirds and other grass-dwelling birds as well as foraging habitat for raptors and pigs. Rodents and snakes also utilised this environment for refuge and foraging.</p> <p>The SP1 trail predominantly parallels the northern bank of the Mowbray River, with the majority of the trail consisting of an on-ground pathway.</p> |

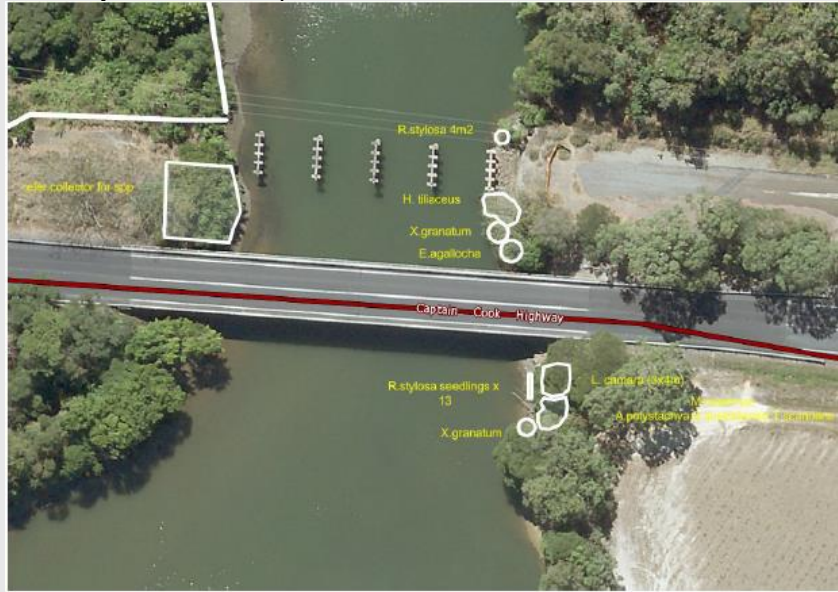
|                      |   |
|----------------------|---|
|                      | However, two main areas of low-lying mangroves intersect with SP1 and boardwalks will need to be constructed in these locations (Figure 1-1). |
| <b>Marine Plants</b> | The marine plant communities are consistent with those as described for SP1 B38 to Lot 5 AP13754, defined in Table 2-2.                       |
| <b>Photographs</b>   | Mangroves along Mowbray River<br>                           |
|                      | Mangroves along Mowbray River<br>                          |

**Table 2-4 Environmental characteristics of SP1 trail around Mowbray River**

| Environmental Characteristics |   |
|-------------------------------|---|
| <b>Mowbray River</b>          |   |
| <b>Locality</b>               |   |
| <b>Environment</b>            | <p>The area surrounding the Mowbray River has been subject to previous clearing and is a modified site containing road infrastructure, notably the Captain Cook State-controlled highway. Soil characteristics within the area are similar to that described in Table 2-2, with primarily sandy, friable soils and tidal mudflats. Vegetation in the area is consistent with two main habitat types; tidal estuary and disturbed farmland.</p> <p>This area of SP1 contains an on-ground trail along with a carpark, located on the northern side of the east bank of the Mowbray River. An observation viewing platform is also proposed for the area, located on the southern side of the east bank of the Mowbray River, to take advantage of potential crocodile and other animal sightings.</p> <p>Vegetation clearing is required for all three aspects of SP1, with marine plant disturbance occurring along the bank of the Mowbray River. A screenshot of the Mowbray River assessment location is provided in the photograph section below. It is noted that the patch of <i>Lantana camara</i>* at the bridge site does not constitute a marine plant as the taxon is listed as a restricted invasive plant under the <i>Biosecurity Act 2014</i>. Furthermore, the <i>R. stylosa</i> seedlings present were less than 1 m high and the disturbance may only be temporary if mangroves can re-establish below the observation viewing platform once constructed.</p> |
| <b>Marine Plants</b>          | <p>The marine plant communities are consistent with those as described for SP1 B38 to Lot 5 AP13754, defined in Table 2-2.</p>  |

Photographs

Mowbray River marine plant assessment



Dense marine vegetation and root structure along Mowbray River bank



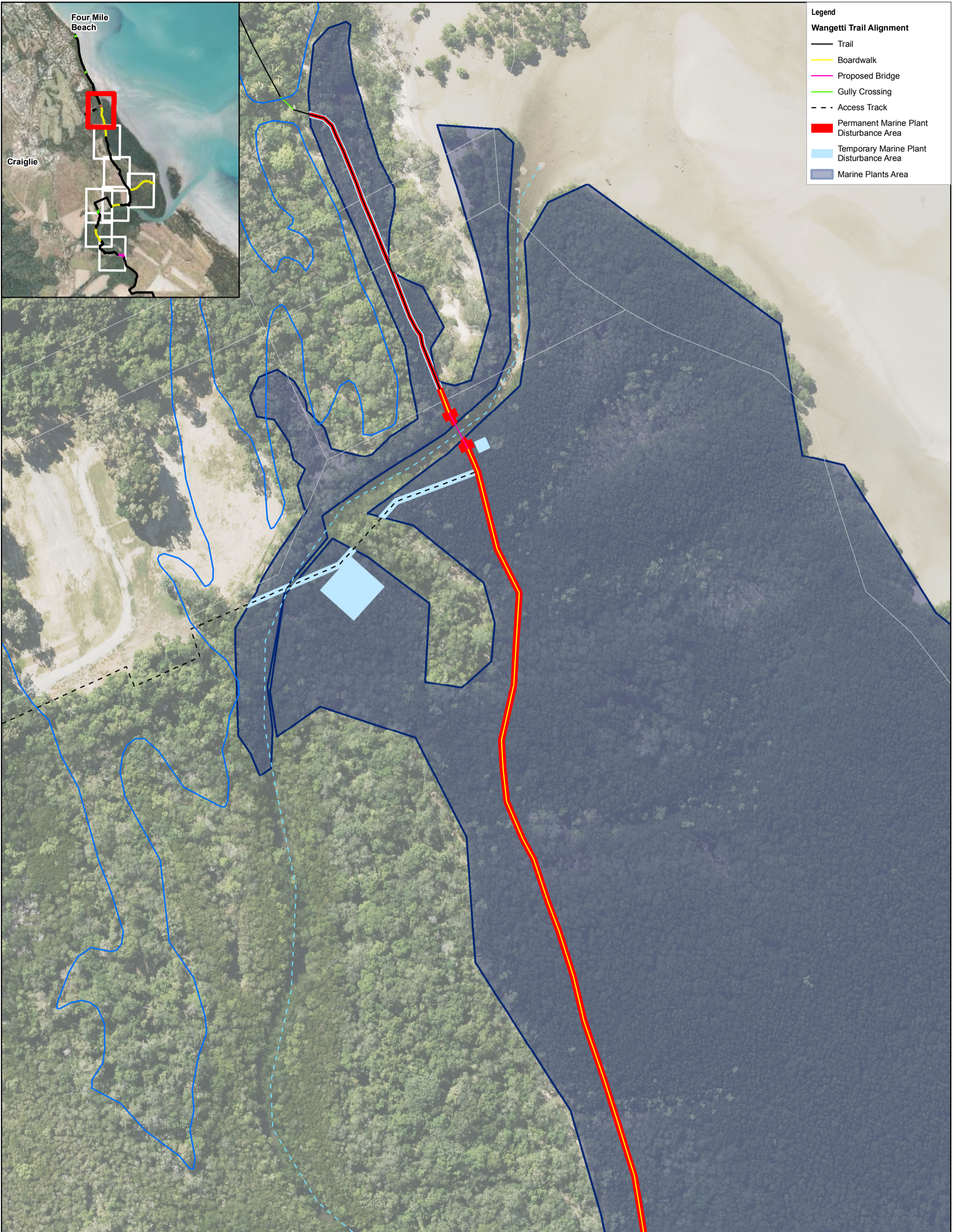
Downstream view of current bridge over Mowbray River



Upstream view of current bridge over Mowbray River







**Legend**

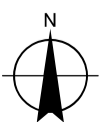
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Paper Size ISO A3

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Metres

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 55



DITID  
Environment Assessment Stage 2 Wangetti Trail

Project No. 41-32458  
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Date 24/07/2019

**Marine Plant Disturbance**

**FIGURE 2-1**  
Sheet 1 of 8

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Data source: DITID and GHD: Wangetti Trail Alignment (07/2019); DNRME: Place Name Gazetteer (2019), Cadastre (Jan 2019), Roads (2016), Watercourse (2014), Imagery (2015), Highest Astronomical Tide (HAT) (2019); GHD: Proposed Carpark and Drainage (2019), Proposed observation viewing platform (2019), Permanent and Temporary Marine Plant Disturbance Areas (2019), Marine Plant Areas (2019).  
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Print date: 26 Jul 2019 - 15:18



**Legend**

**Wangetti Trail Alignment**

- Trail
- Boardwalk
- Permanent Marine Plant Disturbance Area
- Temporary Marine Plant Disturbance Area
- Marine Plants Area

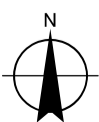
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Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 55



DITID  
Environment Assessment Stage 2 Wangetti Trail

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**Marine Plant Disturbance**

**FIGURE 2-1**  
Sheet 2 of 8

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Data source: DITID and GHD: Wangetti Trail Alignment (07/2019); DNRM: Place Name Gazetteer (2019), Cadastre (Jan 2019), Roads (2016), Watercourse (2014), Imagery (2015), Highest Astronomical Tide (HAT) (2019); GHD: Proposed Carpark and Drainage (2019), Proposed observation viewing platform (2019), Permanent and Temporary Marine Plant Disturbance Areas (2019), Marine Plant Areas (2019).  
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- Legend**
- Wangetti Trail Alignment**
- Trail
  - Boardwalk
  - Permanent Marine Plant Disturbance Area
  - Temporary Marine Plant Disturbance Area
  - Marine Plants Area

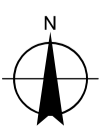
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Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 55



DITID  
Environment Assessment Stage 2 Wangetti Trail

Project No. 41-32458  
Revision No. 1  
Date 24/07/2019

**Marine Plant Disturbance**

**FIGURE 2-1**  
Sheet 3 of 8

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Data source: DITID and GHD: Wangetti Trail Alignment (07/2019); DNRME: Place Name Gazetteer (2019), Cadastre (Jan 2019), Roads (2016), Watercourse (2014), Imagery (2015), Highest Astronomical Tide (HAT) (2019); GHD: Proposed Carpark and Drainage (2019), Proposed observation viewing platform (2019), Permanent and Temporary Marine Plant Disturbance Areas (2019), Marine Plant Areas (2019).  
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Created by: knobbe



- Legend**
- Wangetti Trail Alignment**
- Trail
  - Boardwalk
  - Permanent Marine Plant Disturbance Area
  - Temporary Marine Plant Disturbance Area
  - Marine Plants Area

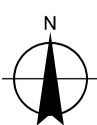
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Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 55

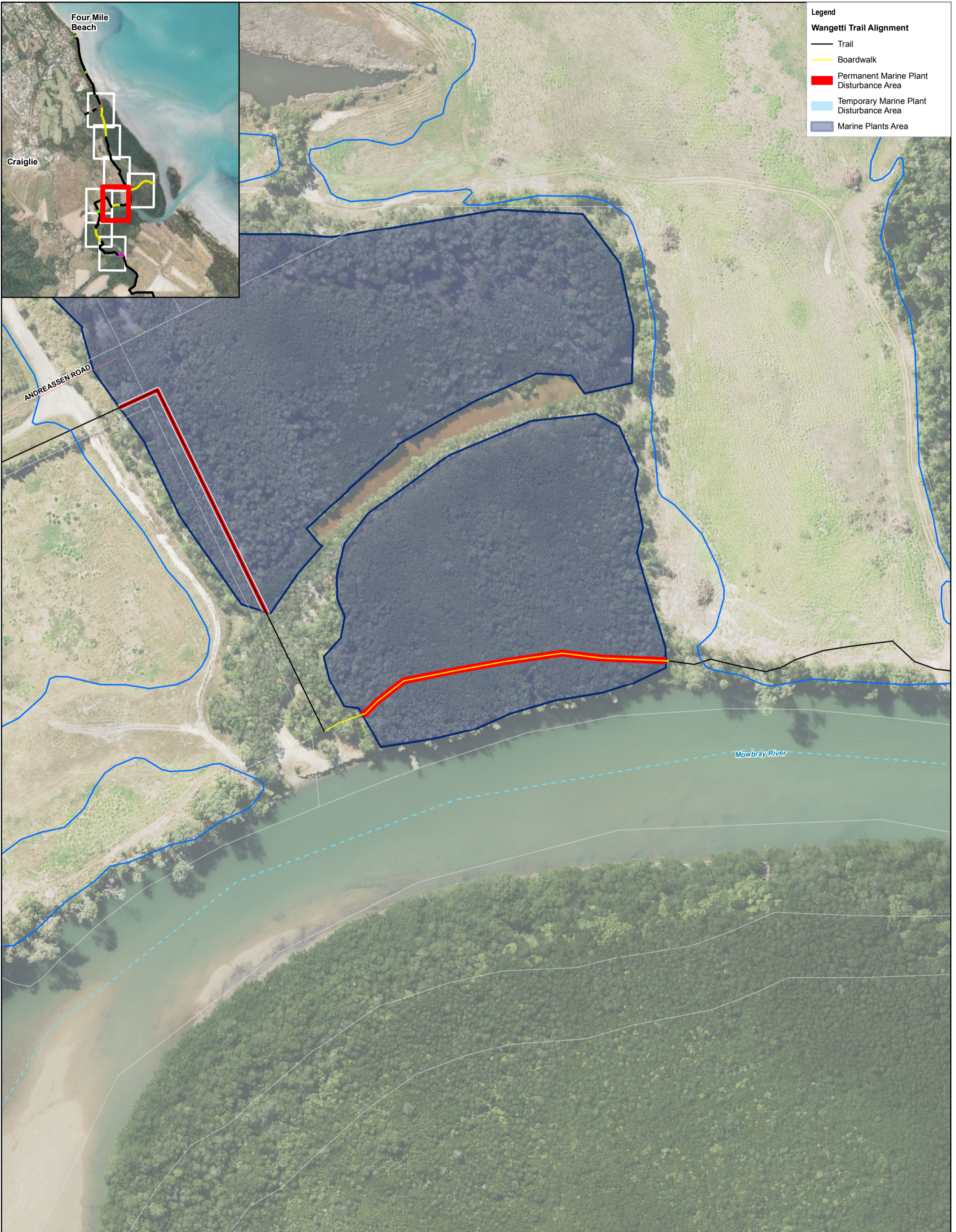


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Date 24/07/2019

**Marine Plant Disturbance**

**FIGURE 2-1**  
Sheet 4 of 8



- Legend**
- Wangetti Trail Alignment**
- Trail
  - Boardwalk
  - Permanent Marine Plant Disturbance Area
  - Temporary Marine Plant Disturbance Area
  - Marine Plants Area

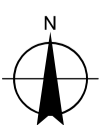
- Legend**
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Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 55



DITID  
Environment Assessment Stage 2 Wangetti Trail

Project No. 41-32458  
Revision No. 1  
Date 24/07/2019

**Marine Plant Disturbance**

**FIGURE 2-1**  
Sheet 5 of 8



- Legend**
- Wangetti Trail Alignment**
- Trail
  - Boardwalk
  - Gully Crossing
  - Permanent Marine Plant Disturbance Area
  - Temporary Marine Plant Disturbance Area
  - Marine Plants Area

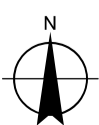
- Legend**
- Highest Astronomical Tide
  - gully

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Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 55



DITID  
Environment Assessment Stage 2 Wangetti Trail

Project No. 41-32458  
Revision No. 1  
Date 24/07/2019

**Marine Plant Disturbance**

**FIGURE 2-1**  
Sheet 6 of 8



**Legend**

**Wangetti Trail Alignment**

- Trail
- Boardwalk
- Permanent Marine Plant Disturbance Area
- Temporary Marine Plant Disturbance Area
- Marine Plants Area

**Legend**

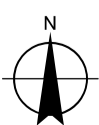
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Map Projection: Transverse Mercator  
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Grid: GDA 1994 MGA Zone 55



DITID  
Environment Assessment Stage 2 Wangetti Trail

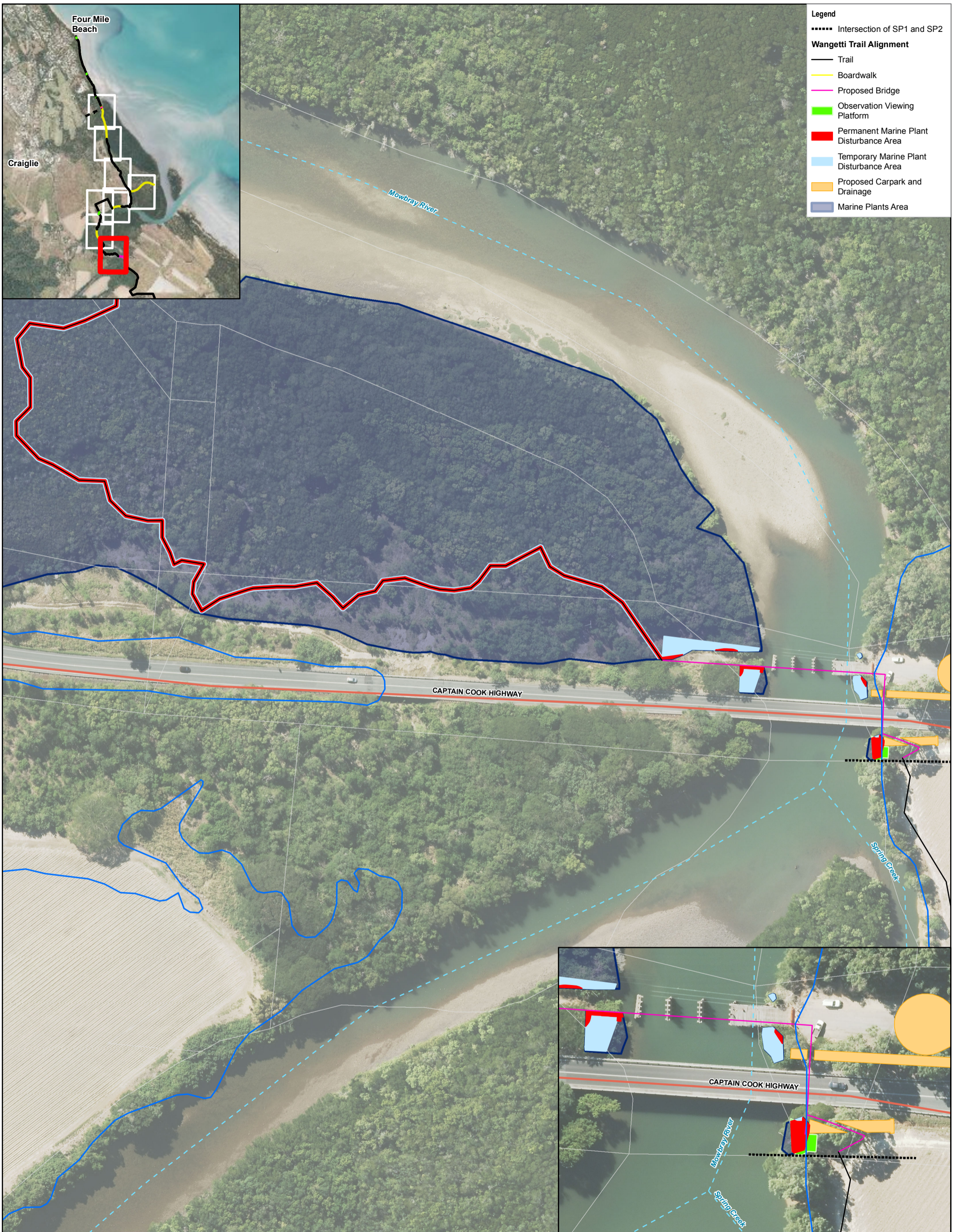
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**Marine Plant Disturbance**

**FIGURE 2-1**  
Sheet 7 of 8

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|   |  |  |  |  |  |
|---|--|--|--|--|--|
| <p><b>Legend</b></p> <p>— Highest Astronomical Tide</p> | <p>Paper Size ISO A3</p> <p>0 10 20 30 40</p> <p>Metres</p> <p>Map Projection: Transverse Mercator<br/>Horizontal Datum: GDA 1994<br/>Grid: GDA 1994 MGA Zone 55</p> |  |  | <p>DITID<br/>Environment Assessment Stage 2 Wangetti Trail</p> | <p>Project No. 41-32458</p>                  |
|   |  |  |  |  | <p>Revision No. 1</p> <p>Date 24/07/2019</p> |
| <p><b>Marine Plant Disturbance</b></p>                  |  |  |  | <p><b>FIGURE 2-1</b><br/>Sheet 8 of 8</p>                      |  |

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Data source: DITID and GHD: Wangetti Trail Alignment (07/2019); DNRME: Place Name Gazetteer (2019), Cadastre (Jan 2019), Roads (2016), Watercourse (2014), Imagery (2015), Highest Astronomical Tide (HAT) (2019); GHD: Proposed Carpark and Drainage (2019), Proposed observation viewing platform (2019), Permanent and Temporary Marine Plant Disturbance Areas (2019), Marine Plant Areas (2019).  
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### Land tenure

The areas of marine plants that will be subject to disturbance for the SP1 works include the Lots identified in Table 2-5.

**Table 2-5 Land tenure**

| Lot Plan             | Property description                    | Ownership details   | Tenure details         |
|----------------------|---|---|------------------------|
| Unnamed road reserve | Unnamed road reserve - Four Mile Beach  | DNRME<br>Managed by Douglas Shire Council   | Local road reserve     |
| Lot 5 AP13754        | Mitre Street                            | State of QLD (represented by the former Department of Natural Resources and Water, now DNRME) | State land             |
| Esplanade            | Esplanade - Adjoining the Mowbray River | DNRME<br>Managed by Douglas Shire Council   | Local road reserve     |
| Lot 24 SR423         | 24 Andreassen Road, Craiglie            | Private Property  | Freehold               |
| Captain Cook Highway | Captain Cook Highway                    | Department of Transport and Main Roads (TMR)  | State controlled road  |
| Lot 161 SR673        | Captain Cook Highway                    | State of QLD (represented by DNRME)<br>Douglas Shire Council is trustee.                      | Reserve                |
| Lot 164 SR673        | Captain Cook Highway                    | State of QLD (represented by DNRME)<br>Douglas Shire Council is trustee                       | Reserve                |
| Mowbray River        | Mowbray River                           | State of QLD (represented by DNRME)   | Unallocated state land |

## 3. Proposed works

This section provides a description of the proposed works for SP1 including dimensions of proposed infrastructure and the proposed areas of disturbance. SP1 has been designed based on the following objectives:

- To be sympathetic to the terrain and topography by blending into the landscape and creating a sense of purpose and movement through the landscape

- Using /following existing roads, vehicle tracks or walking tracks if they provide the right experience and are sustainable to ensure good value for money and improved environmental outcomes by minimising new disturbance areas and preventing unnecessary trail construction
- To showcase the beauty of the terrain by taking riders and walkers to the best places and provide access to the most scenic features possible
- To avoid areas of environmental significance where possible and this best achieved in the ground-truthing stage, when the exact trail alignments are being determined, by engaging qualified ecologists to assist in determining the best alignment, to ensure that the trail avoids areas of concern
- To be built to modern best-practice standards for sustainable trail construction by using the work of the International Mountain Bicycling Association is generally accepted as best practice for sustainable trail construction
- To have a consistent 'look and feel' – from end-to-end and along the various link trails and for the same construction styles, signage, materials and techniques to be used again and again to ensure consistency.

### **3.1 Description of the work**

As described in Section 0, DITID is proposing to establish SP1; the first stage of the Wangetti Trail. There are four main infrastructure aspects associated with SP1, with a description of the proposed works for each described below.

#### **3.1.1 Trail**

##### *Description of the Trail*

The trail in SP1 is proposed to be single track to accommodate both mountain bike users and hikers (refer to Plate 1 for the proposed trail design and example trail). The benefits of a single track trail includes the ability to wind around obstacles such as trees, large rocks, and bushes, blend into the surrounding environment, disturb much less ground, and relatively simple maintenance. The SP1 trail will be a linear alignment directing users to the Mowbray River.

The surface of the SP1 trail will predominantly be natural soil, with the tread of the trail constructed from natural soil and rock found along the trail. The use of natural materials will emphasise the minimalistic approach and earthy experience of the Wangetti Trail. Imported surfacing materials such as fine crushed rock may be used in high traffic areas or where other requirements dictate use of the material, although imported materials will be avoided where possible (World Trail Pty Ltd, 2018). Larger 'ballast' rock may also be imported for usage in wet soakage areas or low lying sandy areas.

Culverts and pipes are not generally used in trail construction, but may be required from time to time for drainage purposes.



Source: Wordtrail (2018) and World Trail (2017)

**Plate 1: Proposed trail design (left) and example trail from the Munda Biddi Trail in Western Australia (right)**

**Materials**

Material anticipated to be used by the nominated contractor to construct the trail include:

- Stone - stone will be one of the main construction materials, used for rock armouring, rock retaining walls, rock gabions etc. All stone will be sourced locally during construction. Much of the stone will be sourced from the actual benching of the trail. Any suitable stone will be removed by excavator and placed beside the trail for collection and use later.
- Boulders - large boulders will be used for a number of purposes during the construction phase. For some of the larger and more significant creek crossings, large boulders positioned within the creek bed will be moved into place to provide a natural rock causeway that will resist movement caused by high water flow.
- Ballast rock – ballast rock will be used as a base course in low-lying wet areas or flat sandy areas, to build up the trail surface and provide a firm foundation. Ballast rock can vary, but is generally a durable crushed stone with sharp corners and edges, free of impurities, weathering and organic materials. Igneous and metamorphic rocks such as granite, gneiss, and basalt make excellent ballast.
- Fine crushed rock - crushed rock will be used from time to time as a wearing course. Generally the wearing course of the trail will be the natural soil, but crushed rock may be required in situations where ballast rock has been specified as a base course.
- Adjustable Rock Matting - which is essentially a modular, flexible sheet of concrete rock armouring which looks like natural stone. While natural stone rock armouring is preferable for its durability, look and feel, in locations where there is not suitable rock available.

**Method of construction**

The majority of the SP1 trail will be built using mini-excavators, which require a minimum tread width of 1 m to operate safely. Where it is not safe, practical or desirable to use a mini-excavator, the trail will be hand constructed (World Trail Pty Ltd, 2018).

The natural environment poses many unique challenges that will often dictate a change in SP1 trail alignment that could never have been anticipated during the design process. Additionally, the ‘flow’ of a trail that is critical to user enjoyment, and the trail drainage measures that are critical to sustainability typically require adjustments during construction. For these reasons, highly experienced, specialist construction companies, with significant experience building mountain bike trails will be contracted to construct the trail. The final character and style of the

SP1 trail is entirely dictated by the construction team and particularly the machine operator involved in the construction process, with due consideration for constraints and no-go areas as marked and defined within plans and as part of the Construction Environmental Management Plan (CEMP).

The work week during the construction phase would be limited to 5 days per week to manage fatigue related injuries. The rate of construction expected to be 50 m/crew/day with crew sizes ranging from 3-6 people. The nominated contractor would require 1-2 months to complete a pre-scope and detail design plus mobilisation and the works would be undertaken during drier and cooler months.

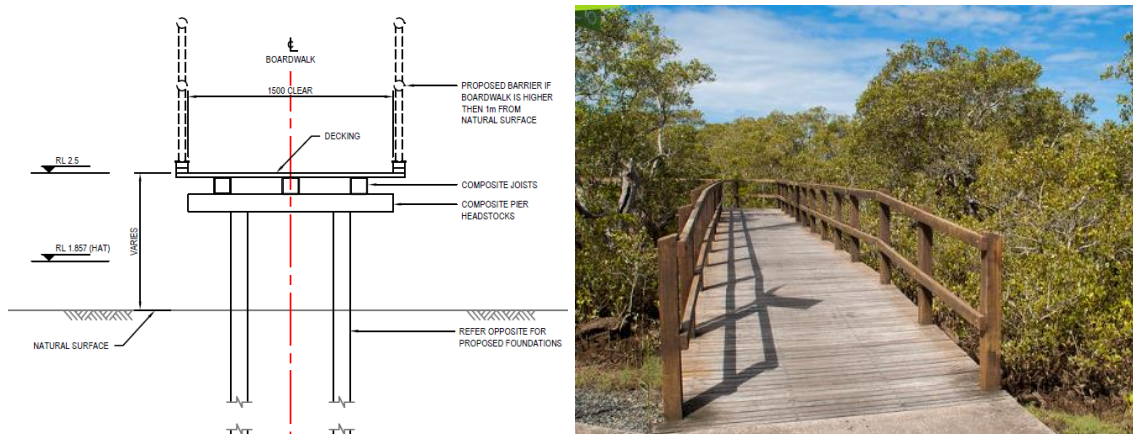
### **Marine plant disturbance**

While overall disturbance to marine plants has been minimised wherever possible, through the careful selection of access track locations and the inset of the trail location to retain primary coastal buffer vegetation, both temporary and permanent disturbance to marine plants will occur as a result of the SP1 trail.

### **3.1.2 Boardwalk**

#### **Description of the boardwalk**

In areas of low-lying marine plants, a boardwalk will be constructed rather than an on-ground trail. Four areas of boardwalks are proposed with the SP1 Project area (refer to Plate 2 for proposed boardwalk design and example boardwalk). The boardwalks will provide passage for users on the trail to safely travel through the muddy terrain and locations where crocodiles may be encountered. The boardwalk will be constructed with timber or composite decking and supported by timber or steel piles. The boardwalk will be founded above HAT and storm surge level to allow for access during wet weather and to provide protection from debris.



Source: GHD (2019) and BCC (2017)

### **Plate 2: Proposed boardwalk design (left) and example boardwalk from Bayside Parklands (right)**

#### **Method of construction**

The boardwalk will sit on piles and will be an elevated structure. Innovative and best practice construction methodologies will be selected for the construction of the boardwalk to minimise potential environmental impacts.

The anticipated method of construction to be adopted by the construction contractor for the boardwalk is outlined below. Construction of the boardwalk will commence once the SP1 trail path has been established.

- Site preparation works including clearing and grubbing and setting up works areas
- Material sourced for the boardwalk stockpiled on site
- Inspection and approval of material for use by the superintendent's representative
- Foundation and soil testing to correctly identify foundation conditions - provide and/or confirm design parameters for footing systems
- Foundation of boardwalk to be installed by driven piles
- Proposed boardwalk to be constructed with piles, timber subfloor, and wooden deck, with utilisation of durable materials and/or corrosion protection systems to achieve the design life (piles to comply with AS 2159 and are pre cast concrete or cast-in-situ concrete or timber)
- The boardwalk is to be assembled in situ by hand
- Protective treatments applied to boardwalk structure
- Removal of all construction materials from site and implementation of appropriate site rehabilitation prior to work completion.

The design and finish of the boardwalk areas will prioritise the use of local timbers and other materials that will age well over time i.e. rusted steel and silvery grey hardwood timbers. Built structures will be designed and fit-for purpose; to have minimal impact on the surrounding environment, minimal maintenance requirements and a minimalistic approach to materials given the remote nature of the SP1 Project. The boardwalk is designed with a width of 1.5 m, with a permanent construction and maintenance buffer of 0.5 m on either side (1 m total buffer area). Micro adjustments may be required to the proposed boardwalk alignment to avoid obstacles and to minimise vegetation clearing. This would be confirmed by the trail construction contractor and would be undertaken as a Design and Construction component. The buffer area will allow access for general maintenance and hand trimming of marine plants.

### ***Marine plant disturbance***

Similarly to the SP1 on-ground trail alignment, marine plant disturbance has been minimised wherever possible through the careful selection of boardwalk locations and the inset of the trail location to retain primary coastal buffer vegetation. However, boardwalk areas will still cause both temporary and permanent marine plant disturbance.

While the construction of a boardwalk causes additional temporary disturbance, the elevated trail will reduce impact and disturbance to marine plants long-term. This design also allow for visitor passage throughout the tidal cycle.

### **3.1.3 Bridge crossings**

#### ***Description of bridge crossings***

Four bridge structures are proposed over tidal areas within the SP1 Project area, including:

- New pedestrian multi-span bridge constructed over the Mowbray River:
  - 5 span bridge
  - Six piers generally aligning to the location of the existing bridge piers
  - Erosion rock protection will be provide on the base and sides of the abutments

- A viewing platform will be provide on the new bridge
- The bridge will be limited to pedestrians and cyclists only
- The bridge would comprise of prefabricated and assembled on site mainly from steel and timber components.

Refer to Drawing 42-21067-S001 in Appendix B.

- New pedestrian single-span 18 m bridge at the northern section of Lot 5 AP13754 referred to as B38:
  - The width of the bridge would be 1.5 m and limited to pedestrians and cyclists
  - Construction access could be via a temporary access track to the southern side of the private property with a temporary rock filled culvert crossing during construction works line. The northern abutment and section of the crossing would need to be constructed by hand from via the northern trail access
  - The proposed bridge is in a tidal zone and had water in the crossing at a low tide
  - The northern bank side would require a boardwalk to be constructed up to the bridge section of approximately 11 m. A boardwalk is required for the southern side as well.
- New pedestrian single-span 8 m bridge referred to as B39 located on unnamed road reserve (Four Mile Beach):
  - The width of the bridge would be 1.5 m and limited to pedestrians and cyclists
  - The bridge could be constructed by hand with sections of the crossing walked in via the northern trail section
  - Either banks appeared gentle in slopes and not steep, even in height levels either side of the crossing.
- New pedestrian single-span crossing located south-east of Andreassen Road, on an unnamed tributary of the Mowbray River (details of the design are still being determined, however we have allowed 100 m<sup>2</sup> for the development of the crossing)

The materials used for the built structures will be durable enough to withstand the harsh tropical climate and natural environment.

### ***Method of construction***

The anticipated method of construction to be adopted by the construction contractor for the new Mowbray River Bridge is outlined below:

- Install silt fencing and all other environmental controls as per the Environmental Management Plan (EMP)
- Access tracks and work platforms, including a crane pad, will be installed on both sides of the river to access abutment locations
- Initial survey points will be set out for abutments assembly areas
- The top soil will be stripped and the ground cut to abutment base level
- The piling rig/crane platforms will be constructed and rig set up commencing at the pile and pier locations, respectively (pile locations will be set out with centres pegged)
- Once the pile is in place the hammer is placed over top of the pile and driving is commenced
- The piles will be driven to the required design depth and set, with sections joined at lengths and welded in accordance with the specification if splicing is required

- Once piles have reached the design depth and capacity is confirmed by the design engineer, casings will be cut to height and the tubes filled with concrete up to the development cage level
- The piling rig will then be established on the bank and the above process repeated
- Superstructure will be lifted and placed using a 200T Crane setup behind the abutments
- The span will be placed in the laydown area on the approach end of the bridge
- Once the pier and abutments are constructed the bridge spans will be removed and the new steel beams will be installed in position with bracing installed in accordance with relevant specifications
- Once the beams are in place and fixed down the precast deck slab units will be installed and grouted onto the nelson shear studs
- The handrailing and kerbing will be installed and the approach earthworks completed
- All equipment and plant will be disestablished from site.

The anticipated method of construction to be adopted by the construction contractor for the bridge at B38 and B39 are outlined below:

- Site preparation works including clearing and grubbing
- Setup of work areas, including a crane pad, on both sides of the waterway
- The top soil will be stripped and the ground cut to abutment base level
- A crane will move the bridge into place
- The bridge is to be assembled in situ by hand
- Removal of all construction materials from site and implementation of appropriate site rehabilitation prior to work completion.

#### ***Marine plant disturbance***

Marine plant disturbance will occur along the banks of the Mowbray River, as a result of the proposed pedestrian bridge. The majority of the B38 bridge crossing is located within areas of marine plants, with subsequent disturbance related to works.

### **3.1.4 Mowbray River Bridge Underpass, observation viewing platform, stairs, ramps and carpark**

#### ***Description of bridge underpass***

The SP1 trail has been designed to pass under the Captain Cook Highway at the bridge crossing approximately 4 km south of Craiglie, QLD. The underpass has been designed to be above flood level and as such would require a retaining structure. The underpass will be constructed on the eastern side of the Mowbray River underneath the Captain Cook Highway. The design and finish of the underpass will be in keeping with the natural design and will prioritise the use of local timbers and other materials that will age well over time.

The width of the underpass would be 2 m and it will have a height of 2.2 m to accommodate the trail users. It will have a handrail to protect trail users from Mowbray River. It will be connected to the new pedestrian bridge over the Mowbray River via a ramp and reinforced concrete stairs. It will also connect to the observation viewing platform via a ramp. Refer to Drawing Reference: 42-21067-S012 in Appendix B for design of the underpass.

GHD obtained assistance of Construction Contractor Civform to determine a suitable construction material and methodology for the retaining structure. It was determined that

reinforced concrete retaining wall would be suitable for the underpass. This would ensure that working below tide levels and pouring concrete retaining structures within tidal zones is avoided.

Material anticipated to be used but the nominated contractor include:

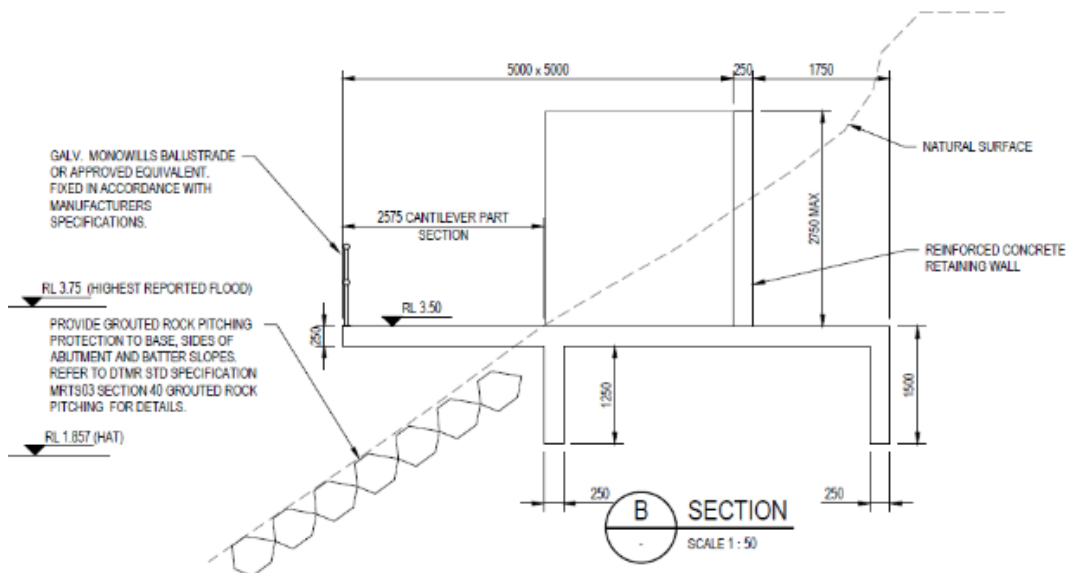
- Reinforced concrete
- The proposed pile driving equipment (including floating plant, land based plant, pile frame, gates and leaders)

### Description of the built structures

An observation viewing platform, stairs, ramps and carpark area will be constructed on the eastern side of the Mowbray River, adjacent to the proposed pedestrian bridge. A key objective of the Wangetti Trail is to have a consistent aesthetic and 'feel' whereby the trail showcases the beauty of the terrain with minimalistic design. Subsequently, the design and finish of the observation viewing platform, underpass and carpark areas are in keeping with the natural design and will prioritise the use of local timbers and other materials that will age well over time.

The proposed ramps, stairs, drainage culverts and carpark are located within state controlled road reserve, above HAT level and are partly within the coastal management districts and are not considered to trigger prescribed tidal works or interfering with quarry material on state coastal land. However, the observation viewing platform is considered to trigger prescribed tidal works as the following elements associated the structure will be above and below tidal water and HAT and they include:

- Grouted rock pitching protection proposed along the banks of Mowbray River below the observation viewing platform as shown in Figure 3-4 below.
- The cantilever part of the observation viewing platform as shown in Figure 3-8



**Figure 3-1 Section Drawing of the observation viewing platform**

### Method of construction

The observation viewing platform is a 5 m x 5 m platform overlooking the river; designed to take advantage of natural wildlife sightings. The underpass will be located under the existing Captain Cook Highway Bridge, connecting the observation viewing platform to the newly constructed pedestrian bridge. The carpark will have a minimalistic design, with cleared ground and natural timber barriers.



Similarly to the bridge infrastructure, the built structures will be designed and engineered to be fit-for-purpose, to have minimal impact on the surrounding environment, to have minimal maintenance requirements and will need to take a minimalistic approach to materials given the remote nature of the trail and difficulties getting materials into the locations where they are required.

The anticipated construction methodology for the underpass and observation-viewing platform to be adopted by the nominated construction contractor is outlined below.

- Install all safety fences / barriers and site signage
- Install silt fencing and all other environmental controls as per the EMP
- Access tracks and work platforms will be installed to reach viewing platform
- Site preparation works including the clearing and grubbing and set up of work area
- The top soil will be stripped and the ground cut to abutment base level
- Excavation, Installation and backfilling of RCP culverts
- Install reinforced concrete inlet pit
- Install reinforced concrete retaining wall underpass
- Install Reinforced concrete viewing platform
- Backfill, grade and level approaching reinforced concrete ramps and pathway
- Install reinforced concrete ramps and pathways
- Install reinforced concrete stairs
- Reinstate grouted rock protection to embankment slopes
- Remove all construction materials from site and implement appropriate site rehabilitation prior to work completion.

### ***Marine plant disturbance***

Clearing is required for both the observation viewing platform and underpass infrastructure, with marine plant disturbance and removal occurring along the bank of the Mowbray River. Marine plant disturbance associated with the observation viewing platform may be temporary, dependent on the height of mangroves within the footprint, as plants have potential to re-establish below the observation viewing platform once construction is complete.

The carpark will not impact marine plants, as no marine plants are identified within the area of works.

## **3.2 Justification for the work**

The SP1 Project, and the Wangetti Trail project in its entirety, aims to deliver an iconic international ecotourism experience with direct economic benefits to regional Queensland and local Traditional Owners, potentially attracting up to 28,000 local and international visitors annually. It is estimated that thousands of walkers and mountain bike riders will visit the Wangetti Trail and offer thousands of new overnight stays every year.

The Wangetti Trail will enhance conservation and protection of a cherished part of Tropical North Queensland and deliver environmental, social and economic benefits to local communities and to Queensland, including:

- New funding sources to preserve, protect and present national parks and their cultural heritage

- Better controls to limit damaging and uncontrolled activities within parks including feral animal management
- Long term job and business opportunities for Traditional Owners and their future generations
- Enhanced connection to country whilst ensuring the protection and preservation of Land and Country
- Stronger appreciation and understanding of Indigenous culture
- Underpinning long-term growth and liveability in the Tropical North and builds community resilience for their respective regional communities
- Supporting Traditional Owner businesses, existing local businesses and new business opportunities
- 150 new local jobs created including opportunities to develop local skills and increase diversity of regional jobs

### **3.3 Alternative considerations**

Multiple alternatives were considered for the SP1 Project. This included two main alternatives as summarised in Table 3-1.

Within the alternatives considered, multiple infrastructure designs were also considered for boardwalk and bridge crossings including multiple options for the use and extent of boardwalks and bridges over watercourses. While other options were considered, with regard to boardwalks and bridges, the limited use of this infrastructure was chosen to reduce the impact associated with construction. This approach also lends to the minimalistic approach and earthy experience of the Wangetti Trail (World Trail Pty Ltd, 2018).

Multiple alternatives were considered for the bridge crossing over the Mowbray River, within the southern extent of SP1. Initially the crossing was proposed at the mouth of the Mowbray River, considered to be a hero experience highlighting crocodile spotting, tidal movement, and ending in a mangrove boardwalk. However, the river estuary is not well suited to development due to an unstable, eroding sand embankment on the south side of the river with apparent shifting of the river course (PwC, 2018). The northern side of the river also consists of a low river silt bank supporting mangroves; this environment poses difficulty for the construction of suitable foundations. This alternative would increase disturbance to marine plants, both through the clearing of vegetation at the river mouth and the increased trail length to allow access to the area. The decision to inset the trail to retain primary coastal buffer plants and subsequently reduce trail length was made to avoid unnecessary impacts to marine plants.

An alternative upstream crossing location was identified adjacent to the Captain Cook highway bridge. While this is also the location of the chosen crossing design, two alternative options were identified for the area. One alternative option was a pedestrian bridge constructed as an attachment to the existing highway bridge infrastructure. However, this alternative was not considered viable based on the cost and level of upgrades required for the existing bridge to support the additional structure.

Decommissioned concrete pylons, remnant of the old highway bridge and located adjacent to the current highway bridge, were also assessed for use as foundational pylons for a new pedestrian bridge construction. This location was considered suitable for the bridge infrastructure, however the existing pylons require removal and replacement as structural integrity has been compromised over time. While pylon replacement will cause additional disturbance to marine plants in the short-term, comparative to the use of the original pylons, the

upgrade of the bridge will have long-term benefits to marine plants as infrastructure life span will be far greater.

**Table 3-1 Summary rationale of main project alternatives for SP1**

| Alternatives considered | Description of Alternative  |
|-------------------------|---|
| Alternative A           | The trail alignment and infrastructure associated with Alternative A was considered as an initial alternative based on desktop assessment design of SP1. However, this alternative was not chosen as the marine plant disturbance area and impacts to TEC were much greater, in comparison to the chosen design.      |
| Alternative B           | The trail alignment and infrastructure associated with Alternative B was considered as an adaptation of alternative A, based on alignment changes informed by field study assessments. However, this alternative was not chosen as the marine plant disturbance area was greater, in comparison to the chosen design. |

### 3.4 Marine plant impact assessment

#### Temporary versus permanent disturbance

Permanent marine plant disturbance will occur for the following aspects of SP1:

- Trail footprint (1.0 m width within TEC areas, 1.5 m within areas not mapped as TEC)
- Boardwalk footprint (1.5 m width with permanent 0.5 m buffer either side; 2.5 m total width)
- New pedestrian multi-span bridge over Mowbray River
- New pedestrian single-span bridge at the northern most section of lot 5 AP13754 referred to as B38
- New pedestrian single-span bridge on the unnamed road reserve (Four Mile Beach) referred to as B39
- Visitors' carpark and safety upgrades to the Captain Cook Highway road reserve
- Observation viewing platform that is an elevated and piled structure on the banks of Mowbray River to provide a functional viewing platform that maintains public safety
- Mowbray River Road Bridge underpass.

**Table 3-2 Temporary and permanent disturbance to marine plants**

| Component  | Width                                    | Area           | Percentage of local marine plant extent <sup>1</sup> |
|--|--|----------------|--|
| <b>Permanent footprint</b>   |  |                |  |
| Trail  | 1.5 m                                    | 0.27 ha        | 0.26%  |
| Boardwalk (boardwalk infrastructure 1.5 m plus 0.5 m either side as a maintenance buffer)                            | 2.5 m                                    | 0.29 ha        | 0.28%  |
| Mowbray River Bridge   | 2 m                                      | 0.01 ha        | 0.01%  |
| Andreassen Road crossing   | 2 m                                      | 0.01 ha        | 0.01 %   |
| Ancillary works including: observation viewing platform, underpass, carpark, laydown area, access track, B38 and B39 |  | 0.01 ha        | 0.01%  |
| <b>Temporary footprint</b>   |  |                |  |
| Trail  | 0.5 m either side of permanent footprint | 0.18 ha        | 0.17%  |
| Mowbray River Bridge   | 2 m                                      | 0.03 ha        | 0.02%  |
| Ancillary works  |  | 0.06 ha        | 0.05%  |
| <b>Temporary total</b>   |  | <b>0.27 ha</b> | <b>0.24%</b>   |
| <b>Permanent total</b>   |  | <b>0.58 ha</b> | <b>0.57%</b>   |
| <b>Grand total</b>   |  | <b>0.85 ha</b> | <b>0.81%</b>   |

<sup>1</sup> Local marine plant extent is defined as the entire area mapped as marine plants within the vicinity of SP1. Refer to Figure 2-1 for the extent of local marine plants.

### **3.5 Onsite impact mitigation**

An EMP will be prepared for the construction and operational phases of SP1. Key onsite mitigation measures will be implemented within each of the relevant infrastructure aspects of SP1 to minimise impact to marine plants and their habitats, including; trail, boardwalks, bridge crossings, and the underpass, carpark and observation viewing platform. The mitigation measures related to each SP1 infrastructure aspect, including marine plant disturbance, are listed in Table 3-3.

**Table 3-3 Summary of impacts and mitigation measures related to each aspect of SP1, including relevant infrastructure aspect/s**

| Aspect  | Impact  | Mitigation Measure  | Trail | Boardwalk | Bridges | Ancillary works |
|---|---|---|-------|-----------|---------|-----------------|
| <b>Landscape character and visual amenity</b> | <p><b>Construction</b><br/>Works proposed within rural and conservation zoning that does not currently contain any development may result in decreased landscape character</p> <p><b>Operation</b><br/>No landscape and visual amenity impacts associated with operation of the SP1 Project</p> | <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Materials and machinery will be stored tidily on site, in previously cleared areas, wherever possible</li> <li>• Clearing of mature landscape trees and marine plants will be avoided, wherever possible, within temporary construction laydown areas not required for operation</li> <li>• Where appropriate, trail will be designed around mature landscape trees</li> <li>• Temporary barriers and traffic management signage will be removed as soon as practical after construction</li> </ul> <p><b>Operation</b><br/>N/A</p> | ✓     | ✓         | ✓       | ✓               |
| <b>Surface hydrology</b>                      | <p><b>Construction</b><br/>Changes in water quality resulting from overland flow and stormwater run-off from exposed surfaces<br/>Pollution resulting from chemical or fuel sources</p>   | <ul style="list-style-type: none"> <li>• Water quality during construction will be managed through a Water Quality Management Plan, which will include the following management measures: <ul style="list-style-type: none"> <li>– Storing fuels, chemicals, wastes and other potentially environmentally hazardous substances in contained areas away from watercourses and managed through a Hazardous Substances Management Plan</li> <li>– Regular checks of vehicles and equipment for oil leaks</li> </ul> </li> </ul>  | ✗     | ✓         | ✓       | ✓               |

| Aspect | Impact   | Mitigation Measure   | Trail | Boardwalk | Bridges | Ancillary works |
|--------|--|--|-------|-----------|---------|-----------------|
|        |  | <ul style="list-style-type: none"> <li>– Development of a Waste Management Plan</li> <li>– Waterway profiles at temporary construction access roads and temporary construction facility areas will be reinstated and disturbed areas promptly stabilised following completion of construction works</li> <li>– Emergency spill response</li> </ul>   |       |           |         |                 |
|        | Erosion and sedimentation from construction activities and vegetation clearing                                   | <ul style="list-style-type: none"> <li>• Erosion and sediment controls relevant to construction activities will be implemented and managed through the implementation of an ESCP</li> <li>• The extent and duration of soil exposure will be minimised as far as reasonably practicable</li> <li>• Water quality during construction will be managed through a Water Quality Management Plan</li> </ul>                                      | ✓     | ✓         | ✓       | ✓               |
|        | Demolition of existing Old Mowbray Bridge piers and potential contamination of waterway with construction debris | <ul style="list-style-type: none"> <li>• Contractor to undertake demolition works in accordance with environmental permits and approvals.</li> <li>• Contractor to create demolition methodology for removal of existing supports. Debris to be removed in manageable sizes for crane lifts</li> <li>• Erosion and sediment controls relevant to construction activities, particularly the Mowbray River bridge crossing, will be</li> </ul> | x     | x         | ✓       | x               |

| Aspect | Impact  | Mitigation Measure  | Trail | Boardwalk | Bridges | Ancillary works |
|--------|---|---|-------|-----------|---------|-----------------|
|        |   | managed through the implementation of an ESCP   |       |           |         |                 |
|        | Impacts to local hydrology, drainage patterns and water quality of creeks and water bodies  | <ul style="list-style-type: none"> <li>• Maintain water quality and hydrological regime of the Project area</li> <li>• Comply with the requirements of Environment Protection (Water) Policy 2009 and catchment management plans prepared for local waterways</li> </ul>  |       |           |         |                 |
|        | Development within the Coastal Management District including tidal areas.   | <ul style="list-style-type: none"> <li>• Maintaining coastal processes such as tidal flow and the flow of waterways through the inclusion of appropriately sized crossings</li> <li>• Avoiding reclamation in tidal areas.</li> <li>• Managing acid sulfate soils and coastal erosion</li> <li>• Developing and implementing sediment and erosion control plans for all cuts, fill and culverts in close proximity to or directly in a watercourse</li> <li>• Limiting the amount of temporary and permanent fill to be used in coastal management areas</li> </ul> | ✓     | ✓         | ✓       | ✓               |
|        | <p><b>Operation</b></p> <p>Ongoing trail use may result in erosion and sedimentation to surrounding surface water and the introduction of waste material which may negatively impact water quality.</p> | <ul style="list-style-type: none"> <li>• Placement of signage at entrances and exits of the trail informing trail-users of the appropriate use of bins for waste material</li> <li>• Providing bins at the entrances and exits of the trail for trail-users to dispose of any waste material before entering and leaving the trail</li> </ul>   | ✓     | ✓         | ✓       | ✓               |



| Aspect                   | Impact  | Mitigation Measure  | Trail | Boardwalk | Bridges | Ancillary works |
|--------------------------|---|---|-------|-----------|---------|-----------------|
|                          |   | <ul style="list-style-type: none"> <li>Active and passive discouragement – no promotion of areas that should be avoided or signage warning of restricted areas</li> </ul>   |       |           |         |                 |
| <b>Coastal processes</b> | <p><b>Construction</b><br/>Development within the Coastal Management District including tidal areas.</p> <p><b>Operation</b><br/>No impacts to coastal processes associated with operation of the SP1 Project</p> | <ul style="list-style-type: none"> <li>Maintaining coastal processes such as tidal flow and the flow of waterways through the inclusion of appropriately sized crossings</li> <li>Avoiding reclamation in tidal areas.</li> <li>Managing acid sulfate soils and coastal erosion through the development and implementation of an acid sulfate soils management plan</li> <li>Developing and implementing sediment and erosion control plans for all cuts, fill and culverts in close proximity to or directly in a watercourse</li> <li>Limiting the amount of temporary and permanent fill to be used in coastal management areas</li> </ul> | ✓     | ✓         | ✓       | ✓               |
| <b>Groundwater</b>       | <p><b>Construction</b><br/>Impacts to water quality may occur as a result of piling for bridge construction</p>   | <ul style="list-style-type: none"> <li>Contaminated groundwater will be captured and treated before release</li> <li>Water quality during construction will be managed through a Water Quality Management Plan</li> </ul>   | x     | x         | ✓       | x               |
|                          | <p><b>Operation</b><br/>No groundwater impacts associated with operation of the SP1 Project</p>   | N/A   | N/A   | N/A       | N/A     | N/A             |

| Aspect                        | Impact   | Mitigation Measure  | Trail | Boardwalk | Bridges | Ancillary works |
|-------------------------------|--|---|-------|-----------|---------|-----------------|
| Topography, geology and soils | <p><b>Construction</b></p> <p>It is likely that the construction of the trail will result in some changes to the landscape that will potentially increase the risk of erosion, these include:</p> <ul style="list-style-type: none"> <li>• Clearing of vegetation</li> <li>• Construction of all SP1 infrastructure</li> </ul> <p>Construction during high rainfall events</p> | <p>The nominated design and construction contractor will responsible for developing an Erosion and Sediment Control Plan (ESCP) during the construction phase of SP1 in accordance with the Best Practice Erosion and Sediment Control Manual (IECA, 2008).</p> <p>The ESCP will include mitigation measures such as:</p> <ul style="list-style-type: none"> <li>• No go areas to be marked with flagging tape to ensure that all work activities remain within the designated work site and areas of vegetation to be retained to be clearly marker to mitigate the risk of accidental clearing</li> <li>• Installation of sediment fencing along the downslope extent of works, particularly at bridge crossings and around the Mowbray River</li> <li>• Minimisation of construction footprint through staged clearing activities and utilisation of cleared or modified areas where possible</li> <li>• Stockpiling is to be located above tidal extents</li> </ul> | ✓     | ✓         | ✓       | ✓               |
|                               | <p>Construction activities below 5 m AHD in areas that are likely to contain Potential Acid Sulfate Soils (PASS) or Actual Acid Sulfate Soils (AASS) that could result in the</p>  | <p>The Construction Contractor will develop an Acid Sulfate Soil Management Plan as part of the CEMP, in line with the <i>Queensland acid sulfate soils technical manual: soil management guidelines</i>.</p>   | ✓     | ✓         | ✓       | ✓               |

| Aspect                     | Impact   | Mitigation Measure  | Trail | Boardwalk | Bridges | Ancillary works |
|----------------------------|--|---|-------|-----------|---------|-----------------|
|                            | acidification of the surrounding environment.  |   |       |           |         |                 |
|                            | <b>Operation</b><br>Trail users may displace soil and progressively wear down natural trail elements   | <ul style="list-style-type: none"> <li>• Regular maintenance of SP1 alignment to clearly define trail areas and promote use of designated areas</li> <li>• Signage to encourage trail users to stay on designated track alignment</li> </ul>                        | ✓     | ✓         | ✓       | ✓               |
|                            | Erosion and sedimentation from ongoing use of trail  | <ul style="list-style-type: none"> <li>• Active and passive discouragement – no promotion of areas that should be avoided or signage warning of restricted areas</li> </ul>   | ✓     | x         | ✓       | x               |
| <b>Terrestrial ecology</b> | <b>Construction</b><br>Construction activities resulting in the removal of vegetation, including areas of TEC, RE and marine plants.               | <ul style="list-style-type: none"> <li>• Design of the SP1 alignment has minimised the disturbance of TEC and marine plants, wherever possible</li> </ul>   | ✓     | ✓         | ✓       | ✓               |
|                            | Direct loss and disturbance of marine plants   | <ul style="list-style-type: none"> <li>• Development of offset strategy</li> </ul>  | ✓     | ✓         | ✓       | ✓               |
|                            | Construction activities may impact flora and fauna biodiversity in the area  | <ul style="list-style-type: none"> <li>• Minimisation of construction footprint through staged clearing activities and utilisation of cleared or modified areas where possible</li> </ul>   | ✓     | ✓         | ✓       | ✓               |
|                            | Introduction or increase of invasive species as a result of construction related disturbance, transportation of seed material and additional waste | <ul style="list-style-type: none"> <li>• Implement a vehicle wash down area during the construction of the trail to ensure that vehicles are cleaned of all potential weeds</li> <li>• CEMP to include measures to reduce introduction of weeds and pest</li> </ul> | ✓     | ✓         | ✓       | ✓               |

| Aspect | Impact  | Mitigation Measure   | Trail | Boardwalk | Bridges | Ancillary works |
|--------|---|--|-------|-----------|---------|-----------------|
|        |   | <ul style="list-style-type: none"> <li>Trail construction will avoid disruption of forest canopy wherever possible to avoid additional sunlight that can promote weed growth on forest floor</li> <li>General waste will be securely disposed of in provided bins</li> </ul>   |       |           |         |                 |
|        | Development within Ecologically Significant Areas | <ul style="list-style-type: none"> <li>Design shall minimise encroachment into significant vegetation through the inclusion of exclusion zones along the alignment for areas of high ecological value.</li> <li>Appropriate provision will be made for fauna passage and continuation of watercourses and overland flow paths</li> </ul> <p>Environmental quality will be preserved through the inclusion of management requirements into the contract documentation for acid sulfate and contaminated soils</p> | ✓     | ✓         | ✓       | ✓               |
|        | Injury or loss of native flora and fauna          | <ul style="list-style-type: none"> <li>CEMP to include measures to reduce impacts on flora and fauna and maintain remaining vegetation through: <ul style="list-style-type: none"> <li>Nomination of no go zones</li> <li>Fauna spotter/ catcher onsite during clearing</li> <li>Retain habitat trees (e.g. trees with hollows) wherever practical</li> <li>Traffic management</li> </ul> </li> </ul>  | ✓     | ✓         | ✓       | ✓               |

| Aspect | Impact  | Mitigation Measure  | Trail | Boardwalk | Bridges | Ancillary works |
|--------|---|---|-------|-----------|---------|-----------------|
|        | Operation<br>Removal, destruction or damage of marine plants from operational activities  | Where marine plants require maintenance, the plants will be trimmed and cut by hand to minimise disturbance impact  | ✓     | ✓         | ✓       | ✓               |
|        | Weed infestation from trail users tracking in weed material on shoes, bikes and equipment | <ul style="list-style-type: none"> <li>• Development of a weed and pest species management plan to mitigation spread of invasive species by trail users</li> <li>• Signage to encourage trail users to clean clothing, shoes and equipment before entering trail</li> <li>• Providing boot wash facility at both ends of the trail to ensure users do not track pest weeds onto the trail</li> <li>• Signage to discourage trail users from picking or carrying flowers or plants from one area to another</li> </ul> | ✓     | ✓         | ✓       | ✓               |
|        | Food and water waste leading to increased pest activities                                 | <ul style="list-style-type: none"> <li>• Signage to encourage trail users to dispose of waste prior to entering trail, as well as providing bins at both ends of the trail</li> </ul>   | ✓     | x         | ✓       | ✓               |
|        | Trampling of plants as a result of trail users walking off track                          | <ul style="list-style-type: none"> <li>• Providing guidelines to trail users around clearly walking on the trail</li> </ul>   | ✓     | ✓         | ✓       | ✓               |
|        | Interference of local wildlife by domestic animals  | <ul style="list-style-type: none"> <li>• Providing guidelines to trail users around not allowing domestic animals along the trail</li> <li>• Signage around awareness of protected species</li> </ul>   | ✓     | ✓         | ✓       | ✓               |

| Aspect                 | Impact   | Mitigation Measure   | Trail | Boardwalk | Bridges | Ancillary works |
|------------------------|--|--|-------|-----------|---------|-----------------|
|                        | Dangerous Fauna (Cassowary) inhabit the SP1 Project area. Animal interactions may result in injury/fatality from dangerous fauna | <ul style="list-style-type: none"> <li>To minimise the risks to public safety during this period, local education and community engagement will be used</li> <li>Warning signage to notify trail users</li> </ul>  | ✓     | ✓         | ✓       | ✓               |
| <b>Aquatic Ecology</b> | <p><b>Construction</b></p> <p>Introduction of additional sediment and materials to aquatic environment</p>                       | <ul style="list-style-type: none"> <li>Water quality during construction will be managed through a Water Quality Management Plan</li> <li>Storing fuels, chemicals, wastes and other potentially environmentally hazardous substances in contained areas away from watercourses and managed through a Hazardous Substances Management Plan</li> <li>Regular checks of vehicles and equipment for oil leaks</li> <li>Development of a Waste Management Plan</li> <li>Waterway profiles at temporary construction access roads and temporary construction facility areas will be reinstated and disturbed areas promptly stabilised following completion of construction works</li> <li>Emergency spill response</li> <li>Appropriate permits and/or licences will be obtained for all water required during construction</li> </ul> | x     | ✓         | ✓       | ✓               |
|                        | Removal, destruction or damage of marine plants from construction activities   | <ul style="list-style-type: none"> <li>Clearing of marine plants will be avoided, where possible, within temporary</li> </ul>  | ✓     | ✓         | ✓       | ✓               |

| Aspect | Impact   | Mitigation Measure  | Trail | Boardwalk | Bridges | Ancillary works |
|--------|--|---|-------|-----------|---------|-----------------|
|        |  | <p>construction laydown areas not required for operation</p> <ul style="list-style-type: none"> <li>• No go areas to be marked with flagging tape to ensure that all work activities remain within the designated work site and areas of vegetation to be retained to be clearly marked to mitigate the risk of accidental clearing</li> </ul>                    |       |           |         |                 |
|        | Direst loss and disturbance of marine plants   | <ul style="list-style-type: none"> <li>• Development of offset strategy</li> </ul>  | ✓     | ✓         | ✓       | ✓               |
|        | Dangerous Fauna (Crocodiles) inhabit the SP1 Project area. Falls into water or any entry to the water could result in injury/fatality from dangerous fauna | <ul style="list-style-type: none"> <li>• Contractor to implement JSEA safe work method statement</li> </ul>   | x     | x         | ✓       | ✓               |
|        | Injury or loss of native flora and fauna   | <p>CEMP to include measures to reduce impacts on flora and fauna and maintain remaining vegetation through:</p> <ul style="list-style-type: none"> <li>• Nomination of no go zones</li> <li>• Fauna spotter/ catcher onsite during clearing</li> <li>• Retain habitat trees (e.g. trees with hollows) wherever practical</li> <li>• Traffic management</li> </ul> | ✓     | ✓         | ✓       | ✓               |
|        | <b>Operation</b><br>Removal, destruction or damage of marine plants from operational activities  | <ul style="list-style-type: none"> <li>• Where marine plants require maintenance, the plants will be trimmed and cut by hand to minimise disturbance impact</li> </ul>  | ✓     | ✓         | ✓       | ✓               |

| Aspect              | Impact   | Mitigation Measure  | Trail | Boardwalk | Bridges | Ancillary works |
|---------------------|--|---|-------|-----------|---------|-----------------|
|                     | Additional disturbance to aquatic environments associated with increased foot traffic and potential deviation from designated trail areas  | <ul style="list-style-type: none"> <li>• Signage to encourage trail users to stay on designated track alignment</li> <li>• Regular maintenance of SP1 alignment to clearly define trail areas and promote use of designated areas</li> </ul>  | ✓     | ✓         | ✓       | ✓               |
|                     | Dangerous Fauna (Crocodiles) inhabit the SP1 Project area. Falls into water or any entry to the water could result in injury/fatality from dangerous fauna                                   | <ul style="list-style-type: none"> <li>• To minimise the risks to public safety during this period, local education and community engagement will be used</li> <li>• Warning signage to notify trail users</li> </ul>   | x     | x         | ✓       | ✓               |
| Air quality         | <b>Construction</b><br>Generation of dust associated with machinery movement and construction of the SP1 alignment<br>Generation of exhaust emissions associated with machinery and vehicles | <ul style="list-style-type: none"> <li>• Implementation of dust suppression methods such as watering down of areas and mulching of cleared vegetation to use as ground cover</li> <li>• Avoidance or minimisation of dust generation during severe weather conditions i.e. minimising dust generation during periods of intense wind</li> <li>• Selection of machinery to be fit-for-purpose and low emission, wherever possible</li> </ul> | ✓     | ✓         | ✓       | ✓               |
|                     | <b>Operation</b><br>No air quality impacts associated with operation of the SP1 Project  | N/A   | N/A   | N/A       | N/A     | N/A             |
| Noise and vibration | <b>Construction</b><br>Additional noise and vibration may negatively impact immediate and surrounding areas  | <ul style="list-style-type: none"> <li>• Impacts will be mitigated through a Construction EMP developed by the Construction Contractor</li> </ul>   | ✓     | ✓         | ✓       | ✓               |



| Aspect       | Impact   | Mitigation Measure  | Trail | Boardwalk | Bridges | Ancillary works |
|--------------|--|---|-------|-----------|---------|-----------------|
|              |  | <ul style="list-style-type: none"> <li>• SP1 will abide by environmental impact best practice guidelines by using low impact construction methods</li> <li>• Prior and during the construction phase of SP1, provision of information to nearby residents regarding construction activities and timing should be undertaken, alongside information on who to contact if issues arise.</li> <li>• Construction activities will only occur during daytime hours, with no night time works proposed</li> </ul> |       |           |         |                 |
|              | <p><b>Operation</b></p> <p>Additional noise and vibration associated with trail use may negatively impact flora and fauna</p>                  | <ul style="list-style-type: none"> <li>• Signage around awareness of fauna species and sensitive areas</li> <li>• Active and passive discouragement – no promotion of areas that should be avoided or signage warning of restricted areas</li> <li>• Regular maintenance of SP1 alignment to clearly define trail areas and promote use of designated areas</li> </ul>  | ✓     | ✓         | ✓       | ✓               |
| <b>Waste</b> | <p><b>Construction</b></p> <p>Construction of the SP1 alignment may result in the introduction of waste material from construction workers</p> | <ul style="list-style-type: none"> <li>• Development of a Waste Management Plan</li> <li>• Storing fuels, chemicals, wastes and other potentially environmentally hazardous substances in contained areas away from watercourses and managed through a Hazardous Substances Management Plan</li> </ul>  | ✓     | ✓         | ✓       | ✓               |

| Aspect                         | Impact  | Mitigation Measure   | Trail | Boardwalk | Bridges | Ancillary works |
|--------------------------------|---|--|-------|-----------|---------|-----------------|
|                                |   | <ul style="list-style-type: none"> <li>• General waste will be securely disposed of in provided bins</li> </ul>  |       |           |         |                 |
|                                | <p><b>Operation</b></p> <p>Ongoing trail use may result in erosion and sedimentation to surrounding surface water and the introduction of waste material which may negatively impact water quality.</p> | <ul style="list-style-type: none"> <li>• Placement of signage at entrances and exits of the trail informing trail-users of the appropriate use of bins for waste material</li> <li>• Providing bins at the entrances and exits of the trail for trail-users to dispose of any waste material before entering and leaving the trail</li> <li>• Active and passive discouragement – no promotion of areas that should be avoided or signage warning of restricted areas</li> </ul> | ✓     | ✓         | ✓       | ✓               |
| <b>Existing infrastructure</b> | <p><b>Construction</b></p> <p>Potential for earthworks to expose and damage existing buried services and plant collision with overhead services</p>   | <ul style="list-style-type: none"> <li>• Contractor is to locate services on site prior to doing excavations and relocate services as required. Contractor to implement JSEA/SWMS for plant working near overhead utilities and use spotters as required</li> </ul>  | ✓     | ✓         | ✓       | ✓               |
|                                | Mechanical excavation striking the fibre optic cable running through site   | <ul style="list-style-type: none"> <li>• Contractor to adhere to acceptable construction methods and times in accordance with environmental management plans</li> </ul>  | ✓     | ✓         | ✓       | ✓               |
|                                | Damage to existing Road Bridge from excavation of the rock protection for the underpass retaining wall  | <ul style="list-style-type: none"> <li>• Contractor to implement JSEA safe work method statement. Contractor to implement access management plan for access to site of works</li> </ul>  | x     | x         | ✓       | ✓               |
|                                | <b>Operation</b>  | N/A  | N/A   | N/A       | N/A     | N/A             |

| Aspect                                 | Impact  | Mitigation Measure   | Trail | Boardwalk | Bridges | Ancillary works |
|--|---|--|-------|-----------|---------|-----------------|
|  | No impacts to existing infrastructure associated with operation of the SP1 Project                          |  |       |           |         |                 |
| <b>Transport</b>                       | <b>Construction</b><br>Increased traffic and road congestion as a result of workers and material deliveries | <ul style="list-style-type: none"> <li>•Employ workers from within the local area and source materials locally, wherever possible</li> <li>•Appropriate scheduling of deliveries to reduce frequency</li> <li>•Construction traffic to use existing roads and/or gravel road surfaces wherever possible</li> </ul> | ✓     | ✓         | ✓       | ✓               |
|  | <b>Operation</b><br>No transport impacts associated with operation of the SP1 Project                       | N/A  | N/A   | N/A       | N/A     | N/A             |
| <b>Greenhouse gasses</b>               | <b>Construction</b><br>Production of greenhouse gasses as a result of machinery use                         | <ul style="list-style-type: none"> <li>•Selection of machinery to be fit-for-purpose and low emission, wherever possible</li> </ul>  | ✓     | ✓         | ✓       | ✓               |
|  | <b>Operation</b><br>No greenhouse gas impacts associated with operation of the SP1 Project                  | N/A  | N/A   | N/A       | N/A     | N/A             |
| <b>Social and economic environment</b> | <b>Construction</b><br>SP1 has the potential to impact on native title                                      | <ul style="list-style-type: none"> <li>•SP1 will abide by environmental impact best practice guidelines to develop a project that is low impact</li> <li>•Where works are proposed in an area where native title exists, an indigenous</li> </ul>  | ✓     | ✓         | ✓       | ✓               |

| Aspect                   | Impact  | Mitigation Measure  | Trail | Boardwalk | Bridges | Ancillary works |
|--------------------------|---|---|-------|-----------|---------|-----------------|
|                          |   | land use agreement (ILUA) is likely to be required  |       |           |         |                 |
|                          | Construction may result in impacts to roads users   | <ul style="list-style-type: none"> <li>• Appropriate traffic management during construction</li> </ul>  | x     | x         | x       | ✓               |
|                          | <b>Operation</b><br>Change of social demographics and regional economy as a result of SP1 Project                           | <ul style="list-style-type: none"> <li>• Employ workers from within the local area, wherever possible</li> </ul>  | ✓     | ✓         | ✓       | ✓               |
| <b>Cultural heritage</b> | <b>Construction</b><br>Potential to find unrecorded cultural heritage   | <ul style="list-style-type: none"> <li>• CEMP to include procedure for discovery of unexpected cultural finds</li> <li>• Implementation of FIND-STOP-NOTIFY procedure</li> </ul>  | ✓     | ✓         | ✓       | ✓               |
|                          | <b>Operation</b><br>Additional access to sensitive and restricts sites that may impact on Traditional Owner cultural values | <ul style="list-style-type: none"> <li>• Highlighting the importance of cultural heritage sites with clear signage recommending trail-users do not impact on the areas</li> <li>• Regular maintenance of SP1 alignment to clearly define trail areas and promote use of designated areas</li> </ul> | ✓     | ✓         | ✓       | ✓               |

### **3.6 Future maintenance**

SP1 has been designed to emphasise the natural environment and minimise future maintenance.

SP1 will be designed and constructed initially according to best practice for environmental sustainability, thus minimising, but not eliminating, the need for maintenance.

Maintenance of the SP1 alignment is important for the following reasons:

- To achieve maximum usage by the intended users
- To make the trail last as long as possible
- To ensure that the trail does not become dangerous to users
- To exercise the land manager's duty of care to provide a safe environment for users
- To minimise the legal liability to the land manager.
- The trail corridor will be kept clear of any encroaching vegetation. Although heavy trail use tends to discourage vegetation growth within trail corridors, over time vegetation is likely to grow in to the trail corridor. Where marine plants require maintenance, the plants will be trimmed and cut by hand to minimise disturbance impact.

The proposed maintenance schedule for infrastructure aspects of the SP1 Project are listed in Table 3-4.

**Table 3-4 Proposed maintenance schedule for SP1 infrastructure aspects**

| Asset type          |                              | Ongoing maintenance   | Regularly maintenance  | Replacement  |
|---------------------|------------------------------|---|--|--|
| Walking track       | General maintenance          | <b>3 monthly</b><br>Maintenance and repairs by Ranger (or similar)  | <b>Two yearly</b><br>Track repairs from weather events                                     | As required following extreme weather events or every 10-20 years                |
| Mountain bike track | General maintenance          | <b>3 monthly</b><br>Maintenance and repairs by Ranger (or similar)  | <b>Two yearly</b><br>Track repairs from weather events                                     | As required following extreme weather events or every 10-20 years                |
| Bridge (<3 m drop)  | To be confirmed              | <b>Yearly</b><br>Basic Inspection as per QPWS procedural guide  | To be confirmed  | As required following extreme weather events or every 20-30 years or as required |
| Mowbray Bridge      | As per QPWS procedural guide | <b>6 monthly</b><br>Basic inspection as per QPWS procedural guide<br><br><b>Yearly</b><br>Basic inspection as per QPWS procedural guide | <b>Three yearly</b><br>Condition Audit<br><br><b>Five yearly</b><br>Engineering inspection | As required following extreme weather events or every 50+ years or as required   |
| Boardwalk (2200 m)  | As per QPWS procedural guide | <b>6 monthly</b><br>Basic inspection as per QPWS procedural guide<br><br><b>Yearly</b><br>Basic inspection as per QPWS procedural guide | <b>Three yearly</b><br>Condition Audit<br><br><b>Five yearly</b><br>Engineering inspection | As required following extreme weather events or every 10-20 years                |

## 4. SDAP assessment

The marine plant disturbance is assessable development described in Schedule 10, Part 11, of the *Planning Regulation 2017* and requires assessment by the local authority Douglas Shire Council against:

- State Code 11 Removal, Destruction or Damage of marine plants.

The proposed marine plant disturbance has achieved compliance with the Performance Outcome requirements of the State Development Assessment Provisions (SDAP) State Code 11. An assessment against the State Code 11 is contained in Appendix A.

## 5. Offsetting obligations

Under the *Environmental Offsets Act 2014*, operational works for the removal, destruction or damage of marine plants is considered to be a prescribed activity under Part 3, Section 9 and the removal, destruction or damage of marine plants is a prescribed environmental matter under the *Environmental Offsets Regulation 2014* Schedule 2, Section 11. Under the *Environmental Offsets Act 2014*, significant residual impacts to matters of state environmental significance (including marine plants) are required to be offset in accordance with the Queensland *Environmental Offset Policy*.

The relevant *Significant Residual Impact Guideline* (for MSES and prescribed activities under the Sustainable Planning Act 2009) states that a significant residual impact is likely to occur if:

- a. More than 50 m<sup>2</sup> of marine plants above tidal limits will be permanently removed as a result of the project

AND

- b. Onsite rehabilitation or restoration will not result in an equal or larger area of marine plants, providing equal or better fisheries values, within 5 years of clearing.

Whilst the works are below tidal limits, the action involves the removal of marine plants of an area larger than 25 m<sup>2</sup> and, while temporary disturbance areas are likely to naturally revegetate, areas of disturbance are not expected to return to pre disturbance condition within 5 years.

Based on the above, SP1 has been assessed as having a significant residual impact in accordance with the *Environmental Offsets Act 2014* by permanently impacting 5,824 m<sup>2</sup> of marine plants.

Under the *Environmental Offsets Act 2014* and the *Queensland Environmental Offsets Policy*, offset obligations for impacts to marine plants can be discharged through a land based offset, a monetary contribution or a combination of the two.



## 6. Conclusion

As described in Section 0, DITID is proposing to establish SP1; the first stage of the Wangetti Trail. The project, both SP1 and the Wangetti Trail in its entirety, will aim to deliver an iconic international ecotourism experience with direct economic benefits to regional Queensland and local Traditional Owners. It is estimated that thousands of walkers and mountain bike riders will visit the Wangetti Trail each year, with the project delivering a major nature-based attraction and enhancing conservation and protection of a cherished part of Tropical North Queensland.

SP1 is located within a coastal area and will cause disturbance to marine plants, both temporary and permanent. Impact to marine plants as a result of SP1 works has been minimised to the greatest extent practical, through the careful selection of infrastructure design and locality. A number of onsite impact management strategies have also been nominated to minimise the impact of SP1 works on marine plants and their habitats.

The proposed works are anticipated to permanently impact 5,824 m<sup>2</sup> of marine plants and temporarily impact 2,779 m<sup>2</sup> of marine plants. The unavoidable permanent impacts to marine plants will be required to be offset.

The works have been assessed against the SDAP State Code 11: Removal, destruction or damage of marine plants and compliance with the Performance Outcomes has been achieved.

## 7. References

Aurecon (2018) *Wangetti Trail - Environment and Planning Technical Report*. Revision 1, 18 October 2018.

BCC (2017) *Bayside Parklands*. Brisbane City Council. Accessed from: <https://www.brisbane.qld.gov.au/clean-and-green/natural-environment-and-water/bushland-reserves/bayside-parklands>

Department of Environment and Science (DES) (2019), *Mossman Drainage Basin*, Queensland Government, <https://wetlandinfo.des.qld.gov.au/wetlands/facts-maps/basin-mossman/>.

Department of State Development, Infrastructure and Planning (2014) *Significance Residual Impact Guideline*. Queensland Government. Accessed from: <http://www.dlgrma.qld.gov.au/resources/guideline/planning/dsdip-significant-residual-impact-guideline.pdf>.

GHD (2019) *SK010 Drawing for concept boardwalks*. Prepared for DITID.

PwC (2018) *Wangetti Trail Draft Business Case*. Prepared for DITID. Developed for the Department of Innovation, Tourism Industry Development and the Commonwealth Games.

World Trail Pty Ltd (2017) *Wangetti Trail Concept Plan*. Prepared for Douglas Shire and Cairns Regional Councils.

World Trail Pty Ltd (2018), *Wangetti Trail Detailed Design – Final Report*, Prepared for DITID.

# Appendices

# Appendix A - State Code 11

## SDAP Code 11 - Removal, destruction or damage of marine plants

| Performance outcomes   | Acceptable outcomes  | Comment  |
|--|--|--|
| <p><b>PO1</b> There is a demonstrated need for the development, and alternatives (locations and designs) which do not involve removal, destruction or damage of marine plants and impacts to fisheries resources and fish habitats are not viable.</p> | <p>For development associated with a public health or safety purpose:</p> <p>AO1.1 Development is for:</p> <ol style="list-style-type: none"> <li>1. signage or aids to warn the public of a safety hazard (for example, within a waterway to warn of submerged rocks, crocodiles, marine stingers); or</li> <li>2. prevention of an impending public safety issue; or</li> <li>3. the mitigation of a hazard to public safety that has resulted from a specific unforeseen event (for example, a fallen tree that is a danger to safe navigation); or</li> <li>4. placement of a cyclone mooring identified under a cyclone contingency plan by the harbour master or controlling port authority, and is located in accordance with the plan; or</li> <li>5. a public health purpose that has been endorsed in writing by Queensland Health or the relevant local government.</li> </ol> <p>For any other development, no acceptable outcome is prescribed.</p> <p>Note: The application should identify and document the impacts of alternative proposals.</p> | <p><b>P01 Compliance achieved</b></p> <p>Tourism is a key economic driver of Tropical North Queensland, with the Wangetti Trail project aiming to deliver an iconic international ecotourism experience with direct economic benefits to regional Queensland and local Traditional Owners, potentially attracting up to 28,000 local and international visitors annually.</p> <p>The Wangetti Trail will also enhance conservation and protection of a cherished part of Tropical North Queensland and deliver environmental, social and economic benefits to local communities and to Queensland.</p> <p>Project alternatives were not considered viable as they did not reduce impact to marine plants and were related to additional disturbance of TECs and issues related to safety in design of bridged trail areas.</p> <p>Impacts to marine plants has been minimised wherever possible through the careful selection of track locations, specifically the inset of the trail to retain primary coastal buffer plants and the reduction of meandering pathways. The trail has also been reduced to the smallest possible width compliant with safety requirements for dual use pathways. In some low-lying areas of marine plants, a boardwalk is used rather than an on-ground trail; the elevated trail will reduce impact and disturbance</p> |

| Performance outcomes  | Acceptable outcomes                  | Comment  |
|---|--------------------------------------|--|
|   |                                      | to marine plants long-term by containing users to the trail. The elevated boardwalk allows safe passage of users through tidal areas.  |
| <p><b>PO2</b> Only those aspects of a development that have a functional requirement to be located on tidal land create the requirement to remove, destroy or damage marine plants. Ancillary elements (for example: car and trailer parks, rest rooms, offices) occur outside of tidal land.</p> <p>Note: Tidal land within the development site should be accurately identified on plans provided with the application, together with the location of highest astronomical tide, mean high water spring and mean low water spring tide heights.</p> <p>The extent, location, species and condition of marine plants that are proposed for removal, damage or destruction and retained have been clearly and accurately identified and mapped to enable risks and impacts to be properly assessed.</p> | No acceptable outcome is prescribed. | <p><b>P02 Compliance achieved</b></p> <p>The extent of disturbance to marine plants will be limited to that essential to complete the trail. As the Wangetti Trail represents a Tropical North Queensland ecotourism destination, the connection with tidal and beach environments area are inextricably linked. The car park and observation viewing platform have been located outside of tidal land..</p> |
| <p><b>PO3</b> Development impacting marine plants:</p> <ol style="list-style-type: none"> <li>1. directly abuts land that has full riparian access rights; or</li> <li>2. provides a public facility.</li> </ol> <p>Note: Further guidance on rights in context of fisheries resources and fish habitats is provided in the operational policy provisions of Management and protection of marine plants and other tidal fish habitats (FHMOP 001), Department of Primary Industries and Fisheries, 2007.</p>  | No acceptable outcome is prescribed. | <p><b>P03 Compliance achieved</b></p> <p>The Wangetti Trail development provides a public facility.</p>  |

| Performance outcomes  | Acceptable outcomes   | Comment   |
|---|---|---|
| <p>The provision of owners consent to lodge the development application does not confer rights.</p>   |   |   |
| <p><b>PO4</b> The spatial extent of disturbance to marine plants is minimised.</p> <p>Note: For more information, refer to relevant fish habitat management operational policies and fish habitat guidelines:</p> <ol style="list-style-type: none"> <li>1. Management and protection of marine plants and other tidal fish habitats (FHMOP 001), Department of Primary Industries and Fisheries, 2007</li> <li>2. Tidal fish habitats, erosion control and beach replenishment (FHMOP 010), Department of Primary Industries and Fisheries, 2007</li> <li>3. Dredging, extraction and spoil disposal activities (FHMOP 004), Department of Primary Industries, 1998</li> <li>4. Departmental procedures for permit applications assessment and approvals for insect pest control in wetlands (FHMOP 003), Department of Primary Industries, 1996</li> <li>5. Fisheries guidelines for fish-friendly structures (FHG 006), Department of Primary Industries and Fisheries, 2006.</li> </ol> | <p>For work associated with private development that is a jetty, pontoon or boat ramp only:</p> <p>AO4.1 Only one structure adjoins the property.</p> <p>Note: A structure includes boat ramps, jetties and pontoons</p> <p>AND</p> <p>AO4.2 The extent of marine plants removed, damaged or destroyed does not exceed two metres along the waterway frontage (width).</p> <p>AND</p> <p>AO4.3 The long-term use and operability of the development will not result in ongoing adverse impacts or new adverse impacts or additional development. For example, a proposed jetty will not result in the need to dredge navigation access to the development in the future.</p> <p>AND one of the following acceptable outcomes apply</p> <p>AO4.4 The extent of marine plant removal, damage or destruction for a jetty or pontoon development has a maximum:</p> <ol style="list-style-type: none"> <li>1. area of 30 square metres; and</li> <li>2. width of two metres along the shoreline (highest astronomical tide); and</li> <li>3. length of 15 metres from highest astronomical tide (measured perpendicular to the shore).</li> </ol> | <p><b>P04 Compliance achieved</b></p> <p>Impacts to marine plants have been minimised wherever possible through the careful selection of access track locations, specifically the inset of the trail to retain primary coastal buffers and the reduction of meandering pathways. The trail has also been reduced to the smallest possible width compliant with safety requirements for dual use pathways. In some areas of low-lying marine plants, a boardwalk is used rather than an on-ground trail; the elevated trail will reduce impact and disturbance to marine plants long-term by containing users to the trail. The elevated boardwalk allows safe passage of users through tidal areas.</p> |

| Performance outcomes  | Acceptable outcomes   | Comment   |
|---|---|---|
|   | OR<br>AO4.5 The boat ramp development has a maximum development footprint of 45 square metres.<br>For any other development, no acceptable outcome is prescribed. |   |
| <b>PO5</b> The timing of works avoids marine plant flowering, fish spawning and fish migration periods. | No acceptable outcome is prescribed.  | <b>P05 Compliance not achieved, however an acceptable outcome has been provided</b><br>SP1 construction works are expected to commence in November 2019 and will continue for approximately nine months, until September 2020, subject to weather conditions and material availability. Subsequently, construction will coincide with the flowering of the following marine plant species: <ul style="list-style-type: none"> <li>• <i>Aegialitis annulata</i> (club mangrove) typically flowers between September and December</li> <li>• <i>Aegiceras corniculatum</i> (river mangrove) has minor flowering all year round with peak flowering in late spring and summer, between October and January</li> <li>• <i>Avicennia marina</i> (grey mangrove) typically flowers from mid to late summer, between December and February</li> <li>• <i>Bruguiera gymnorhiza</i> (large-leafed orange mangrove) typically flowers throughout the year, with fruits appearing between August and February</li> </ul> |



| Performance outcomes | Acceptable outcomes | Comment  |
|----------------------|---------------------|--|
|                      |                     | <ul style="list-style-type: none"> <li>• <i>Bruguiera sexangular</i> (northern large-leafed mangrove) typically flowers in Autumn, from March to May</li> <li>• <i>Ceriops tagal</i> (yellow mangrove) typically flowers from September to December</li> <li>• <i>Clerodendrum inerme</i> (scrambling clerodendrum) typically flowers August to January</li> <li>• <i>Excoecaria agallocha</i> (milky mangrove) typically flowers from October to April</li> <li>• <i>Lumnitzera littorea</i> (red-flowered black mangrove) typically flowers from November to December</li> <li>• <i>Sesuvium portulacastrum</i> (sea purslane) typically flowers through most of the year</li> <li>• <i>Sporobolus virginus</i> (salt couch grass) flowers predominantly through the summer and autumn months, between December and May</li> <li>• <i>Rhizophora stylosa</i> (stilted mangrove) typically flowers in winter, from June to August</li> <li>• <i>Xylocarpus granatum</i> (cannonball mangrove) typically flowering occurs from April to November.</li> </ul> <p>However, it is important to note that while construction works occur within the flowering season of multiple marine plant species, the timing of works do not span the entirety of the flowering seasons for all species, including two of the three most common species (<i>R. stylosa</i> and <i>C. tagal</i>).</p> <p>Mitigation measures will be put in place to minimise impact to marine plants including during flowering. These include:</p> |

| Performance outcomes | Acceptable outcomes | Comment  |
|----------------------|---------------------|--|
|                      |                     | <ul style="list-style-type: none"> <li>• Sequential clearing will take place during construction of SP1</li> <li>• Removal and disturbance of marine plants will only occur where necessary</li> <li>• Vegetation will be clearly marked to avoid accidental clearing.</li> </ul> <p>The retention of marine plants has been also maximised wherever possible. The total temporary and permanent disturbance area of marine plants related to the SP1 Project has been calculated as 0.27 ha or 0.24% of the local extent and 0.58 ha or 0.56% of the local extent, respectively. Collectively, 0.8% of marine plants within the SP1 Project area will be disturbed as a result of the Project, representing a relatively small area comparative to the marine plant population within the SP1 Project vicinity.</p> <p>Fish spawning and/or fish migration is expected to occur within the waterways of the area of impact. The construction of the bridge and any temporary waterway barrier works will be conducted in accordance with the accepted development requirements to minimise impacts on spawning and migration activities.</p> <p>The bridge itself, which is the subject of the assessment, will not block the waterway once constructed further than it currently is. Previously there were five piers in Mowbray River, those will now be replaced by four piers, spaced 13 m apart and each pier is 0.5 m in width. This improves the</p> |

| Performance outcomes  | Acceptable outcomes                         | Comment   |
|---|---|---|
|   |   | <p>potential for fish movement and will continue to allow for sufficient fish passage within the Mowbray River.</p> <p>Fish may temporarily avoid the area during boardwalk construction, however, alternate suitable resources are available in the region. Therefore, no long term impacts to fish spawning or migration are predicted from the proposed works.</p>   |
| <p><b>PO6</b> Development of or adjacent to, fish habitats avoids the unnecessary loss, degradation or fragmentation of fish habitats and their values and the loss of fish movement.</p> <p>Note: For more information, refer to relevant fish habitat management operational policies and fish habitat guidelines:</p> <ul style="list-style-type: none"> <li>6. Management and protection of marine plants and other tidal fish habitats (FHMOP 001), Department of Primary Industries and Fisheries, 2007</li> <li>7. Tidal fish habitats, erosion control and beach replenishment (FHMOP 010), Department of Primary Industries and Fisheries, 2007</li> <li>8. Dredging, extraction and spoil disposal activities (FHMOP 004), Department of Primary Industries, 1998</li> <li>9. Departmental procedures for permit applications assessment and approvals for insect pest control in wetlands (FHMOP 003), Department of Primary Industries, 1996</li> </ul> | <p>No acceptable outcome is prescribed.</p> | <p><b>P06 Compliance achieved</b></p> <p>No declared fish habitat areas are present within the area of impact. The closest fish habitat area is located in Cairns, approximately 50 km south of the area of impact. Impacts to fish habitats have been minimised wherever possible through the careful selection of access track locations, specifically the inset of the trail to retain primary coastal buffer plants and the reduction of meandering pathways. The trail has also been reduced to the smallest possible width compliant with safety requirements for dual use pathways. In areas of fish habitat, a boardwalk is used rather than an on-ground trail; while the construction of a boardwalk causes additional temporary disturbance, the elevated trail will reduce impact and disturbance to fish habitats long-term.</p> |

| Performance outcomes   | Acceptable outcomes                         | Comment  |
|--|---|--|
| <p>10. Fisheries guidelines for fish-friendly structures (FHG 006), Department of Primary Industries and Fisheries, 2006.</p>  |   |  |
| <p><b>P07</b> Development does not increase the risk of mortality, disease or injury, or compromise the health, productivity, marketability or suitability for human consumption of fisheries resources, having regard to (but not limited to):</p> <ol style="list-style-type: none"> <li>11. biotic and abiotic conditions, such as water and sediment quality</li> <li>12. substances that are toxic to plants or toxic to or cumulative within fish</li> <li>13. design of structures</li> <li>14. impacts on reproductive success</li> <li>15. effect on fish energy reserves</li> <li>16. whether fish may be physically damaged, killed, trapped or stranded</li> <li>17. fish passage and access to habitats generally; and</li> <li>18. the impacts of pest fish and other relevant pest species.</li> </ol> <p>Note: A fish salvage plan may be required to demonstrate compliance with the performance outcome and may form a condition of any approval.</p> <p>Permits or other authorities may be required under the <i>Fisheries Act 1994</i> for the use of regulated fishing apparatus and to possess fisheries resources.</p> | <p>No acceptable outcome is prescribed.</p> | <p><b>P07 Compliance achieved</b></p> <p>Fisheries resource species are expected to occur within the waterways of the area of impact.</p> <p>The construction of the bridge will require piers to maintain bridge stability. There will be four piers, spaced 13 m apart and each pier is 0.5 m in width. This will allow for sufficient fish passage within the Mowbray River.</p> <p>The base of the bridge is above the HAT and the highest reported flood level therefore in the event of high flows the water will still be below the deck of the structure, refer to Drawing No.42-21067-S001 in Appendix B for details of the HAT and the mean high water spring marks relative to the bridge structure.</p> <p>The bridge and movements across the bridge will all be well elevated above the river bed and flows limiting disease spread through contamination. All equipment used during construction and maintenance will be locally sourced or cleaned appropriately to meet development requirements.</p> <p>The construction of the piers which will support the bridge will be located within the water. The octagon shaped piers will increase the risk of mortality, or result in increased injury to fish.</p> |

| Performance outcomes  | Acceptable outcomes                         | Comment   |
|---|---|---|
|   |   | <p>Fish may temporarily avoid the area during boardwalk construction, however alternate suitable resources are available in the region.</p> <p>Sediment quality is not expected to be impacted by proposed works. The SP1 works are not anticipated to cause drainage or disturbance to acid sulfate soils. However, an acid sulfate soils management plan will be implemented during construction should disturbance occur.</p> <p>Erosion and sediment controls relevant to construction activities will be implemented and managed through the implementation of an Erosion and Sediment Control Plan (ESCP). Additionally, the extent and duration of soil exposure will be minimised as far as reasonably practicable</p> <p>Water quality is not expected to be impacted by proposed works. Water quality during construction will be managed through a Water Quality Management Plan.</p> <p>The proposed works are not expected to result in the introduction/establishment of invasive marine species as equipment for construction and maintenance will be locally sourced or cleaned appropriately to meet development requirements.</p> |
| <p><b>PO8</b> Works are undertaken to encourage fish habitats and fisheries resource values to naturally regenerate.</p> <p>Note: Substitution of fish habitats is not supported.</p> | <p>No acceptable outcome is prescribed.</p> | <p><b>P08 Compliance achieved</b></p> <p>The SP1 project has been developed to assist in the preservation of natural processes through the design of an elevated boardwalk in marine plant and wet areas. While the construction of a</p>   |

| Performance outcomes  | Acceptable outcomes  | Comment  |
|---|--|--|
| <p>A condition of approval for any marine plant restoration is likely to require a post-works monitoring and maintenance program appropriate for the scale of the restoration works.</p>  |  | <p>boardwalk causes additional temporary disturbance, the elevated trail allows for undisturbed movement and natural processes on-ground.</p> <p>The works area will be stabilised and the site will be left in a clean and tidy state upon completion, including rehabilitation where applicable. This will encourage natural regeneration of marine plant communities.</p> <p>A post-works monitoring and maintenance program will also be implemented to ensure appropriate marine plant restoration is achieved.</p> |
| <p><b>PO9</b> Development likely to cause drainage or disturbance to acid sulfate soils, prevents the release of contaminants and impacts on fisheries resources and fish habitats.</p> <p>Note: Management of acid sulfate soil is consistent with the current Queensland acid sulfate soil technical manual: Soil management guidelines v4.0, Department of Science, Information Technology, Innovation and the Arts, 2014.</p> | <p>No acceptable outcome is prescribed.</p>  | <p><b>P09 Compliance achieved</b></p> <p>The SP1 works are not anticipated to cause drainage or disturbance to acid sulfate soils. However, an acid sulfate soils management plan will be implemented during construction should disturbance occur.</p>  |
| <p><b>PO10</b> Tidal and freshwater inundation and drainage patterns, extent and timing are maintained or restored such that ecological processes continue and associated fish habitat values and condition are maintained.</p>   | <p>For bridges:</p> <p>AO10.1 Bridges are designed with abutments above the highest astronomical tide.</p> <p>AND</p> <p>For water, sewer or stormwater infrastructure:</p> <p>AO10.2 Infrastructure is placed below the existing natural substrate surface level, and natural</p> | <p><b>A010.1 Compliance achieved</b></p> <p>The base of the boardwalks are above HAT and highest reported flood level therefore in the event of high flows the water will still be below the deck of the structure, refer to Drawing No. 42-21067-SK010 in Appendix B for details of the HAT and the mean high water spring marks relative to the boardwalk structures.</p>  |

| Performance outcomes   | Acceptable outcomes  | Comment   |
|--|--|---|
|  | <p>substrate, surface levels and habitat condition and values are reinstated.</p> <p>For any other development, no acceptable outcome is prescribed.</p> | <p>The Mowbray River bridge abutments are above the HAT, refer to Drawing No.42-21067-S001 in Appendix B for details of the HAT and the mean high water spring marks relative to the bridge structure.</p> <p><b>A010.2 not applicable</b> as the development subject to marine plant disturbance does not include water, sewer or stormwater infrastructure.</p>   |
| <p><b>PO11</b> Development:</p> <ol style="list-style-type: none"> <li>1. maintains natural processes of erosion and accretion unless there is an immediate and significant threat; and</li> <li>2. does not result in increased risk of waterway bed or bank scour or erosion or shoreline or foreshore erosion.</li> </ol> | <p>No acceptable outcome is prescribed.</p>  | <p><b>P011 Compliance achieved</b></p> <p>The SP1 project has been developed to assist in the preservation of natural erosion and accretion processes through the design of an elevated boardwalk in marine plant and wet areas. While the construction of a boardwalk causes additional disturbance, the elevated trail will reduce impact to natural erosion and accretion processes long-term. The trail, both boardwalk and on-ground areas, has also been reduced to the smallest possible width compliant with safety requirements for dual use pathways. This also minimised the impact to erosion and accretion processes. Natural vegetation will remain on either side of the trail boundary to buffer erosion and sediment transport. Work areas will be stabilised and waterway bed and banks will have adequate scale and protection to minimise additional erosion.</p> <p>All construction works will be undertaken in accordance with an erosion and sediment control plan.</p> |

| Performance outcomes  | Acceptable outcomes  | Comment   |
|---|--|---|
| <p><b>PO12</b> The development is designed, sited and constructed to ensure its long-term use and operability will not result in ongoing adverse impacts or new adverse impacts or additional development including:</p> <ol style="list-style-type: none"> <li>1. dredging to maintain access</li> <li>2. trimming of marine plants</li> <li>3. warning signs or protective structures.</li> </ol>   | <p>No acceptable outcome is prescribed.</p>  | <p><b>P012 Compliance achieved</b></p> <p>The Wangetti Trail has been designed to emphasise the natural environment and minimise future maintenance. The primary maintenance activity will be trail maintenance, particularly the trimming of vegetation to preserve trail pathways and openings. Where marine plants require maintenance, the plants will be trimmed and cut by hand to minimise disturbance impact.</p> |
| <p><b>PO13</b> Development does not restrict or reduce public use of or access to tidal land and waterways (areas host to fisheries resources).</p>   | <p>For development for a material change of use or reconfiguration of a lot:</p> <p><b>AO13.1</b> Tidal land and fish habitats are separated from development and are available for public use.</p> <p>For any other development, no acceptable outcome is prescribed.</p> | <p><b>P013 Compliance achieved</b></p> <p>The SP1 project is a public facility and will enhance the public use of and access to tidal land and waterways.</p>   |
| <p><b>PO14</b> Development does not adversely impact on community access to fisheries resources and fish habitats including recreational and indigenous fishing access.</p> <p>Note: In some cases, compensation for impact on fisheries access, operations and/or productivity may be necessary. The Guideline on fisheries adjustment provides advice for proponents on relevant fisheries adjustment processes and is available by request from the Department of Agriculture and Fisheries.</p> | <p>AO14.1 The development does not alter existing infrastructure or existing community access arrangements.</p>  | <p><b>P014 Compliance achieved</b></p> <p>The development does not alter existing infrastructure or existing community access arrangements.</p>   |



| Performance outcomes   | Acceptable outcomes                         | Comment  |
|--|---|--|
| <p><b>PO15</b> Development does not adversely impact on commercial fishing access and linkages between a commercial fishery and infrastructure, services and facilities.</p> <p>Note: In some cases, compensation for impact on fisheries access, operations and/or productivity may be necessary. The Guideline on fisheries adjustment provides advice for proponents on relevant fisheries adjustment processes and is available by request from the Department of Agriculture and Fisheries.</p> | <p>No acceptable outcome is prescribed.</p> | <p><b>P015 Compliance achieved</b></p> <p>No impact on commercial fishing access and linkages will occur as a result of the SP1 project.</p> |

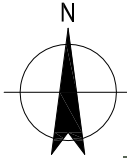
**Appendix B** - Detailed drawings

# DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT

## WANGETTI TRAIL

### MOWBRAY RIVER CARPARK

# 42-21067



| DRAWING LIST  |  |
|---------------|--|
| DRG No.       | TITLE                                  |
| 42-21067-C001 | COVER SHEET AND DRAWING INDEX          |
| 42-21067-C002 | CONTROL LINE SET-OUT PLAN              |
| 42-21067-C003 | TYPICAL CROSS SECTIONS                 |
| 42-21067-C004 | GENERAL ARRANGEMENT                    |
| 42-21067-C005 | INTERSECTION SET-OUT PLAN              |
| 42-21067-C006 | INTERSECTION SETOUT POINTS AND DETAILS |
| 42-21067-C007 | CULVERT LAYOUT AND SECTION             |
| 42-21067-C008 | ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| 42-21067-C009 | ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| 42-21067-C010 | ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| 42-21067-C011 | ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| 42-21067-C012 | ANNOTATED CROSS SECTION CTRL LINE MCA1 |

| No | Revision       | Note: * Indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date    |
|----|----------------|---|-------|-------------|------------------|---------|
| 0  | APPROVED ISSUE |   | JPT   | *MI         | *AA              | 11/7/19 |

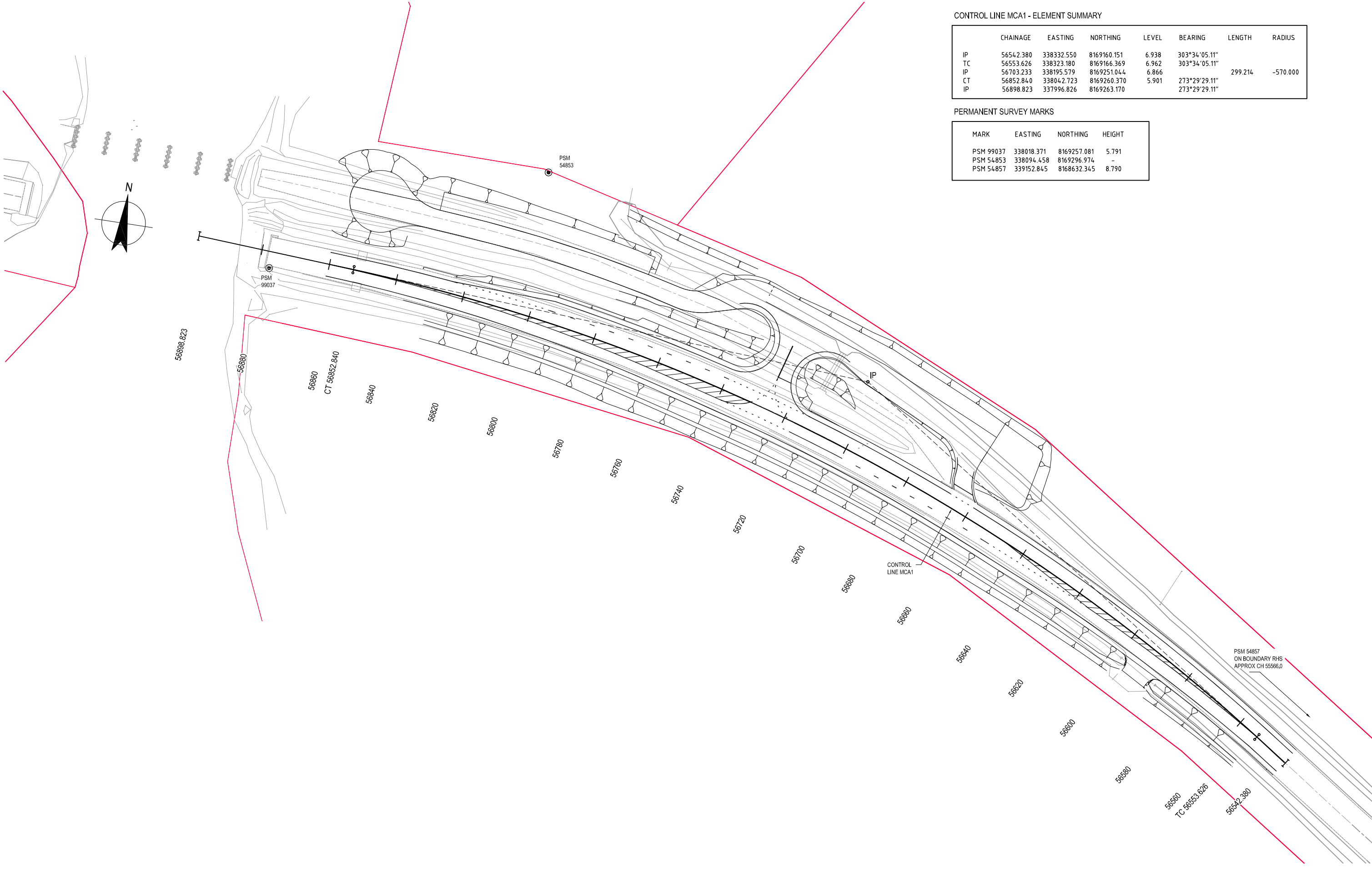
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|  |                             |                 |  |              |
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|  | Drafting Check              | *J.A.RAE        | Design Check   | *D.K.TROTTER |
|  | Approved (Project Director) | *A.A.HILADELLIS |  | Date         |
| Scale  | NOT TO SCALE                |                 | This Drawing must not be used for construction unless signed as Approved |              |

|               |  |             |               |
|---------------|--|-------------|---------------|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT |             |               |
| Project       | WANGETTI TRAIL   |             |               |
| Title         | MOWBRAY RIVER CARPARK<br>COVER SHEET AND DRAWING INDEX     |             |               |
| Original Size | A1   | Drawing No: | 42-21067-C001 |
| Rev:          | 0  |             |               |



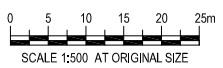
**CONTROL LINE MCA1 - ELEMENT SUMMARY**

|    | CHAINAGE  | EASTING    | NORTHING    | LEVEL | BEARING       | LENGTH  | RADIUS   |
|----|-----------|------------|-------------|-------|---------------|---------|----------|
| IP | 56542.380 | 338332.550 | 8169160.151 | 6.938 | 303°34'05.11" |         |          |
| TC | 56553.626 | 338323.180 | 8169166.369 | 6.962 | 303°34'05.11" |         |          |
| IP | 56703.233 | 338195.579 | 8169251.044 | 6.866 |               | 299.214 | -570.000 |
| CT | 56852.840 | 338042.723 | 8169260.370 | 5.901 | 273°29'29.11" |         |          |
| IP | 56898.823 | 337996.826 | 8169263.170 |       | 273°29'29.11" |         |          |

**PERMANENT SURVEY MARKS**

| MARK      | EASTING    | NORTHING    | HEIGHT |
|-----------|------------|-------------|--------|
| PSM 99037 | 338018.371 | 8169257.081 | 5.791  |
| PSM 54853 | 338094.458 | 8169296.974 | -      |
| PSM 54857 | 339152.845 | 8168632.345 | 8.790  |

| No | Revision       | Note: * Indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date    |
|----|----------------|---|-------|-------------|------------------|---------|
| 0  | APPROVED ISSUE |   | JPT   | *MI         | *AA              | 11/7/19 |



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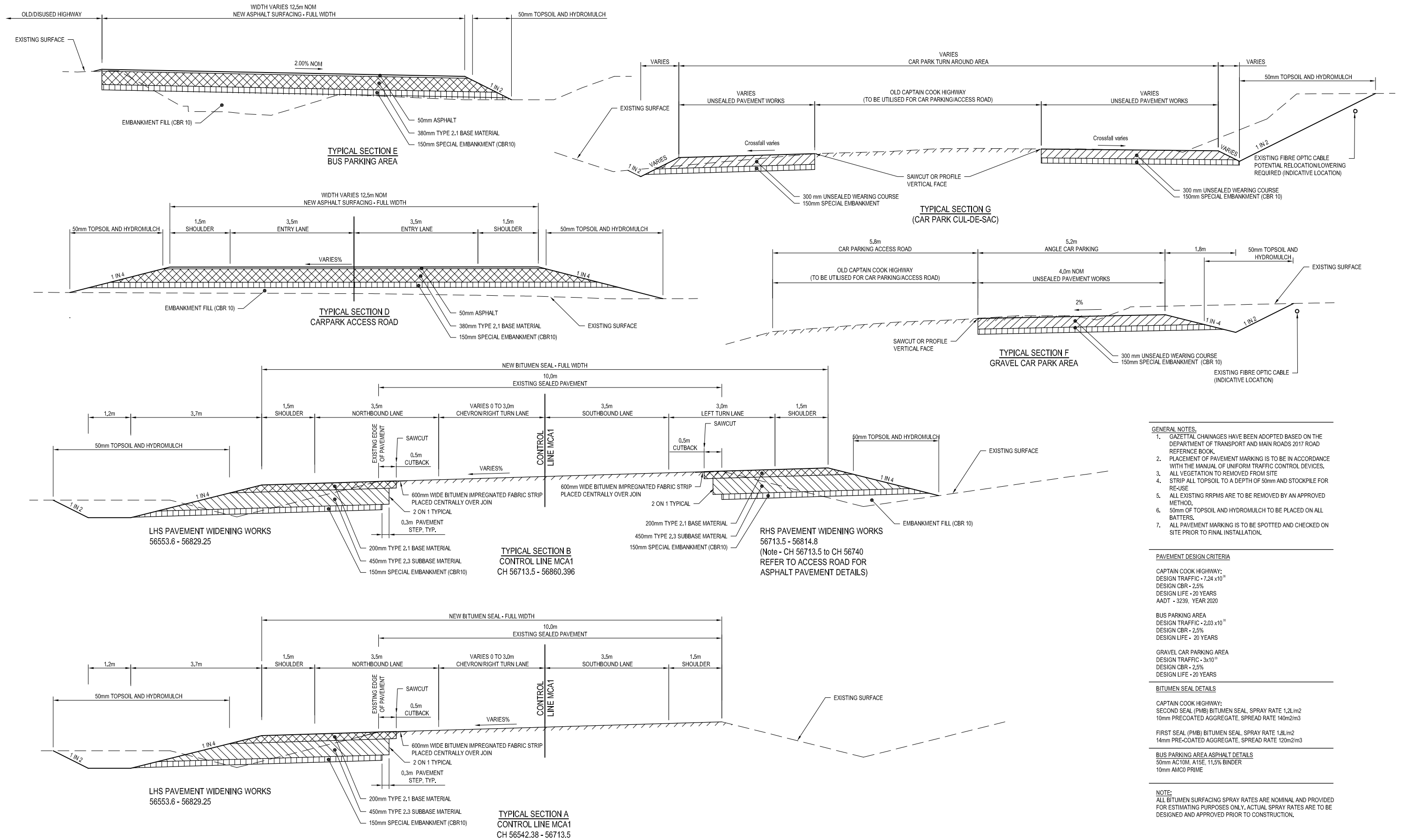
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|                             |               |              |              |
|-----------------------------|---------------|--------------|--------------|
| Drawn                       | MGM           | Designer     | JPT          |
| Drafting Check              | *J.A.RAE      | Design Check | *D.K.TROTTER |
| Approved (Project Director) | *A.HILADELLIS |              |              |
| Date                        | 11/7/19       |              |              |
| Scale                       | AS SHOWN      |              |              |

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|               |  |
|---------------|--|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT |
| Project       | WANGETTI TRAIL   |
| Title         | MOWBRAY RIVER CARPARK<br>CONTROL LINE SET-OUT PLAN         |
| Original Size | A1   |
| Drawing No:   | 42-21067-C002  |
| Rev:          | 0  |



- GENERAL NOTES.**
- GAZETTED CHAINAGES HAVE BEEN ADOPTED BASED ON THE DEPARTMENT OF TRANSPORT AND MAIN ROADS 2017 ROAD REFERENCE BOOK.
  - PLACEMENT OF PAVEMENT MARKING IS TO BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
  - ALL VEGETATION TO BE REMOVED FROM SITE.
  - STRIP ALL TOPSOIL TO A DEPTH OF 50mm AND STOCKPILE FOR RE-USE.
  - ALL EXISTING RRPMS ARE TO BE REMOVED BY AN APPROVED METHOD.
  - 50mm OF TOPSOIL AND HYDROMULCH TO BE PLACED ON ALL BATTERS.
  - ALL PAVEMENT MARKING IS TO BE SPOTTED AND CHECKED ON SITE PRIOR TO FINAL INSTALLATION.

**PAVEMENT DESIGN CRITERIA**

CAPTAIN COOK HIGHWAY:  
 DESIGN TRAFFIC - 7.24 x10<sup>6</sup>  
 DESIGN CBR - 2.5%  
 DESIGN LIFE - 20 YEARS  
 AADT - 3239, YEAR 2020

**BUS PARKING AREA**  
 DESIGN TRAFFIC - 2.03 x10<sup>6</sup>  
 DESIGN CBR - 2.5%  
 DESIGN LIFE - 20 YEARS

**GRAVEL CAR PARKING AREA**  
 DESIGN TRAFFIC - 3x10<sup>6</sup>  
 DESIGN CBR - 2.5%  
 DESIGN LIFE - 20 YEARS

**BITUMEN SEAL DETAILS**

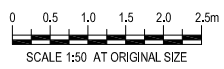
CAPTAIN COOK HIGHWAY:  
 SECOND SEAL (PMB) BITUMEN SEAL, SPRAY RATE 1.2L/m<sup>2</sup>  
 10mm PRE-COATED AGGREGATE, SPREAD RATE 140m<sup>2</sup>/m<sup>3</sup>

FIRST SEAL (PMB) BITUMEN SEAL, SPRAY RATE 1.8L/m<sup>2</sup>  
 14mm PRE-COATED AGGREGATE, SPREAD RATE 120m<sup>2</sup>/m<sup>3</sup>

**BUS PARKING AREA ASPHALT DETAILS**  
 50mm AC10M, A15E, 11.5% BINDER  
 10mm AMC0 PRIME

**NOTE:**  
 ALL BITUMEN SURFACING SPRAY RATES ARE NOMINAL AND PROVIDED FOR ESTIMATING PURPOSES ONLY. ACTUAL SPRAY RATES ARE TO BE DESIGNED AND APPROVED PRIOR TO CONSTRUCTION.

|    |                |       |             |                  |         |
|----|----------------|-------|-------------|------------------|---------|
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| No | Revision       | Drawn | Job Manager | Project Director | Date    |



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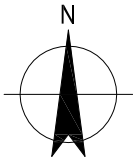
|   |   |  |
|---|---|--|
| <b>DO NOT SCALE</b>   | Drawn MGM                                 | Designer JPT   |
| Conditions of Use.<br>This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose. | Drafting Check *J.A.RAE                   | Design Check *D.K.TROTTER  |
|   | Approved *A.HILADELLIS (Project Director) | Date 11/7/19   |
|   | Scale NOT TO SCALE                        | This Drawing must not be used for construction unless signed as Approved |

Client **DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT**

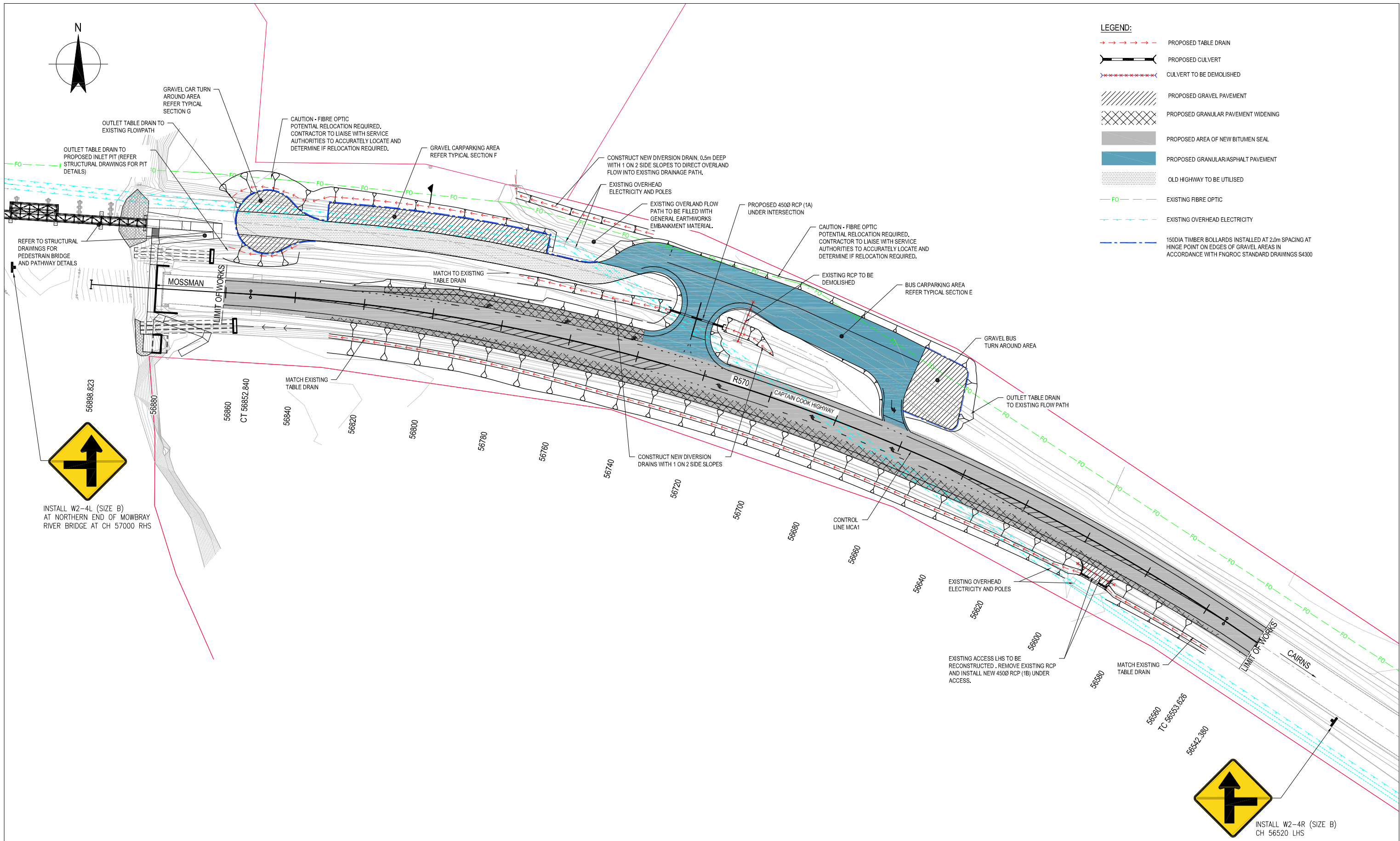
Project **WANGETTI TRAIL**

Title **MOWBRAY RIVER CARPARK TYPICAL CROSS SECTIONS**

Original Size **A1** Drawing No: **42-21067-C003** Rev: **0**



- LEGEND:**
- PROPOSED TABLE DRAIN
  - PROPOSED CULVERT
  - CULVERT TO BE DEMOLISHED
  - PROPOSED GRAVEL PAVEMENT
  - PROPOSED GRANULAR PAVEMENT WIDENING
  - PROPOSED AREA OF NEW BITUMEN SEAL
  - PROPOSED GRANULAR/ASPHALT PAVEMENT
  - OLD HIGHWAY TO BE UTILISED
  - EXISTING FIBRE OPTIC
  - EXISTING OVERHEAD ELECTRICITY
  - 150DIA TIMBER BOLLARDS INSTALLED AT 20m SPACING AT HINGE POINT ON EDGES OF GRAVEL AREAS IN ACCORDANCE WITH FNRQC STANDARD DRAWINGS S4300



INSTALL W2-4L (SIZE B)  
AT NORTHERN END OF MOWBRAY  
RIVER BRIDGE AT CH 57000 RHS

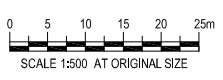


INSTALL W2-4R (SIZE B)  
CH 56520 LHS

THIS DRAWING INCLUDES COLOURED INFORMATION, IF YOU HAVE A BLACK AND WHITE COPY YOU DO NOT HAVE ALL THE INFORMATION, THIS NOTE IS COLOURED RED.



|    |                |       |             |                  |         |
|----|----------------|-------|-------------|------------------|---------|
| 0  | APPROVED ISSUE | JPT   | *MI         | *AA              | 11/7/19 |
| No | Revision       | Drawn | Job Manager | Project Director | Date    |

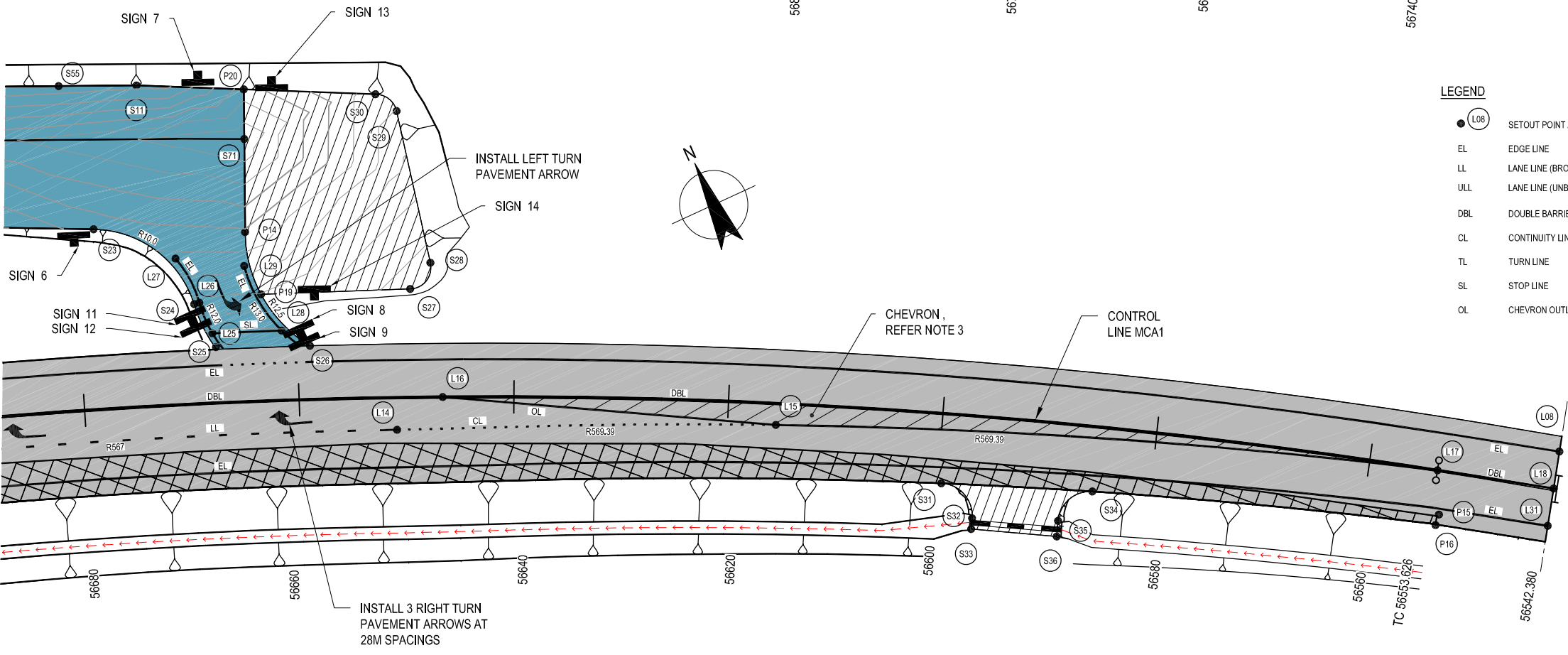
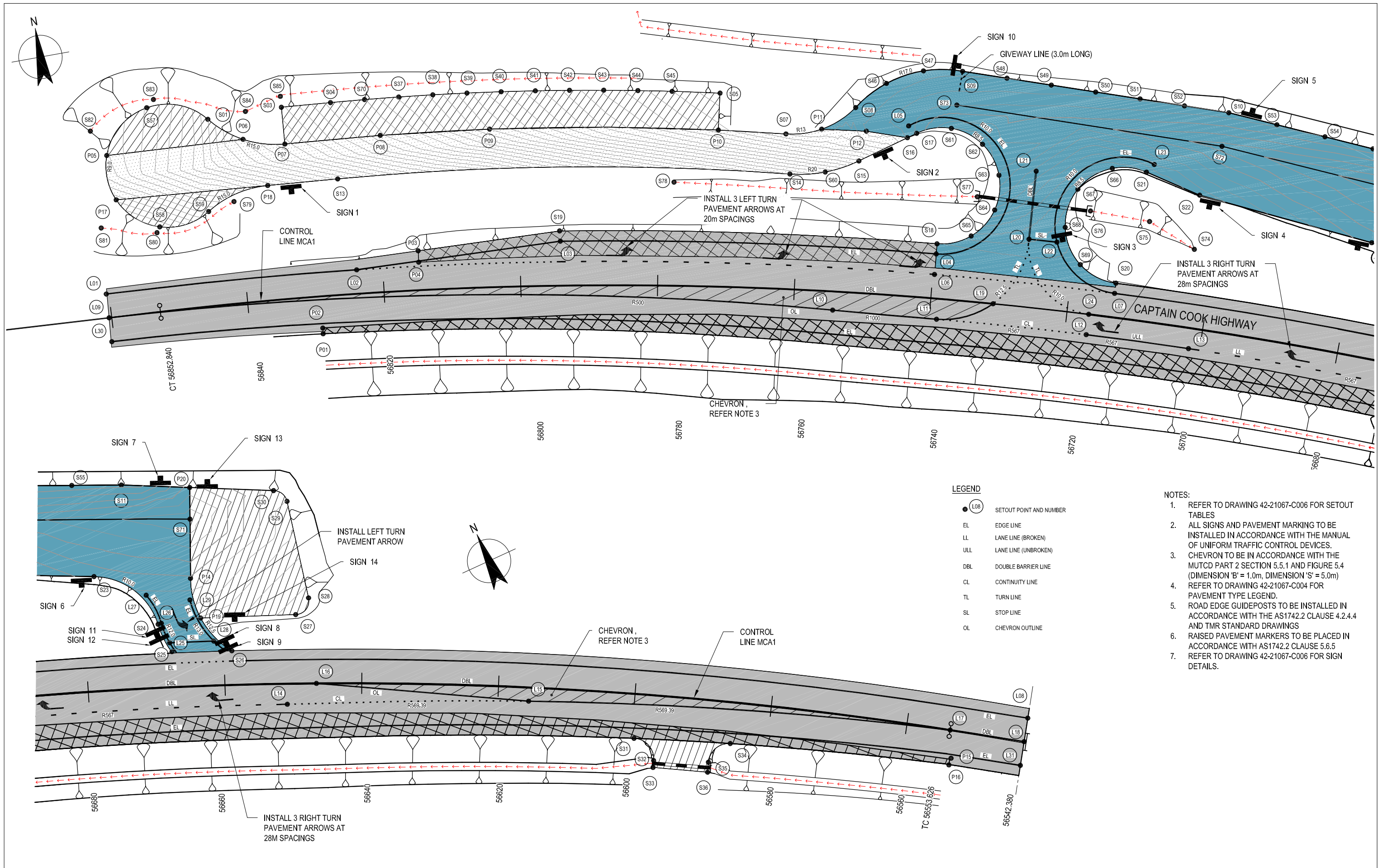


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|   | Approved *A.A.HILADELLIS (Project Director) | Date 11/7/19   |
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|               |  |
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| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT |
| Project       | WANGETTI TRAIL   |
| Title         | MOWBRAY RIVER CARPARK<br>GENERAL ARRANGEMENT               |
| Original Size | A1   |
| Drawing No:   | 42-21067-C004  |
| Rev:          | 0  |

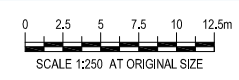


**LEGEND**

|         |                         |
|---------|-------------------------|
| ● (L08) | SETOUT POINT AND NUMBER |
| EL      | EDGE LINE               |
| LL      | LANE LINE (BROKEN)      |
| ULL     | LANE LINE (UNBROKEN)    |
| DBL     | DOUBLE BARRIER LINE     |
| CL      | CONTINUITY LINE         |
| TL      | TURN LINE               |
| SL      | STOP LINE               |
| OL      | CHEVRON OUTLINE         |

- NOTES:**
- REFER TO DRAWING 42-21067-C006 FOR SETOUT TABLES
  - ALL SIGNS AND PAVEMENT MARKING TO BE INSTALLED IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
  - CHEVRON TO BE IN ACCORDANCE WITH THE MUTCD PART 2 SECTION 5.5.1 AND FIGURE 5.4 (DIMENSION 'B' = 1.0m, DIMENSION 'S' = 5.0m)
  - REFER TO DRAWING 42-21067-C004 FOR PAVEMENT TYPE LEGEND.
  - ROAD EDGE GUIDEPOSTS TO BE INSTALLED IN ACCORDANCE WITH THE AS1742.2 CLAUSE 4.2.4.4 AND TMR STANDARD DRAWINGS
  - RAISED PAVEMENT MARKERS TO BE PLACED IN ACCORDANCE WITH AS1742.2 CLAUSE 5.6.5
  - REFER TO DRAWING 42-21067-C006 FOR SIGN DETAILS.

|    |                |   |       |             |                  |      |
|----|----------------|---|-------|-------------|------------------|------|
| 0  | APPROVED ISSUE | JPT   | *MI   | *AA         | 11/7/19          |      |
| No | Revision       | Note: * Indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date |



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| Drafting Check | *J.A.RAE                         | Design Check | *D.K.TROTTER |
| Approved       | *A.HILADELLIS (Project Director) |              |              |
| Date           | 11/7/19                          |              |              |
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Client **DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT**

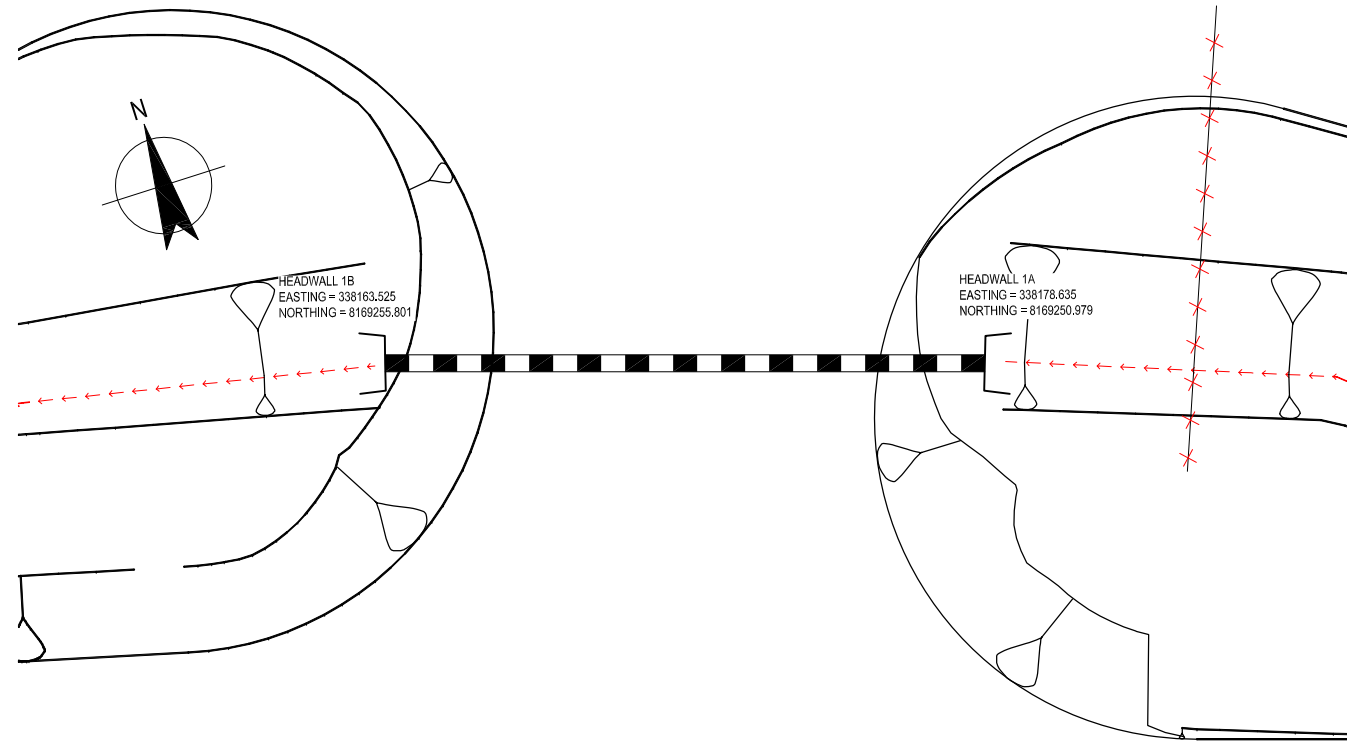
Project **WANGETTI TRAIL**

Title **MOWBRAY RIVER CARPARK INTERSECTION SET-OUT PLAN**

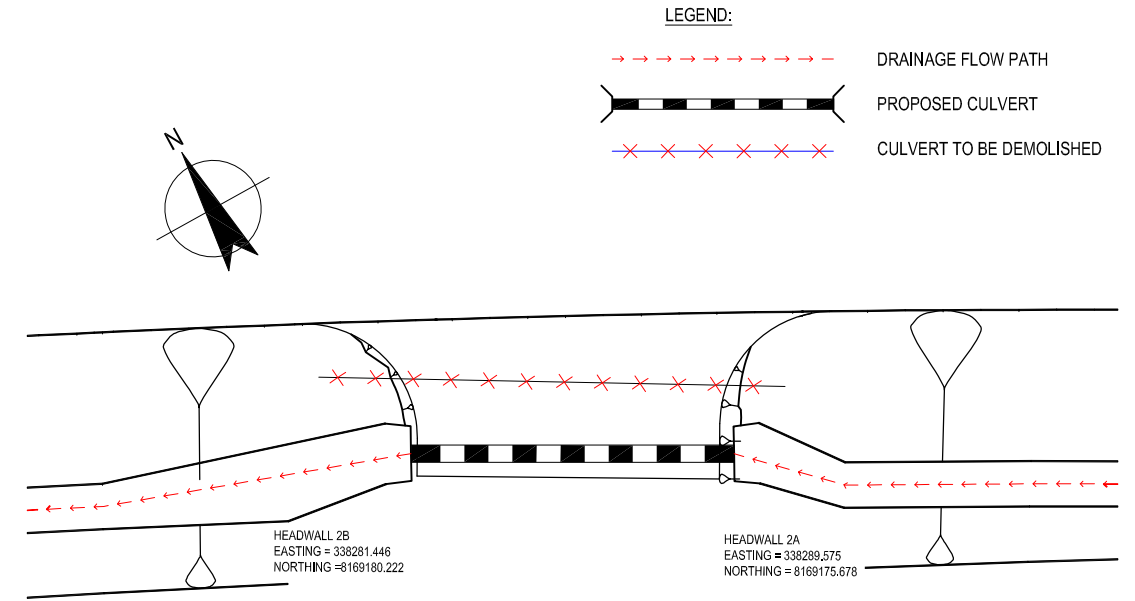
Original Size **A1** Drawing No: **42-21067-C005** Rev: **0**



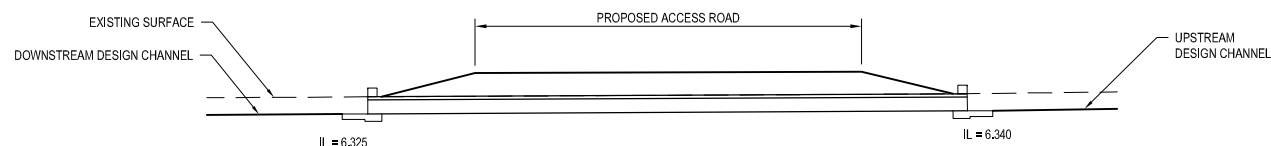




**CULVERT 1A**  
**PLAN VIEW**  
SCALE 1:100

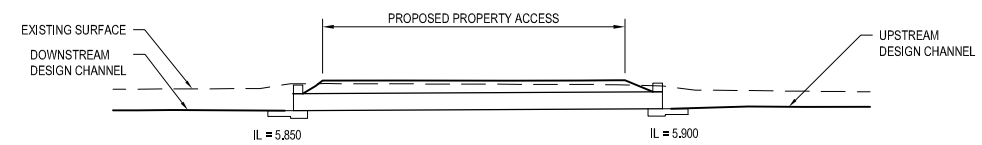


**CULVERT 1B**  
**PLAN VIEW**  
SCALE 1:100



450 RCP CLASS 2  
LENGTH = 15.06  
PRECAST CONCRETE  
SLOPING ENDWALLS X2

**CULVERT 1A**  
**SECTION VIEW**  
SCALE 1:100



450 RCP CLASS 2  
LENGTH = 9.76  
PRECAST CONCRETE  
SLOPING ENDWALLS X2

**CULVERT 1B**  
**SECTION VIEW**  
SCALE 1:100



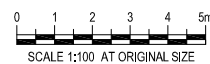
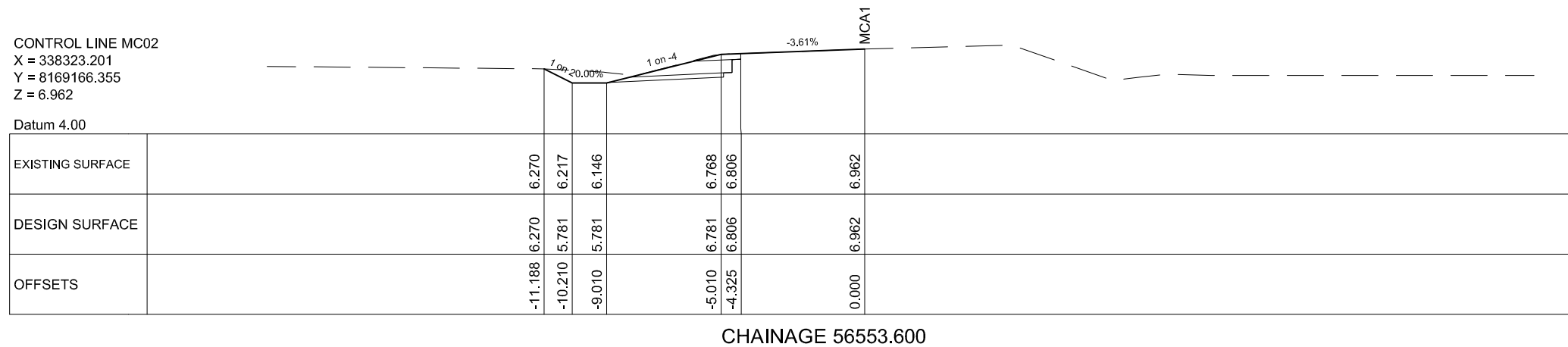
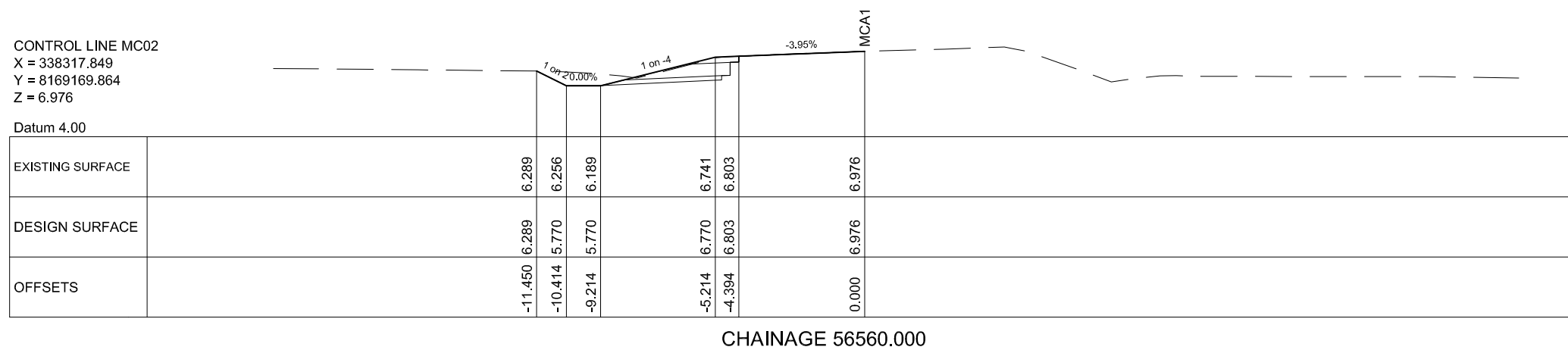
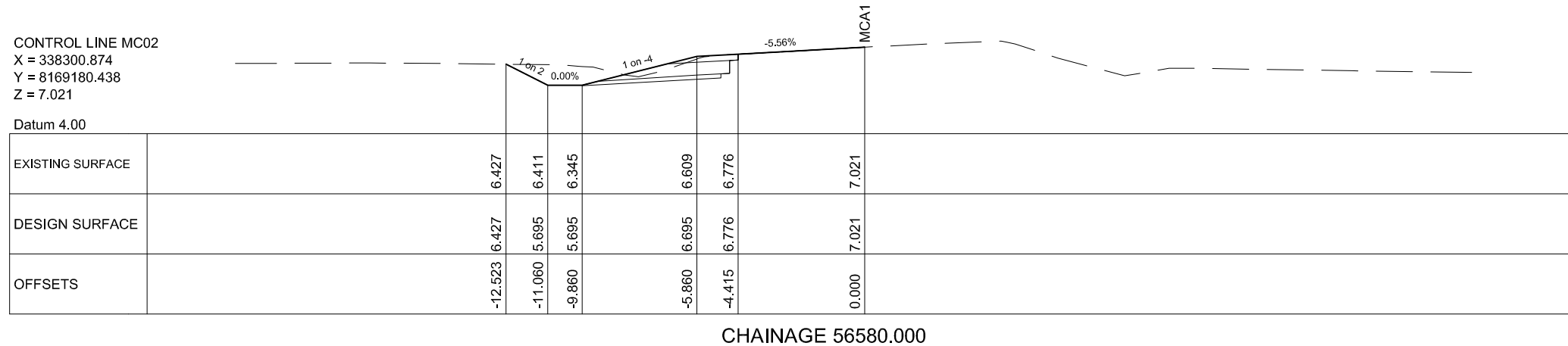
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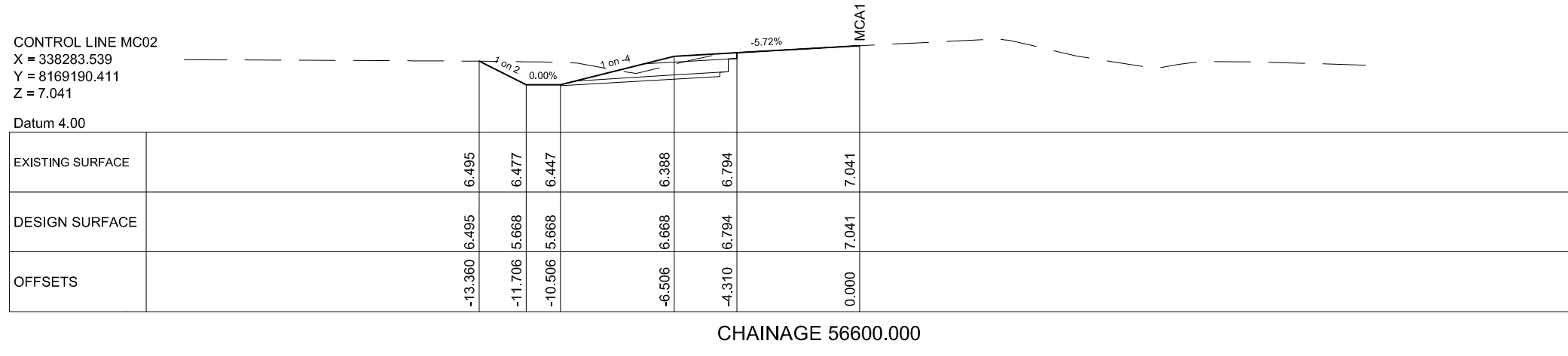
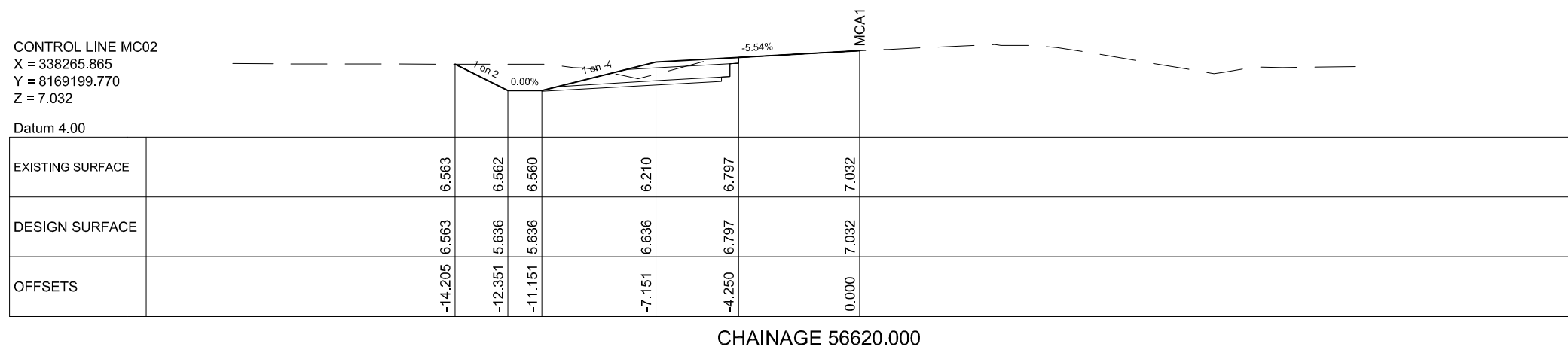
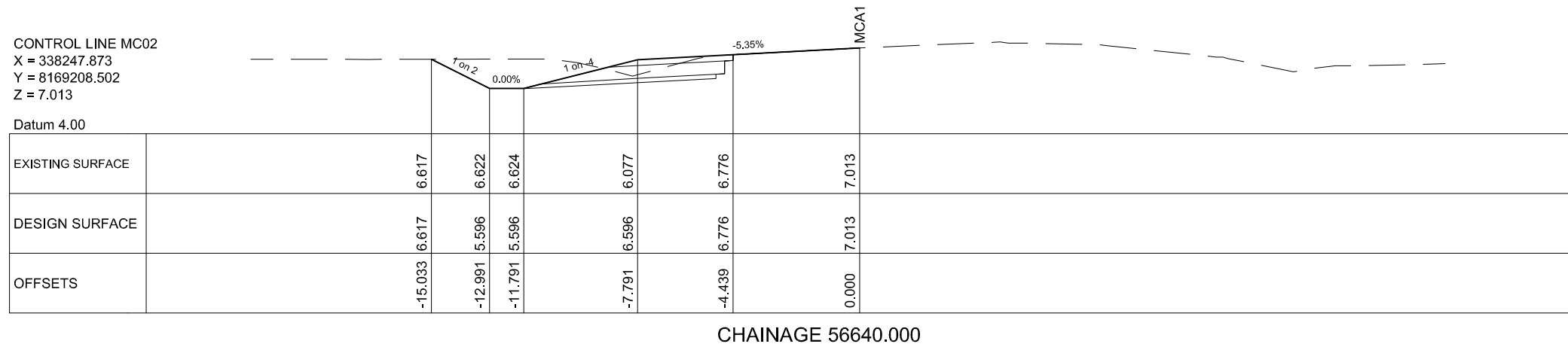
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| Drafting Check | *J.A.RAE                         | Design Check | *D.K.TROTTER |
| Approved       | *A.HILADELLIS (Project Director) |              |              |
| Date           | 11/7/19                          |              |              |
| Scale          | AS SHOWN                         |              |              |

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| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT |             |               |
| Project       | WANGETTI TRAIL   |             |               |
| Title         | MOWBRAY RIVER CARPARK<br>CULVERT LAYOUT AND SECTION        |             |               |
| Original Size | A1   | Drawing No: | 42-21067-C007 |
| Rev:          | 0  |             |               |



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|   | Drafting Check              | *J.A.RAE      | Design Check   | *D.K.TROTTER |  |
|   | Approved (Project Director) | *A.HILADELLIS | Date   | 11/7/19      |  |
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| No | Revision       | Drawn | Job Manager | Project Director | Date    |



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|  | Drafting Check              | *J.A.RAE        | Design Check   | *D.K.TROTTER |
|  | Approved (Project Director) | *A.A.HILADELLIS |  |              |
|  | Date                        | 11/7/19         |  |              |
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|---------------|---|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT      |
| Project       | WANGETTI TRAIL  |
| Title         | MOWBRAY RIVER CARPARK<br>ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| Original Size | A1  |
| Drawing No:   | 42-21067-C009   |
| Rev:          | 0   |

CONTROL LINE MC02  
 X = 338192.217  
 Y = 8169230.842  
 Z = 6.874

Datum 4.00

|                  |  |         |         |         |       |        |        |       |       |
|------------------|--|---------|---------|---------|-------|--------|--------|-------|-------|
| EXISTING SURFACE |  |         | 6.608   | 6.631   | 6.642 |        | 5.907  | 6.646 | 6.874 |
| DESIGN SURFACE   |  | 6.608   | 5.458   | 5.458   |       | 6.458  | 6.646  | 6.874 |       |
| OFFSETS          |  | -15.505 | -13.205 | -12.005 |       | -8.005 | -4.401 | 0.000 |       |

CHAINAGE 56700.000

CONTROL LINE MC02  
 X = 338211.027  
 Y = 8169224.048  
 Z = 6.934

Datum 4.00

|                  |  |         |         |         |       |        |        |       |       |
|------------------|--|---------|---------|---------|-------|--------|--------|-------|-------|
| EXISTING SURFACE |  |         | 6.641   | 6.639   | 6.638 |        | 5.966  | 6.705 | 6.934 |
| DESIGN SURFACE   |  | 6.641   | 5.530   | 5.530   |       | 6.530  | 6.705  | 6.934 |       |
| OFFSETS          |  | -15.426 | -13.204 | -12.004 |       | -8.004 | -4.541 | 0.000 |       |

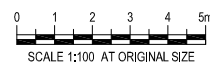
CHAINAGE 56680.000

CONTROL LINE MC02  
 X = 338229.587  
 Y = 8169216.599  
 Z = 6.980

Datum 4.00

|                  |  |         |         |         |       |        |        |       |       |
|------------------|--|---------|---------|---------|-------|--------|--------|-------|-------|
| EXISTING SURFACE |  |         | 6.660   | 6.654   | 6.650 |        | 6.020  | 6.747 | 6.980 |
| DESIGN SURFACE   |  | 6.660   | 5.563   | 5.563   |       | 6.563  | 6.747  | 6.980 |       |
| OFFSETS          |  | -15.398 | -13.204 | -12.004 |       | -8.004 | -4.471 | 0.000 |       |

CHAINAGE 56660.000



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| Drafting Check | *J.A.RAE                         | Design Check | *D.K.TROTTER |
| Approved       | *A.HILADELLIS (Project Director) |              |              |
| Date           | 11/7/19                          |              |              |
| Scale          | NOT TO SCALE                     |              |              |

|               |   |             |               |
|---------------|---|-------------|---------------|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT      |             |               |
| Project       | WANGETTI TRAIL  |             |               |
| Title         | MOWBRAY RIVER CARPARK<br>ANNOTATED CROSS SECTION CTRL LINE MCA1 |             |               |
| Original Size | A1  | Drawing No: | 42-21067-C010 |
| Rev:          | 0   |             |               |

CONTROL LINE MC02  
 X = 338134.522  
 Y = 8169247.211  
 Z = 6.593

Datum 4.00

|                |  |         |         |         |        |        |       |       |       |        |
|----------------|--|---------|---------|---------|--------|--------|-------|-------|-------|--------|
| TIN EXST       |  | 6.840   | 6.771   | 6.738   | 5.556  | 6.290  | 6.593 | 6.793 | 6.071 | 6.345  |
| DESIGN SURFACE |  | 6.840   | 5.073   | 5.073   | 6.073  | 6.290  | 6.593 | 6.793 | 6.898 | 6.345  |
| OFFSETS        |  | -16.245 | -12.711 | -11.511 | -7.511 | -4.373 | 0.000 | 4.477 | 8.000 | 10.214 |

CHAINAGE 56760.000

CONTROL LINE MC02  
 X = 338153.941  
 Y = 8169242.431  
 Z = 6.701

Datum 4.00

|                |  |         |         |         |        |        |       |       |       |        |
|----------------|--|---------|---------|---------|--------|--------|-------|-------|-------|--------|
| TIN EXST       |  | 6.781   | 6.781   | 6.782   | 5.639  | 6.466  | 6.701 | 6.900 | 6.267 | 6.461  |
| DESIGN SURFACE |  | 6.781   | 5.262   | 5.262   | 6.262  | 6.466  | 6.701 | 6.900 | 7.004 | 6.461  |
| OFFSETS        |  | -16.238 | -13.200 | -12.000 | -8.000 | -4.276 | 0.000 | 4.551 | 8.000 | 10.173 |

CHAINAGE 56740.000

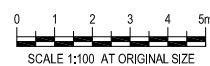
CONTROL LINE MC02  
 X = 338173.181  
 Y = 8169236.973  
 Z = 6.819

Datum 4.00

|                  |  |         |         |         |        |        |       |       |  |  |
|------------------|--|---------|---------|---------|--------|--------|-------|-------|--|--|
| EXISTING SURFACE |  | 6.661   | 6.644   | 6.636   | 5.785  | 6.571  | 6.819 | 6.995 |  |  |
| DESIGN SURFACE   |  | 6.661   | 5.360   | 5.360   | 6.360  | 6.571  | 6.819 | 6.995 |  |  |
| OFFSETS          |  | -15.808 | -13.205 | -12.005 | -8.005 | -4.323 | 0.000 | 4.409 |  |  |

CHAINAGE 56720.000

INTERSECTION RHS  
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|  | Approved (Project Director) | *A.A.HILADELLIS |  |              |
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| Project       | WANGETTI TRAIL  |
| Title         | MOWBRAY RIVER CARPARK<br>ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| Original Size | A1  |
| Drawing No:   | 42-21067-C011   |
| Rev:          | 0   |

|    |                |   |       |             |                  |         |
|----|----------------|---|-------|-------------|------------------|---------|
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| 0  | APPROVED ISSUE |   | JPT   | *MI         | *AA              | 11/7/19 |

CONTROL LINE MC02  
 X = 338066.233  
 Y = 8169258.447  
 Z = 6.078

Datum 4.00

|                  |  |         |  |         |        |  |        |        |  |       |
|------------------|--|---------|--|---------|--------|--|--------|--------|--|-------|
| EXISTING SURFACE |  | 6.939   |  | 6.479   | 5.392  |  | 5.727  | 5.843  |  | 6.078 |
| DESIGN SURFACE   |  | 6.939   |  | 4.801   | 4.801  |  | 5.801  | 5.843  |  | 6.078 |
| OFFSETS          |  | -14.958 |  | -10.683 | -9.483 |  | -5.483 | -4.643 |  | 0.000 |

CHAINAGE 56829.250

CONTROL LINE MC02  
 X = 338075.426  
 Y = 8169257.427  
 Z = 6.166

Datum 4.00

|                  |  |         |  |         |        |  |        |        |  |       |
|------------------|--|---------|--|---------|--------|--|--------|--------|--|-------|
| EXISTING SURFACE |  | 6.964   |  | 6.650   | 5.733  |  | 5.773  | 5.919  |  | 6.166 |
| DESIGN SURFACE   |  | 6.964   |  | 4.866   | 4.866  |  | 5.866  | 5.919  |  | 6.166 |
| OFFSETS          |  | -15.085 |  | -10.889 | -9.689 |  | -5.689 | -4.689 |  | 0.000 |

CHAINAGE 56820.000

CONTROL LINE MC02  
 X = 338095.240  
 Y = 8169254.714  
 Z = 6.313

Datum 4.00

|                |  |         |  |         |         |  |        |        |  |       |  |       |  |       |  |        |
|----------------|--|---------|--|---------|---------|--|--------|--------|--|-------|--|-------|--|-------|--|--------|
| TIN EXST       |  | 6.937   |  | 6.770   | 6.339   |  | 5.721  | 6.091  |  | 6.313 |  | 6.498 |  | 5.931 |  | 5.638  |
| DESIGN SURFACE |  | 6.937   |  | 5.009   | 5.009   |  | 6.009  | 6.091  |  | 6.313 |  | 6.498 |  | 6.590 |  | 5.638  |
| OFFSETS        |  | -15.255 |  | -11.400 | -10.200 |  | -6.200 | -4.544 |  | 0.000 |  | 4.249 |  | 7.289 |  | 15.655 |

CHAINAGE 56800.000

CONTROL LINE MC02  
 X = 338114.947  
 Y = 8169251.307  
 Z = 6.448

Datum 4.00

|                |  |         |  |         |         |  |        |        |  |       |  |       |  |       |  |        |
|----------------|--|---------|--|---------|---------|--|--------|--------|--|-------|--|-------|--|-------|--|--------|
| TIN EXST       |  | 6.880   |  | 6.775   | 6.742   |  | 5.504  | 6.169  |  | 6.448 |  | 6.674 |  | 6.062 |  | 6.092  |
| DESIGN SURFACE |  | 6.880   |  | 5.006   | 5.006   |  | 6.006  | 6.169  |  | 6.448 |  | 6.674 |  | 6.783 |  | 6.092  |
| OFFSETS        |  | -15.754 |  | -12.007 | -10.807 |  | -6.807 | -4.310 |  | 0.000 |  | 4.386 |  | 8.000 |  | 15.412 |

CHAINAGE 56780.000



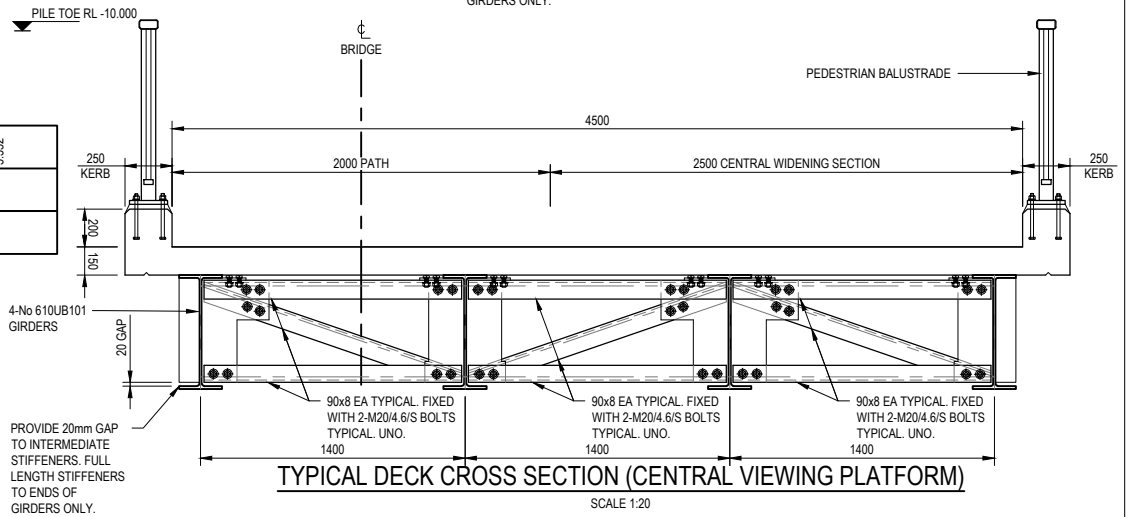
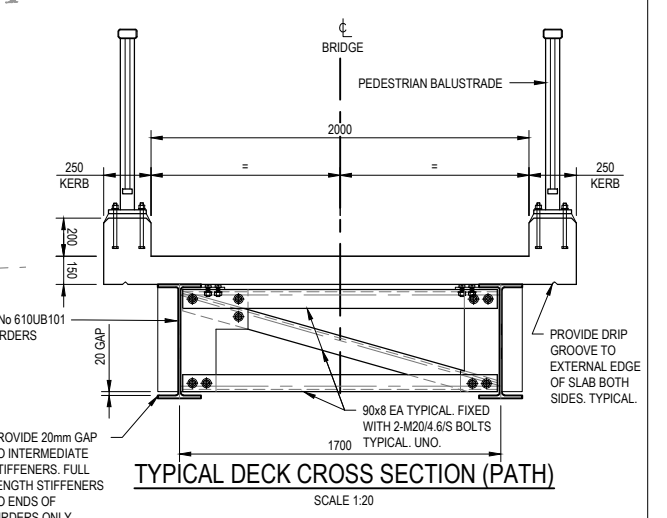
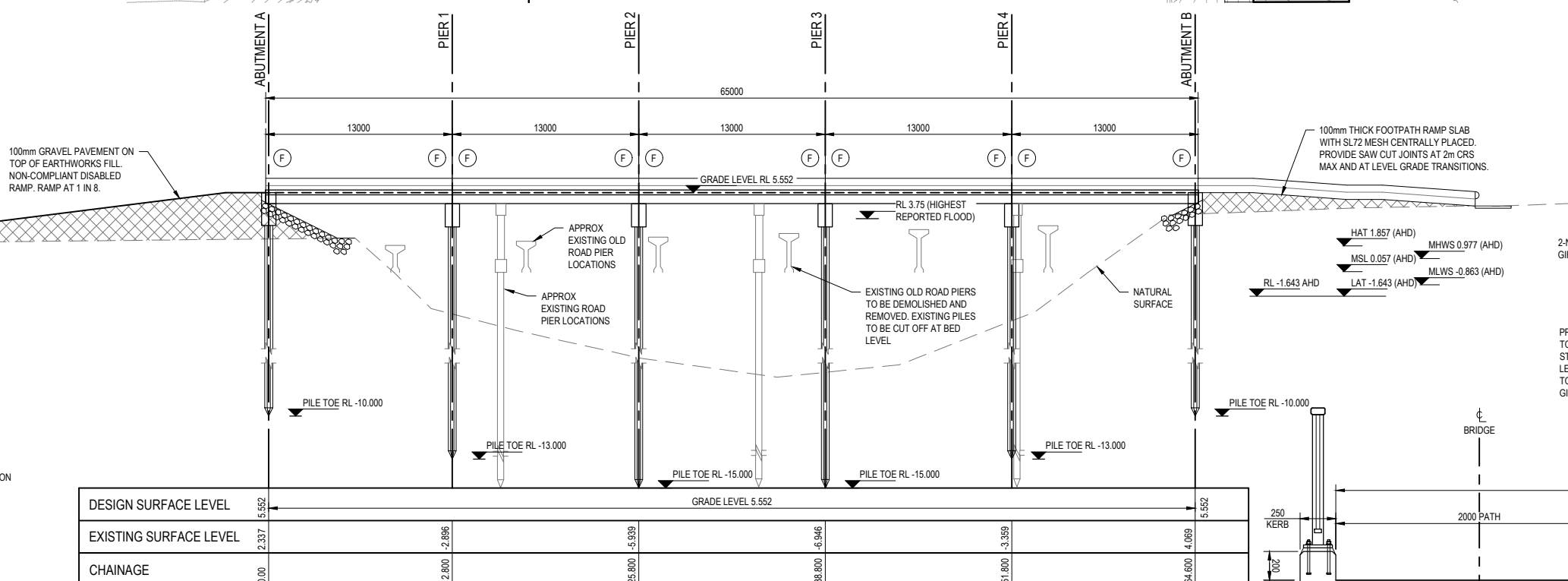
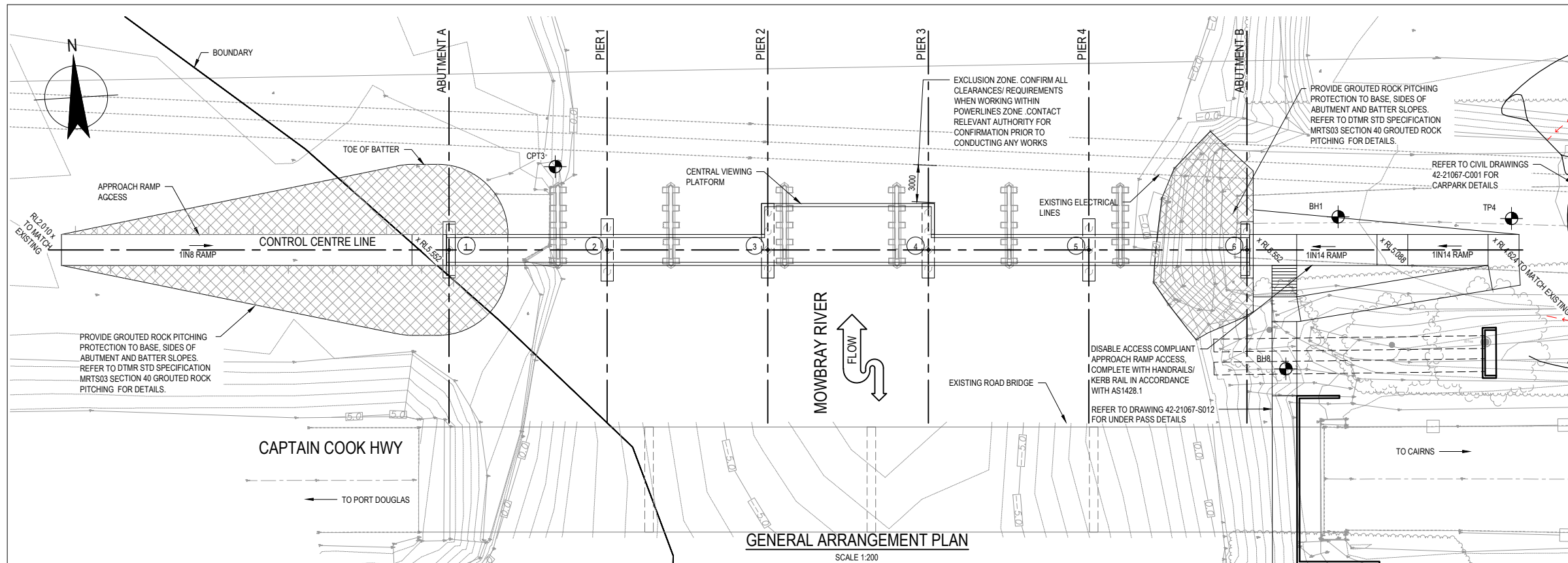
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|  | Drafting Check              | *J.A.RAE        | Design Check | *D.K.TROTTER |
|  | Approved (Project Director) | *A.A.HILADELLIS |              |              |
|  | Date                        | 11/7/19         |              |              |
| Scale  | NOT TO SCALE                |                 |              |              |

|               |   |
|---------------|---|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT      |
| Project       | WANGETTI TRAIL  |
| Title         | MOWBRAY RIVER CARPARK<br>ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| Original Size | A1  |
| Drawing No:   | 42-21067-C012   |
| Rev:          | 0   |

|    |                |   |       |             |                  |         |
|----|----------------|---|-------|-------------|------------------|---------|
| No | Revision       | Note: * Indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date    |
| 0  | APPROVED ISSUE |   | JPT   | *MI         | *AA              | 11/7/19 |

**GENERAL NOTES**

1. READ THESE NOTES IN CONJUNCTION WITH OTHER ENGINEERING DRAWINGS AND SPECIFICATIONS, AND WITH SUCH OTHER WRITTEN INSTRUCTIONS ISSUED. IN CASE OF DISCREPANCY, PRECEDENCE IS GIVEN TO DRAWINGS, THEN NOTES THEN SPECIFICATION.
2. CARRY OUT WORK IN A SAFE MANNER IN ACCORDANCE WITH APPLICABLE STATUTORY REGULATIONS, BY-LAWS OR RULES. CONTRACTOR IS RESPONSIBLE FOR OCCUPATIONAL HEALTH AND SAFETY OF SITE PERSONAL AND GENERAL PUBLIC IN ACCORDANCE WITH LEGISLATIVE REQUIREMENTS, INDUSTRIAL AGREEMENTS AND ACCEPTED INDUSTRY PRACTICE.
3. REFER TO GEOTECHNICAL INVESTIGATION REPORT No90810.00 PREPARED BY DOUGLAS PARTNERS DATED MAY 2019. NOTIFY SUPERINTENDENT IF CONDITIONS ENCOUNTERED DIFFER FROM THOSE DESCRIBED IN THE REPORT AND SEEK DIRECTIONS.
4. LEVELS DATUM - AHD  
ORIGIN OF LEVELS: OPSM 58688 (RL 8.533)  
MERIDIAN: MGA ZONE 55
5. NO FILLING TO BE PLACED ABOVE SOFFIT OF ABUTMENT HEADSTOCKS UNTIL AT LEAST TWO (2) DAYS AFTER ERECTION OF ALL SPANS AND GROUTING OF HOLD DOWN BOLTS.
6. REINFORCING STEEL TO BE AUSTRALIAN MADE GRADE 500M TO AS 1302.
7. ALL BOLTS AND NUTS TO BE HOT DIP GALVANISED TO AS 1214 UNO. ALL WASHERS TO BE HOT DIP GALVANISED TO AS1650 UNO. ANY GALVANISED ELEMENT IN CONTACT WITH CEMENTITIOUS MATERIAL TO BE PASSIVATED IN 0.2% SODIUM DICHROMATE SOLUTION.
8. SPACING OF REINFORCEMENT IN HEADSTOCKS MAYBE ALTERED SLIGHTLY IF NECESSARY TO CLEAR HOLD DOWN BOLTS.
9. ALL EXPOSED EDGES TO HAVE 25x25 CHAMFERS UNLESS SHOWN OTHERWISE.
10. A DATE PLATE IS TO BE CAST INTO THE TOP OF THE LEFT HAND SIDE WALL AT ABUTMENT A SIMILAR TO DTMR STANDARD DATE PLATE DRAWING 1063. CONFIRM DATE PLATE WITH CLIENT.
11. A BRASS BENCH MARK IS TO BE CAST INTO THE TOP OF THE LEFT HAND WINGWALL AT ABUTMENT A.
12. LOADINGS IN ACCORDANCE WITH:
  - (a) DESIGN LIVE LOAD IS IN ACCORDANCE WITH AS2156.2 - 1.4 kN CONCENTRATED LOAD TAKEN OVER AN AREA OF 75mm BY 75mm, OR 4kPa FOR VIEWING PLATFORM AND 3 kPa FOR ACCESS WAYS FOR TRACK
  - (b) PILE TIP LEVELS SHOWN ARE CONTRACT LEVELS AND ARE SUBJECT TO VARIANCE AS DIRECTED BY THE SUPERINTENDENT.
  - (c) DESIGN MAXIMUM STREAM VELOCITY - 3.1m/s (ARI 100)
  - (d) BRIDGE IS DESIGNED AS SUBMERGED WITH 1.0m DEBRIS MAT
  - (e) LOG IMPACT PLUS STREAM FORCE = 200kN ACTING AT BASE OF PIER HEADSTOCK
  - (f) DESIGN SCOUR = 1m
13. PILE ULTIMATE LOAD:
  - 550 OCT PILE - ULTIMATE LIMIT STATE 500 kN (1100 kN GEOTECHNICAL LOAD)
  - 550 OCT PILE - ULTIMATE LIMIT STATE UPLIFT 125 kN (280 kN GEOTECHNICAL LOAD)
14. ALL EXISTING SERVICES AND UTILITIES SHALL BE PROTECTED FROM DAMAGE BY THE OPERATIONS OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OF SERVICES DAMAGED DURING CONSTRUCTION. CONTRACTOR TO LOCATE ALL SERVICES ON SITE PRIOR TO COMMENCEMENT OF ANY WORKS.
15. CONTRACTOR SHALL VERIFY ALL SETOUT DETAILS AND DIMENSIONS ON SITE PRIOR TO COMMENCEMENT OF SITE WORKS. ANY DISCREPANCIES TO BE REPORTED TO THE SUPERINTENDENT IMMEDIATELY.
16. SPOIL MATERIAL TO BE USED ON SITE AS DIRECTED BY SUPERINTENDENT.
17. GRADE EVENLY BETWEEN LEVELS SHOWN.
18. SUPERSTRUCTURE STRUCTURAL STEELWORK TO BE COATED USING EITHER 2 PACK EPOXY (PURS) OR HIGH BUILD EPOXY COATING (EHB6) IN ACCORDANCE WITH AS2312.1.

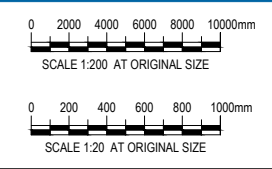


- LEGEND:**
- (F) DENOTES FIXED BEARING
  - (2) DENOTES SETOUT POINT
  - x RL 3.80 DENOTES DESIGN LEVELS
  - BH1 DENOTES BOREHOLE LOCATION
  - CPT1 DENOTES CONE PENETRATION TEST LOCATION
  - TP1 DENOTES TEST PIT LOCATION

| SETOUT POINTS |            |             |
|---------------|------------|-------------|
| POINT         | EASTING    | NORTHING    |
| 1             | 337947.995 | 8169284.821 |
| 2             | 337960.770 | 8169284.023 |
| 3             | 337973.744 | 8169283.213 |
| 4             | 337986.719 | 8169282.404 |
| 5             | 337999.694 | 8169281.594 |
| 6             | 338012.469 | 8169280.796 |

|    |                |       |             |                  |          |
|----|----------------|-------|-------------|------------------|----------|
| 0  | APPROVED ISSUE | WRC   | *MI         | *AA              | 08.07.19 |
| No | Revision       | Drawn | Job Manager | Project Director | Date     |

Note: \* indicates signatures on original issue of drawing or last revision of drawing



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**DO NOT SCALE**

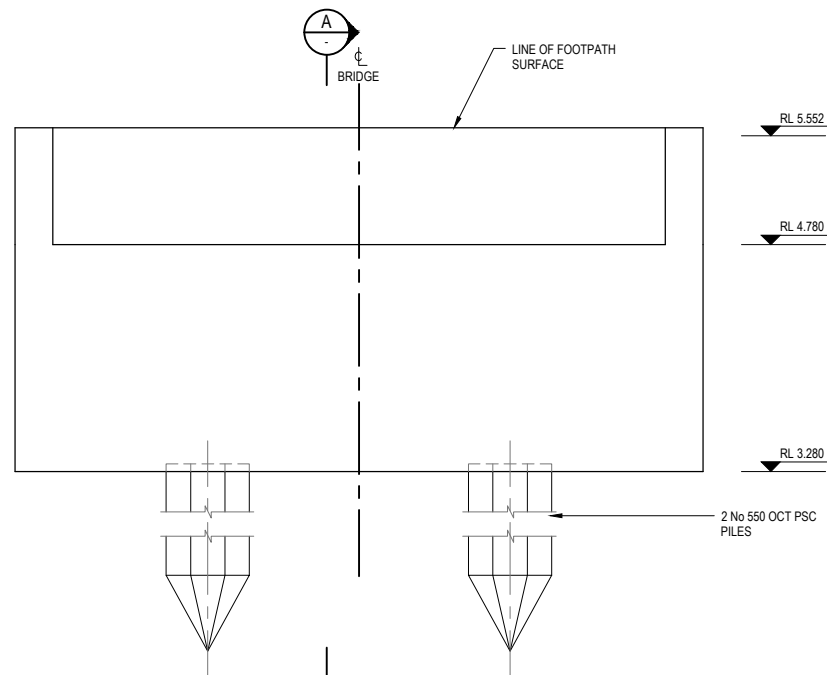
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Drawn W.CLARKE  
 Designer A.AHILADELLIS  
 Drafting Check \*M.ISENBERT  
 Design Check \*M.ISENBERT  
 Approved (Project Director) \*A.AHILADELLIS  
 Date 08.07.19

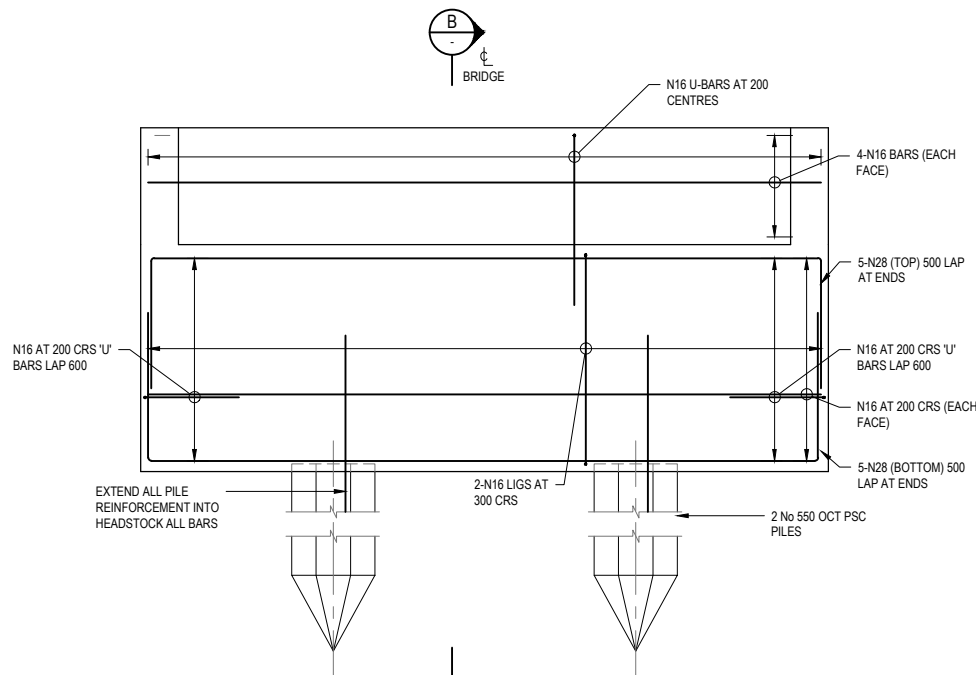
Scale AS SHOWN

Client **DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT**  
 Project **WANGETTI TRAIL**  
 Title **BRIDGE WORK GENERAL ARRANGEMENT**

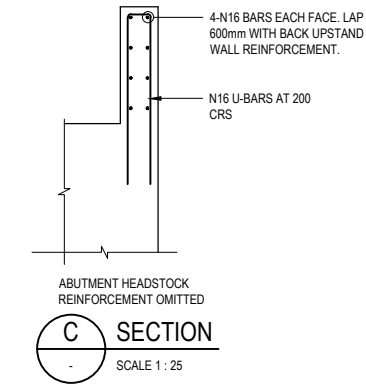
Original Size **A1**  
 Drawing No: **42-21067-S001**  
 Rev: **0**



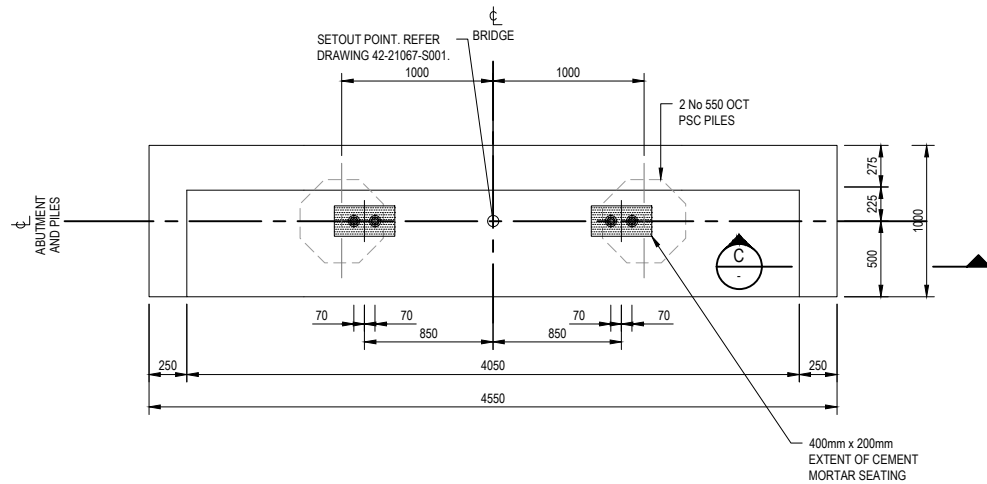
**ELEVATION - ABUTMENT A**  
(ABUTMENT B SIMILAR)  
SCALE 1:25



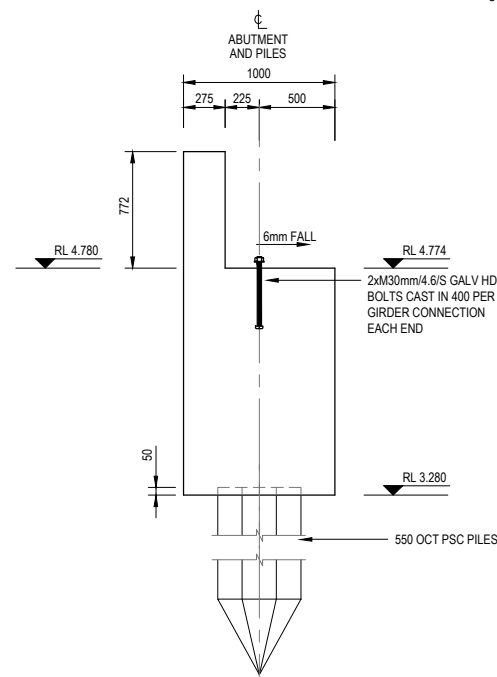
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(ABUTMENT B SIMILAR)  
SCALE 1:25



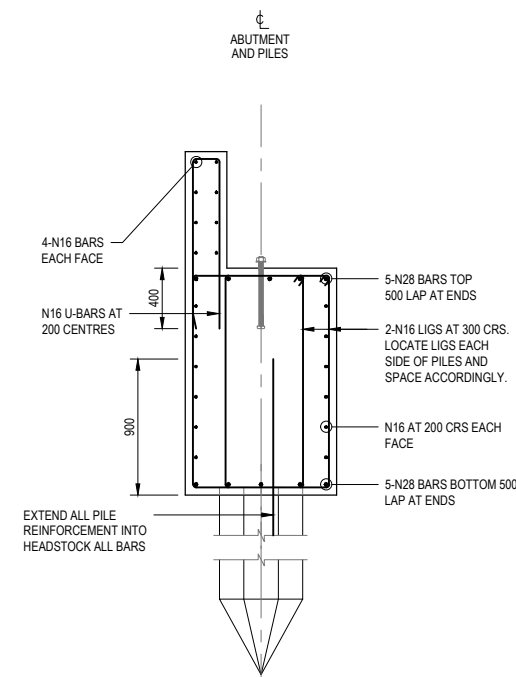
**SECTION C**  
SCALE 1:25



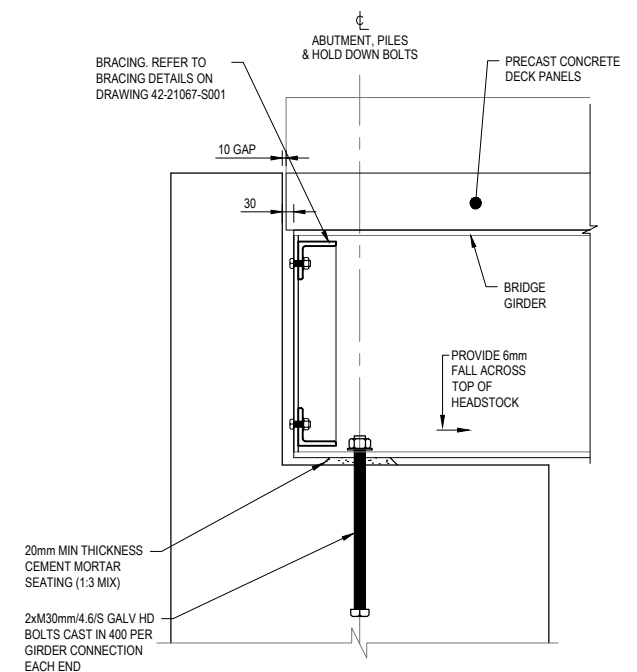
**PLAN ON HEADSTOCK**  
SCALE 1:25



**SECTION A**  
SCALE 1:25

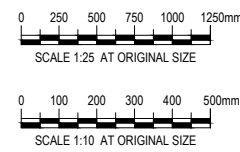


**SECTION B**  
SCALE 1:25



**TYPICAL ABUTMENT ANCHOR DETAILS**  
SCALE 1:10

|    |                |   |       |             |                  |          |
|----|----------------|---|-------|-------------|------------------|----------|
| No | Revision       | Note: * indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date     |
| 0  | APPROVED ISSUE |   | WRC   | *MI         | *AA              | 08.07.19 |



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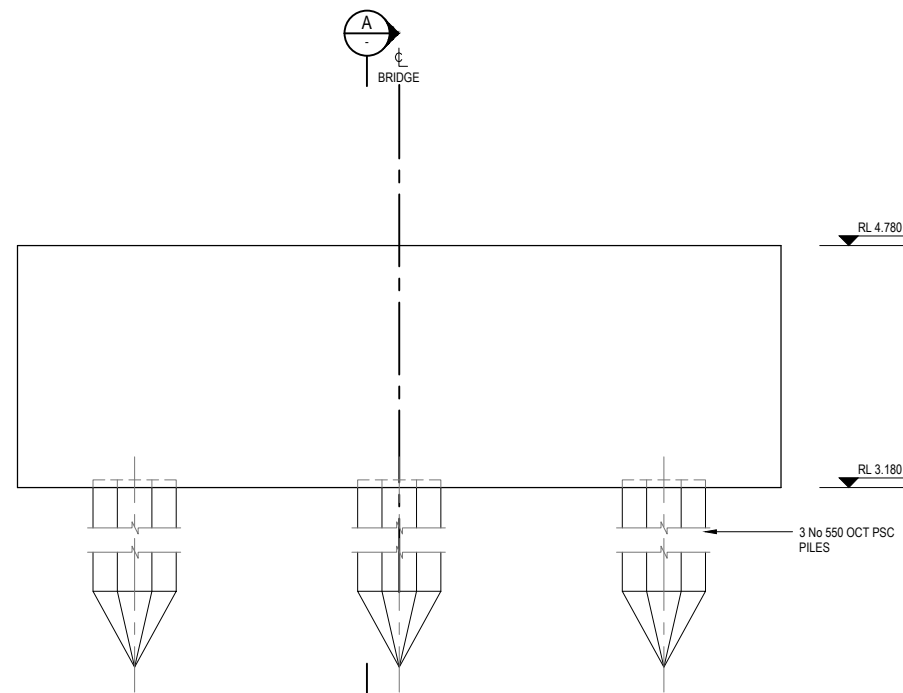
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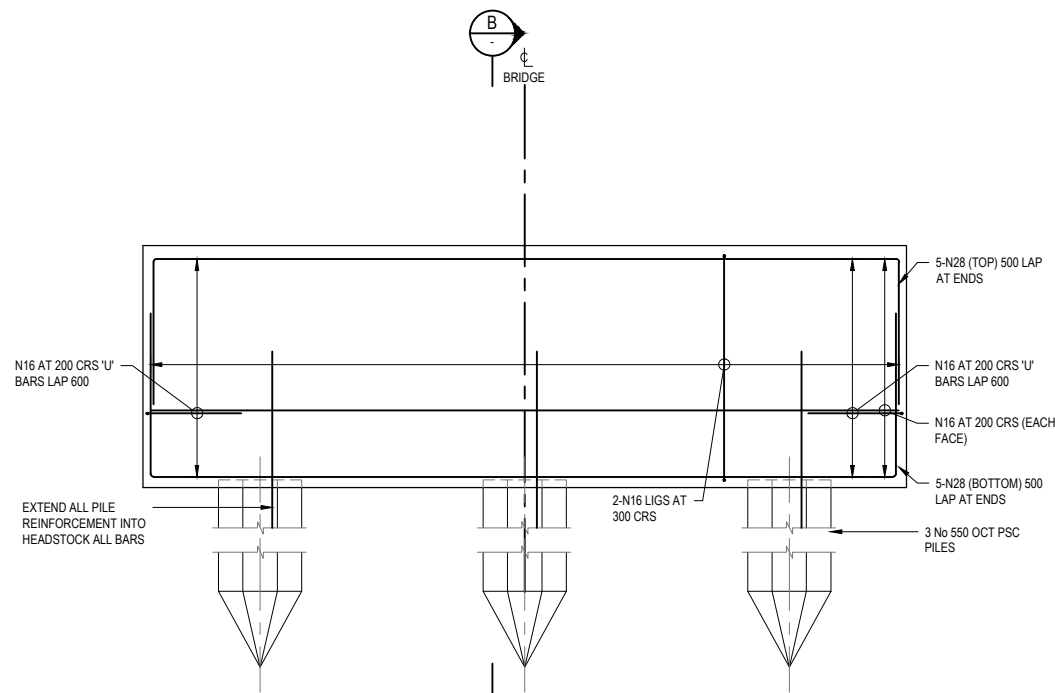
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|-----------------------------|----------------|--------------|---------------|
| Drawn                       | W.CLARKE       | Designer     | A.AHILADELLIS |
| Drafting Check              | *M.ISENBERT    | Design Check | *M.ISENBERT   |
| Approved (Project Director) | *A.AHILADELLIS |              |               |
| Date                        | 08.07.19       |              |               |
| Scale                       | AS SHOWN       |              |               |

|               |  |             |               |
|---------------|--|-------------|---------------|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT |             |               |
| Project       | WANGETTI TRAIL   |             |               |
| Title         | BRIDGE WORK<br>ABUTMENT DETAILS                        |             |               |
| Original Size | A1   | Drawing No: | 42-21067-S002 |
| Rev:          | 0  |             |               |

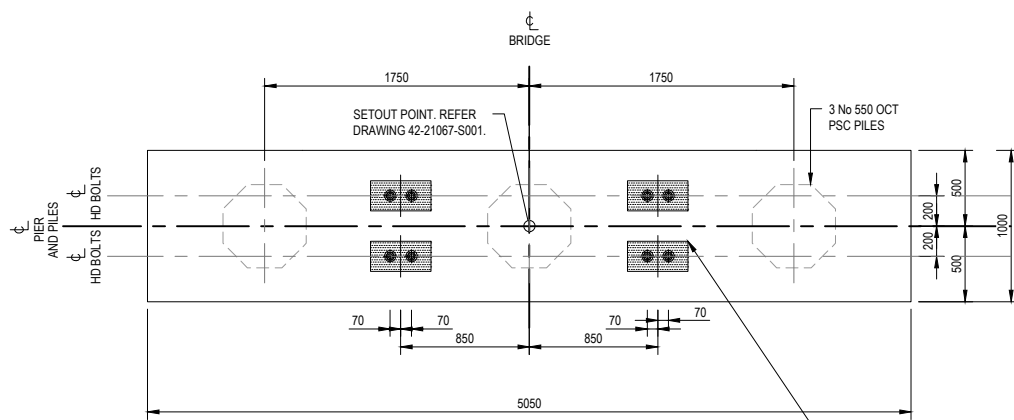




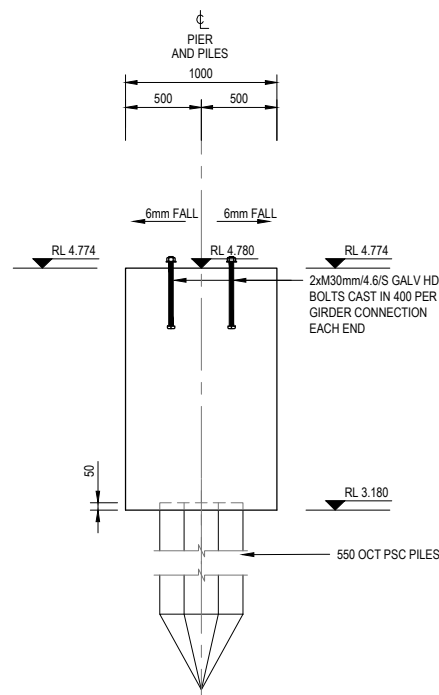
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(PIER 4 SIMILAR)  
SCALE 1:25



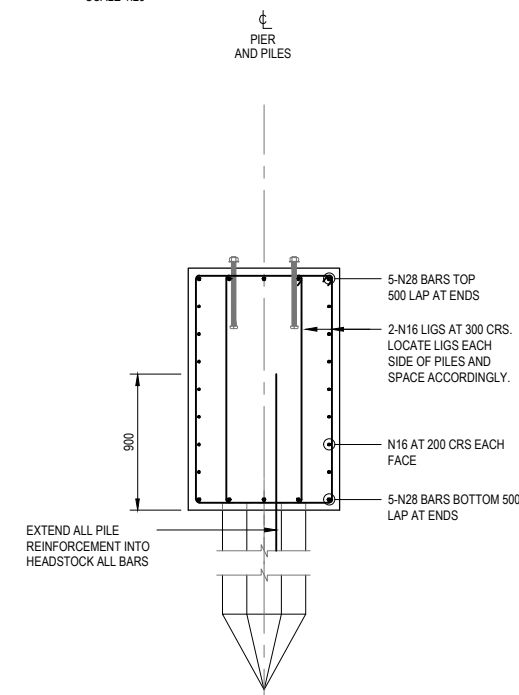
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(PIER 4 SIMILAR)  
SCALE 1:25



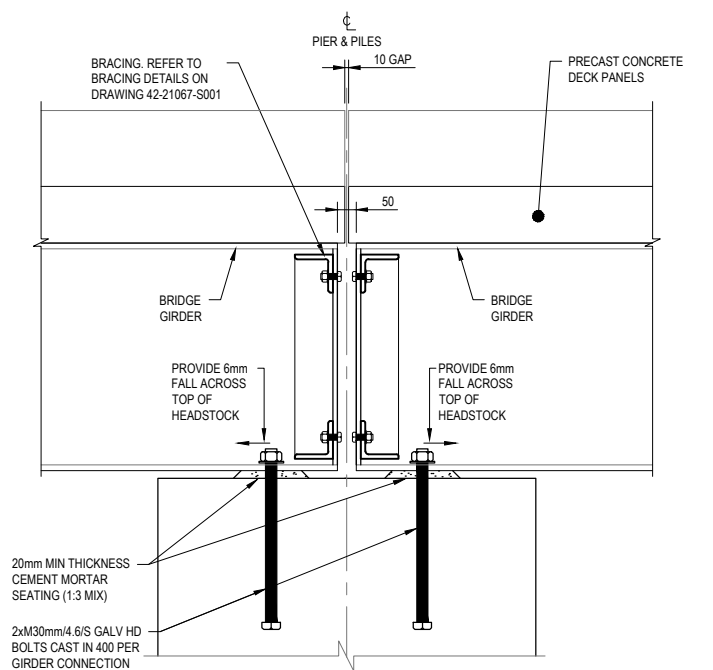
**PLAN ON HEADSTOCK**  
SCALE 1:25



**A SECTION**  
SCALE 1:25

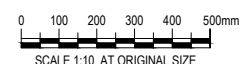
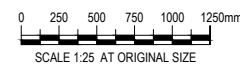


**B SECTION**  
SCALE 1:25



**TYPICAL PIER ANCHOR DETAILS**  
SCALE 1:10

|    |                |   |       |             |                  |          |
|----|----------------|---|-------|-------------|------------------|----------|
| No | Revision       | Note: * indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date     |
| 0  | APPROVED ISSUE |   | WRC   | *MI         | *AA              | 08.07.19 |



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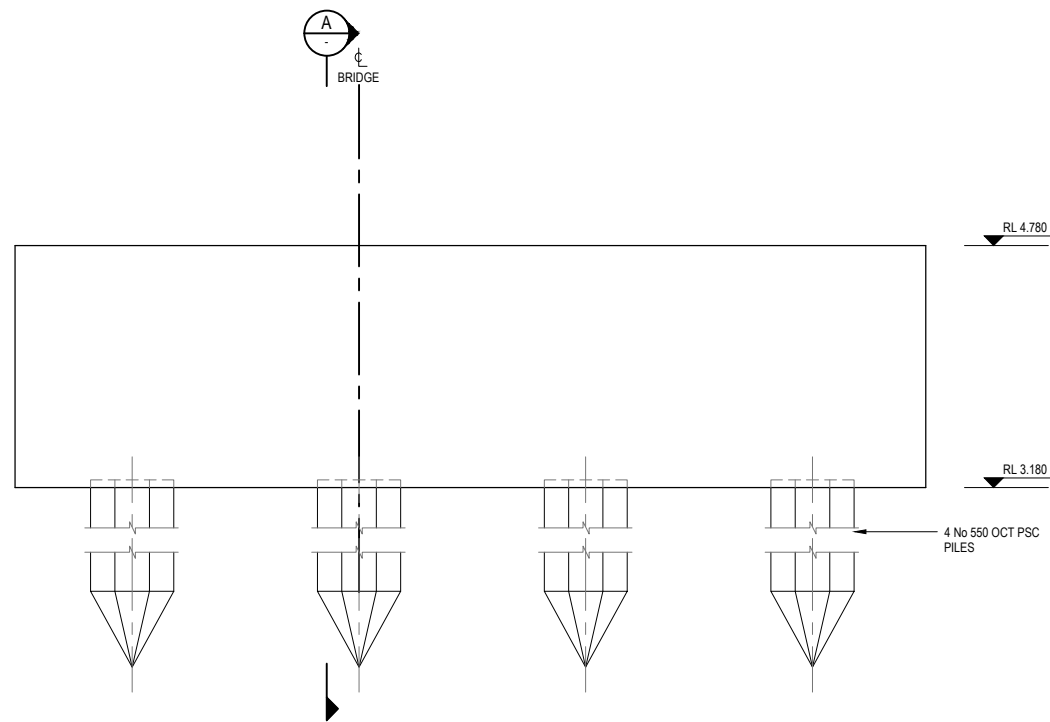
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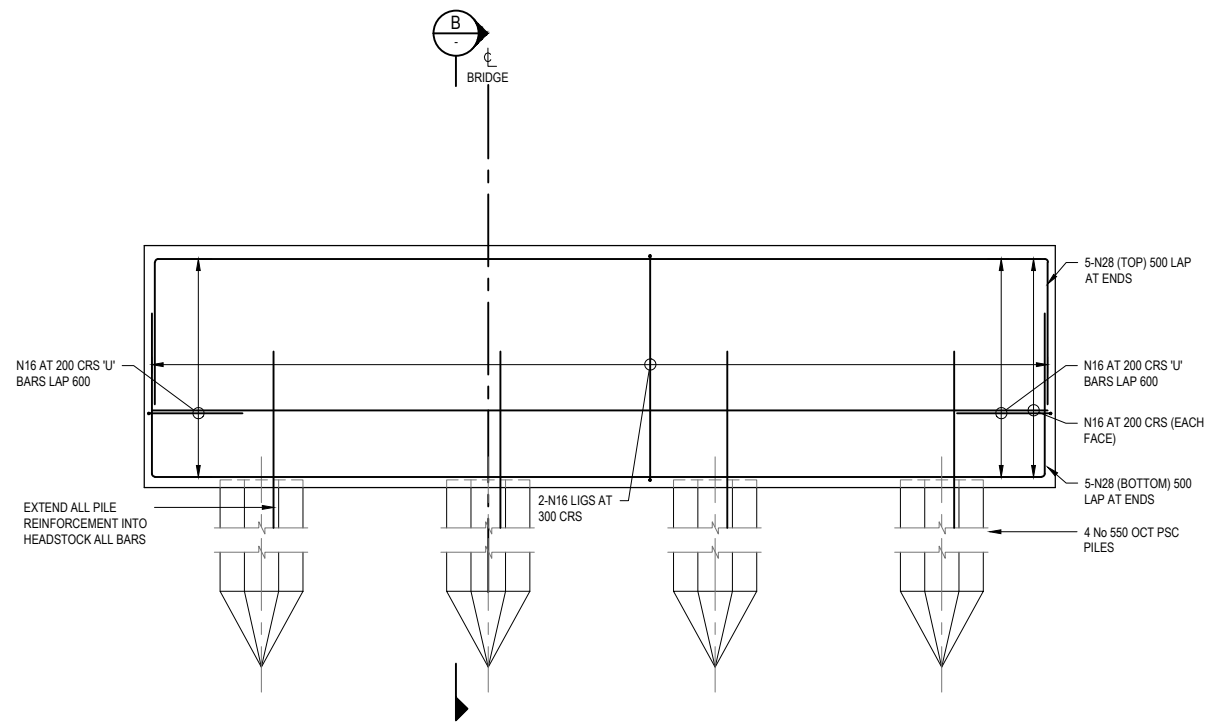
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|-----------------------------|----------------|--------------|---------------|
| Drawn                       | W.CLARKE       | Designer     | A.AHILADELLIS |
| Drafting Check              | *M.ISENBERT    | Design Check | *M.ISENBERT   |
| Approved (Project Director) | *A.AHILADELLIS |              |               |
| Date                        | 08.07.19       |              |               |
| Scale                       | AS SHOWN       |              |               |

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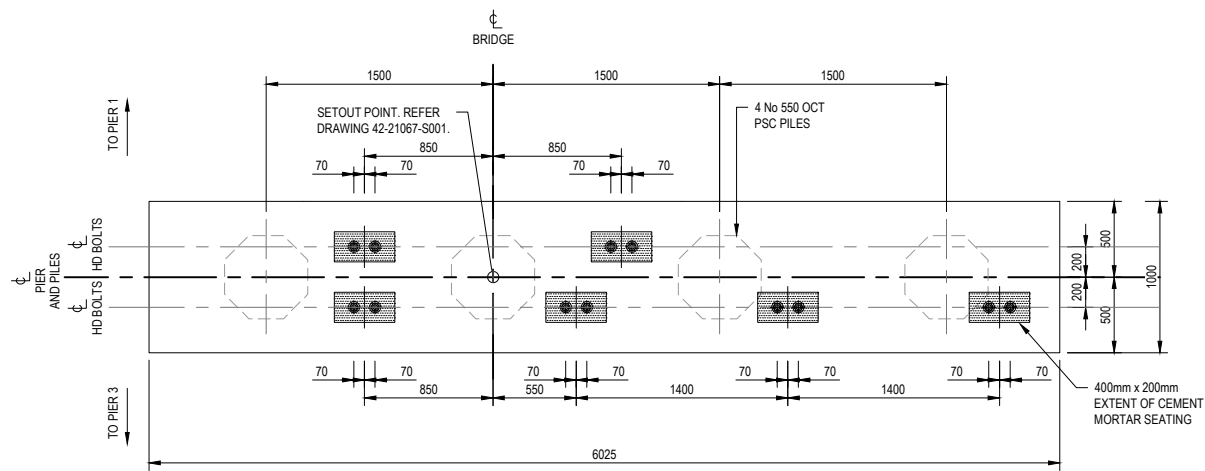
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|---------------|--|-------------|---------------|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT |             |               |
| Project       | WANGETTI TRAIL   |             |               |
| Title         | BRIDGE WORK<br>PIERS 1 & 4 DETAILS                     |             |               |
| Original Size | A1   | Drawing No: | 42-21067-S003 |
| Rev:          | 0  |             |               |



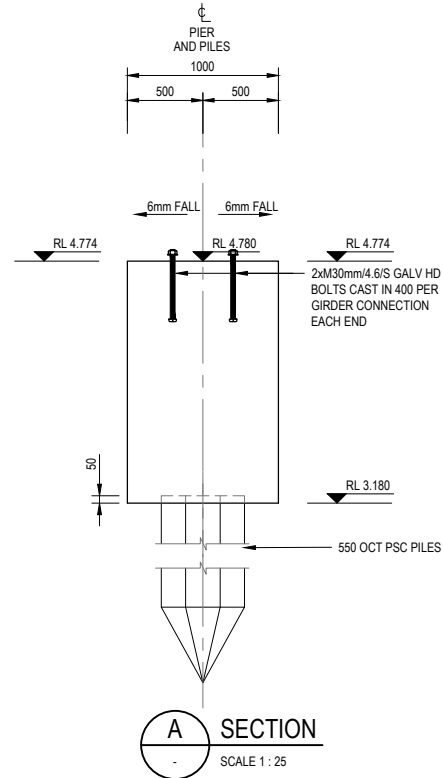
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(PIER 3 SIMILAR)  
SCALE 1:25



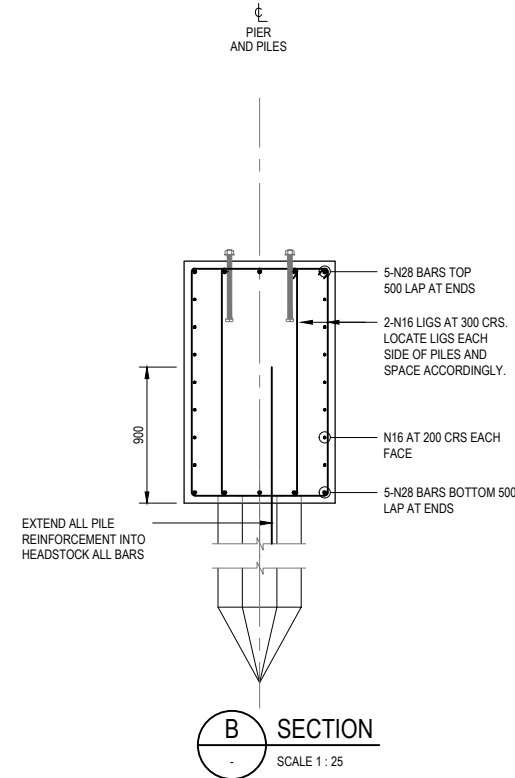
**ELEVATION - PIER 2**  
(PIER 3 SIMILAR)  
SCALE 1:25



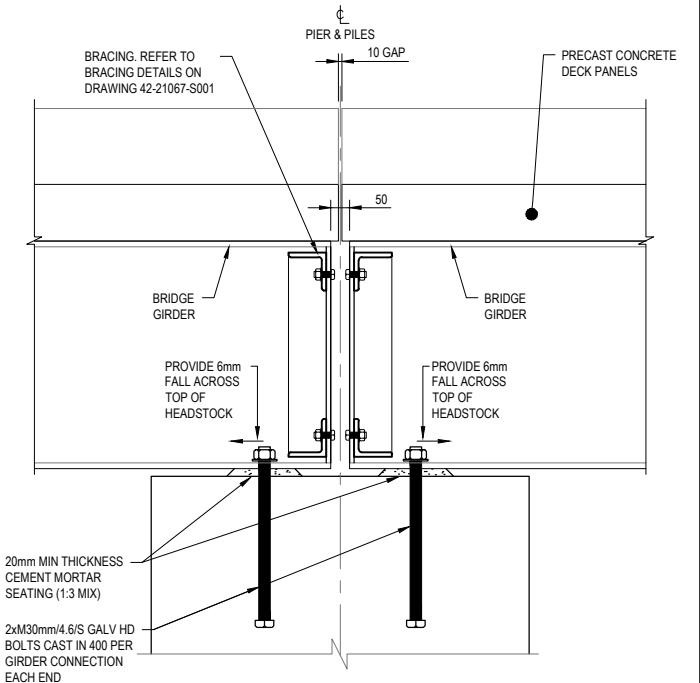
**PLAN ON HEADSTOCK**  
SCALE 1:25



**A SECTION**  
SCALE 1:25

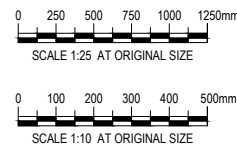


**B SECTION**  
SCALE 1:25



**TYPICAL PIER ANCHOR DETAILS**  
SCALE 1:10

|    |                |   |       |             |                  |          |
|----|----------------|---|-------|-------------|------------------|----------|
| No | Revision       | Note: * indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date     |
| 0  | APPROVED ISSUE |   | WRC   | *MI         | *AA              | 08.07.19 |



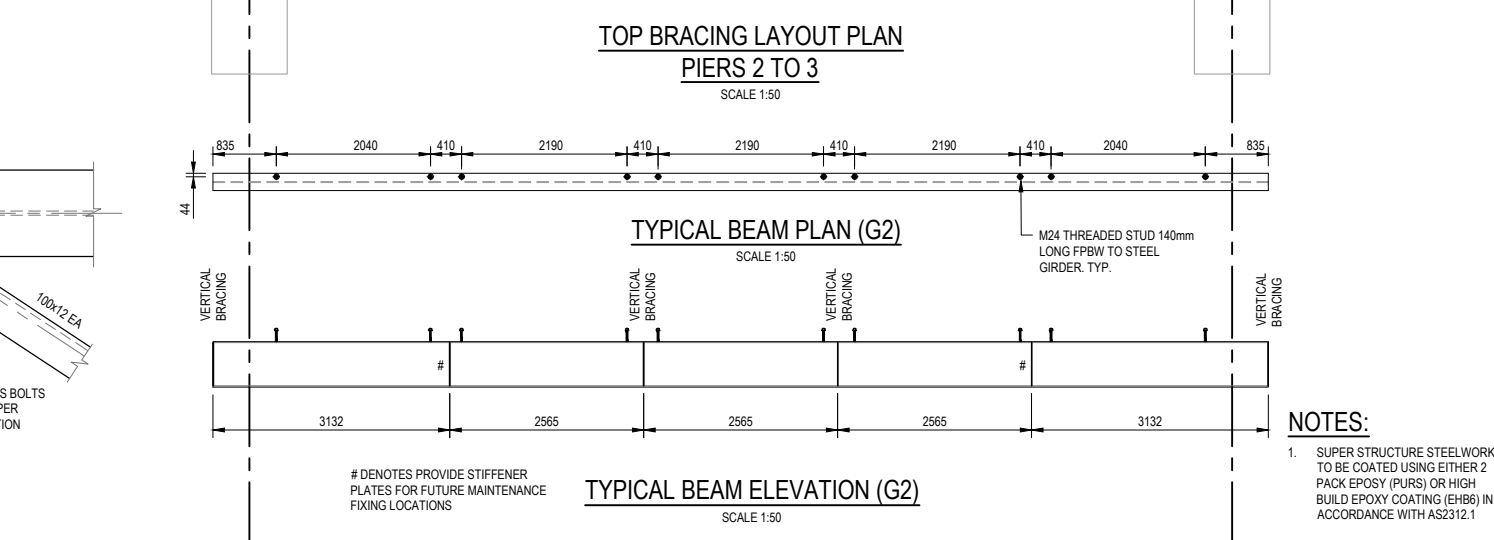
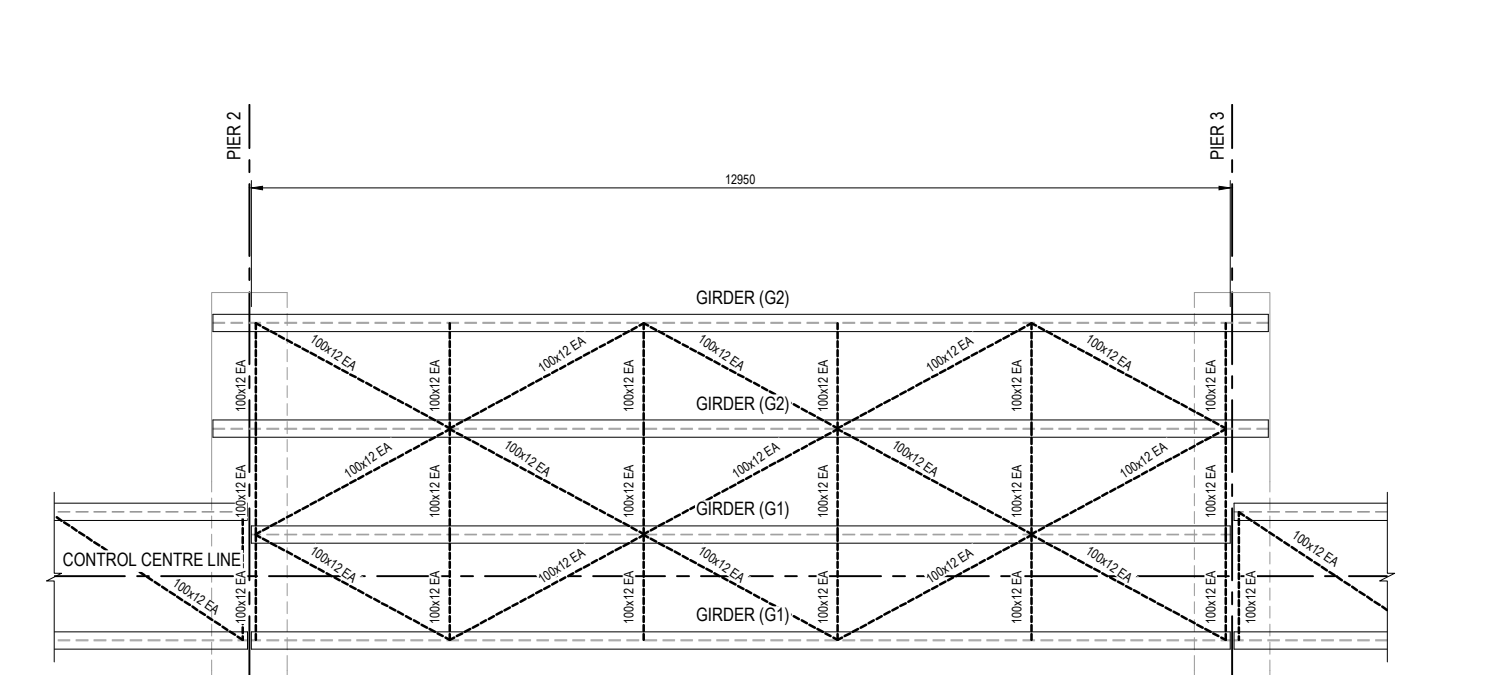
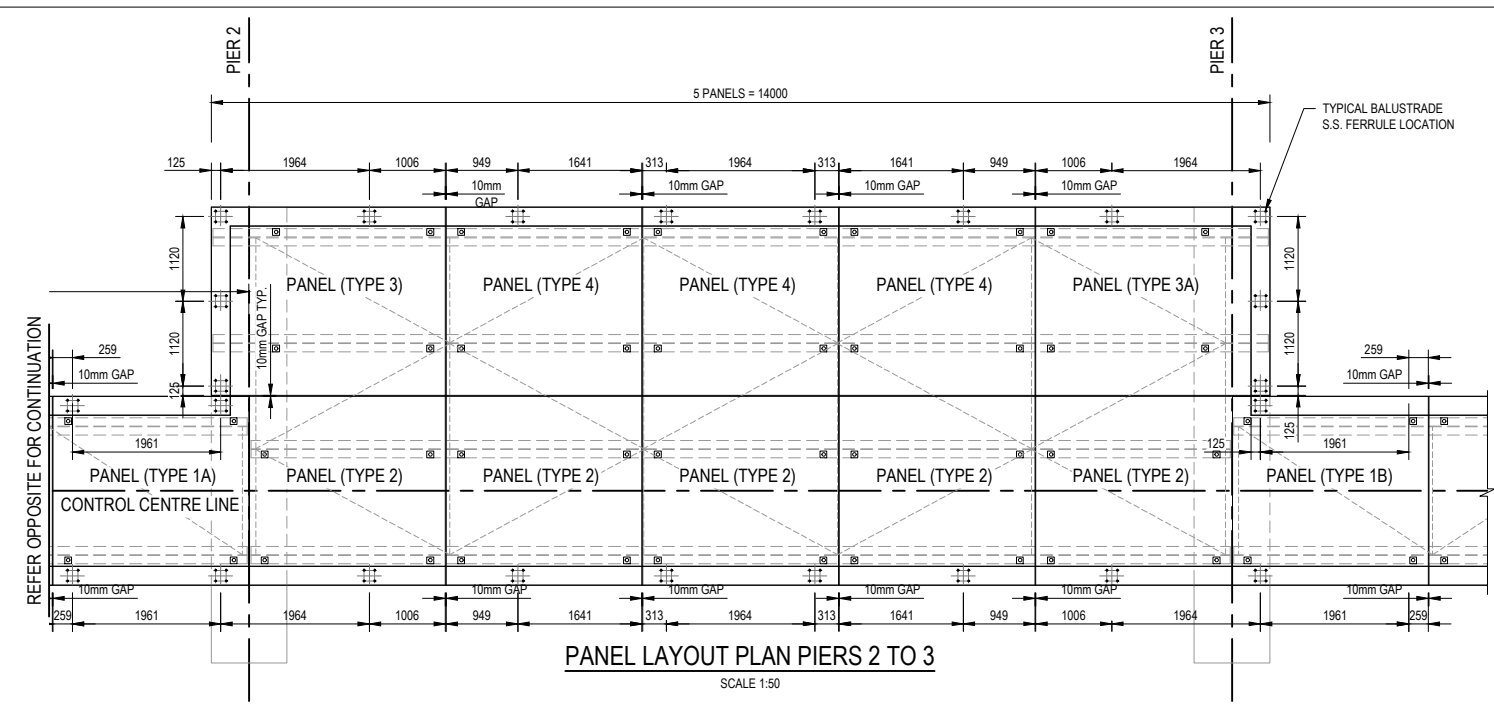
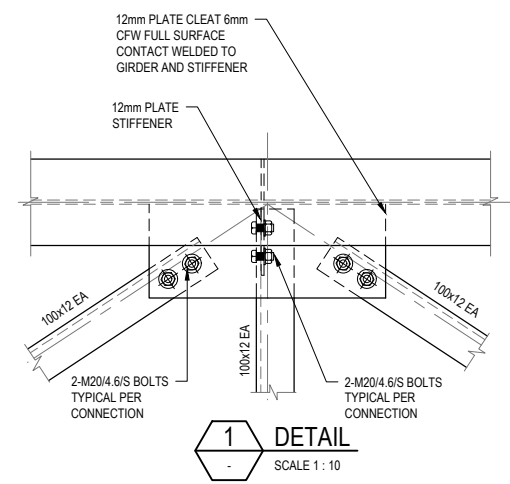
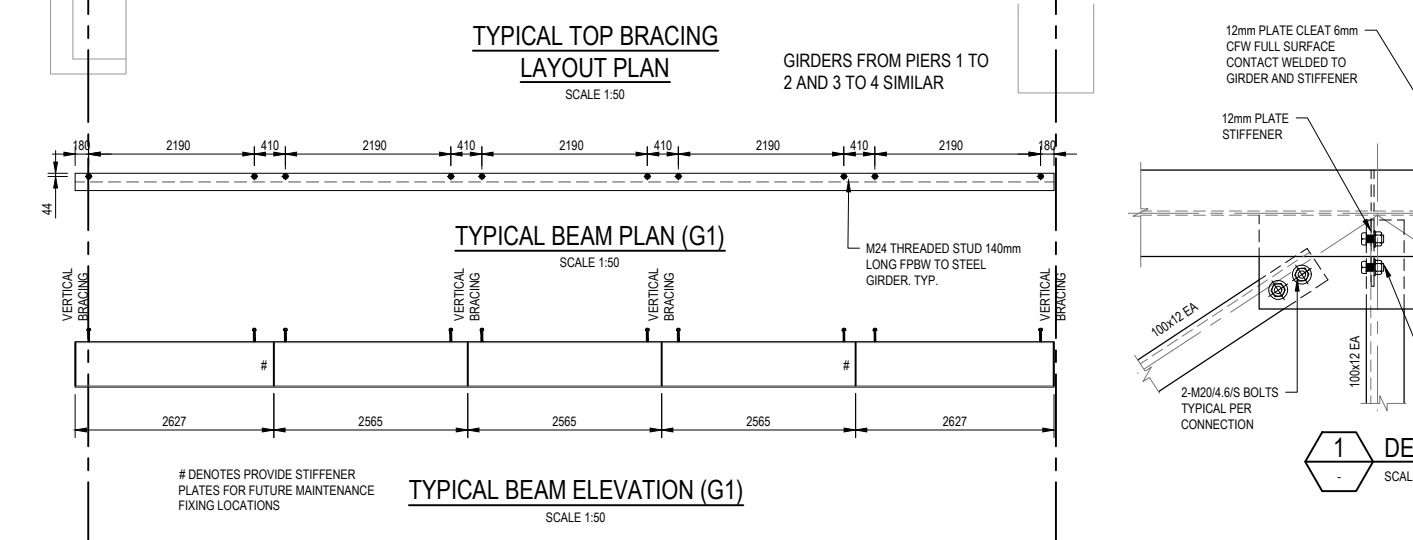
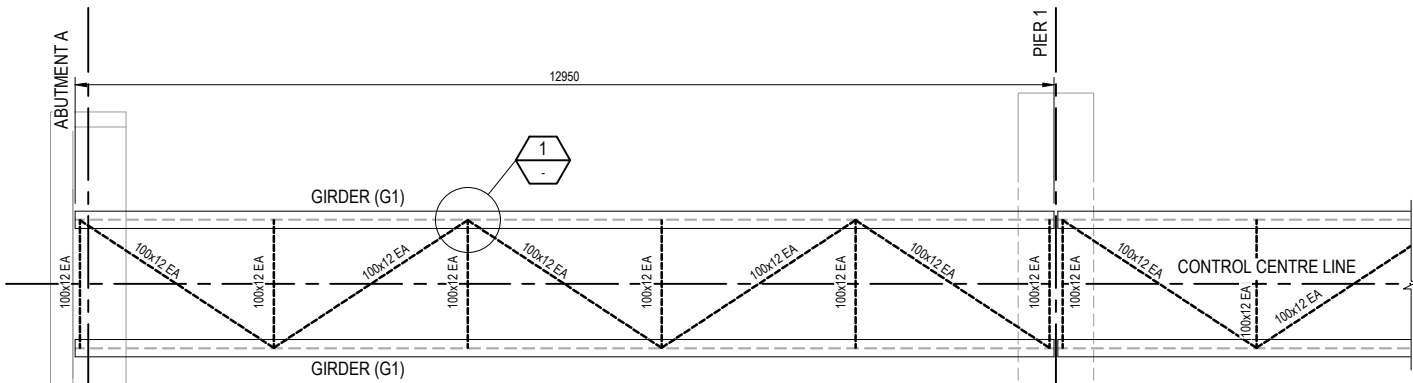
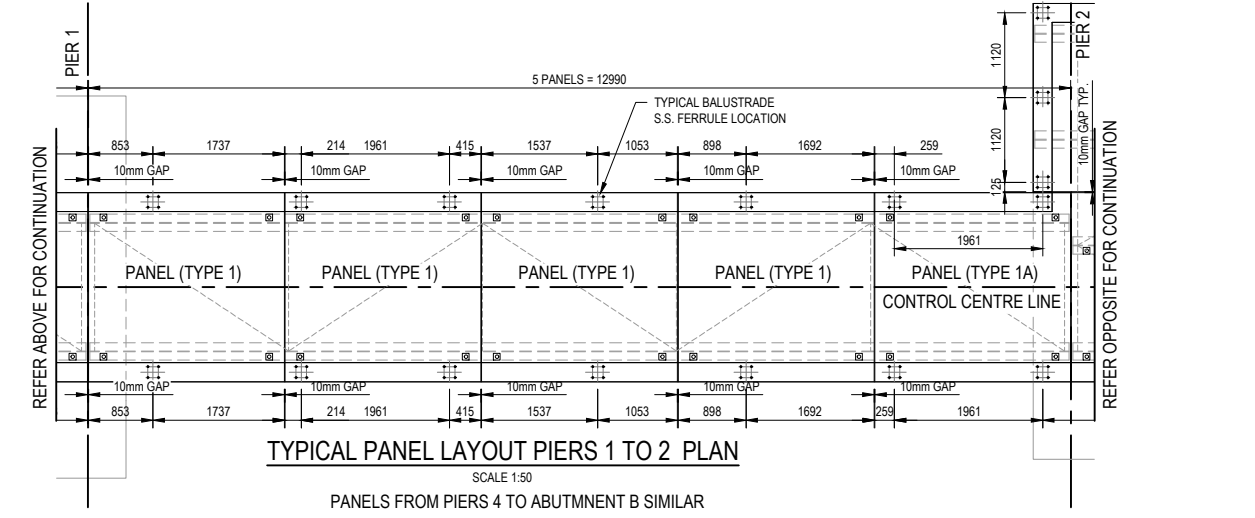
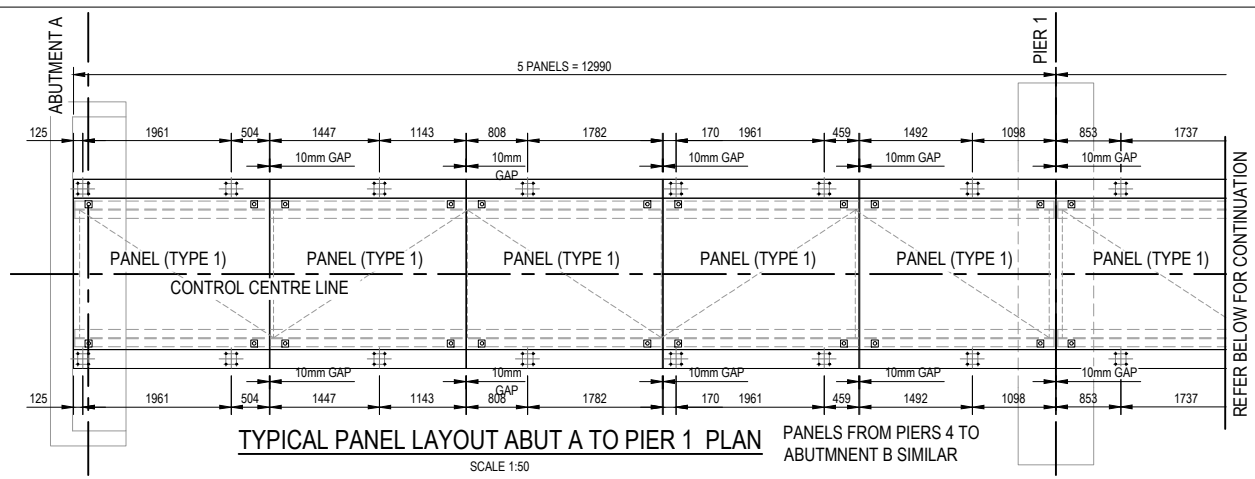
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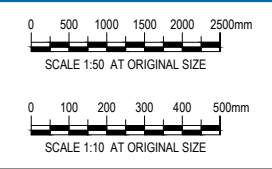
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|-----------------------------|----------------|--------------|---------------|
| Drawn                       | W.CLARKE       | Designer     | A.AHILADELLIS |
| Drafting Check              | *M.ISENBERT    | Design Check | *M.ISENBERT   |
| Approved (Project Director) | *A.AHILADELLIS |              |               |
| Date                        | 08.07.19       |              |               |
| Scale                       | AS SHOWN       |              |               |

|               |  |             |               |
|---------------|--|-------------|---------------|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT |             |               |
| Project       | WANGETTI TRAIL   |             |               |
| Title         | BRIDGE WORK<br>PIERS 2 & 3 DETAILS                     |             |               |
| Original Size | A1   | Drawing No: | 42-21067-S004 |
| Rev:          | 0  |             |               |



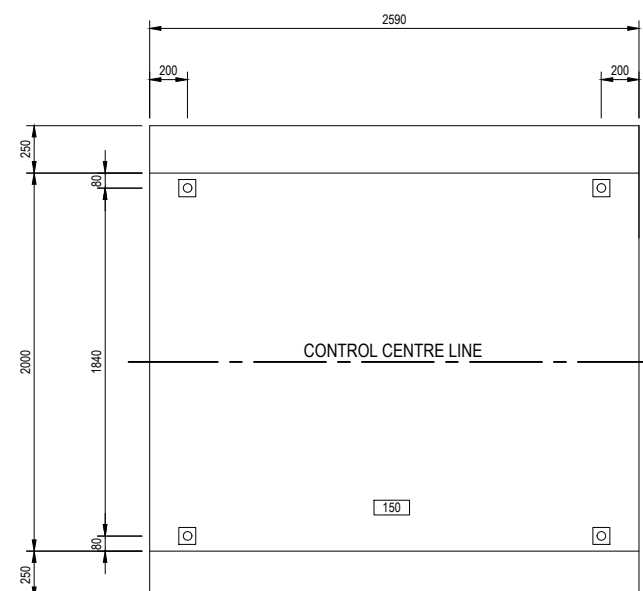
**NOTES:**  
 1. SUPER STRUCTURE STEELWORK TO BE COATED USING EITHER 2 PACK EPOXY (PURS) OR HIGH BUILD EPOXY COATING (EHB6) IN ACCORDANCE WITH AS2312.1

|    |                |       |             |                  |          |
|----|----------------|-------|-------------|------------------|----------|
| 0  | APPROVED ISSUE | WRC   | *MI         | *AA              | 08.07.19 |
| No | Revision       | Drawn | Job Manager | Project Director | Date     |

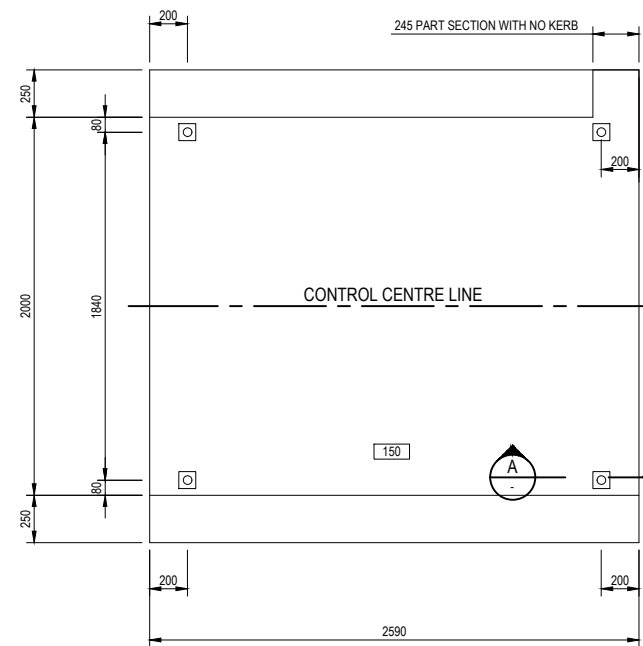


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|  |  |  |  |
|--|--|--|--|
| <b>DO NOT SCALE</b>  | Drawn W.CLARKE                             | Designer A.AHILADELLIS   | Client DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT          |
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|  | Approved (Project Director) *A.AHILADELLIS | Date 08.07.19  | Title <b>BRIDGE WORK GIRDER AND DECK SLAB DETAILS - SHEET 1</b>        |
|  | Scale AS SHOWN                             | This Drawing must not be used for Construction unless signed as Approved | Original Size <b>A1</b> Drawing No: <b>42-21067-S005</b> Rev: <b>0</b> |

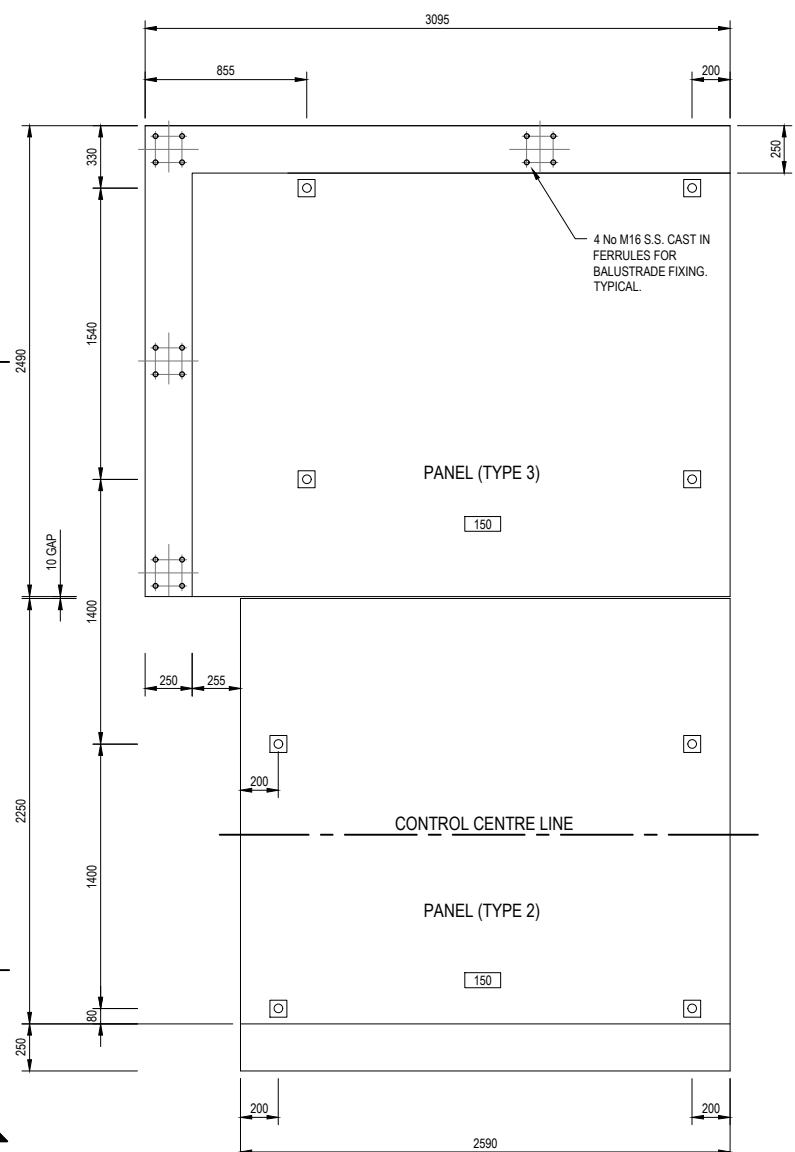


**TYPICAL PANEL DETAIL (TYPE 1)**  
SCALE 1:20

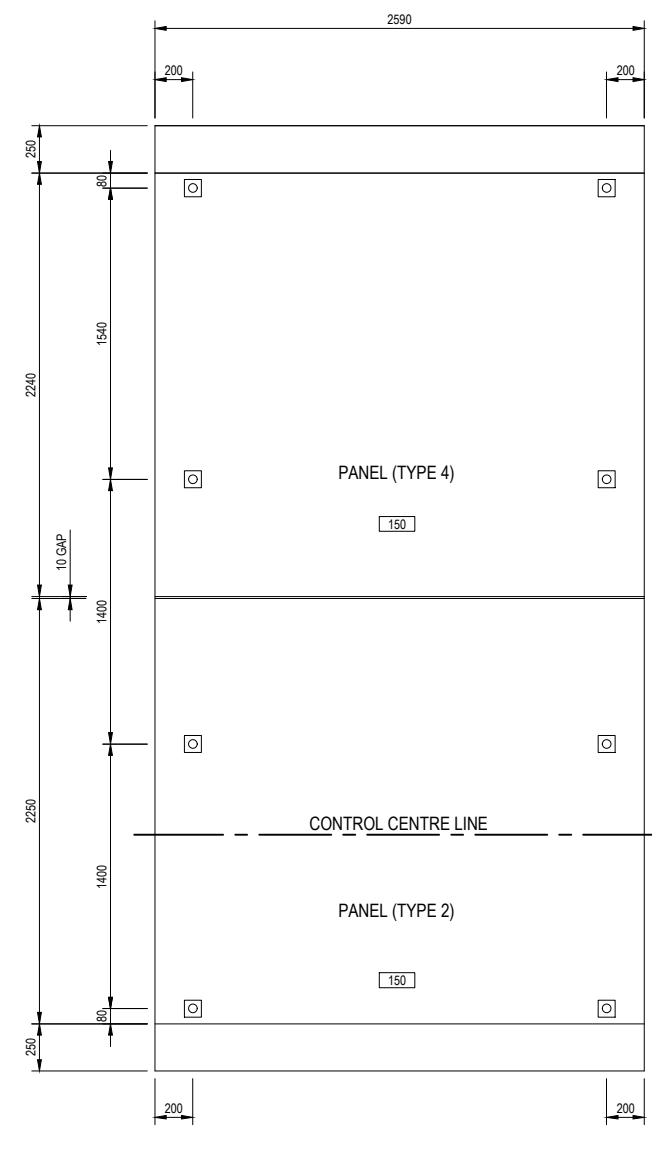


**TYPICAL PANEL DETAIL (TYPE 1A)**  
SCALE 1:20

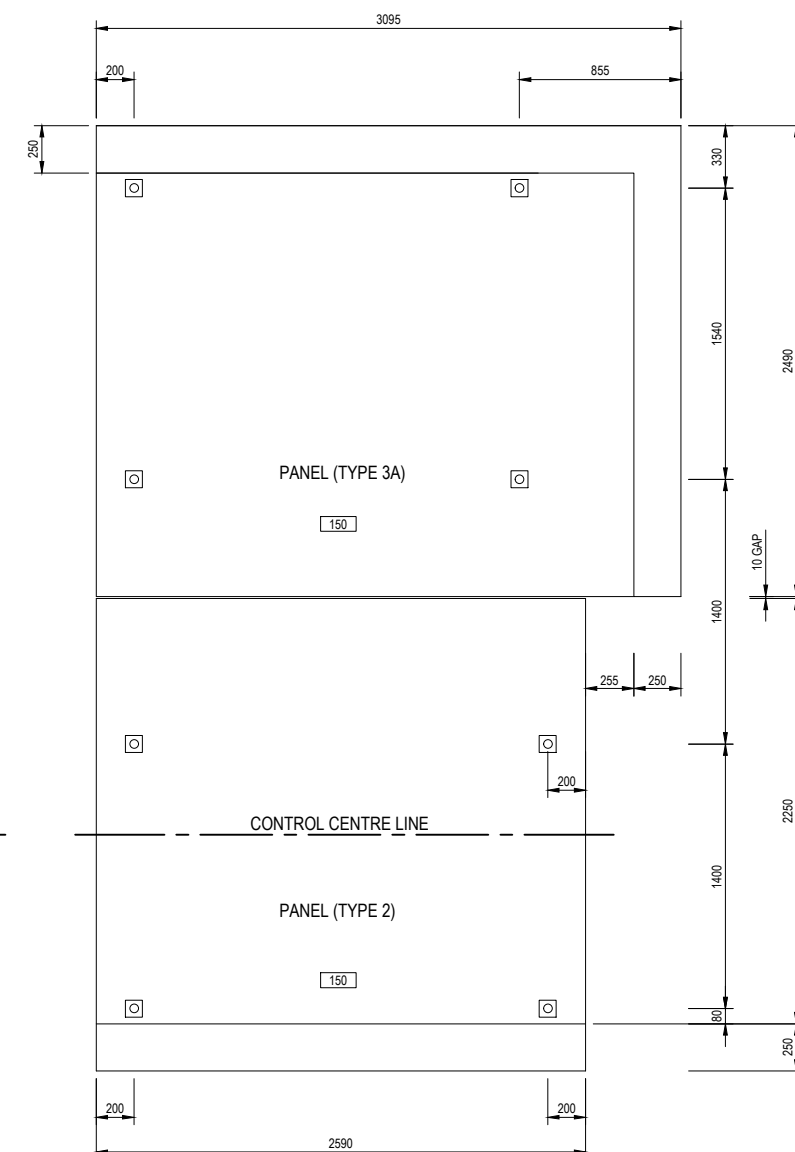
NOTE TYPE 1B SIMILAR  
OPPOSITE HAND



**TYPICAL PANEL DETAIL (TYPES 2 & 3)**  
SCALE 1:20



**TYPICAL PANEL DETAIL (TYPES 2 & 4)**  
SCALE 1:20



**TYPICAL PANEL DETAIL (TYPES 2 & 3A)**  
SCALE 1:20

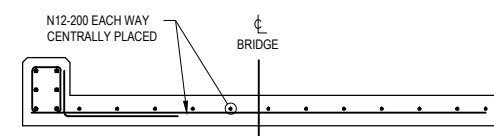
NOTE STAINLESS STEEL FERRULES SHOWN  
ON PANEL TYPE 3 ONLY FOR CLARITY. ENSURE  
FERRULES ARE CAST IN ALL PANELS. REFER  
TO DRAWING 42-21067-S005 FOR LOCATIONS.

**LEGEND:**

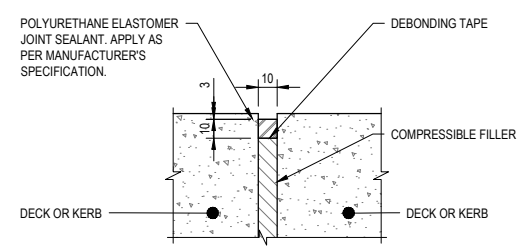
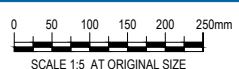
150 DENOTES SLAB THICKNESS



**TYPICAL PANEL (TYPES 1, 1A & 1B)  
REINFORCEMENT SECTION**  
SCALE 1:20

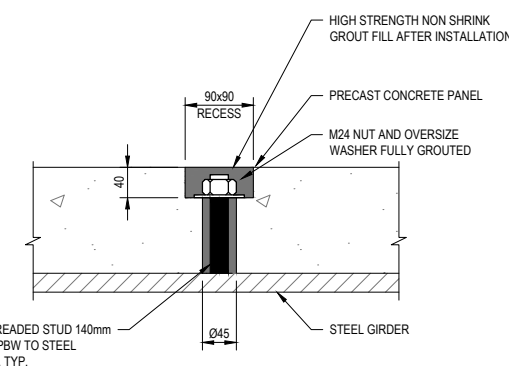


**TYPICAL PANEL (TYPE 2,3,4 & 3A)  
REINFORCEMENT SECTION**  
SCALE 1:20

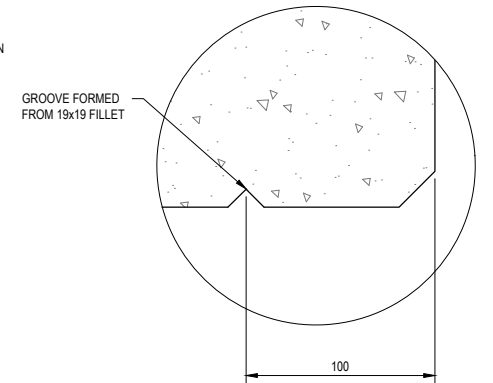


**TYPICAL DETAIL ABOVE GIRDER**  
SCALE 1:2

PROVIDE SEAL MIN 50mm PAST EACH GIRDER LOCATION  
TO PROTECT GIRDERS FROM DRIPPING WATER



**A SECTION**  
SCALE 1:5



**TYPICAL DRIP GROOVE DETAIL**  
SCALE 1:2  
REINFORCEMENT OMITTED FOR CLARITY

|    |                |       |             |                  |          |
|----|----------------|-------|-------------|------------------|----------|
| 0  | APPROVED ISSUE | WRC   | *MI         | *AA              | 08.07.19 |
| No | Revision       | Drawn | Job Manager | Project Director | Date     |

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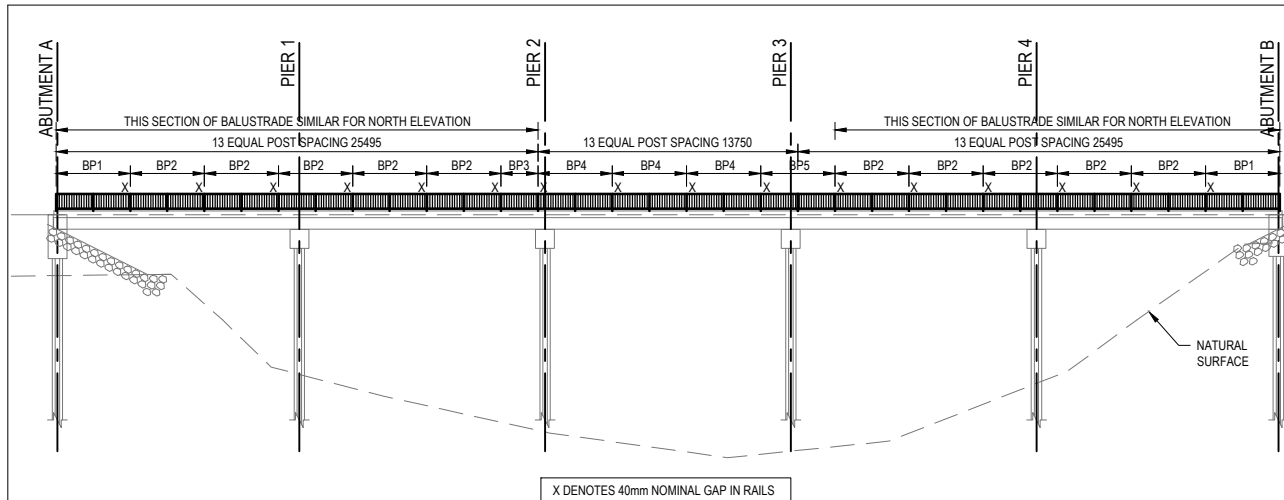
**DO NOT SCALE**

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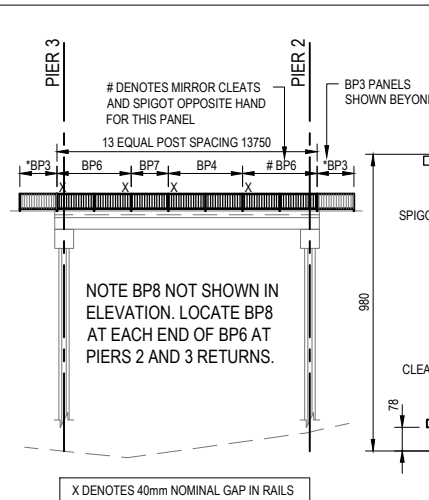
|                             |                |              |               |
|-----------------------------|----------------|--------------|---------------|
| Drawn                       | W.CLARKE       | Designer     | A.AHILADELLIS |
| Drafting Check              | *M.ISENBERT    | Design Check | *M.ISENBERT   |
| Approved (Project Director) | *A.AHILADELLIS |              |               |
| Date                        | 08.07.19       |              |               |
| Scale                       | AS SHOWN       |              |               |

|               |  |             |               |
|---------------|--|-------------|---------------|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT |             |               |
| Project       | WANGETTI TRAIL   |             |               |
| Title         | BRIDGE WORK<br>GIRDER AND DECK SLAB DETAILS - SHEET 2  |             |               |
| Original Size | A1   | Drawing No: | 42-21067-S006 |
| Rev:          | 0  |             |               |

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**SOUTH ELEVATION - BRIDGE RAILING**  
SCALE 1:100



**NORTH ELEVATION - BRIDGE RAILING**  
SCALE 1:100

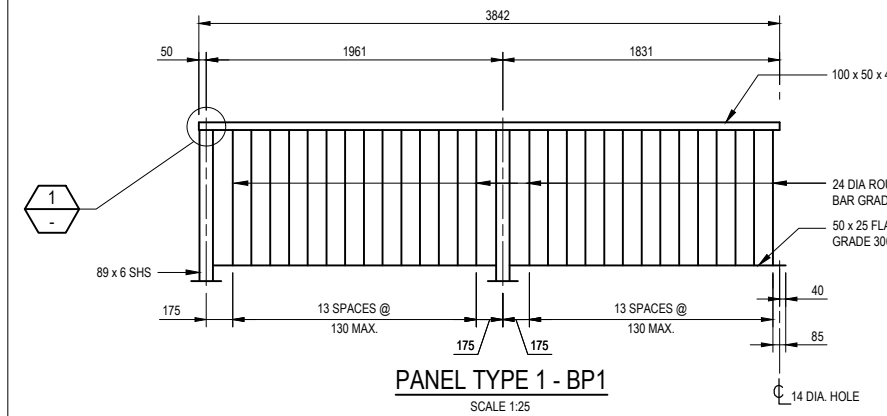
**ELEVATION**

**ELEVATION POST DETAILS**  
SCALE 1:25

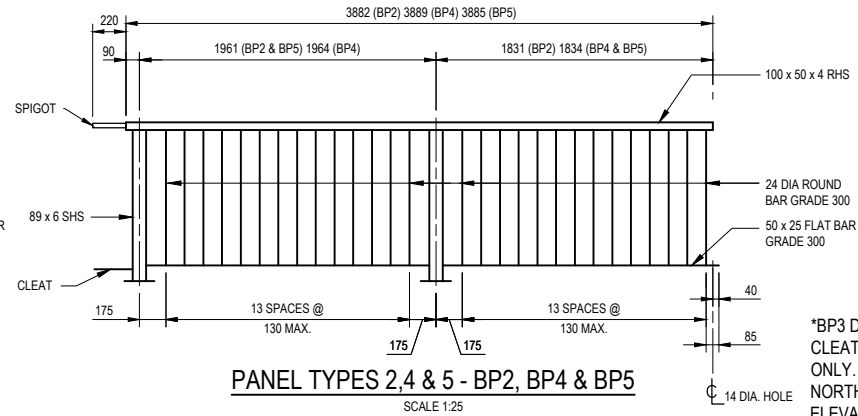
**TYPICAL SECTION**

**NOTES**

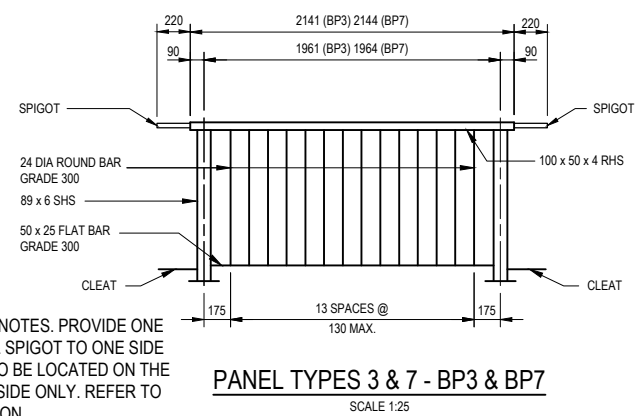
- RHS AND SHS TUBE TO BE GRADE C450L0 TO AS/NZS 1163.
- BASE PLATES AND RAIL CONNECTORS TO BE GRADE 350 TO AS/NZS 3678.
- ALL OTHER PLATES AND FLAT BAR TO BE GRADE 300 TO AS/NZS 3679.1.
- BOLTS CLASS 8.8, NUTS CLASS 8 AND WASHERS FOR CLASS 8.8 BOLTS TO AS/NZS 1252, THIN NUTS CLASS 5 TO AS 1112 AND ELS WASHERS TO AS 1237. UNO.
- ALL BOLTS AND NUTS TO BE HOT DIP GALVANISED TO AS 1214. WASHERS TO BE HOT DIP GALVANISED TO AS/NZS 4680. UNO.
- ALL STRUCTURAL STEELWORK FOR THE BALUSTRADE TO BE HOT DIPPED GALVANISED TO 85 MICRONS THICKNESS. UNO.
- STEELWORK TO BE FABRICATED TO THE REQUIREMENTS OF MRTS 78 FABRICATION OF STRUCTURAL STEELWORK.
- WELDING SYMBOLS CONFORM TO AS 1101.3.
- ALL WELDING TO CONFORM TO MRTS 78 AND AS/NZS 1654.1. ALL WELDS TO BE SP CATEGORY.
- WELDING CONSUMABLES FOR GRADE C450L0 RHS/SHS TO BE CONTROLLED HYDROGEN TYPE: E49XX OR W503.
- WELDING CONSUMABLES FOR ALL OTHER STRUCTURAL STEEL SHALL BE CONTROLLED HYDROGEN TYPE: E49XX OR W50X UNLESS SHOWN OTHERWISE.
- MEMBERS TO BE BRANDED WITH APPROPRIATE TYPE NUMBER AFTER FABRICATION.
- RAIL, POSTS AND CONNECTORS TO HAVE WELD SPLATTER AND WELDING SLAG REMOVED PRIOR TO HOT DIP GALVANISING TO AS/NZS 4680.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.



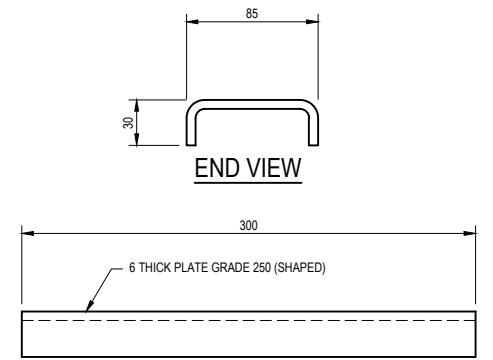
**PANEL TYPE 1 - BP1**  
SCALE 1:25



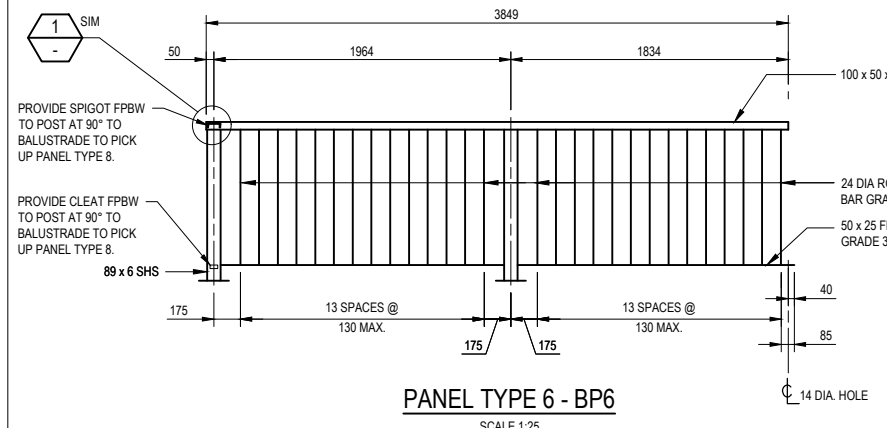
**PANEL TYPES 2, 4 & 5 - BP2, BP4 & BP5**  
SCALE 1:25



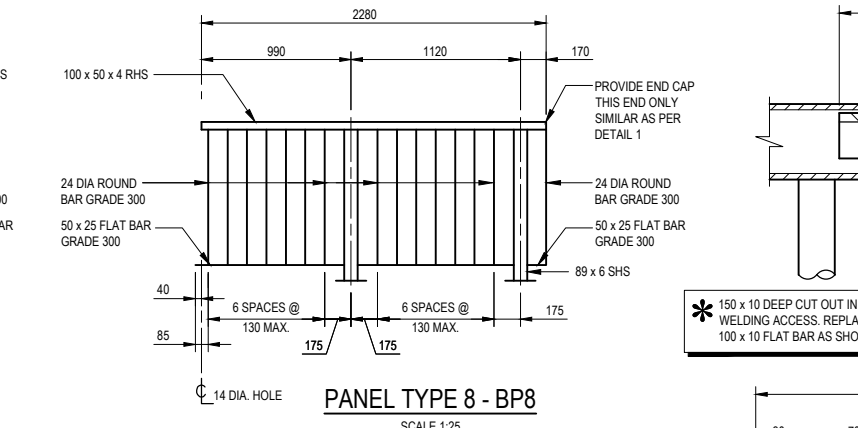
**PANEL TYPES 3 & 7 - BP3 & BP7**  
SCALE 1:25



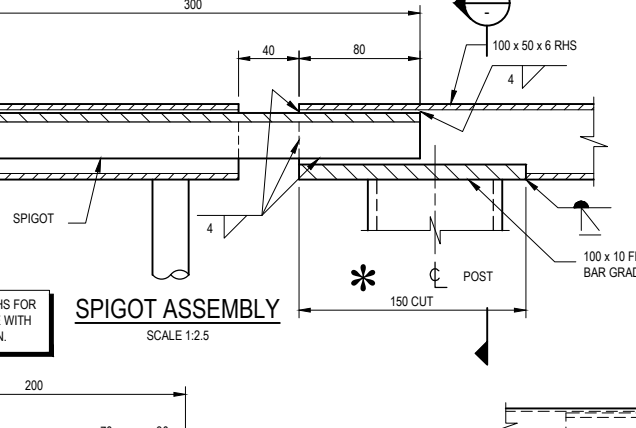
**ELEVATION SPIGOT DETAIL**  
SCALE 1:2.5



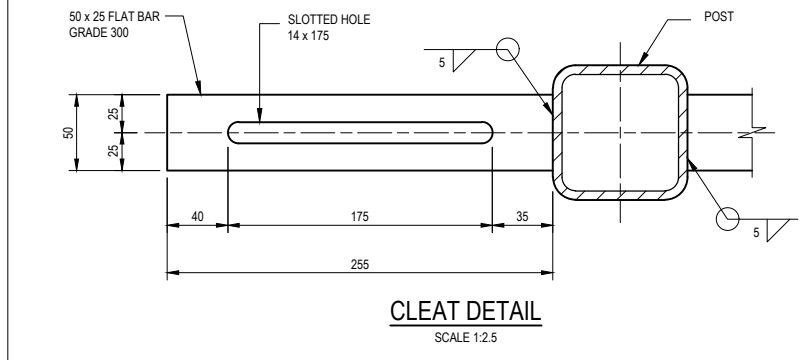
**PANEL TYPE 6 - BP6**  
SCALE 1:25



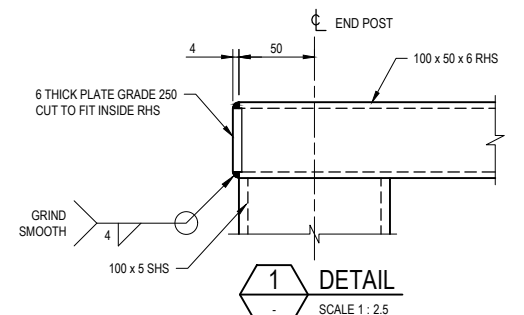
**PANEL TYPE 8 - BP8**  
SCALE 1:25



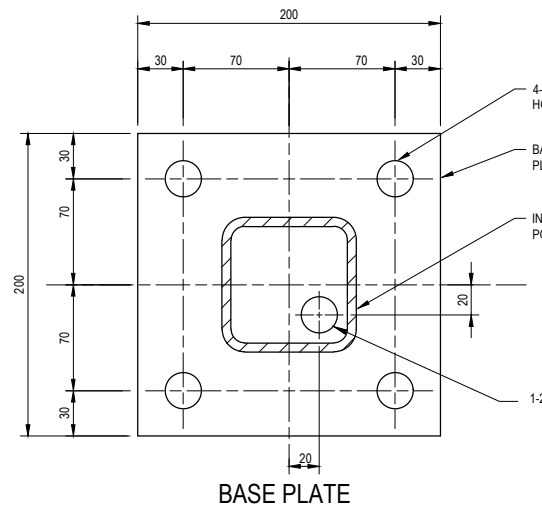
**SPIGOT ASSEMBLY**  
SCALE 1:2.5



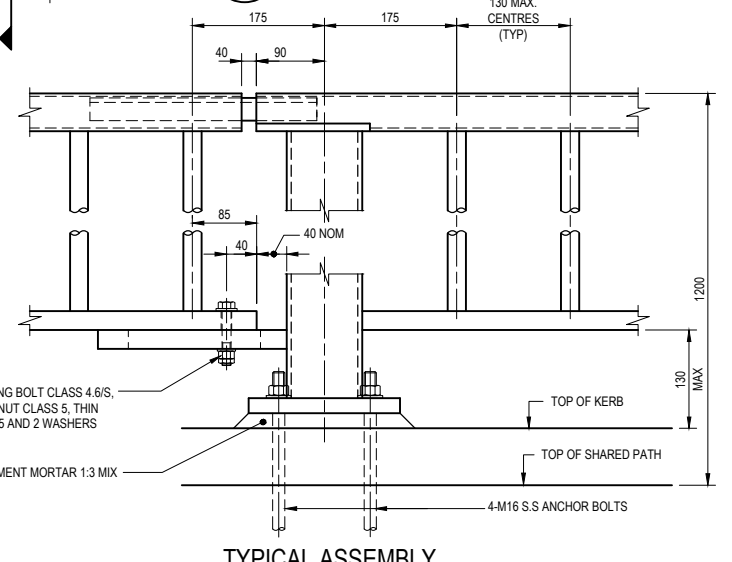
**CLEAT DETAIL**  
SCALE 1:2.5



**DETAIL**  
SCALE 1:2.5

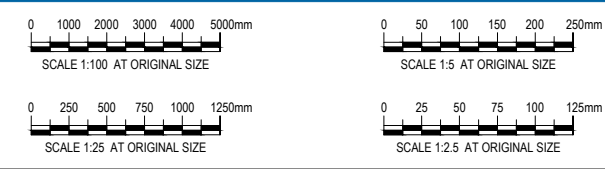


**BASE PLATE**  
SCALE 1:2.5



**TYPICAL ASSEMBLY**  
SCALE 1:5

| No | Revision       | Note | Drawn | Job Manager | Project Director | Date     |
|----|----------------|------|-------|-------------|------------------|----------|
| 0  | APPROVED ISSUE |      | WRC   | *MI         | *AA              | 08.07.19 |



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| Drawn                       | W.CLARKE       | Designer     | A.AHILADELLIS |
| Drafting Check              | *M.ISENBERT    | Design Check | *M.ISENBERT   |
| Approved (Project Director) | *A.AHILADELLIS |              |               |
| Date                        | 08.07.19       |              |               |
| Scale                       | AS SHOWN       |              |               |

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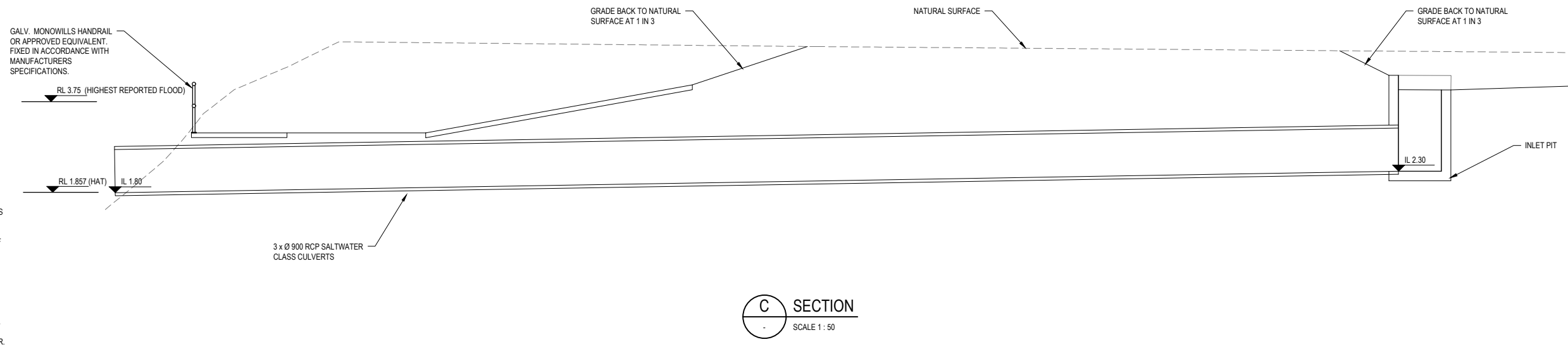
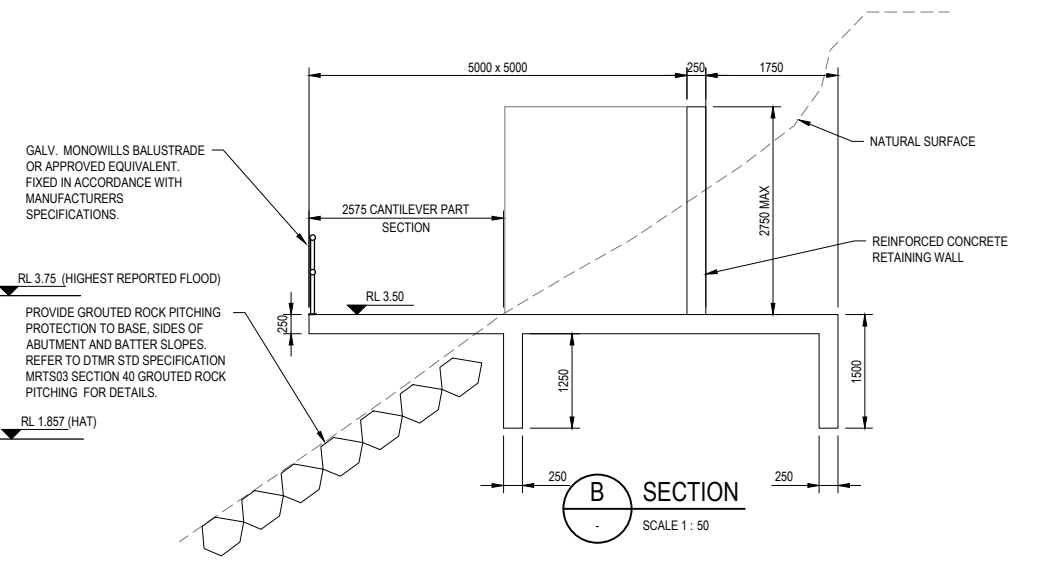
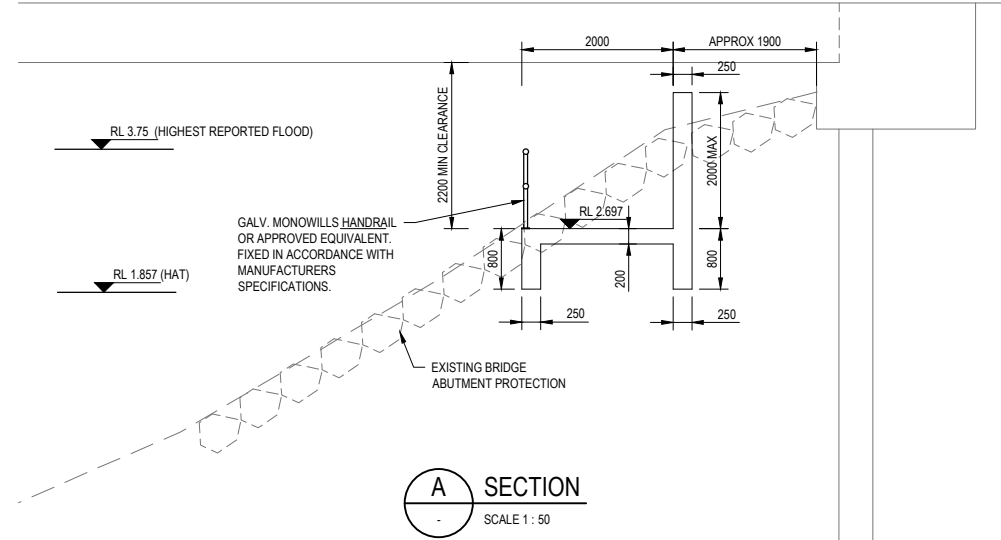
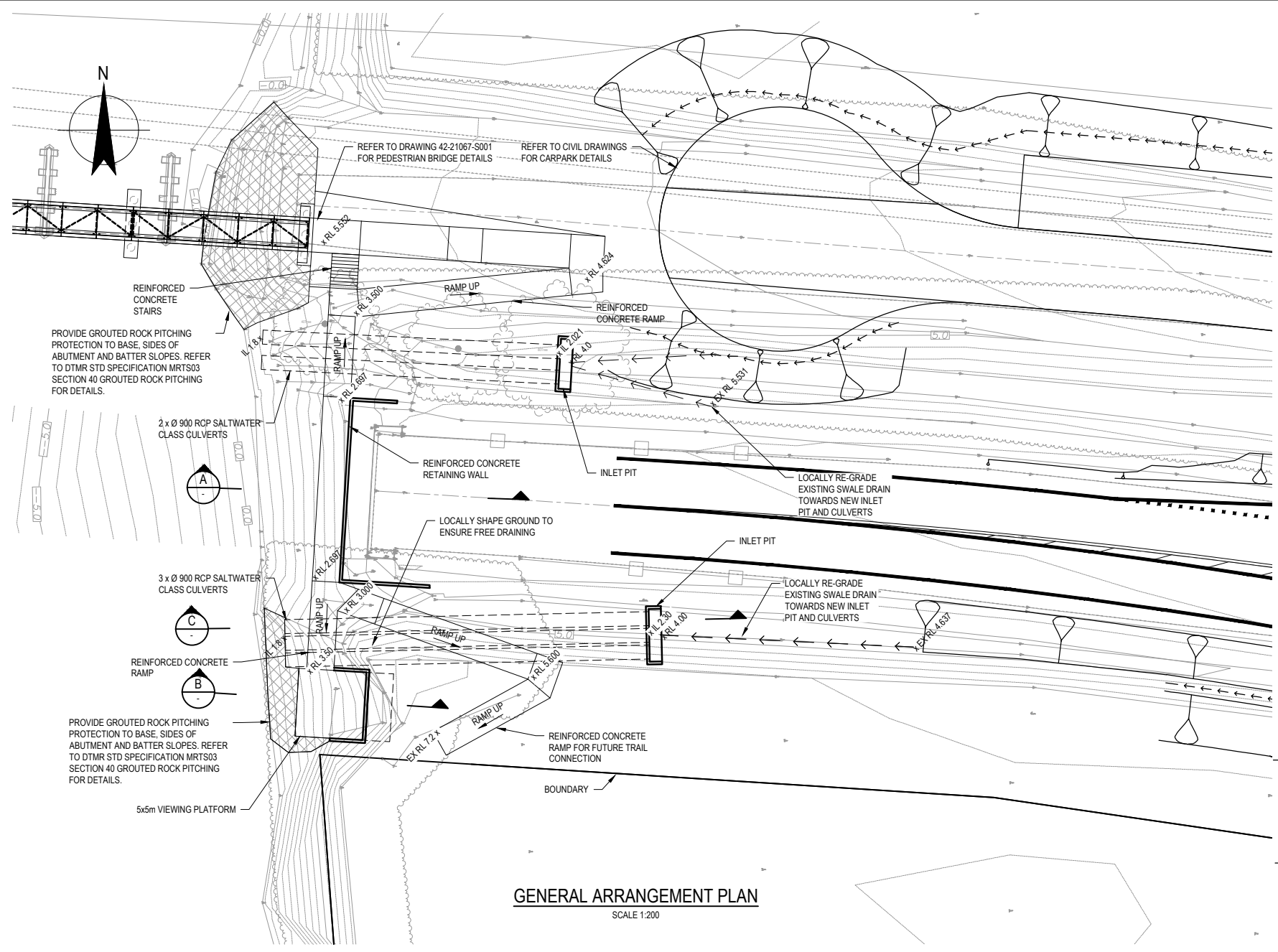
Client: **DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT**  
Project: **WANGETTI TRAIL**  
Title: **BRIDGE WORK BALUSTRADE DETAILS**  
Original Size: **A1** Drawing No: **42-21067-S007** Rev: **0**





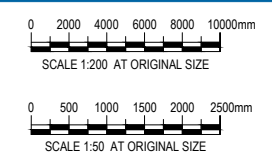






- NOTES:**
- REFER TO DRAWING 42-21067-S009 TO S011 FOR NOTES.
  - UNSUITABLE MATERIALS SHALL BE REMOVED TO A MINIMUM DEPTH OF 300mm AND REPLACED WITH APPROVED BACKFILL.
  - INSTALLATION AND BACKFILLING OF CULVERTS TO BE IN ACCORDANCE WITH FNQROC STD DWG 1046
  - CARRY OUT WORK IN A SAFE MANNER IN ACCORDANCE WITH APPLICABLE LEGISLATION, STATUTORY REGULATIONS, BY-LAWS OR RULES. CONTRACTOR IS RESPONSIBLE FOR OCCUPATIONAL HEALTH AND SAFETY OF SITE PERSONNEL AND GENERAL PUBLIC IN ACCORDANCE WITH WORK HEALTH AND SAFETY ACT 2010, LEGISLATIVE REQUIREMENTS, ASSOCIATED REGULATIONS AND CODES OF PRACTICE, INDUSTRIAL AGREEMENTS AND ACCEPTED INDUSTRY PRACTICE.
  - HAVE SURVEY AND SETTING OUT UNDERTAKEN BY A REGISTERED SURVEYOR.
  - DISPOSE OF SURPLUS MATERIAL OFF SITE IN ACCORDANCE WITH LOCAL AUTHORITY WASTE REGULATIONS.
  - IMPLEMENT SOIL AND WATER MANAGEMENT PROCEDURES TO AVOID EROSION, CONTAMINATION AND SEDIMENTATION OF SITE, SURROUNDING AREAS AND DRAINAGE SYSTEMS.
  - MAKE GOOD ANY DAMAGE TO EXISTING ELEMENTS AT COMPLETION OF WORKS.
  - THESE DRAWINGS DO NOT DETAIL TEMPORARY WORKS. CONSTRUCTION METHODS AND TEMPORARY WORKS ARE RESPONSIBILITY OF THE CONTRACTOR.

|    |                |   |       |             |                  |      |
|----|----------------|---|-------|-------------|------------------|------|
| 0  | APPROVED ISSUE | WRC   | *MI   | *AA         | 08.07.19         |      |
| No | Revision       | Note: * indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date |



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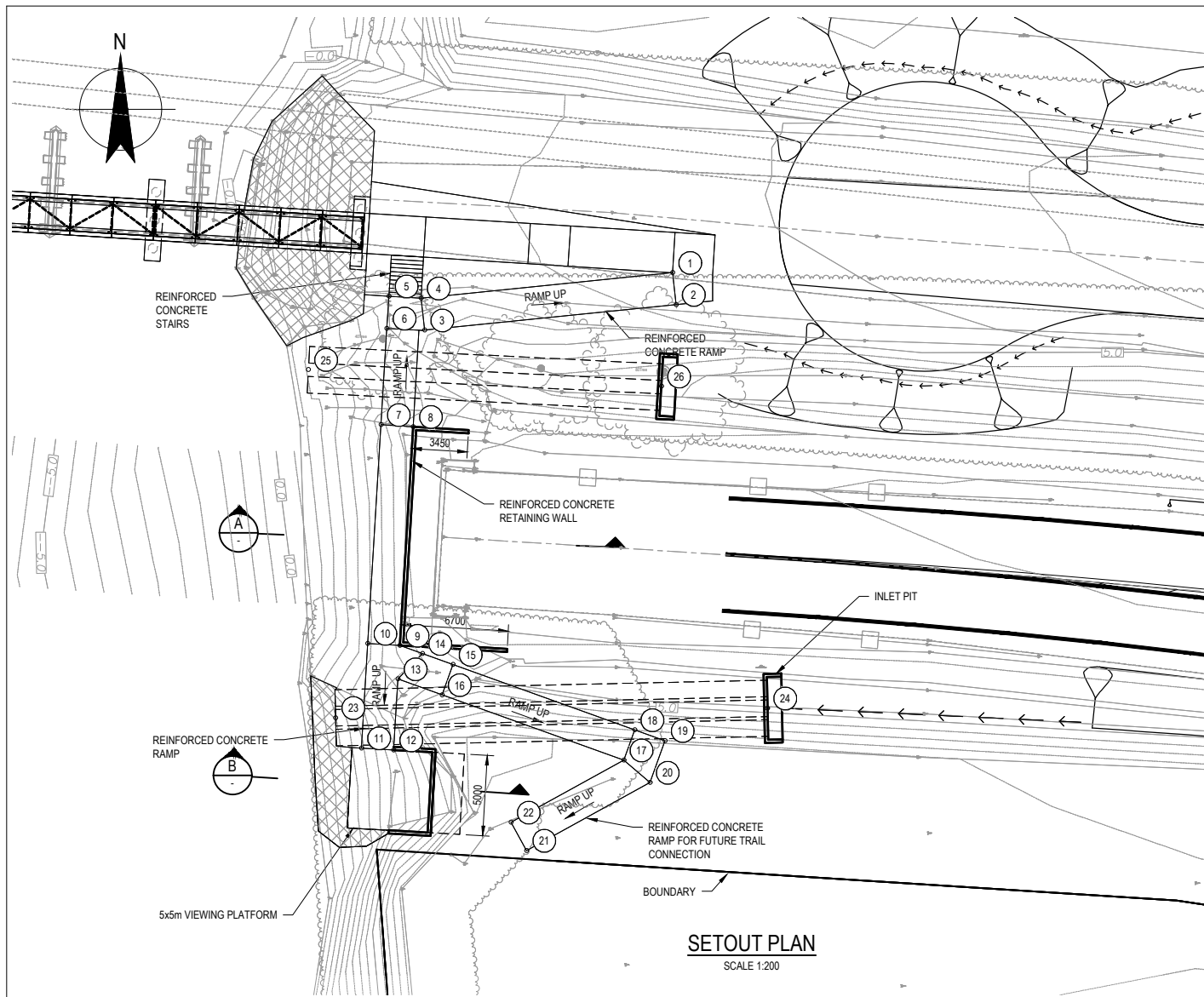
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| Drawn                       | W.CLARKE       | Designer     | A.AHILADELLIS |
| Drafting Check              | *M.ISENBERT    | Design Check | *S.DURAIRAJ   |
| Approved (Project Director) | *A.AHILADELLIS |              |               |
| Date                        | 08.07.19       |              |               |
| Scale                       | AS SHOWN       |              |               |

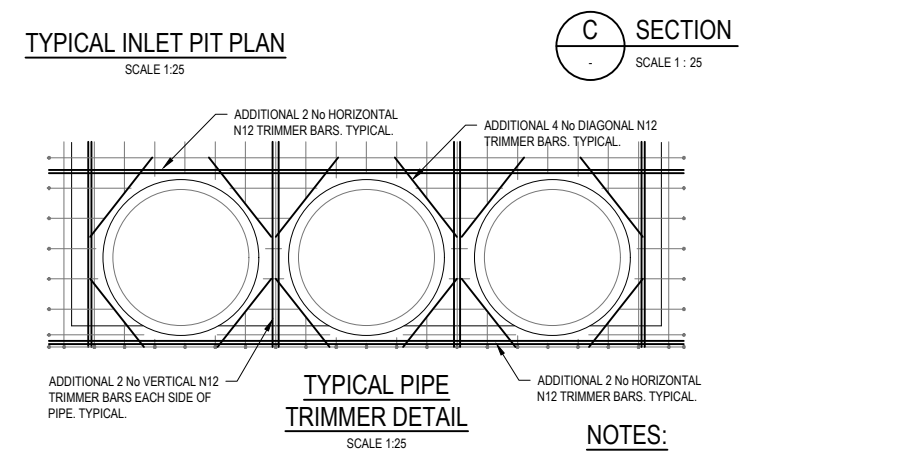
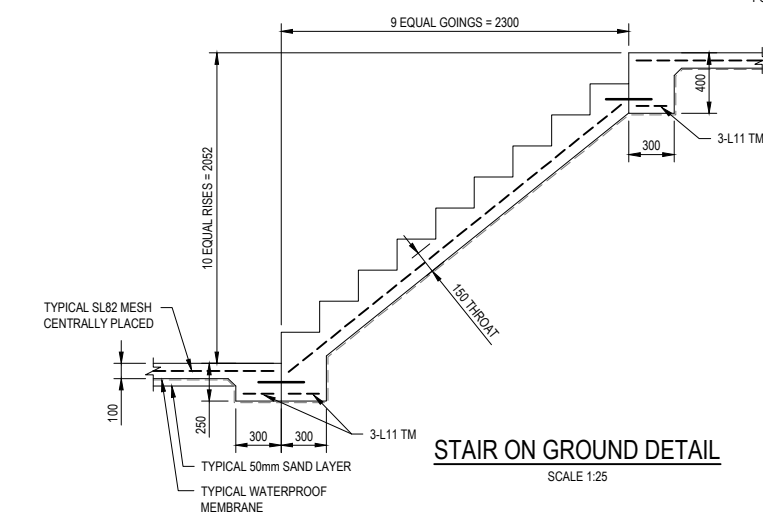
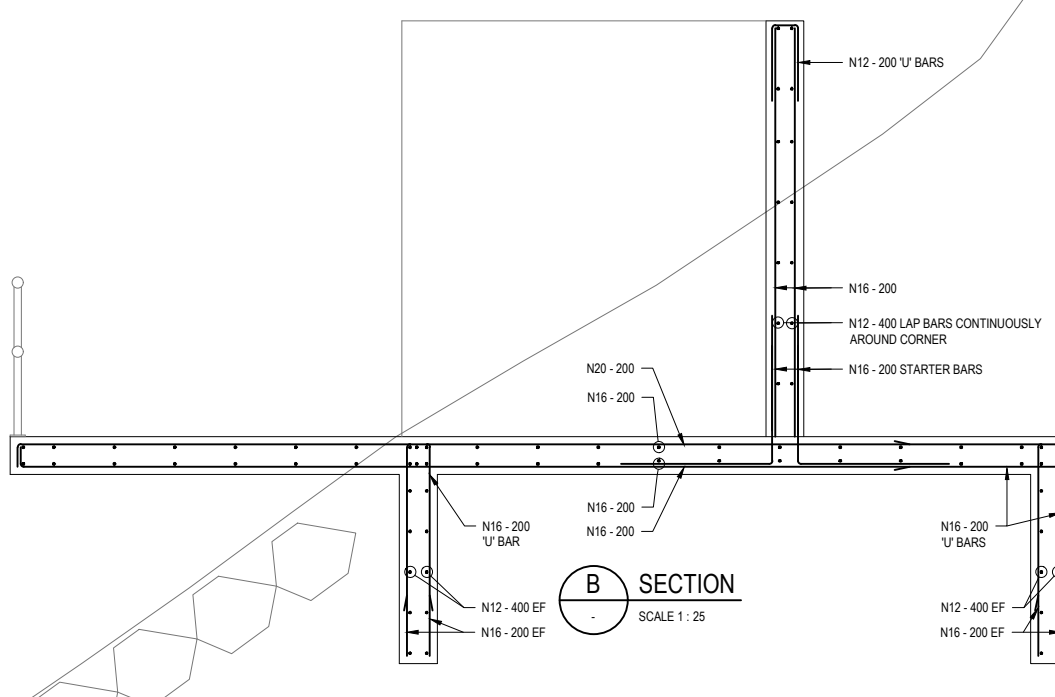
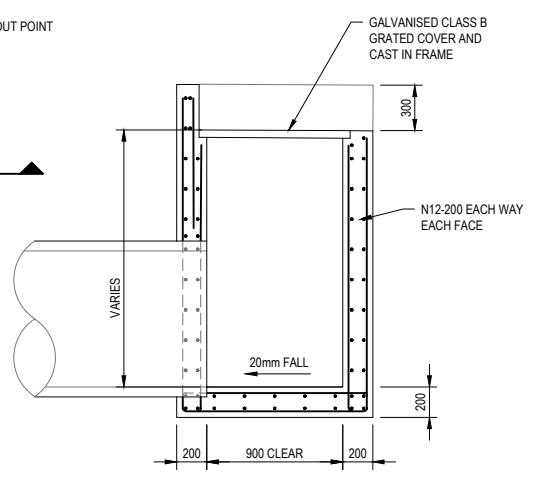
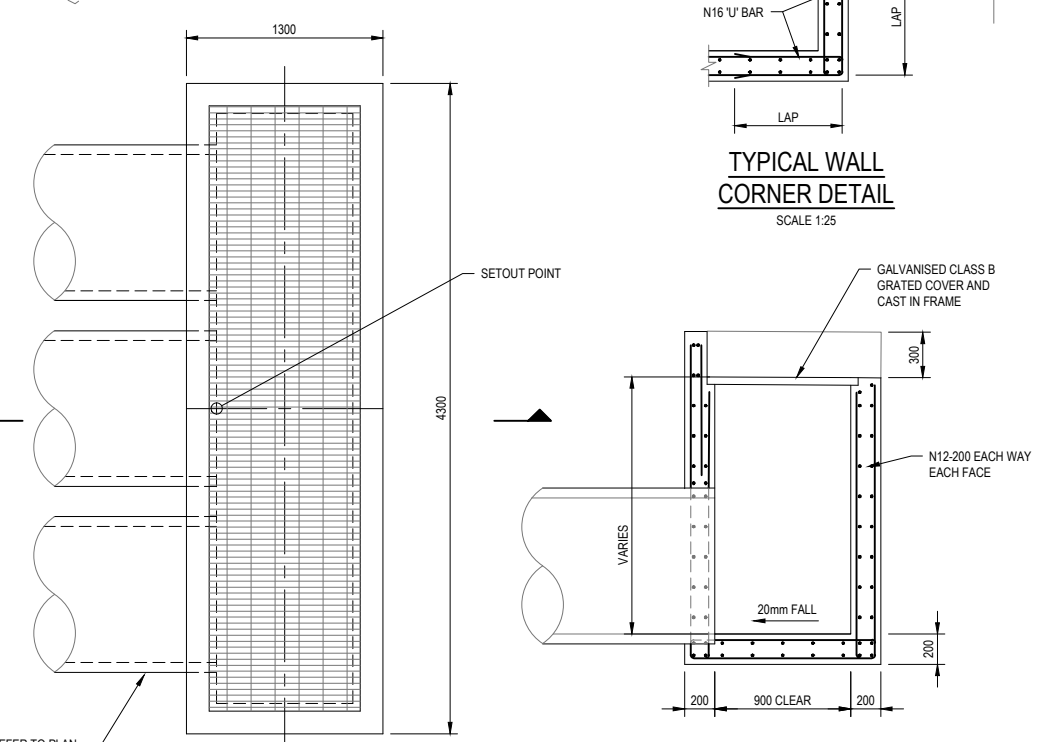
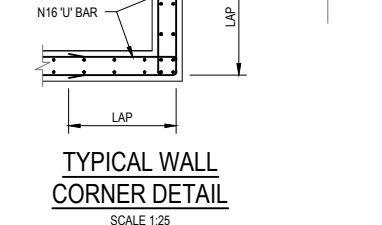
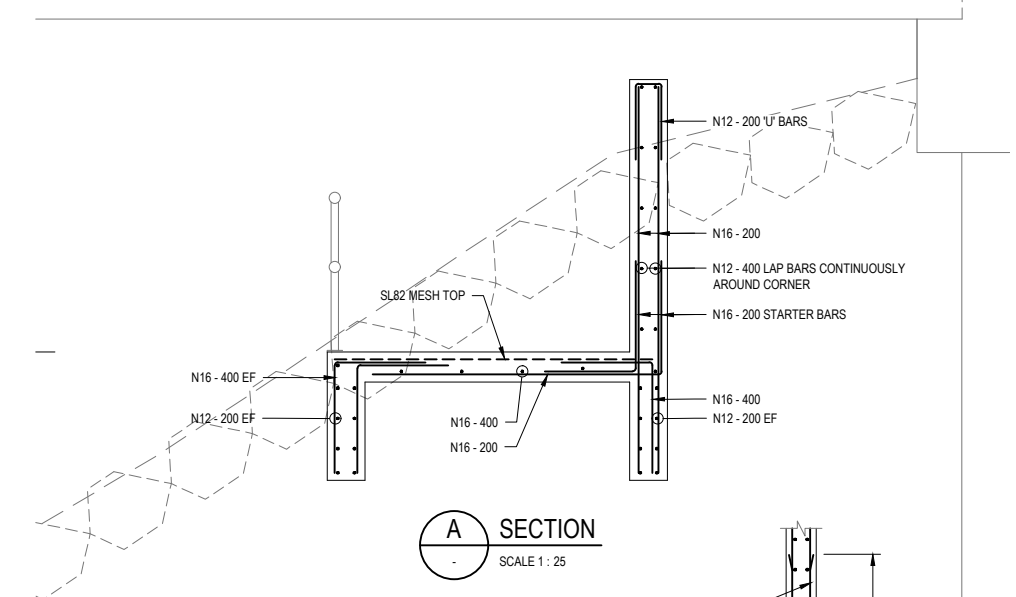
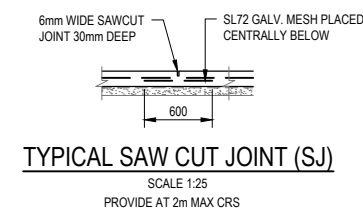
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Client: **DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT**  
 Project: **WANGETTI TRAIL**  
 Title: **TRAIL UNDERPASS GENERAL ARRANGEMENT**

Original Size: **A1** Drawing No: **42-21067-S012** Rev: **0**

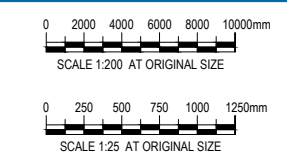


| SETOUT POINTS |            |             |
|---------------|------------|-------------|
| POINT         | EASTING    | NORTHING    |
| 1             | 338031.872 | 8169278.336 |
| 2             | 338032.096 | 8169276.349 |
| 3             | 338016.470 | 8169274.764 |
| 4             | 338016.247 | 8169276.751 |
| 5             | 338014.250 | 8169276.873 |
| 6             | 338014.129 | 8169274.876 |
| 7             | 338013.764 | 8169268.887 |
| 8             | 338015.761 | 8169268.766 |
| 9             | 338014.934 | 8169255.174 |
| 10            | 338012.938 | 8169255.296 |
| 11            | 338012.542 | 8169248.802 |
| 12            | 338014.539 | 8169248.680 |
| 13            | 338014.807 | 8169253.095 |
| 14            | 338016.346 | 8169254.667 |
| 15            | 338018.228 | 8169253.991 |
| 16            | 338017.552 | 8169252.109 |
| 17            | 338028.845 | 8169248.052 |
| 18            | 338029.521 | 8169249.934 |
| 19            | 338031.404 | 8169249.258 |
| 20            | 338030.472 | 8169246.665 |
| 21            | 338022.806 | 8169242.437 |
| 22            | 338021.840 | 8169244.189 |
| 23            | 338010.945 | 8169250.685 |
| 24            | 338037.778 | 8169251.277 |
| 25            | 338009.251 | 8169272.310 |
| 26            | 338031.180 | 8169271.279 |



**NOTES:**  
1. REFER TO DRAWING 42-21067-S009 TO S011 FOR NOTES.

| No | Revision       | Note | Drawn | Job Manager | Project Director | Date     |
|----|----------------|------|-------|-------------|------------------|----------|
| 0  | APPROVED ISSUE |      | WRC   | *MI         | *AA              | 08.07.19 |

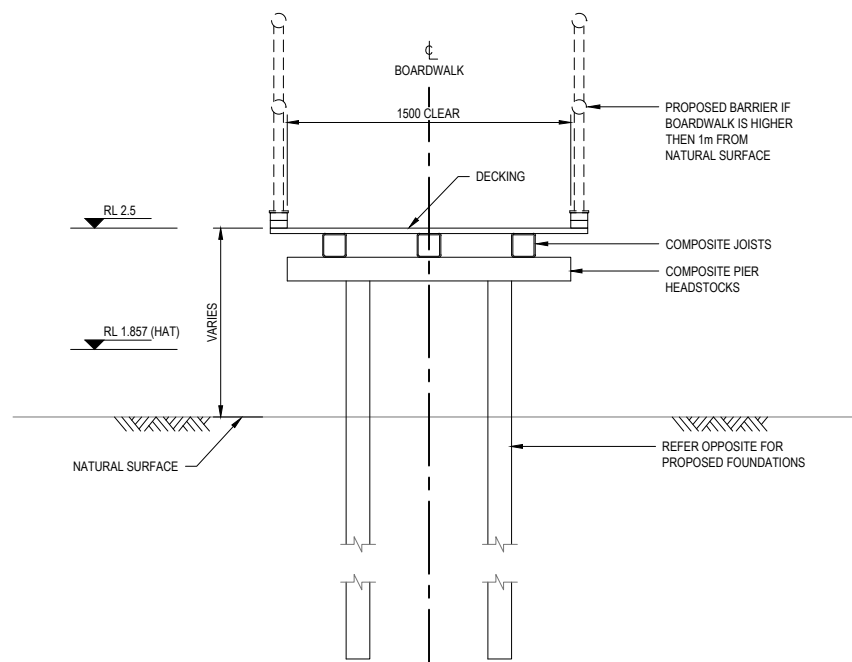


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| DO NOT SCALE                |                |
|-----------------------------|----------------|
| Drawn                       | W.CLARKE       |
| Designer                    | A.AHILADELLIS  |
| Drafting Check              | *M.ISENBERT    |
| Design Check                | *S.DURAIRAJ    |
| Approved (Project Director) | *A.AHILADELLIS |
| Date                        | 08.07.19       |
| Scale                       | AS SHOWN       |

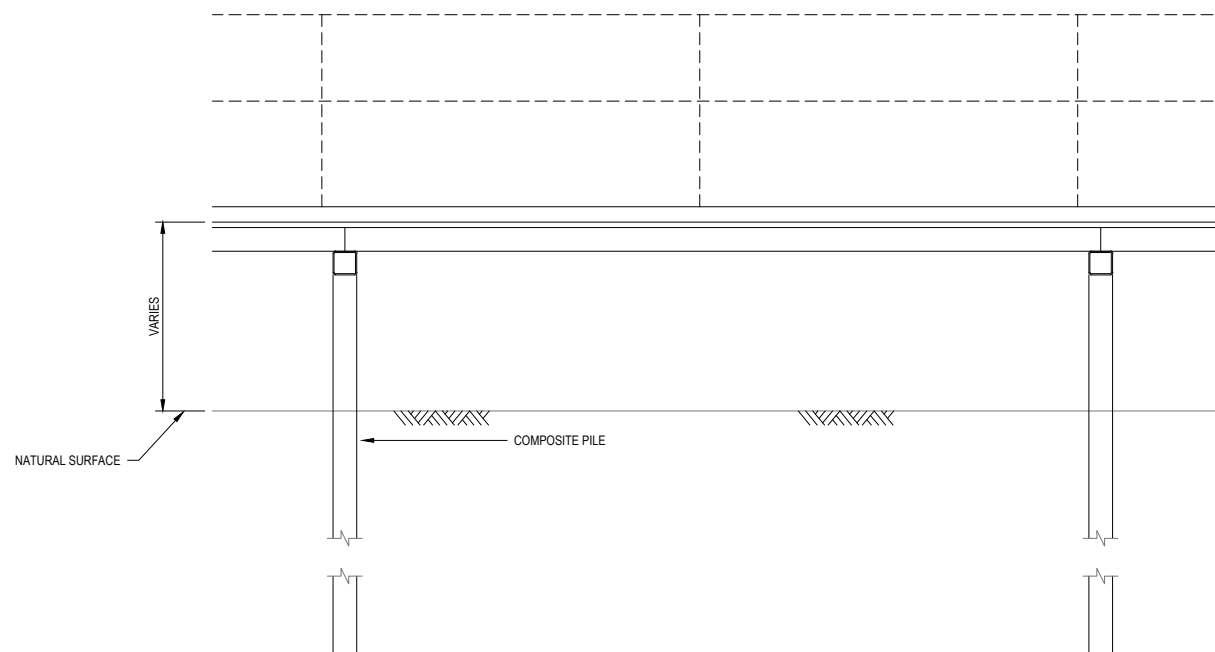
Client **DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT**  
Project **WANGETTI TRAIL**  
Title **TRAIL UNDERPASS SETOUT AND REINFORCEMENT DETAILS**

Original Size **A1** Drawing No: **42-21067-S013** Rev: **0**



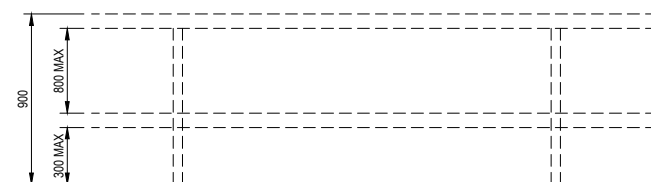
TYPICAL BOARDWALK SECTION (COMPOSITE)

SCALE 1:20



TYPICAL BOARDWALK ELEVATION (COMPOSITE)

SCALE 1:20



TYPICAL BARRIER ELEVATION (TYPE C)

SCALE 1:20

NOTE: PROVIDE TYPE C IN AREAS 1m OR GREATER.  
PROVIDE TYPE C WITH MESH IN AREAS PRONE TO NATIVE WILDLIFE ATTACK



PRELIMINARY

| rev | description   | app'd | date     |
|-----|---------------|-------|----------|
| A   | CONCEPT ISSUE | *AA   | 16.05.19 |

DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT  
WANGETTI TRAIL  
CONCEPT BOARDWALKS  
GA - OPTION



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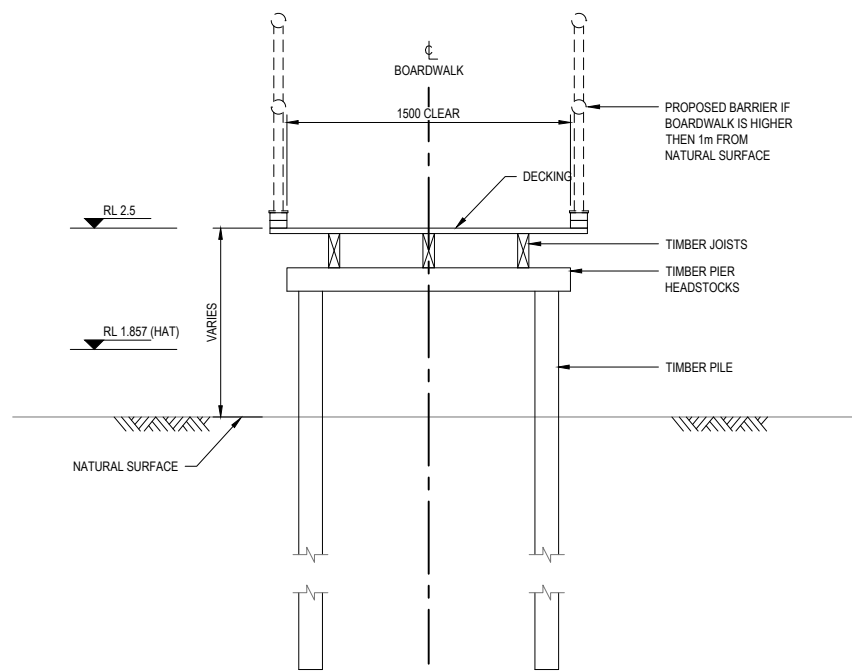
scale AS SHOWN for A1 job no. 42-21067  
date MAY 2019 rev no. A

approved (PD) ..... SK010

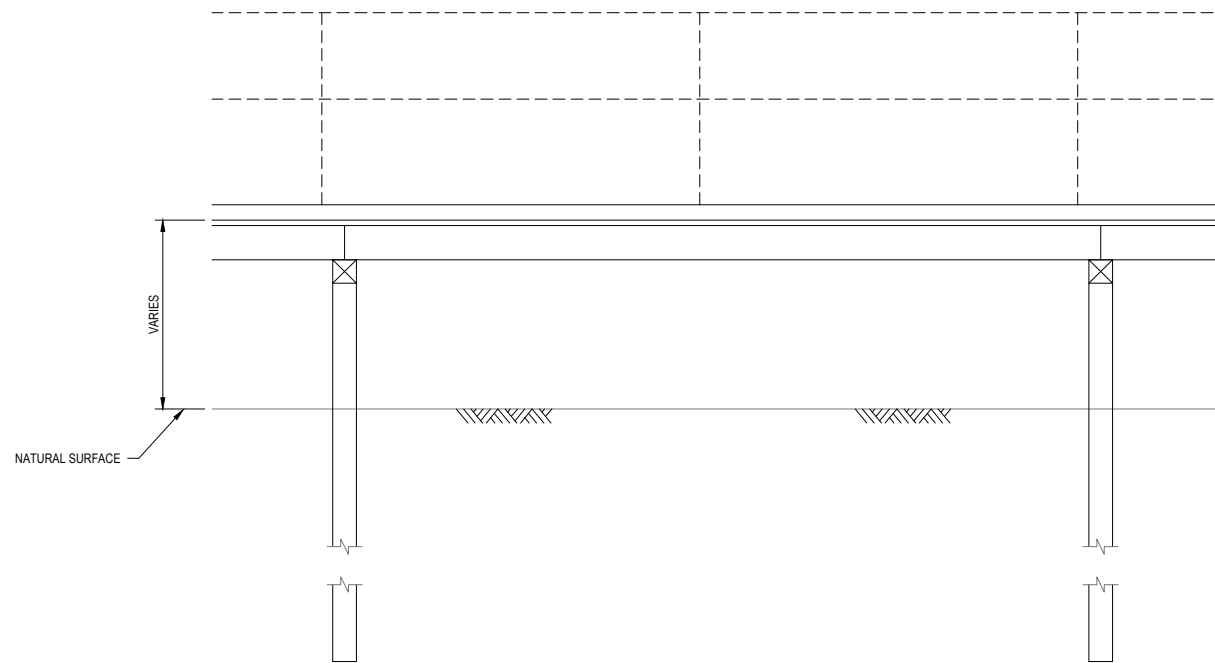
NOTES:

PROPOSED WORKS OUTCOMES

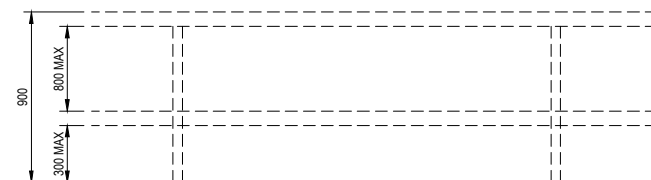
- LIVE LOAD TO AS2156.2 - 4 kPa FOR VIEWING PLATFORMS AND 3kPa FOR ACCESS WAYS FOR TRACKS CLASS 3
- PROPOSED CLEAR WIDTH ON PATH TO BE 1.5m.



TYPICAL BOARDWALK SECTION (TIMBER)  
SCALE 1:20



TYPICAL BOARDWALK ELEVATION (TIMBER)  
SCALE 1:20



TYPICAL BARRIER ELEVATION (TYPE C)  
SCALE 1:20

NOTE: PROVIDE TYPE C IN AREAS 1m OR GREATER.  
PROVIDE TYPE C WITH MESH IN AREAS PRONE TO NATIVE WILDLIFE  
ATTACK



PRELIMINARY

| rev | description   | app'd | date     |
|-----|---------------|-------|----------|
| A   | CONCEPT ISSUE | *AA   | 16.05.19 |

DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT  
WANGETTI TRAIL  
CONCEPT BOARDWALKS  
GA - OPTION



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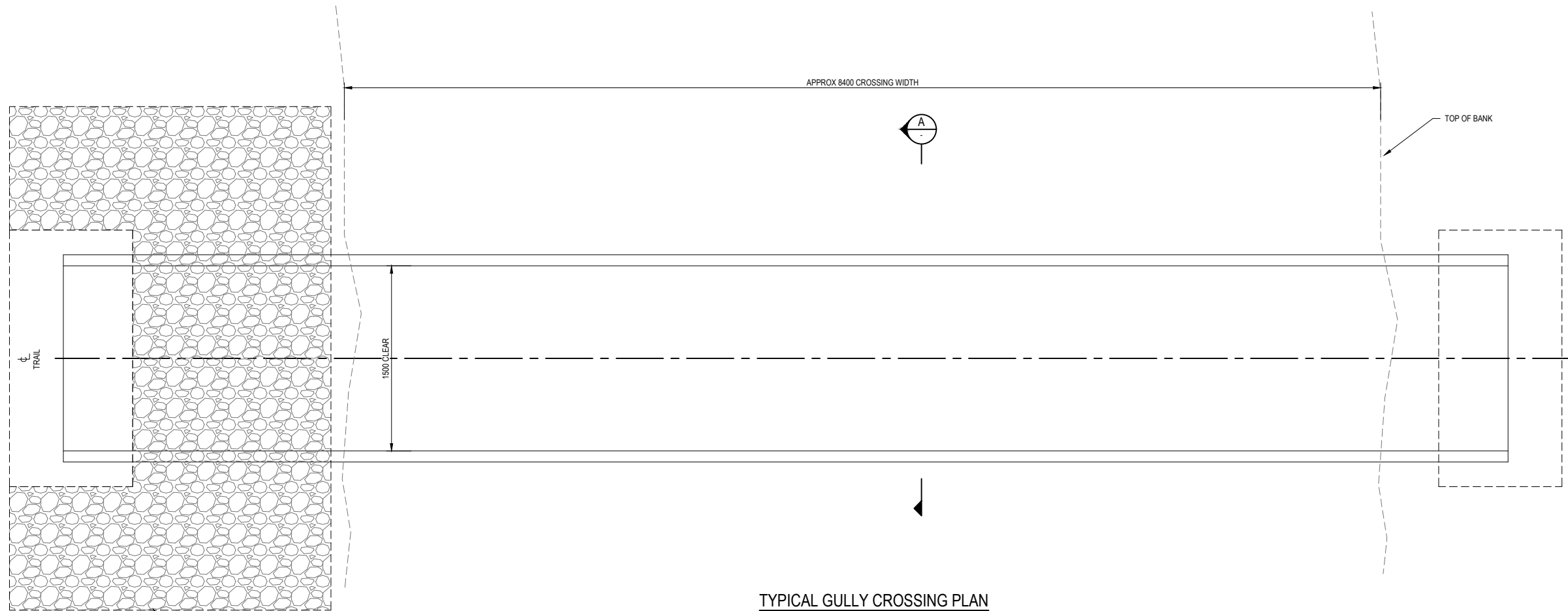
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scale AS SHOWN for A1 job no. 42-21067  
date MAY 2019 rev no. A

approved (PD) ..... SK011

NOTES:  
PROPOSED WORKS OUTCOMES

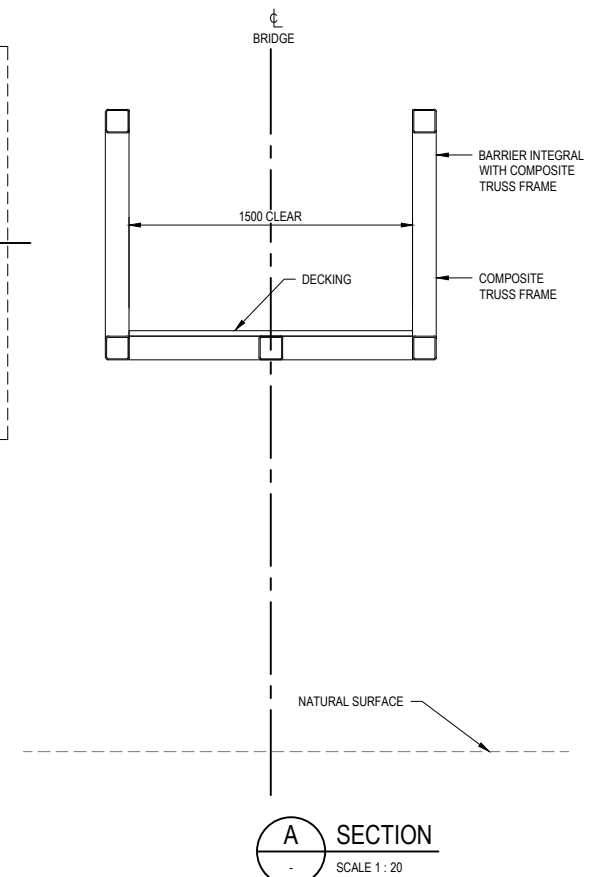
- LIVE LOAD TO AS2156.2 - 4 kPa FOR VIEWING PLATFORMS AND 3kPa FOR ACCESS WAYS FOR TRACKS CLASS 3
- PROPOSED CLEAR WIDTH ON PATH TO BE 1.5m.



TYPICAL GULLY CROSSING PLAN

SCALE 1:20

IF SCOUR SURROUNDING CROSSING FOUNDATIONS ENCOUNTERED PROVIDE 150 THICK RENO MATTRESS FILLED WITH ROCK

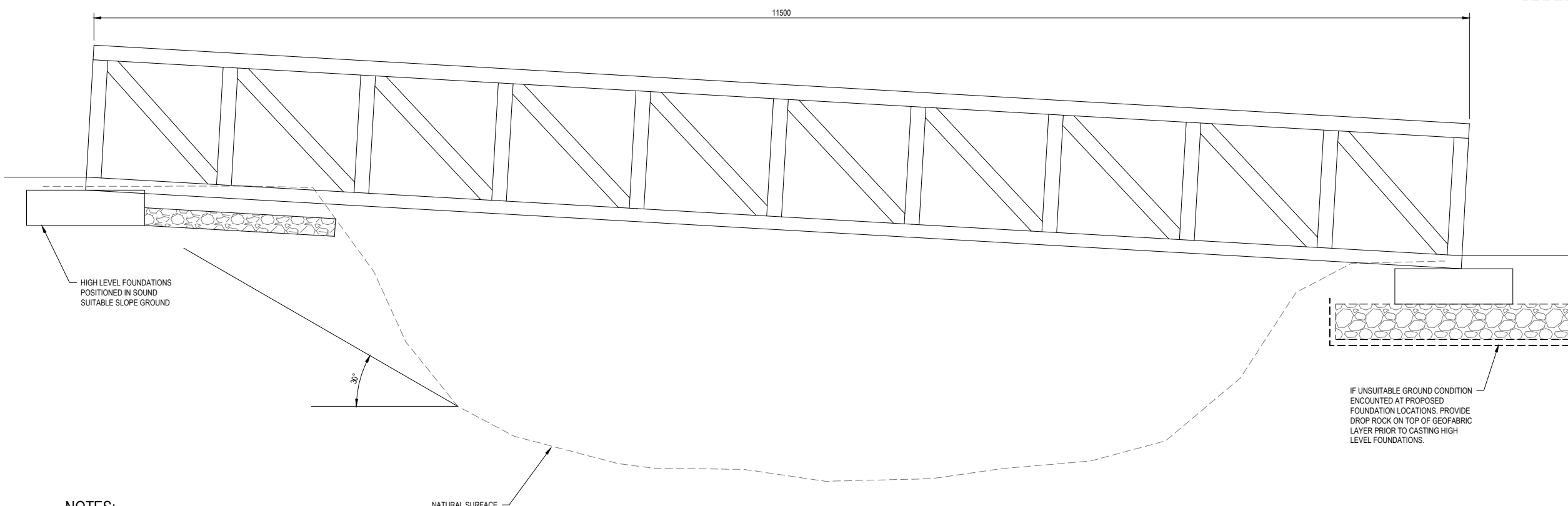


SECTION A

SCALE 1:20



SCALE 1:20 AT ORIGINAL SIZE



TYPICAL GULLY CROSSING SECTION

SCALE 1:20

CONCEPT GULLY CROSSING SHOWN FOR B41  
 CONCEPT CROSSING B40 - 5.3m APPROX CROSSING WIDTH SIMILAR  
 CONCEPT CROSSING B39 - 6.0m APPROX CROSSING WIDTH SIMILAR

**NOTES:**  
 PROPOSED WORKS OUTCOMES

- LIVE LOAD TO AS2156.2 - 4 kPa FOR VIEWING PLATFORMS AND 3kPa FOR ACCESS WAYS FOR TRACKS CLASS 3
- PROPOSED CLEAR WIDTH ON PATH TO BE 1.5m.

**PRELIMINARY**

| rev | description   | app'd | date     |
|-----|---------------|-------|----------|
| A   | CONCEPT ISSUE | *AA   | 16.05.19 |

DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT  
 WANGETTI TRAIL  
 CONCEPT GULLY CROSSINGS  
 GA - OPTION

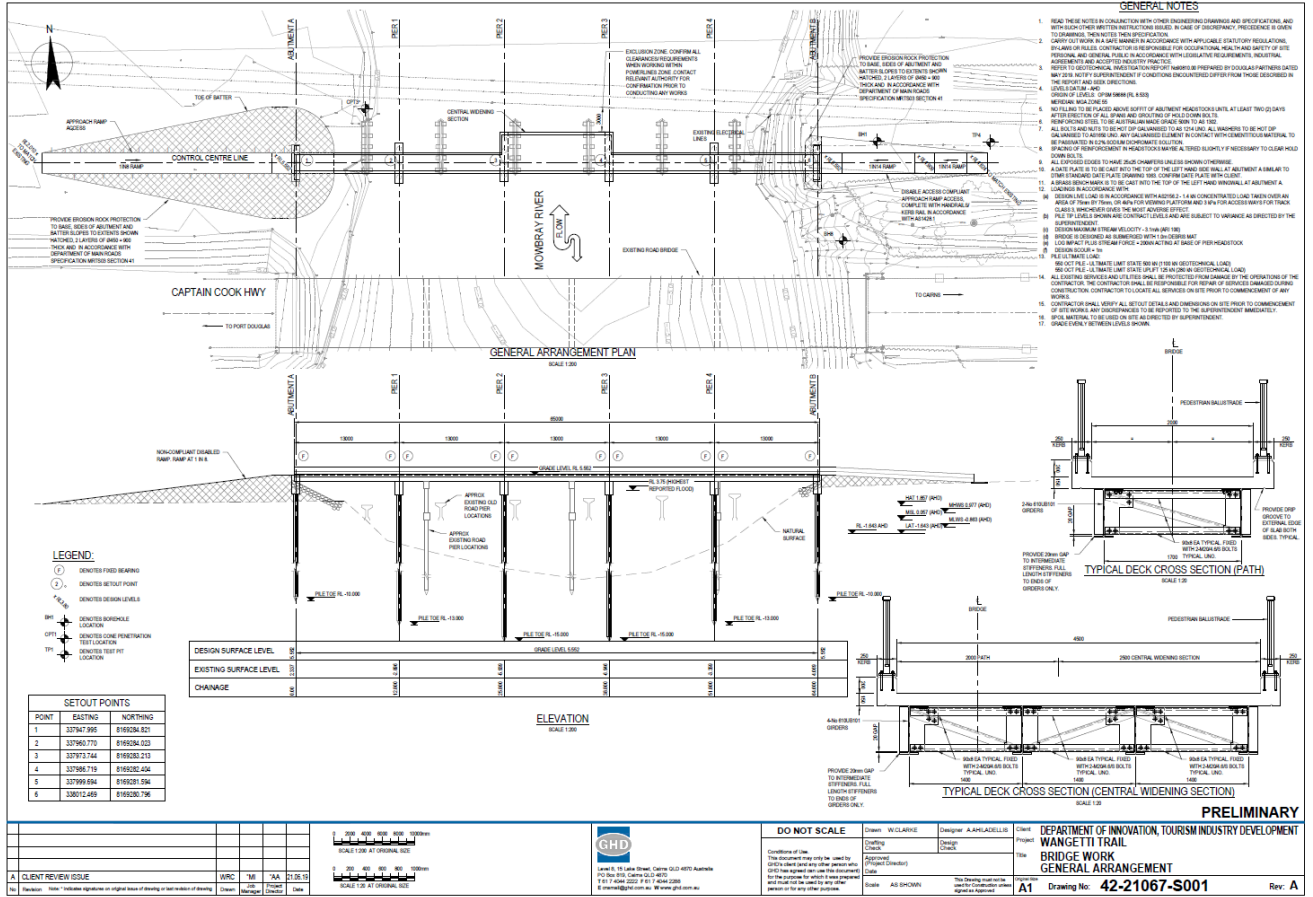


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PRELIMINARY

DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT  
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BRIDGE WORK  
GENERAL ARRANGEMENT

Project No: 42-21067-S001

Rev: A

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Document Status

| Revision | Author               | Reviewer              |                         | Approved for Issue |            |            |
|----------|----------------------|-----------------------|-------------------------|--------------------|------------|------------|
|          |                      | Name                  | Signature               | Name               | Signature  | Date       |
| 0        | S Jensen<br>V Crepin | E Rothwell<br>A Boden | *E.Rothwell<br>*A.Boden | G Squires          | *G.Squires | 26/07/2019 |
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Department of Innovation, Tourism Industry  
**Development and the Commonwealth Games**

Environment Assessment Stage 2 Wangetti Trail  
Development Application Material change of Use for  
Environmental Facility for the Wangetti Trail Project SP1 -  
Mowbray North

41-32458-03-SP1-RPT-0005

July 2019



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# Appendices

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Appendix E Local code - Assessment of development and overlay codes

# 1. Introduction

## 1.1 Project Context

The Department of Innovation, Tourism Industry Development and the Commonwealth Games (DITID) is proposing to establish the Wangetti Trail, a 94 kilometre (km) dual use trail from Port Douglas in the north to Palm Cove in the south (the project) (refer to Figure 1-1). The project will also include accommodation nodes and supporting ancillary facilities. The project is named after the township of Wangetti, which is located approximately halfway between Port Douglas and Palm Cove.

In 2018, DITID completed Stage 1, an Initial application, to the Department of Infrastructure, Regional Development and Cities' (DIRDC) Regional Growth Fund (RGF) for the purpose of gaining funding for the construction of the Wangetti Trail. Following on from this, a Business Case was developed to assist the funding applications and to inform the Commonwealth and Queensland Governments on the costs and benefits of constructing the Wangetti Trail.

Following on from Stage 1, Stage 2 is now being progressed to continue developing the planning and environmental assessment of the trail, and to gain the appropriate approvals required.

The dual use trail will provide walkers and mountain bike riders with a unique experience to traverse through natural areas of north Queensland covering bushland and coastal areas, including the Wet Tropics of Queensland (Wet Tropics), national parks and Great Barrier Reef World Heritage areas. The portion of the project between Port Douglas and Wangetti will be dual use accommodating both walkers and mountain bike riders, while the section between Wangetti and Palm Cove limited to mountain bike riders.

The whole project comprises two separable portions (SPs):

- SP1 – Mowbray North
- SP2 – remainder of the trail referred to as Wangetti Balance.

SP1 Mowbray North, the subject of this Development Application, is a length of 5.61 km, encompassing an area from Four Mile Beach in the north to near the Mowbray River in the south (refer to Figure 1-2). SP1 Mowbray North is referred to as the 'SP1 Project area' and encompasses components identified in Table 1-1. SP2 comprises the balance of the trail and is being investigated separately.

## 1.2 Purpose of this report

GHD Pty Ltd (GHD) on behalf of DITID has prepared this Material Change of Use (MCU) application report for an 'Environmental Facility' and operational works in accordance under the Douglas Shire Council Planning Scheme. The purpose of this report is to support the development approval for proposed works associated with the Wangetti Trail Project - SP1, this being, a material change of use application to the Douglas Shire Council (DSC), alongside operational works for prescribed tidal works and works in a CMD and for the removal, destruction or damage of marine plants.

The Wangetti Trail Project has been developed in partnership between Douglas Shire Council, Cairns Regional Council and the Queensland Department of Innovation, Tourism Industry Development and the Commonwealth Games.

### 1.3 Development application components

This development application seeks a development permit for an MCU and operational works for the proposed Wangetti Trail – SP1 Mowbray North.

Under the Planning Scheme, SP1 meets the use definition of an ‘environment facility’, being a facility for the ‘conservation, interpretation and appreciation of areas of environmental, cultural or heritage value’ and includes SP1 components that comprise nature-based attractions, walking tracks, boardwalks, observation decks, etc. Under the Planning Scheme, development of an environment facility within conservation and rural zoning is code assessable.

The assessment manager is DSC, whilst the referral agency will be SARA.

### 1.4 Summary of key application details

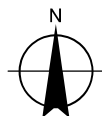
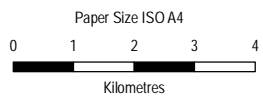
Key development application details are summarised in Table 1-1.

Table 1-1 Key application details

| Application details  |  |
|----------------------|--|
| Applicant            | The State of Queensland acting through DITID   |
| Current land use     | The SP1 Project area currently consists of undeveloped reserve land and unallocated state land, with some pockets of freehold parcels.<br>Tenure and land ownership details are provided in Table 2-1.   |
| Development proposal | <p>As identified in Section 1.1, DITID is proposing to establish the Wangetti trail, a 94 km dual use trail (mountain bike and hikers) from Palm Cove in the south, to Port Douglas in the north. The project is split into two sections, with section one (SP1) being located between Nautilus Street, Port Douglas and the Mowbray River. Section two (SP2) is located between Mowbray River and Palm Cove. However, SP1 is the focus of this MCU application. SP1 will incorporate:</p> <ul style="list-style-type: none"> <li>• New pedestrian multi-span bridge constructed over the Mowbray River and removal of the existing damaged piers</li> <li>• New pedestrian single-span bridge at the northern section of Lot 5 AP13754 referred to as B38</li> <li>• New pedestrian single-span bridge located on unnamed road reserve (Four Mile Beach) referred to as B39</li> <li>• New pedestrian single-span crossing located south-east of Andreassen Road, on an unnamed tributary of the Mowbray River (details of the design are still being determined, however we have allowed 100 m<sup>2</sup> for the development of the crossing)</li> <li>• Visitors’ carpark within Captain Cook Highway road reserve near Mowbray River that will have 45 informal car-parking spaces and 4 informal 20-seater bus spaces</li> <li>• Observation viewing platform comprising an elevated and piled structure on the banks of the Mowbray River to provide a functional viewing platform overlooking Mowbray River and that maintains public safety</li> <li>• 1.35 km of mangrove experience boardwalk</li> </ul> |

|                                 |  |
|---------------------------------|--|
|                                 | <ul style="list-style-type: none"> <li>• 4.04 km of dual-use trail</li> <li>• Mowbray River Bridge underpass.</li> </ul>   |
| Development components          | <p>MCU development application assessable against the local government planning scheme (impact assessable) covering the works proposed between Nautilus Street Port Douglas to the Captain Cook Highway and Mowbray River intersection. The MCU application will include the following operational works approvals:</p> <ul style="list-style-type: none"> <li>• Operational works for interfering / disturbing marine plants</li> <li>• Operational works for prescribed tidal works or work in a CMD</li> </ul> <p>SP1 works does also trigger referral under Schedule 10, Part 9, Division 4, Subdivision 2, Table 5, Item 1 for operational work on premises near a State transport corridor.</p> <p>Operational works that is constructing or raising a waterway barrier will not be required for the SP1 Project area (refer to section 2.4.1).</p> <p>SP1 does not trigger operational work involving clearing native vegetation under Schedule 10, Part 3, Division 4, Table 1, Item 1, as the proposed works is considered to meet the definition of government supported transport infrastructure and is therefore exempt from the clearing of remnant Category B, Category C and Category R vegetation.</p> |
| Assessment manager              | The assessment manager is DSC.   |
| Referral agencies               | <p>The referral agency is SARA.</p> <p>Advice agencies will includes DES, DTMR and DAF.</p>  |
| Contact details for application | <p>Department of Innovation, Tourism Industry Development and the Commonwealth Games (DITID), c/- of Sarah Wilson (GHD)</p> <p>Address: Level 13 – The Rocket, 203 Robina Town Centre Drive, Robina, QLD 4226</p> <p>Phone number: 07 5413 8133 and 0459 813 589</p> <p>Email: sarah.wilson@ghd.com</p>  |





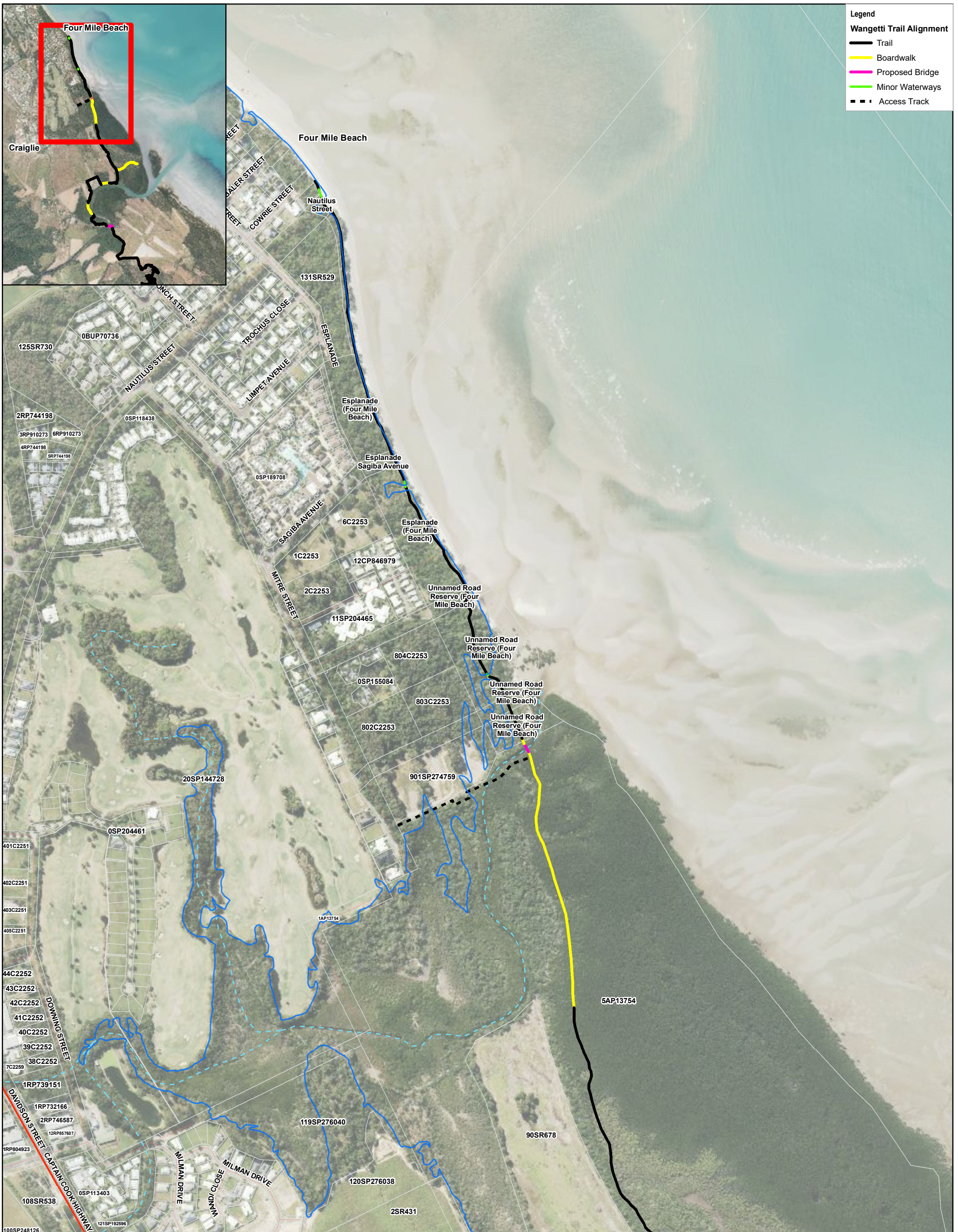
DITID  
Environment Assessment Stage 2 Wangetti Trail

Project No. 41-32458  
Revision No. 0  
Date 10/07/2019

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 55

Wangetti Trail Locality

FIGURE 1-1



- Legend**
- Wangetti Trail Alignment**
- Trail
  - Boardwalk
  - Proposed Bridge
  - Minor Waterways
  - Access Track

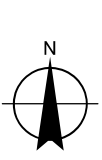
- Legend**
- Highest Astronomical Tide
  - Minor Watercourse
  - Highway
  - Street/Local Road
  - Cadastre

Paper Size ISO A3

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Metres

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 55



DITID  
Environment Assessment Stage 2 Wangetti Trail

Project No. 41-32458  
Revision No. 2  
Date 23/07/2019

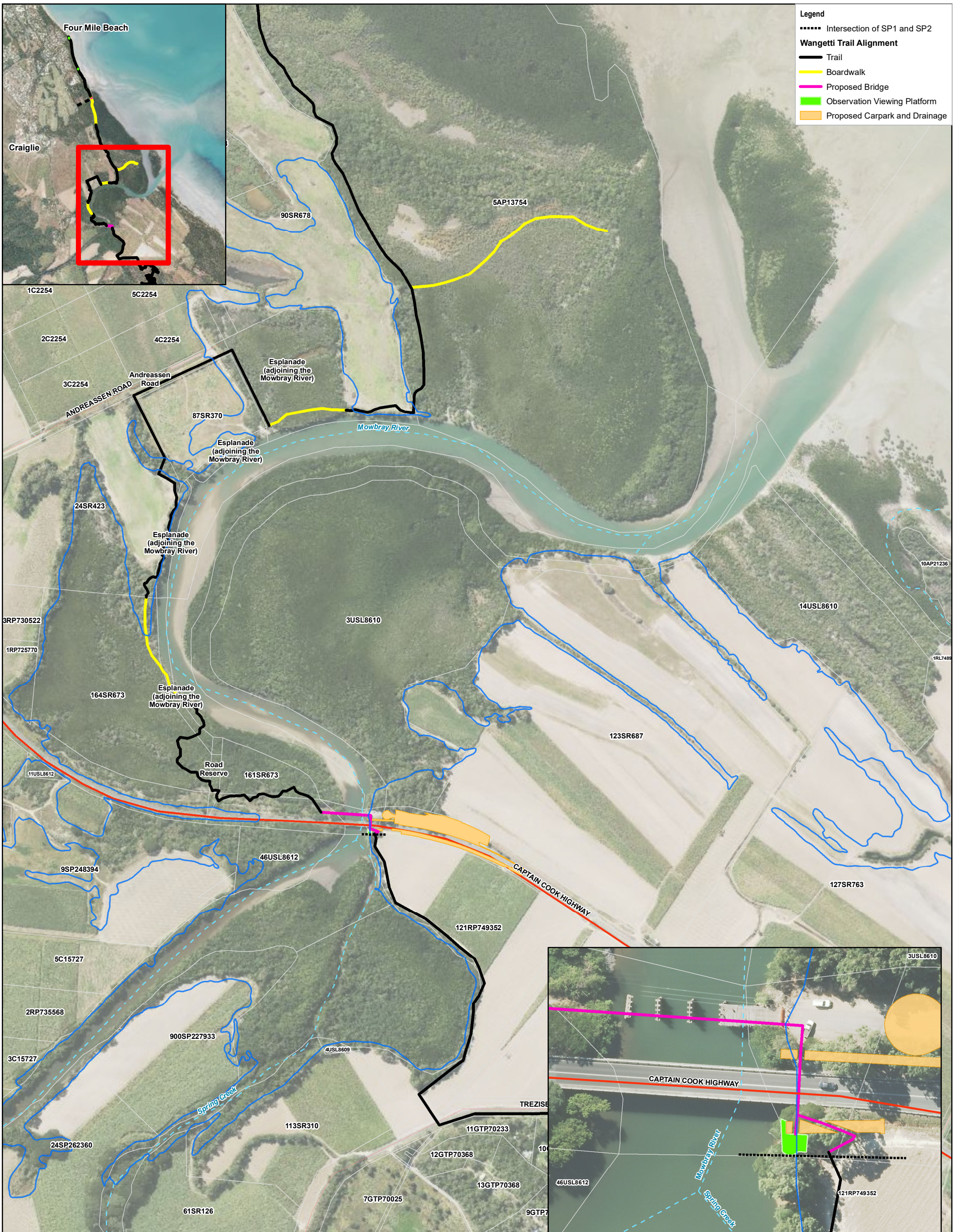
Locality SP1 - North

**FIGURE 1-2**  
(sheet 1 of 2)

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Data source: DITID and GHD: Wangetti Trail Alignment (07/2019); DNRME: Place Names Gazetteer (2019), Cadastre (Jan 2019), Roads (2016), Watercourse (2014), Imagery (2015), Highest Astronomical Tide (2013), GHD: Proposed Carpark and Drainage(2019), Observation viewing platform (2019). Created by: hamilton

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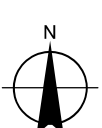
- Legend**
- ..... Intersection of SP1 and SP2
  - Wangetti Trail Alignment**
  - Trail
  - Boardwalk
  - Proposed Bridge
  - Observation Viewing Platform
  - Proposed Carpark and Drainage

- Legend**
- Highest Astronomical Tide
  - Minor Watercourse
  - Highway
  - Street/Local Road
  - Cadastre

Paper Size ISO A3

0 50 100 150 200  
Metres

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 55



DITID  
Environment Assessment Stage 2 Wangetti Trail

Project No. 41-32458  
Revision No. 2  
Date 23/07/2019

Locality SP1 - South

**FIGURE 1-2**  
(sheet 2 of 2)

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Data source: DITID and GHD: Wangetti Trail Alignment (07/2019); DNRME: Place Names Gazetteer (2019), Cadastre (Jan 2019), Roads (2016), Watercourse (2014), Imagery (2015), Highest Astronomical Tide (2013); GHD: Proposed Carpark and Drainage(2019), Observation viewing platform (2019). Created by: hamilton

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## 2. Subject land and locality

### 2.1 Location

The SP1 Project area is located within the DSC and is situated approximately 55 kilometers north of Cairns. The SP1 Project area is located between Nautilus Street Port Douglas and the Captain Cook Highway and Mowbray River intersection. The SP1 Project area alignment runs approximately from Mowbray Bridge, along the Mowbray River through mangrove riparian vegetation before cutting inland at the mouth of the river. The alignment traverses through marsh/wetland vegetation before running parallel to Mitre Street along Four Mile Beach with the alignment ending adjacent to the end of Gowrie Street in Four Mile. The SP1 Project area incorporates the proposed bridge crossing the Mowbray River, a proposed carpark and observation-viewing platform. The SP1 Project area is illustrated in Figure 1-1.

The SP1 section of the Wangetti Trail is being prioritised as an early works project in advance of SP2. As a standalone project, SP1 will serve as an attractive day-trip activity for Port Douglas visitors encouraging additional overnight stays and expenditure to the order of \$6.1m net present value over the life of the project, assuming (conservatively) 10% of international visitors to Port Douglas stay one extra day.

#### *Need for the project*

The Wangetti Trail project aims to deliver an iconic international ecotourism experience with direct economic benefits to regional Queensland and local Traditional Owners, potentially attracting up to 28,000 local and international visitors annually. It is estimated that thousands of walkers and mountain bike riders will visit the Wangetti Trail every year.

The Wangetti Trail will enhance conservation and protection of a cherished part of Tropical North Queensland and deliver environmental, social and economic benefits to local communities and to Queensland, including:

- Better controls to limit damaging and uncontrolled activities within parks including feral animal management
- Long term job and business opportunities for Traditional Owners and their future generations
- Enhanced connection to country whilst ensuring the protection and preservation of Land and Country
- Stronger appreciation and understanding of Indigenous culture
- Underpinning long-term growth and liveability in the Tropical North and builds community resilience for their respective regional communities
- Supporting Traditional Owner businesses, existing local businesses and new business opportunities
- New local jobs for development and operation of tour facilities created, including opportunities to develop local skills and increase diversity of regional jobs
- Indigenous business opportunities for construction, maintenance, guided walks and other activities.

## Suitability of proposed location for the project

Ecotourism is well established in Queensland and the Queensland Government has placed a high priority on fostering further development of ecotourism projects and experiences (Aurecon, 2018). DITID have therefore proposed the Wangetti Trail to provide walkers and mountain bike riders with a bushland and ocean experience by showcasing the beauty of the Wet Tropics of Queensland and Great Barrier Reef World Heritage Areas (Aurecon, 2018). It is intended to be a Nationally Significant Trail, ranked within the top 10 Trail experiences domestically and a world-class attraction, drawing visitors on an international scale. The Trail is designed to be completed in six days and five nights (end-to-end) for walkers and two days and one night for riders. The five accommodation nodes along the complete Trail (all within SP2) will offer public camping facilities, along with eco-accommodation in the form of glamping or lodges. The SP1 Project area is 5.61 km in length and it is likely that walkers can complete SP1 within a few hours, with mountain bike riders finishing the SP1 area likely within an hour. The SP1 Project Area is the start/end of the Wangetti Trail and therefore it is expected that walkers/mountain bike riders will be able to continue walking to the first camp or complete the trail within the day.

Given the unique design of the trail and existing tourism market in the Cairns and Port Douglas region, tourist operators have endless opportunities to shorten or lengthen their tours. They will be able to easily add additional packages such as kayak tours from Palm Cove to Double Island, snorkelling, and diving expeditions out of Port Douglas (World Trail, 2018). This will create new opportunities for global tour providers to offer an all-inclusive tour of Far North Queensland. This trail, coupled with pre-existing tourism, will keep more tourists in the region and generate a prosperous and sustainable local economy for the Douglas Shire region.

## 2.2 Access

As illustrated in Figure 1-1, access to the site for construction will be from the end of Mitre Street in the form of an access trail. The access to site once completed will primarily be on either sides of the trail, which is Mowbray Bridge accompanied by the new car park for easy access. The carpark provides informal parking spaces for 25 cars and up to four 18-seater busses. Access to the northern point of SP1 will primarily be Gowrie Street on Barrier Street; however, there are many trail entrances along Four Mile beach in close proximity to the SP1 trail entrance.

## 2.3 Tenure

Land ownership details for the properties that the proposed alignment intersects are identified in Table 2-1. The proposed SP1 does not intersect any easements or lease areas.

Table 2-1 Land ownership details

| Lot Plan                     | Property description                   | Ownership details                   | Tenure details         |
|------------------------------|--|-------------------------------------|------------------------|
| Nautilus Street road reserve | Nautilus Street                        | DSC                                 | Local road reserve     |
| Four Mile Beach              | Four Mile Beach                        | State of QLD (represented by DNRME) | Unallocated state land |
| Unnamed road reserve         | Unnamed road reserve - Four Mile Beach | DSC                                 | Local road reserve     |

|                              |   |   |                        |
|------------------------------|---|---|------------------------|
| Esplanade                    | Esplanade - Four Mile Beach             | DSC   | Local road reserve     |
| Esplanade                    | Esplanade – Sagiba Avenue               | DSC   | Local road reserve     |
| Lot 5 AP13754                | Mitre Street                            | State of QLD (represented by the former Department of Natural Resources and Water, now DNRME) | State land             |
| Esplanade                    | Esplanade - Adjoining the Mowbray River | DNRME<br>Managed by Douglas Shire Council   | Local road reserve     |
| Andreassen Road road reserve | Andreassen Road                         | DSC   | Local road reserve     |
| Lot 24 SR423                 | 24 Andreassen Road, Craiglie            | Private Property  | Freehold               |
| Captain Cook Highway         | Captain Cook Highway                    | Department of Transport and Main Roads (TMR)  | State controlled road  |
| Lot 161 SR673                | Captain Cook Highway                    | State of QLD (represented by DNRME)<br>DSC is trustee.  | Reserve                |
| Lot 164 SR673                | Captain Cook Highway                    | State of QLD (represented by DNRME)<br>DSC is trustee   | Reserve                |
| Mowbray River                | Mowbray River                           | State of QLD (represented by DNRME)   | Unallocated state land |

## 2.4 Existing Environment

Details regarding the site's current physical characteristics and environmental conditions are provided in this section.

### 2.4.1 Waterways

SP1 is located in the vicinity of the following waterways:

- Minor tidal waterways located in three locations along the alignment (refer to figure 1)
- Drainage channel, located between Lot 5 AP13754 and Lot 901 SP274759
- Spring Creek, located between Lot 121RP749352 and 900 SP227933 that flows into the Mowbray River just before the Mowbray Bridge

- Mowbray River, located on the southern section of the alignment that flows through Mowbray and Craiglie.

SP1 is located almost entirely within a mapped tidal waterway on the Development Assessment Mapping System with the exception of where it intersects unallocated state land along the Mowbray River and where it intersects lot 24 of SR423. In this section, the alignment crosses a purple (major) waterway for waterway barrier works. The proposed alignment occurs downstream from two downstream limits of Mowbray River and Spring Creek. Works within the Mowbray River are therefore considered tidal. As the Mowbray River is classified as a tidal waterway, it is not mapped as a watercourse under the *Water Act 2000*. Where works are occurring on state coastal land, works are also considered tidal.

Operational works that is constructing or raising a waterway barrier will not be required for the SP1 Project area because of the following:

- The Mowbray River Bridge is a multi-span bridge where both abutments are proposed outside of the high bank. The bridge is therefore not considered to be a waterway barrier.
- The two bridges known as B38 and B39 are not considered to be a waterway barrier given they are single span bridges with footings outside of the bed and banks of the waterways.
- The trail and the boardwalk within the mapped tidal waterway area is not considered to be a waterway barrier as defined by the Department of Agriculture and Fisheries (DAF) 'what is not a waterway barrier' factsheet as they do not act as a barrier to the movement of fish.
- The proposed underpass under the Captain Cook Highway is considered to be defined as a bank revetment. The main channel width of the Mowbray River is 52 m wide and the proposed underpass extends 3.9 m from the banks of the River which is less than 10% of the width of Mowbray River (main channel width). Therefore, the proposed underpass is not considered to be a waterway barrier work according to DAF's definition of 'what is not a waterway barrier'. In addition, the structure will also be located above the highest astronomical tide (HAT) level.
- The proposed observation-viewing platform proposed along the bank of the Mowbray River is also considered to be defined as a bank revetment. The main channel width of the Mowbray River is 52 m wide and the proposed structure extends less than 10% of the width of Mowbray River (main channel width). Therefore, the proposed underpass is not considered to be a waterway barrier work according to DAF's definition of 'what is not a waterway barrier'. In addition, the structure will also be located above the highest astronomical tide (HAT) level.

The water quality values and objectives relevant to the area identified in the *Environmental Protection (Water) Policy 2009, Daintree and Mossman Rivers Basins Environmental Values and Water Quality Objectives: Basin Nos. 108 and 109 and adjacent coastal waters*. The environmental values (EVs) potentially relevant to the proposed Project area, as identified in the policy.

SP1 falls within the Mossman River Basin within coastal/marine waters and therefore has EVs that include aquatic ecosystems, aquaculture, human consumer, secondary recreation, visual recreation and cultural and spiritual values.

#### 2.4.2 Wetlands

High ecologically significant wetlands and trigger areas exist over the proposed alignment for SP1. These include:

- *Vegetation Management Act 1992* wetlands
- MSES high ecological significance wetlands
- Wetlands of high ecological significance.

Wetlands under the *Vegetation Management Act 1992* occur along unallocated state land along Four Mile Beach, intersecting the access route to B38 (refer to figure 1) within lot 5 of AP13754 and along the esplanade adjoining Mowbray River. Wetlands on unallocated state land along Four Mile Beach, intersecting the access route to B38 within lot 5 of AP13754 and along unnamed road reserve along Four Mile Beach are mapped as Matters of State Environmental Significance (MSES) high ecological significance wetlands. All wetlands identified, except the wetland along the esplanade adjoining Mowbray River, are also classified as wetlands of high ecological significance.

#### 2.4.3 Coastal Environment

##### ***Coastal Management District***

The entirety of the SP1 alignment is located within a mapped Coastal Management District (CMD) as identified on Queensland Globe. An operational works development application has been prepared for working in work completely or partly in a coastal management district.

##### ***Erosion Prone Areas***

The entirety of the SP1 alignment is mapped as an erosion prone area under SPP mapping.

#### 2.4.4 Land use

The SP1 Project area is located wholly within the DSC Local Government Area. It passes through the suburbs of Mowbray and Craiglie in the south and into Port Douglas along Four Mile Beach in the north. The SP1 alignment is primarily mapped as an undeveloped reserve that consists of natural marsh/wetland, with the undeveloped land within the Four Mile Beach esplanade mapped as services land use. The most populated areas along the alignment is the northern end of Craiglie along Reef Street and Nautilus Street, adjacent to Four Mile Beach.

Surrounding land of the SP1 Project area is utilised for sugar cane cropping, with the northern section within close proximity to tourist services and tourist and permanent residential development.

#### 2.4.5 Soils and geology

The SP1 Project area is mapped on the Australian Soil Resource Information System as containing hydrosols and tenosols. Hydrosols are mapped around the Mowbray River and are soils that are wet for prolonged periods of time, with drainage in these areas being generally poor. Tenosols are mapped on higher areas along the alignment and are soils that are known to have weakly developed soil profiles that are typically sandy and have low water-holding capacity.

The SP1 Project area from Nautilus Street to Mitre Street is mapped as moderately well-sorted, fine to coarse-grained quartzose to shelly sand and some gravel: beach ridges and cheniers (Queensland Globe, QLD 2019). The dominant rock is sand and the rock type is stratified unit (including volcanic and metamorphic).



The SP1 Project area south of Mitre Street and along Mowbray River is mapped as silt, mud, sand and minor salt; coastal tidal flats, mangrove flats, supratidal flats, salt pans and grasslands. The dominant rock is miscellaneous unconsolidated sediments and stratified unit (including volcanic and metamorphic).

The section of SP1 located south of the Mowbray River is mapped as locally red-brown mottled, poorly consolidated sand, silt, clay, minor gravel; high-level alluvial deposits (generally related to present stream valleys but commonly dissected). The dominant rock is alluvium and is stratified unit (including volcanic and metamorphic).

#### **Acid sulfate soils**

The SP1 Project area is mapped as occurring below 5 m AHD and as potentially containing acid sulfate soils (ASS) according to the Douglas Shire Planning Scheme overlay maps. No detailed acid sulfate soils investigations have been undertaken to date for the SP1 Project as this will be the responsibility of the nominated design and construction contractor. The proposed works associated with SP1 are predominately located below 5 m AHD.

#### 2.4.6 Topography

The SP1 Project area is predominantly flat with only a slight change in topography. The majority of the site is located below 3 m AHD. The land within the SP1 Project area naturally falls from the mountainous ranges of Mowbray National Park in the west towards the Mowbray River and the coastline in the east.

#### 2.4.7 Ecological features

##### **Threatened ecological communities**

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Protected Matters Search Tool identified the 'Broad leaf tea-tree (*Melaleuca viridiflora*) woodlands in high rainfall coastal north Queensland' Threatened Ecological Community (TEC) as potentially occurring within the region. None of the Regional Ecosystems (REs) mapped by The Department of Natural Resources, Mines and Energy (DNRME) within the SP1 Project area are analogous to this TEC or any other TEC.

Aurecon (2018) stated that areas of the 'Littoral rainforest and coastal vine thickets of eastern Australia' TEC were confirmed between the Mowbray River and Four Mile Beach. This TEC is listed as critically endangered under the EPBC Act. However, there was no mapping to indicate the location or the extent of this TEC within the area. No REs mapped by DNRME within the SP1 Project area were analogous to this TEC.

An ecological survey of the amended Wangetti Trail alignment was conducted during the period 25/26 February and 30-31 May 2019. TEC listed as 'Littoral rainforests and coastal vine thickets of eastern Australia' was confirmed present. Quaternary assessments were undertaken at two sites where the amended alignment intersected the previously mapped TEC layer. Vegetation at each assessment site was confirmed as meeting the diagnostic and condition thresholds for the Littoral rainforests and coastal vine thickets of eastern Australia TEC, occurring in RE 7.2.1 and 7.2.2. The extent of this TEC was largely consistent with the mapped extents provided by GHD with minor amendments made to the TEC extent.



Figure 2-1 Representative photographs of Littoral rainforests and coastal vine thickets of eastern Australia TEC, including RE 7.2.1 (left) and RE 7.2.2 (right)

### Threatened flora species

The PMST search identified nine threatened flora species that have the potential to occur within a 1 km buffer surrounding the study area (refer Table 1).

The Wildlife Online search identified that no threatened flora species have confirmed records within a 2 km buffer surrounding a central point within the study area (refer Appendix A).

No high risk flora survey trigger areas are present and no essential habitat for flora species is mapped within the study area.

Table 2-2 Threatened flora species potentially present in the study area

| Scientific name  | Common name            | EPBC Act status | Data source |
|--|------------------------|-----------------|-------------|
| <i>Acriopsis emarginata</i>                                | Pale chandelier orchid | Vulnerable      | PMST        |
| <i>Canarium acutifolium</i>                                | -                      | Vulnerable      | PMST        |
| <i>Cyclophyllum costatum</i>                               | -                      | Vulnerable      | PMST        |
| <i>Myrmecodia beccarii</i>                                 | Ant plant              | Vulnerable      | PMST        |
| <i>Phaius australis</i>                                    | Lesser swamp-orchid    | Endangered      | PMST        |
| <i>Phaius pictus</i>                                       | -                      | Vulnerable      | PMST        |
| <i>Phalaenopsis amabilis</i><br>subsp. <i>rosenstromii</i> | Native moth orchid     | Endangered      | PMST        |
| <i>Vappodes lithocola</i>                                  | Dwarf butterfly orchid | Endangered      | PMST        |
| <i>Vappodes phalaenopsis</i>                               | Cooktown orchid        | Vulnerable      | PMST        |

During field surveys on the 25 and 26<sup>th</sup> of February 2019 undertaken by three ecologists from GHD, one threatened flora species was recorded, namely the *Myrmecodia beccarii* (ant plant). This species is listed as vulnerable under the EPBC Act. One individual of the species was recorded in proximity to the alignment. During field surveys on the 30<sup>th</sup> and 31<sup>st</sup> May 2019, no additional threatened flora plants were recorded.

### Threatened fauna species

The EPBC Act PMST identified 23 threatened fauna species that have the potential to occur within a 1 km buffer surrounding the study area (refer Table 2-3 and Appendix A). Due to the coastal location of the study area, the PMST search also identified a number of threatened fauna species that inhabit marine environments (e.g. whales, marine turtles, sharks); however, as these species or their habitats will not be impacted by SP1, these species have not been incorporated into this assessment.

The Wildlife Online search identified four threatened fauna species that have confirmed records within a 1 km buffer surrounding the study area (refer Table 2).

Essential habitat for two threatened fauna species is mapped within the study area (refer Table 2).

Table 2-3 Threatened fauna species potentially present in the study area

| Scientific name                             | Common name                         | EPBC Act status       | Data source                           |
|---|-------------------------------------|-----------------------|---------------------------------------|
| <b>Birds</b>                                |                                     |                       |                                       |
| <i>Calidris canutus</i>                     | Red knot                            | Endangered            | PMST                                  |
| <i>Calidris ferruginea</i>                  | Curlew sandpiper                    | Critically Endangered | PMST                                  |
| <i>Casuarius casuarius johnsonii</i>        | Southern cassowary                  | Endangered            | PMST;<br>Essential habitat            |
| <i>Charadrius leschenaultii</i>             | Greater sand plover                 | Vulnerable            | Wildlife Online;<br>Essential habitat |
| <i>Charadrius mongolus</i>                  | Lesser sand plover                  | Endangered            | Wildlife Online                       |
| <i>Erythrotriorchis radiatus</i>            | Red goshawk                         | Vulnerable            | PMST                                  |
| <i>Limosa lapponica baueri</i>              | Bar-tailed godwit                   | Vulnerable            | PMST;<br>Wildlife Online              |
| <i>Limosa lapponica menzbieri</i>           | Northern Siberian bar-tailed godwit | Critically Endangered | PMST                                  |
| <i>Numenius madagascariensis</i>            | Eastern curlew                      | Critically Endangered | PMST;<br>Wildlife Online              |
| <i>Rostratula australis</i>                 | Australian painted snipe            | Endangered            | PMST                                  |
| <i>Tyto novaehollandiae kimberli</i>        | Masked owl                          | Vulnerable            | PMST                                  |
| <b>Frogs</b>                                |                                     |                       |                                       |
| <i>Litoria dayi</i>                         | Australian lace-lid                 | Endangered            | PMST                                  |
| <i>Litoria nannotis</i>                     | Waterfall frog                      | Endangered            | PMST                                  |
| <i>Litoria rheocola</i>                     | Common mistfrog                     | Endangered            | PMST                                  |
| <b>Reptiles</b>                             |                                     |                       |                                       |
| <i>Egernia rugosa</i>                       | Yakka skink                         | Vulnerable            | PMST                                  |
| <b>Mammals</b>                              |                                     |                       |                                       |
| <i>Dasyurus hallucatus</i>                  | Northern quoll                      | Endangered            | PMST                                  |
| <i>Dasyurus maculatus gracilis</i>          | Spotted-tailed quoll                | Endangered            | PMST                                  |
| <i>Hipposideros semoni</i>                  | Semon's leaf-nosed bat              | Vulnerable            | PMST                                  |
| <i>Macroderma gigas</i>                     | Ghost bat                           | Vulnerable            | PMST                                  |
| <i>Mesembriomys gouldii rattoides</i>       | Black-footed tree rat               | Vulnerable            | PMST                                  |
| <i>Petauroides volans</i>                   | Greater glider                      | Vulnerable            | PMST                                  |
| <i>Phascolarctos cinereus</i>               | Koala                               | Vulnerable            | PMST                                  |
| <i>Pteropus conspicillatus</i>              | Spectacled flying-fox               | Vulnerable            | PMST                                  |
| <i>Saccolaimus saccolaimus nudicluniatu</i> | Bare-rumped sheath-tailed bat       | Vulnerable            | PMST                                  |

| Scientific name             | Common name               | EPBC Act status | Data source |
|-----------------------------|---------------------------|-----------------|-------------|
| <i>Rhinolophus robertsi</i> | Large-eared horseshoe bat | Vulnerable      | PMST        |
| <i>Xeromys myoides</i>      | Water mouse               | Vulnerable      | PMST        |

During field surveys on the 25 and 26<sup>th</sup> of February 2019 undertaken by three ecologists from GHD, one threatened bird species was recorded in SP1, namely the bar-tailed godwit. This species is listed as vulnerable under the EPBC Act. Three bar-tailed godwits were recorded foraging the mudflats around the mouth of the Mowbray River during the field survey.

### **Migratory species**

The PMST search identified 32 migratory species that have the potential to occur within a 1 km buffer surrounding the study area (refer to Table 2.4). Due to the coastal location of the study area, the PMST search also identified a number of migratory species that inhabit marine environments (e.g. whales, marine turtles, sharks, seabirds); however, as these species or their habitats will not be impacted by SP1, these species have not been incorporated into this assessment.

The Wildlife Online search identified 18 migratory fauna species that have confirmed records within a 1 km buffer surrounding the study area (refer Table 2-4 and Appendix A).

The previous study by Aurecon (2018) recorded three migratory species within the SP1 area (refer Table 2.4).

Essential habitat for one migratory fauna species is mapped within the study area (refer Table 2.4).

Table 2-4 Migratory species potentially present in the study area

| Scientific names             | Common name               | EPBC Act status | Data source  |
|------------------------------|---------------------------|-----------------|--|
| <i>Actitis hypoleucos</i>    | Common sandpiper          | Migratory       | PMST;<br>Wildlife Online                                 |
| <i>Anous stolidus</i>        | Common noddy              | Migratory       | PMST   |
| <i>Apus pacificus</i>        | Fork-tailed swift         | Migratory       | PMST   |
| <i>Calidris acuminata</i>    | Sharp-tailed sandpiper    | Migratory       | PMST   |
| <i>Calidris canutus</i>      | Red knot                  | Migratory       | PMST   |
| <i>Calidris melanotos</i>    | Pectoral sandpiper        | Migratory       | PMST   |
| <i>Calidris ruficollis</i>   | Red-necked stint          | Migratory       | Wildlife Online  |
| <i>Cecropis daurica</i>      | Red-rumped swallow        | Migratory       | PMST   |
| <i>Cuculus optatus</i>       | Oriental cuckoo           | Migratory       | PMST   |
| <i>Crocodylus porosus</i>    | Estuarine crocodile       | Migratory       | Wildlife Online;<br>Essential habitat;<br>Aurecon (2018) |
| <i>Gallinago hardwickii</i>  | Latham's snipe            | Migratory       | PMST   |
| <i>Gelochelidon nilotica</i> | Gull-billed tern          | Migratory       | Wildlife Online  |
| <i>Hirundapus caudacutus</i> | White-throated needletail | Migratory       | PMST;<br>Wildlife Online                                 |
| <i>Hirundo rustica</i>       | Barn swallow              | Migratory       | PMST   |
| <i>Hydroprogne caspia</i>    | Caspian tern              | Migratory       | Wildlife Online  |
| <i>Limosa lapponica</i>      | Bar-tailed godwit         | Migratory       | PMST   |

| Scientific names            | Common name           | EPBC Act status | Data source                                 |
|-----------------------------|-----------------------|-----------------|---|
| <i>Monarcha frater</i>      | Black-winged monarch  | Migratory       | PMST  |
| <i>Monarcha melanopsis</i>  | Black-faced monarch   | Migratory       | PMST;<br>Aurecon (2018)                     |
| <i>Monarcha trivirgatus</i> | Spectacled monarch    | Migratory       | PMST;<br>Wildlife Online                    |
| <i>Motacilla flava</i>      | Yellow wagtail        | Migratory       | PMST  |
| <i>Myiagra cyanoleuca</i>   | Satin flycatcher      | Migratory       | PMST  |
| <i>Numenius minutus</i>     | Little curlew         | Migratory       | Wildlife Online                             |
| <i>Numenius phaeopus</i>    | Whimbrel              | Migratory       | Wildlife Online                             |
| <i>Pandion haliaetus</i>    | Osprey                | Migratory       | PMST;<br>Wildlife Online;<br>Aurecon (2018) |
| <i>Pluvialis fulva</i>      | Pacific golden plover | Migratory       | Wildlife Online                             |
| <i>Pluvialis squatarola</i> | Grey plover           | Migratory       | Wildlife Online                             |
| <i>Rhipidura rufifrons</i>  | Rufous fantail        | Migratory       | PMST;<br>Wildlife Online                    |
| <i>Sterna sumatrana</i>     | Black-naped tern      | Migratory       | Wildlife Online                             |
| <i>Thalasseus bergii</i>    | Crested tern          | Migratory       | Wildlife Online                             |
| <i>Tringa brevipes</i>      | Grey-tailed tattler   | Migratory       | Wildlife Online                             |
| <i>Tringa nebularia</i>     | Common greenshank     | Migratory       | PMST;<br>Wildlife Online                    |
| <i>Xenus cinereus</i>       | Terek sandpiper       | Migratory       | Wildlife Online                             |

During field surveys on the 25 and 26<sup>th</sup> of February 2019 undertaken by three ecologists from GHD, three migratory fauna species were recorded during the field survey, namely estuarine crocodile (*Crocodylus porosus*), whimbrel (*Numenius phaeopus*) and osprey (*Pandion haliaetus*) (GHD, 2019a). These species are listed as migratory under the EPBC Act.

During field surveys on the 30<sup>th</sup> and 31<sup>st</sup> May 2019, the following migratory species were found within the extended project area:

- Two migratory species were recorded during the field survey, namely the eastern osprey (*Pandion haliaetus*) and estuarine crocodile (*Crocodylus porosus*). Three ospreys were observed in three locations, and two estuarine crocodiles were observed basking on the mud bank on the southern side of the Mowbray Bridge.
- One threatened shorebird species was recorded during the field survey, namely the eastern curlew (*Numenius madagascariensis*). One eastern curlew was observed foraging along Four Mile Beach at low tide.
- Four Mile beach is suitable habitat for threatened shorebird species, including the greater sand plover and lesser sand plover. The southern cassowary (*Casuarius casuarius johnsonii*) has potentially suitable habitat present along some areas of Wangetti SP1 Project area, especially within vine thicket areas adjacent to Four Mile Beach.

#### 2.4.8 Protected areas

The SP1 Project area is located partially within the Great Barrier Reef Marine Park. The section of SP1 along Four Mile Beach intersects the 'conservation park' zoning area of the Great Barrier Reef Marine Park and a small portion of 'estuarine conservation' zoning near the proposed location of B38.

The proposed boardwalk section within lot 5 AP13754 and the remainder of the trail up to the Mowbray River Bridge is located within an 'estuarine conservation' zoned area of the Great Barrier Reef Marine Park, with the exception of where the alignment traverses Andreassen Road and lot 24 SR423.

The Mowbray National Park is located approximately 1.5 km west and the Macalister National Park is located approximately 1.8 km south of the SP1 Project area.

#### 2.4.9 Heritage and cultural heritage values

There were no listed cultural heritage identified on the Queensland Heritage database within the SP1 project area. There is no locally listed cultural heritage identified under the Douglas Shire Council Planning Scheme within the SP1 project area.

A search of the Department of Aboriginal and Torres Strait Island Partnerships (DATSIP) *Cultural Heritage Database* was undertaken for SP1. The results revealed no known recorded artefacts and/or sites to occur within 3 km of a central point of the alignment (-16.5362, 145.4766). The closest recorded sighting is located at -16.5540, 145.4814 (refer to Figure 1 below) and is approximately 85 m southwest from the proposed observation platform with the site being a 'story place'. The works however are unlikely to impact on this place as it is located outside of the proposed project area. There is the potential for unknown sites of Aboriginal Cultural Heritage to be present within undisturbed remnant vegetation adjacent to the corridor. The cultural heritage parties associated with SP1 include the Yalanji People, Yirrganydji (Irukandji) People, Yirrganydji (Irukandji) People #2 and the Cairns Regional Claim Group.

The works are likely to comply with Category 5 (activities causing additional surface disturbance) in accordance with DATSIP's Cultural Heritage Duty of Care Guidelines.

#### 2.4.10 Flooding and drainage

Most of the alignment is mapped within a floodplain assessment overlay as mapped on the Douglas Shire Council Planning Scheme, which mostly falls under a high storm tide hazard. The site is regarded to have low flood impact due to proximity to the coastline, where any flooding that would occur would flow out to sea rapidly from adequate drainage along the proposed alignment.

#### 2.4.11 Agricultural land

A review of the State Planning Policy Interactive Mapping System resulted in Agricultural land classifications A and B being mapped as present along the proposed alignment in several areas. However, given the areas where this is mapped are currently undeveloped tidal areas, the proposed alignment will not impact on the availability of current agriculture land.

#### 2.4.12 Existing utilities and infrastructure

SPP Interactive mapping system has mapped the site at Mowbray Bridge has having Ergon power lines, that run along Captain Cook Highway. These are located to the east of the proposed Mowbray River Bridge. The Caption Cook Highway is mapped as a State Controlled Road and Active Transport Corridor.

# 3. Development proposal

## 3.1 Overview of the proposed development

The proposed development is summarized in section 1.1.

The Business Case prepared in 2018 identified the estimated annual demand for the trail to be 11,631 visitors expected to visit the trail each year (PwC, 2018). The SP1 section of the Wangetti Trail is proposed to be used during daylight only, with no campsite facilities proposed for the SP1 Project area.

## 3.2 Description of the proposed infrastructure

### Trail

The trail in SP1 is proposed to be single track to accommodate both mountain bike users and hikers. The benefits of a single track trail is that it can wind around obstacles such as trees, large rocks, and bushes, it can blend into the surrounding environment, and disturbs much less ground, making it easier to maintain. The trail will be a linear alignment directing users to the Mowbray River.

The surface of the trail will be predominantly natural soil – that is, the tread of the trail will be constructed from the natural soil and rock found along the trail. High traffic areas or where other requirements dictate its use, imported surfacing materials such as fine crushed rock may be used from time to time. Imported materials can be visually unappealing and can introduce weeds and pathogens. Any surfacing materials that are used will be of local provenance and suitable for the intended purpose. Larger ‘ballast’ rock may also be imported for usage in wet soakage areas.

The trail will generally be around 1.5 m wide, but will be restricted to a minimum of 1 m wide within areas of TEC. The width will allow easy passing of users travelling in opposite directions. The trail will have an average gradient of less than 10% and a maximum gradient of no greater than 15% (and only for short distances). These gradients are considered to be in line with the difficulty ratings proposed for the Wangetti Trail.

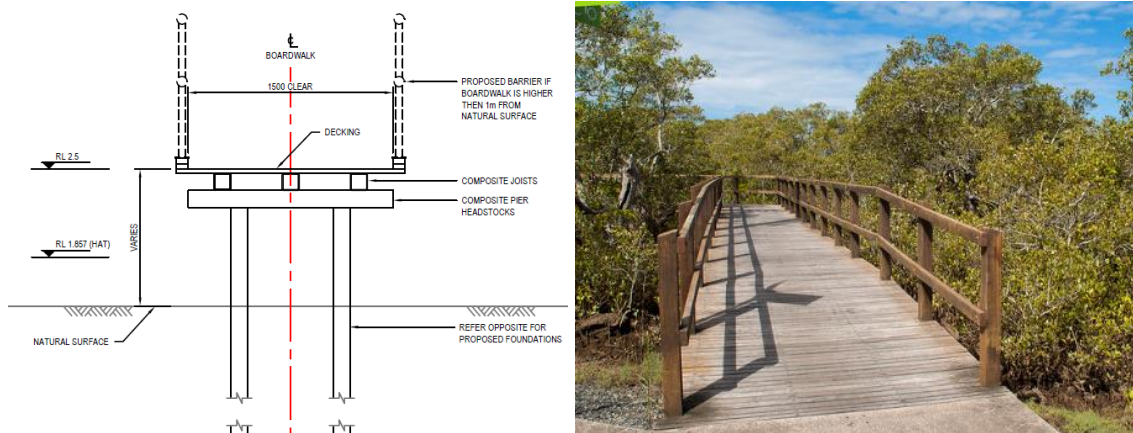


Source: Wordtrail (2018) and World Trail (2017)

**Plate 1: Proposed trail design (left) and example trail from the Munda Biddi Trail in Western Australia (right)**

## Boardwalk

A boardwalk is proposed within the SP1 project footprint within low-lying areas to elevate the trail users from areas that could be subject to tidal inundation, particularly in mangrove areas, whilst allowing them to enjoy the surrounds. Four areas of boardwalks are proposed with the project footprint. These are identified on Figure 1-1.



Source: GHD (2019) and BCC (2017)

**Plate 1: Proposed boardwalk design (left) and example boardwalk from Bayside Parklands (right)**

## Built structures

Built structures are proposed for SP1 and they include the observation-viewing platform, carpark, B38 bridge, B39 bridge, Mowbray River pedestrian bridge and an underpass under the Captain Cook Highway (refer to Appendix B for design drawings of structures). The design and finish of the built structures will be sympathetic to the surrounding environment. The materials used for the built structures will be durable enough to withstand the harsh tropical climate and natural environment.

### 3.3 Built form and design specifics

Development proposal details for the proposed Wangetti SP1 Project area are provided in Table 3-1.

**Table 3-1 Overview of the built form and design specifics**

| Item  | Details   |
|---|-----------|
| <b>Permanent Infrastructure</b>   |           |
| Total SP1 length for the alignment  | 5.6111 km |
| Total trail length  | 4.0425 km |
| Total boardwalk length  | 1.3585 km |
| Total length of proposed bridges and underpass (Mowbray River Bridge and B38) | 0.1750 km |
| Carpark area  | 1.0225 ha |
| Observation viewing platform  | 0.0044 ha |



| Item                                | Details   |
|-------------------------------------|-----------|
| <b>Temporary Infrastructure</b>     |           |
| Total length of access track to B38 | 0.0798 ha |
| Temporary B38 laydown area          | 0.0400 ha |

### 3.3.1 Proposed Bridges for SP1

#### *Description of bridge crossings*

Three bridge structures are proposed over tidal areas within SP1 project area and they include:

- New pedestrian multi-span bridge constructed over the Mowbray River:
  - 5 span bridge
  - Six piers general aligning to the location of the existing bridge piers
  - Erosion rock protection will be provide on the base and sides of the abutments
  - A viewing platform will be provide on the new bridge
  - The bridge will be limited to pedestrians and cyclists only.
  - The bridge would comprise of refabricated and assembled on site mainly from steel and timber components.

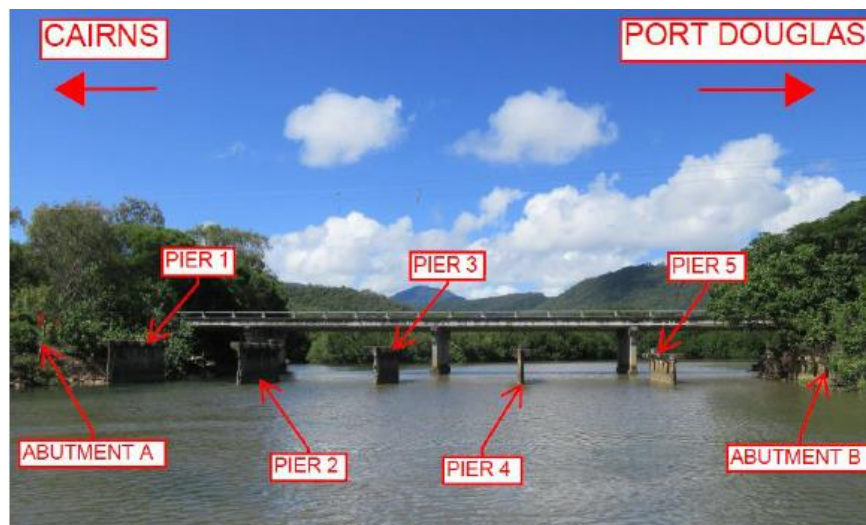
Refer to Drawing 42-21067-S001 in Appendix B.
- New pedestrian single-span 18 m bridge at the northern section of Lot 5 AP13754 referred to as B38:
  - The width of the bridge would be 1.5 m and limited to pedestrians and cyclists.
  - Construction access could be via a temporary access track to the southern side of the private property with a temporary rock filled culvert crossing during construction works line. The northern abutment and section of the crossing would need to be constructed by hand from via the northern trail access.
  - The proposed bridge is in a tidal zone and had water in the crossing at a low tide.
  - The northern bank side would require a boardwalk to be constructed up to the bridge section of approximately 11 m. A boardwalk is required for the southern side as well.
- 8 m single span bridge referred to as B39 located on unnamed road reserve (Four Mile Beach):
  - The width of the bridge would be 1.5 m and limited to pedestrians and cyclists.
  - The bridge could be constructed by hand with sections of the crossing walked in via the northern trail section.
  - Either banks appeared gentle in slopes and not steep, even in height levels either side of the crossing.

The materials used for the built structures will be durable enough to withstand the harsh tropical climate and natural environment.

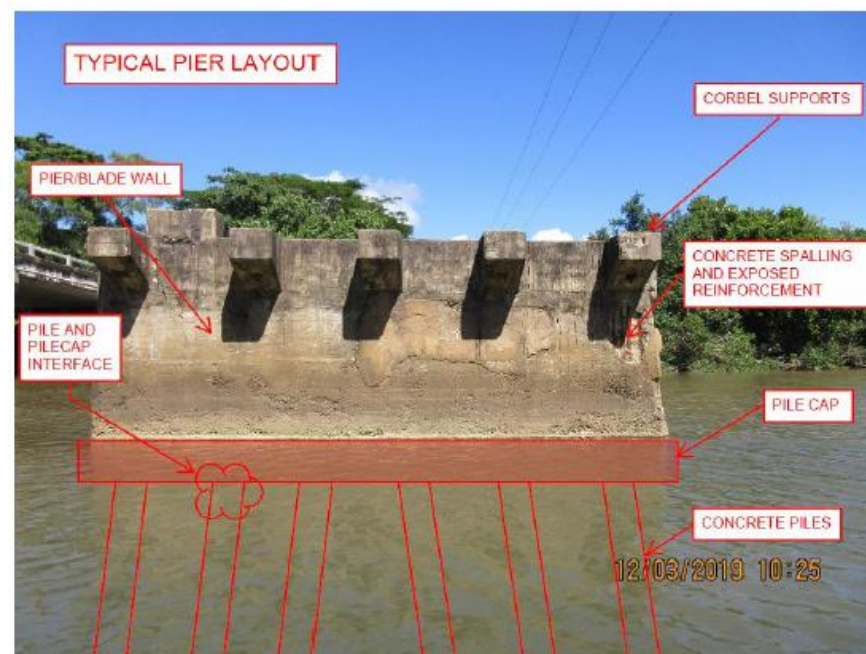
### 3.3.2 The removal of the existing damaged piers of Old Mowbray River Bridge

The demolition of existing bridge piers associated with Old Mowbray River Bridge will allow for construction of new bridge piers. A site inspection of the Old Mowbray River Bridge substructure was undertaken by GHD's structural engineer on the 13th of March 2019 to determine the condition of the existing piers and abutments. During the inspection the following was noted:

- The existing bridge piers varied in height, gradually decreasing from east to west (towards Port Douglas) with Abutment B being very close to the Highest Astronomical Tide (HAT).
- Existing piers are constructed from concrete, with 5 corbel supports extending out from the pier wall either side to support corbels of the old road bridge.
- Piers are supported by 6 piles underneath (confirmed on site for some piers only)
- Significant defects observed in blade walls for most piers, typically on the downstream side of the pier.
- Figures 3-5, 3-6 and 3-7 show the condition of the existing bridge piers associated with Old Mowbray River Bridge.
- It was determined that the existing piers to be removed to allow for a new bridge to be constructed. The following figures (Figure 3-5, Figure 3-6 and Figure 3-6) show the layout and structure of the Old Mowbray River Bridge concrete piers.



**Figure 3-1 Plan layout of Old Mowbray River Bridge**



**Figure 3-2 Old Mowbray River Bridge Pier Structure**



**Figure 3-3 Photos showing defects of the existing piers**

The removal of the existing piers will be undertaken by the nominated contractor and is to be undertaken in accordance with the Australian Standard AS2601. It is anticipated that a barge will be used to assist with the dismantling of the piers. Scaffolding will be erected around the piers during the demolition process. The existing piles will be cut off at the bed level. During the demolition process removed material will be carefully removed from the waterway to prevent materials impacting on water quality. Dust proof screens, bulkheads and covers will be used where required to protect the surrounding environment from dust and debris. Temporary weatherproof screens will be fixed securely to the existing structure, and installed to ensure appropriate shedding of water to avoid any material or debris from entering the waterway.

### **3.3.3 Mowbray River Bridge Underpass, observation viewing platform, stairs, ramps and carpark**

#### *Description of bridge underpass*

The SP1 trail has been designed to pass under the Captain Cook Highway at the bridge crossing approximately 4 km south of Craiglie, QLD. The underpass has been designed to be above flood level and as such would require a retaining structure. The underpass will be constructed on the eastern side of the Mowbray River underneath the Captain Cook Highway. The design and finish of the underpass will be in keeping with the natural design and will prioritise the use of local timbers and other materials that will age well over time.

The width of the underpass would be 2 m and it will have a height of 2.2 m to accommodate the trail users. It will have a handrail to protect trail users from Mowbray River. It will be connected to the new pedestrian bridge over the Mowbray River via a ramp and reinforced concrete stairs. It will also connect to the observation viewing platform via a ramp. Refer to Drawing Reference: 42-21067-S012 in Appendix B for design of the underpass.

GHD obtained assistance of Construction Contractor Civform to determine a suitable construction material and methodology for the retaining structure. It was determined that reinforced concrete retaining wall would be suitable for the underpass. This would ensure that working below tide levels and pouring concrete retaining structures within tidal zones is avoided.

Material anticipated to be used but the nominated contractor include:

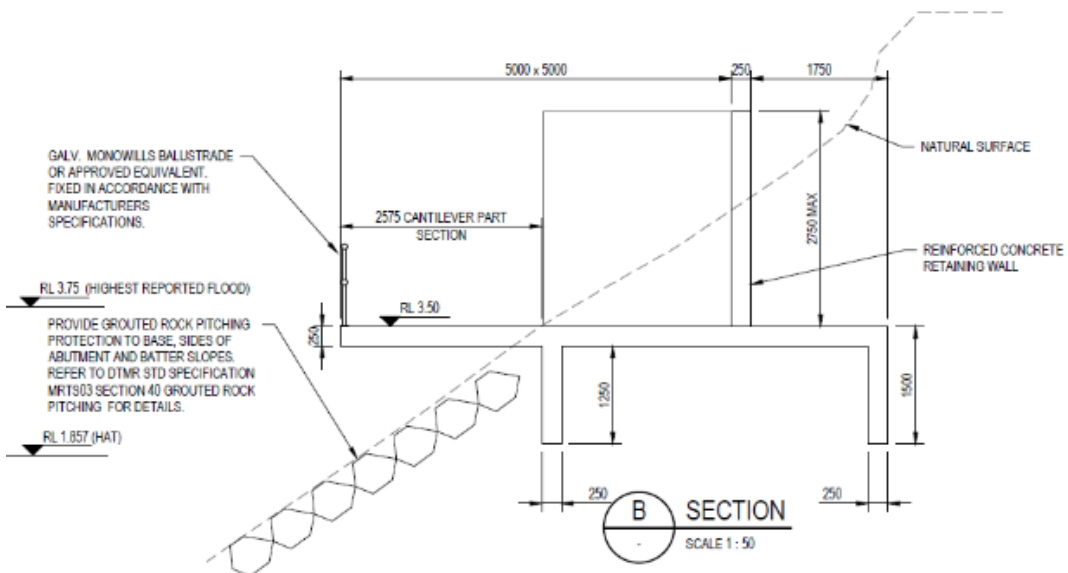
- Reinforced concrete
- The proposed pile driving equipment (including floating plant, land based plant, pile frame, gates and leaders)

### Description of the built structures

An observation viewing platform, stairs, ramps and carpark area will be constructed on the eastern side of the Mowbray River, adjacent to the proposed pedestrian bridge. A key objective of the Wangetti Trail is to have a consistent aesthetic and 'feel' whereby the trail showcases the beauty of the terrain with minimalistic design. Subsequently, the design and finish of the observation viewing platform, underpass and carpark areas are in keeping with the natural design and will prioritise the use of local timbers and other materials that will age well over time.

The proposed ramps, stairs, drainage culverts and carpark are located within state controlled road reserve, above HAT level and are partly within the coastal management districts and are not considered to trigger prescribed tidal works or interfering with quarry material on state coastal land. However, the observation viewing platform is considered to trigger prescribed tidal works as the following elements associated the structure will be above and below tidal water and HAT and they include:

- Grouted rock pitching protection proposed along the banks of Mowbray River below the observation viewing platform as shown in Figure 3-4 below.
- The cantilever part of the observation viewing platform as shown in Figure 3-8

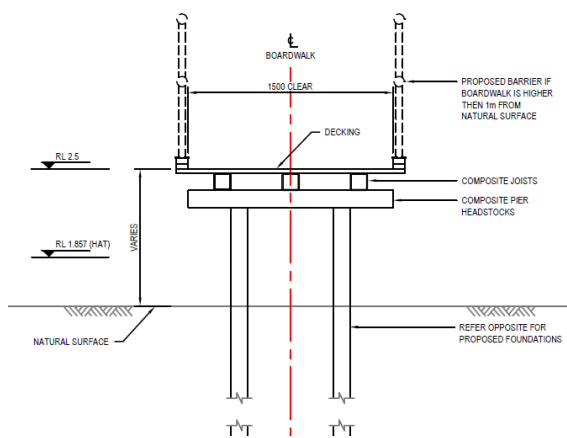


**Figure 3-4 Section Drawing of the observation viewing platform**

### 3.3.4 Mangrove boardwalk

#### Description of the boardwalk

In low-lying areas, a boardwalk will be constructed rather than an on-ground trail. Four areas of boardwalks are proposed with the SP1 footprint. The boardwalks would provide passage for users on the trail to safely travel through the muddy terrain and locations where crocodiles may be encountered. The boardwalk would be constructed with timber or composite decking and supported by timber or steel piles. The boardwalk would be founded above HAT and stormsurge level to allow for access during wet weather and to provide protection from debris.



Source: GHD (2019) and BCC (2017)

**Plate 1: Proposed boardwalk design (left) and example boardwalk from Bayside Parklands (right)**

### 3.3.5 Setbacks and separation distances

The SP1 Project area consists of minimal infrastructure, and given the located of the SP1 Project area, it is expected that there will be minimal impacts to visual amenity. The SP1 alignment will be setback from surrounding freehold private properties, however, given the isolated location of the SP1 alignment, and the limited number of dwellings, visual amenity is unlikely to be significantly impacted.

### 3.3.6 Vehicle access, movement and car parking

Vehicular access is proposed for B38 and the observation-viewing platform with 2.5 m wide tracks to allow access for 4wd maintenance vehicles. The access track to B38 is proposed from Mitre Street, south of lot 901 of SP274759 and within lot 5 of AP13754, before reaching the proposed B38 location. The access track to the observation-viewing platform is proposed from the Captain Cook Highway, along the existing driveway of lot 121 RP749352, and through road reserve to the proposed observation viewing platform location. All new access tracks and access to the proposed carpark has been designed in accordance with Volume 3, parts 3, 4 and 4A of the Road planning and design manual, 2nd edition, Department of Transport and Main Roads, 2013.

The existing Captain Cook Highway will be upgraded to allow for a new intersection into the proposed carpark location, south of the Mowbray River Bridge. The intersection will allow for a slip lane from the west, and a right turning lane from the east, allowing for appropriate sightlines of oncoming traffic. This can be seen in Drawing No. 42-21067-C002 in Appendix B.

Construction crewmembers will park within the proposed carpark location and along Nautilus Street for the construction phase of the project.

## **3.4 Infrastructure requirements**

### **3.4.1 Water, sewage and electrical supply**

The SP1 Project area will not have toilets and therefore will not require treatment, storage and movement of sewage. Additionally, the SP1 Project area will not require a water or electrical supply.

### **3.4.2 Stormwater management**

It is proposed that stormwater will be effectively captured within the carpark before channelling into typical water sensitive urban design drainage lines that will capture any waste before transporting the water to the Mowbray River. Fresh water from the SP1 trail, boardwalk, gully crossings, bridge and observation-viewing platform will run off naturally in small volumes. Given the low impact nature of the infrastructure, it is unlikely that stormwater will become contaminated as a result of trail use.

### **3.4.3 General waste management**

Operational waste will be managed by providing bins at the Nautilus Street entrance and within the proposed carpark, with signs to make trail users aware of where rubbish should be placed in order to avoid waste being discarded within sensitive areas along the SP1 trail. DSC will undertake waste collection of these bins during the operational phase of the SP1 Project.

## **3.5 Impacts of proposal**

The specific impacts and mitigation measures that relate directly to the SP1 Project area are discussed in Table 3-1 below and have been summarised from previous reports developed for SP1, including:

- Aurecon (2018) Appendix E - Environment and Planning Technical Report. Prepared for DITID.
- Queensland Parks and Wildlife Service (2018) Appendix D - Preliminary maintenance schedule. Prepared for DITID.
- PWC (2018) Wangetti Trail Draft Business Case. Prepared for DITID.
- Queensland Parks and Wildlife Service (2011) Site planning and design for parks and forests. Prepared for DITID.
- Bligh Tanner (2018) Appendix B - Wangetti Trail Final Report Update. Prepared for DITID.

Table 3-2 Summary of impacts and mitigation measures for each aspect of SP1, including relevant infrastructure aspect/s

| Aspect                                 | Impact   | Mitigation Measure   | Trail | Boardwalk | Bridges | Ancillary works |
|--|--|--|-------|-----------|---------|-----------------|
| Landscape character and visual amenity | <b>Construction</b><br>Works proposed within rural and conservation zoning that does not currently contain any development may result in decreased landscape character | <b>Construction</b> <ul style="list-style-type: none"> <li>Materials and machinery will be stored tidily on site, in previously cleared areas, wherever possible</li> <li>Clearing of mature landscape trees and marine plants will be avoided, wherever possible, within temporary construction laydown areas not required for operation</li> <li>Where appropriate, trail will be designed around mature landscape trees</li> <li>Temporary barriers and traffic management signage will be removed as soon as practical after construction</li> </ul> | ✓     | ✓         | ✓       | ✓               |
|  | <b>Operation</b><br>No landscape and visual amenity impacts associated with operation of the SP1 Project   | <b>Operation</b><br>NA   | NA    | NA        | NA      | NA              |
| Surface hydrology                      | <b>Construction</b><br>Changes in water quality resulting from overland flow and stormwater run-off from exposed surfaces  | <ul style="list-style-type: none"> <li>Water quality during construction will be managed through a Water Quality Management Plan, which will include the following management measures:                             <ul style="list-style-type: none"> <li>Storing fuels, chemicals, wastes and other potentially environmentally hazardous</li> </ul> </li> </ul>   | ✗     | ✓         | ✓       | ✓               |

|  |   |   |   |   |   |
|--|---|---|---|---|---|
| Pollution resulting from chemical or fuel sources  | <p>substances in contained areas away from watercourses and managed through a Hazardous Substances Management Plan</p> <ul style="list-style-type: none"> <li>– Regular checks of vehicles and equipment for oil leaks</li> <li>– Development of a Waste Management Plan</li> <li>– Waterway profiles at temporary construction access roads and temporary construction facility areas will be reinstated and disturbed areas promptly stabilised following completion of construction works</li> <li>– Emergency spill response</li> </ul> |   |   |   |   |
| Erosion and sedimentation from construction activities and vegetation clearing                                   | <ul style="list-style-type: none"> <li>• Erosion and sediment controls relevant to construction activities will be implemented and managed through the implementation of an ESCP</li> <li>• The extent and duration of soil exposure will be minimised as far as reasonably practicable</li> <li>• Water quality during construction will be managed through a Water Quality Management Plan</li> </ul>   | ✓ | ✓ | ✓ | ✓ |
| Demolition of existing Old Mowbray Bridge piers and potential contamination of waterway with construction debris | <ul style="list-style-type: none"> <li>• Contractor to undertake demolition works in accordance with environmental permits and approvals</li> <li>• Contractor to create demolition methodology for removal of existing supports. Debris to be removed in manageable sizes for crane lifts</li> <li>• Erosion and sediment controls relevant to construction activities, particularly the Mowbray</li> </ul>  | x | x | ✓ | x |



|  |   |   |   |   |   |   |
|--|---|---|---|---|---|---|
|  |   | River bridge crossing, will be managed through the implementation of an ESCP  |   |   |   |   |
|  | Impacts to local hydrology, drainage patterns and water quality of creeks and water bodies  | <ul style="list-style-type: none"> <li>• Maintain water quality and hydrological regime of the Project area</li> <li>• Comply with the requirements of Environment Protection (Water) Policy 2009 and catchment management plans prepared for local waterways</li> </ul>  |   |   |   |   |
|  | Development within the Coastal Management District including tidal areas.   | <ul style="list-style-type: none"> <li>• Maintaining coastal processes such as tidal flow and the flow of waterways through the inclusion of appropriately sized crossings</li> <li>• Avoiding reclamation in tidal areas.</li> <li>• Managing acid sulfate soils and coastal erosion</li> <li>• Developing and implementing sediment and erosion control plans for all cuts, fill and culverts in close proximity to or directly in a watercourse</li> <li>• Limiting the amount of temporary and permanent fill to be used in coastal management areas</li> </ul> | ✓ | ✓ | ✓ | ✓ |
|  | <p><b>Operation</b></p> <p>Ongoing trail use may result in erosion and sedimentation to surrounding surface water and the introduction of waste material which may negatively impact water quality.</p> | <ul style="list-style-type: none"> <li>• Placement of signage at entrances and exits of the trail informing trail-users of the appropriate use of bins for waste material</li> <li>• Providing bins at the entrances and exits of the trail for trail-users to dispose of any waste material before entering and leaving the trail</li> <li>• Active and passive discouragement – no promotion of areas that should be avoided or signage warning of restricted areas</li> </ul>  | ✓ | ✓ | ✓ | ✓ |

|                                      |   |   |     |     |     |     |
|--------------------------------------|---|---|-----|-----|-----|-----|
| <b>Coastal processes</b>             | <p><b>Construction</b><br/>Development within the Coastal Management District including tidal areas.</p> <p><b>Operation</b><br/>No impacts to coastal processes associated with operation of the SP1 Project</p> | <ul style="list-style-type: none"> <li>• Maintaining coastal processes such as tidal flow and the flow of waterways through the inclusion of appropriately sized crossings</li> <li>• Avoiding reclamation in tidal areas.</li> <li>• Managing acid sulfate soils and coastal erosion through the development and implementation of an acid sulfate soils management plan</li> <li>• Developing and implementing sediment and erosion control plans for all cuts, fill and culverts in close proximity to or directly in a watercourse</li> <li>• Limiting the amount of temporary and permanent fill to be used in coastal management areas</li> </ul> | ✓   | ✓   | ✓   | ✓   |
| <b>Groundwater</b>                   | <p><b>Construction</b><br/>Impacts to water quality may occur as a result of piling for bridge construction</p>   | <ul style="list-style-type: none"> <li>• Contaminated groundwater will be captured and treated before release</li> <li>• Water quality during construction will be managed through a Water Quality Management Plan</li> </ul>   | x   | x   | ✓   | x   |
|                                      | <p><b>Operation</b><br/>No groundwater impacts associated with operation of the SP1 Project</p>   | N/A   | N/A | N/A | N/A | N/A |
| <b>Topography, geology and soils</b> | <p><b>Construction</b><br/>It is likely that the construction of the trail will result in some changes to the landscape that will potentially increase the risk of erosion, these include:</p>                    | <p>The nominated design and construction contractor will responsible for developing an Erosion and Sediment Control Plan (ESCP) during the construction phase of SP1 in accordance with the Best Practice Erosion and Sediment Control Manual (IECA, 2008).</p>   | ✓   | ✓   | ✓   | ✓   |

|  |   |   |   |   |   |   |
|--|---|---|---|---|---|---|
|  | <ul style="list-style-type: none"> <li>• Clearing of vegetation</li> <li>• Construction of all SP1 infrastructure</li> </ul> <p>Construction during high rainfall events</p>  | <p>The ESCP will include mitigation measures such as:</p> <ul style="list-style-type: none"> <li>• No go areas to be marked with flagging tape to ensure that all work activities remain within the designated work site and areas of vegetation to be retained to be clearly marker to mitigate the risk of accidental clearing</li> <li>• Installation of sediment fencing along the downslope extent of works, particularly at bridge crossings and around the Mowbray River</li> <li>• Minimisation of construction footprint through staged clearing activities and utilisation of cleared or modified areas where possible</li> <li>• Stockpiling is to be located above tidal extents</li> </ul> |   |   |   |   |
|  | <p>Construction activities below 5 m AHD in areas that are likely to contain Potential Acid Sulfate Soils (PASS) or Actual Acid Sulfate Soils (AASS) that could result in the acidification of the surrounding environment.</p> | <p>The Construction Contractor will develop an Acid Sulfate Soil Management Plan as part of the Construction Environmental Management Plan (CEMP), in line with the <i>Queensland acid sulfate soils technical manual: soil management guidelines</i>.</p>  | ✓ | ✓ | ✓ | ✓ |
|  | <p><b>Operation</b></p> <p>Trail users may displace soil and progressively wear down natural trail elements</p>   | <ul style="list-style-type: none"> <li>• Regular maintenance of SP1 alignment to clearly define trail areas and promote use of designated areas</li> <li>• Signage to encourage trail users to stay on designated track alignment</li> </ul>  | ✓ | ✓ | ✓ | ✓ |

|  |  |   |   |   |   |   |
|--|--|---|---|---|---|---|
|  | Erosion and sedimentation from ongoing use of trail  | <ul style="list-style-type: none"> <li>Active and passive discouragement – no promotion of areas that should be avoided or signage warning of restricted areas</li> </ul>   | ✓ | ✗ | ✓ | ✗ |
|  | <p><b>Construction</b></p> <p>Construction activities resulting in the removal of vegetation, including areas of TEC, RE and marine plants.</p>    | <ul style="list-style-type: none"> <li>Design of the SP1 alignment has minimised the disturbance of TEC and marine plants, wherever possible</li> </ul>   | ✓ | ✓ | ✓ | ✓ |
|  | Direct loss and disturbance of marine plants   | <ul style="list-style-type: none"> <li>Development of offset strategy</li> </ul>  | ✓ | ✓ | ✓ | ✓ |
|  | Construction activities may impact flora and fauna biodiversity in the area  | <ul style="list-style-type: none"> <li>Minimisation of construction footprint through staged clearing activities and utilisation of cleared or modified areas where possible</li> </ul>   | ✓ | ✓ | ✓ | ✓ |
|  | Introduction or increase of invasive species as a result of construction related disturbance, transportation of seed material and additional waste | <ul style="list-style-type: none"> <li>Implement a vehicle wash down area during the construction of the trail to ensure that vehicles are cleaned of all potential weeds</li> <li>CEMP to include measures to reduce introduction of weeds and pest</li> <li>Trail construction will avoid disruption of forest canopy wherever possible to avoid additional sunlight that can promote weed growth on forest floor</li> <li>General waste will be securely disposed of in provided bins</li> </ul> | ✓ | ✓ | ✓ | ✓ |
|  | Development within Ecologically Significant Areas  | <ul style="list-style-type: none"> <li>Design shall minimise encroachment into significant vegetation through the inclusion of</li> </ul>   | ✓ | ✓ | ✓ | ✓ |

|  |  |  |   |   |   |   |
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|  |  | <p>exclusion zones along the alignment for areas of high ecological value.</p> <ul style="list-style-type: none"> <li>• Appropriate provision will be made for fauna passage and continuation of watercourses and overland flow paths</li> <li>• Environmental quality will be preserved through the inclusion of management requirements into the contract documentation for acid sulfate and contaminated soils</li> </ul> |   |   |   |   |
|  | Injury or loss of native flora and fauna   | <ul style="list-style-type: none"> <li>• CEMP to include measures to reduce impacts on flora and fauna and maintain remaining vegetation through:</li> <li>• Nomination of no go zones</li> <li>• Fauna spotter/ catcher onsite during clearing</li> <li>• Retain habitat trees (e.g. trees with hollows) wherever practical</li> <li>• Traffic management</li> </ul>  | ✓ | ✓ | ✓ | ✓ |
|  | <p><b>Operation</b></p> <p>Removal, destruction or damage of marine plants from operational activities</p> | <ul style="list-style-type: none"> <li>• Where marine plants require maintenance, the plants will be trimmed and cut by hand to minimise disturbance impact</li> </ul>   | ✓ | ✓ | ✓ | ✓ |
|  | Weed infestation from trail users tracking in weed material on shoes, bikes and equipment                  | <ul style="list-style-type: none"> <li>• Development of a weed and pest species management plan to mitigation spread of invasive species by trail users</li> <li>• Signage to encourage trail users to clean clothing, shoes and equipment before entering trail</li> </ul>  | ✓ | ✓ | ✓ | ✓ |

|                        |  |   |   |   |   |   |
|------------------------|--|---|---|---|---|---|
|                        |  | <ul style="list-style-type: none"> <li>• Providing boot wash facility at both ends of the trail to ensure users do not track pest weeds onto the trail</li> <li>• Signage to discourage trail users from picking or carrying flowers or plants from one area to another</li> </ul>  |   |   |   |   |
|                        | Food and water waste leading to increased pest activities  | <ul style="list-style-type: none"> <li>• Signage to encourage trail users to dispose of waste prior to entering trail, as well as providing bins at both ends of the trail</li> </ul>   | ✓ | x | ✓ | ✓ |
|                        | Trampling of plants as a result of trail users walking off track   | <ul style="list-style-type: none"> <li>• Providing guidelines to trail users around clearly walking on the trail</li> </ul>   | ✓ | ✓ | ✓ | ✓ |
|                        | Interference of local wildlife by domestic animals   | <ul style="list-style-type: none"> <li>• Providing guidelines to trail users around not allowing domestic animals along the trail</li> <li>• Signage around awareness of protected species</li> </ul>   | ✓ | ✓ | ✓ | ✓ |
|                        | Dangerous Fauna (Cassowary) inhabit the SP1 Project area. Animal interactions may result in injury/fatality from dangerous fauna | <ul style="list-style-type: none"> <li>• To minimise the risks to public safety during this period, local education and community engagement will be used</li> <li>• Warning signage to notify trail users</li> </ul>   | ✓ | ✓ | ✓ | ✓ |
| <b>Aquatic Ecology</b> | <b>Construction</b><br>Introduction of additional sediment and materials to aquatic environment                                  | <ul style="list-style-type: none"> <li>• Water quality during construction will be managed through a Water Quality Management Plan</li> <li>• Storing fuels, chemicals, wastes and other potentially environmentally hazardous substances in contained areas away from watercourses and managed through a Hazardous Substances Management Plan</li> <li>• Regular checks of vehicles and equipment for oil leaks</li> </ul> | x | ✓ | ✓ | ✓ |

|  |   |   |   |   |   |
|--|---|---|---|---|---|
|  | <ul style="list-style-type: none"> <li>• Development of a Waste Management Plan</li> <li>• Waterway profiles at temporary construction access roads and temporary construction facility areas will be reinstated and disturbed areas promptly stabilised following completion of construction works</li> <li>• Emergency spill response</li> <li>• Appropriate permits and/or licences will be obtained for all water required during construction</li> </ul> |   |   |   |   |
| Removal, destruction or damage of marine plants from construction activities   | <ul style="list-style-type: none"> <li>• Clearing of marine plants will be avoided, where possible, within temporary construction laydown areas not required for operation</li> <li>• No go areas to be marked with flagging tape to ensure that all work activities remain within the designated work site and areas of vegetation to be retained to be clearly marked to mitigate the risk of accidental clearing</li> </ul>                                | ✓ | ✓ | ✓ | ✓ |
| Direct loss and disturbance of marine plants   | <ul style="list-style-type: none"> <li>• Development of offset strategy</li> </ul>  | ✓ | ✓ | ✓ | ✓ |
| Dangerous Fauna (Crocodiles) inhabit the SP1 Project area. Falls into water or any entry to the water could result in injury/fatality from dangerous fauna | <ul style="list-style-type: none"> <li>• Contractor to implement JSEA safe work method statement</li> </ul>   | x | x | ✓ | ✓ |
| Injury or loss of native flora and fauna   | CEMP to include measures to reduce impacts on flora and fauna and maintain remaining vegetation through:  | ✓ | ✓ | ✓ | ✓ |

|                    |   |   |   |   |   |   |
|--------------------|---|---|---|---|---|---|
|                    |   | <ul style="list-style-type: none"> <li>Nomination of no go zones</li> <li>Fauna spotter/ catcher onsite during clearing</li> <li>Retain habitat trees (e.g. trees with hollows) wherever practical</li> <li>Traffic management</li> </ul>   |   |   |   |   |
|                    | <p><b>Operation</b></p> <p>Removal, destruction or damage of marine plants from operational activities</p>  | <ul style="list-style-type: none"> <li>Where marine plants require maintenance, the plants will be trimmed and cut by hand to minimise disturbance impact</li> </ul>  | ✓ | ✓ | ✓ | ✓ |
|                    | <p>Additional disturbance to aquatic environments associated with increased foot traffic and potential deviation from designated trail areas</p>  | <ul style="list-style-type: none"> <li>Signage to encourage trail users to stay on designated track alignment</li> <li>Regular maintenance of SP1 alignment to clearly define trail areas and promote use of designated areas</li> </ul>  | ✓ | ✓ | ✓ | ✓ |
|                    | <p>Dangerous Fauna (Crocodiles) inhabit the SP1 Project area. Falls into water or any entry to the water could result in injury/fatality from dangerous fauna</p>   | <ul style="list-style-type: none"> <li>To minimise the risks to public safety during this period, local education and community engagement will be used</li> <li>Warning signage to notify trail users</li> </ul>   | x | x | ✓ | ✓ |
| <b>Air quality</b> | <p><b>Construction</b></p> <p>Generation of dust associated with machinery movement and construction of the SP1 alignment</p> <p>Generation of exhaust emissions associated with machinery and vehicles</p> | <ul style="list-style-type: none"> <li>Implementation of dust suppression methods such as watering down of areas and mulching of cleared vegetation to use as ground cover</li> <li>Avoidance or minimisation of dust generation during severe weather conditions i.e. minimising dust generation during periods of intense wind</li> <li>Selection of machinery to be fit-for-purpose and low emission, wherever possible</li> </ul> | ✓ | ✓ | ✓ | ✓ |



|                            |   |  |     |     |     |     |
|----------------------------|---|--|-----|-----|-----|-----|
|                            | <p><b>Operation</b></p> <p>No air quality impacts associated with operation of the SP1 Project</p>                            | N/A  | N/A | N/A | N/A | N/A |
| <b>Noise and vibration</b> | <p><b>Construction</b></p> <p>Additional noise and vibration may negatively impact immediate and surrounding areas</p>        | <ul style="list-style-type: none"> <li>• Impacts will be mitigated through a Construction EMP developed by the Construction Contractor</li> <li>• SP1 will abide by environmental impact best practice guidelines by using low impact construction methods</li> <li>• Prior and during the construction phase of SP1, provision of information to nearby residents regarding construction activities and timing should be undertaken, alongside information on who to contact if issues arise.</li> <li>• Construction activities will only occur during daytime hours, with no night time works proposed</li> </ul> | ✓   | ✓   | ✓   | ✓   |
|                            | <p><b>Operation</b></p> <p>Additional noise and vibration associated with trail use may negatively impact flora and fauna</p> | <ul style="list-style-type: none"> <li>• Signage around awareness of fauna species and sensitive areas</li> <li>• Active and passive discouragement – no promotion of areas that should be avoided or signage warning of restricted areas</li> <li>• Regular maintenance of SP1 alignment to clearly define trail areas and promote use of designated areas</li> </ul>   | ✓   | ✓   | ✓   | ✓   |
| <b>Waste</b>               | <p><b>Construction</b></p> <p>Construction of the SP1 alignment may result in the introduction of</p>                         | <ul style="list-style-type: none"> <li>• Development of a Waste Management Plan</li> <li>• Storing fuels, chemicals, wastes and other potentially environmentally hazardous substances in contained areas away from watercourses and</li> </ul>  | ✓   | ✓   | ✓   | ✓   |

|                                |   |  |   |   |   |   |
|--------------------------------|---|--|---|---|---|---|
|                                | waste material from construction workers  | <p>managed through a Hazardous Substances Management Plan</p> <ul style="list-style-type: none"> <li>• General waste will be securely disposed of in provided bins</li> </ul>  |   |   |   |   |
|                                | <p><b>Operation</b></p> <p>Ongoing trail use may result in erosion and sedimentation to surrounding surface water and the introduction of waste material which may negatively impact water quality.</p> | <ul style="list-style-type: none"> <li>• Placement of signage at entrances and exits of the trail informing trail-users of the appropriate use of bins for waste material</li> <li>• Providing bins at the entrances and exits of the trail for trail-users to dispose of any waste material before entering and leaving the trail</li> <li>• Active and passive discouragement – no promotion of areas that should be avoided or signage warning of restricted areas</li> </ul> | ✓ | ✓ | ✓ | ✓ |
| <b>Existing infrastructure</b> | <p><b>Construction</b></p> <p>Potential for earthworks to expose and damage existing buried services and plant collision with overhead services</p>   | <ul style="list-style-type: none"> <li>• Contractor is to locate services on site prior to doing excavations and relocate services as required. Contractor to implement JSEA/SWMS for plant working near overhead utilities and use spotters as required</li> </ul>  | ✓ | ✓ | ✓ | ✓ |
|                                | Mechanical excavation striking the fibre optic cable running through site   | <ul style="list-style-type: none"> <li>• Contractor to adhere to acceptable construction methods and times in accordance with environmental management plans</li> </ul>  | ✓ | ✓ | ✓ | ✓ |
|                                | Damage to existing Road Bridge from excavation of the rock protection for the underpass retaining wall  | <ul style="list-style-type: none"> <li>• Contractor to implement JSEA safe work method statement. Contractor to implement access management plan for access to site of works</li> </ul>  | x | x | ✓ | ✓ |

|  |   |   |     |     |     |     |
|--|---|---|-----|-----|-----|-----|
|  | <b>Operation</b><br>No impacts to existing infrastructure associated with operation of the SP1 Project      | N/A   | N/A | N/A | N/A | N/A |
| <b>Transport</b>                       | <b>Construction</b><br>Increased traffic and road congestion as a result of workers and material deliveries | <ul style="list-style-type: none"> <li>• Employ workers from within the local area and source materials locally, wherever possible</li> <li>• Appropriate scheduling of deliveries to reduce frequency</li> <li>• Construction traffic to use existing roads and/or gravel road surfaces wherever possible</li> </ul> | ✓   | ✓   | ✓   | ✓   |
|  | <b>Operation</b><br>No transport impacts associated with operation of the SP1 Project                       | N/A   | N/A | N/A | N/A | N/A |
| <b>Greenhouse gasses</b>               | <b>Construction</b><br>Production of greenhouse gasses as a result of machinery use                         | <ul style="list-style-type: none"> <li>• Selection of machinery to be fit-for-purpose and low emission, wherever possible</li> </ul>  | ✓   | ✓   | ✓   | ✓   |
|  | <b>Operation</b><br>No greenhouse gas impacts associated with operation of the SP1 Project                  | N/A   | N/A | N/A | N/A | N/A |
| <b>Social and economic environment</b> | <b>Construction</b>   | <ul style="list-style-type: none"> <li>• SP1 will abide by environmental impact best practice guidelines to develop a project that is low impact</li> </ul>   | ✓   | ✓   | ✓   | ✓   |

|                          |   |   |   |   |   |   |
|--------------------------|---|---|---|---|---|---|
|                          | SP1 has the potential to impact on native title   | <ul style="list-style-type: none"> <li>Where works are proposed in an area where native title exists, an indigenous land use agreement (ILUA) is likely to be required</li> </ul>   |   |   |   |   |
|                          | Construction may result in impacts to roads users   | <ul style="list-style-type: none"> <li>Appropriate traffic management during construction</li> </ul>  | x | x | x | ✓ |
|                          | <b>Operation</b><br>Change of social demographics and regional economy as a result of SP1 Project                           | <ul style="list-style-type: none"> <li>Employ workers from within the local area, wherever possible</li> </ul>  | ✓ | ✓ | ✓ | ✓ |
| <b>Cultural heritage</b> | <b>Construction</b><br>Potential to find unrecorded cultural heritage   | <ul style="list-style-type: none"> <li>CEMP to include procedure for discovery of unexpected cultural finds</li> <li>Implementation of FIND-STOP-NOTIFY procedure</li> </ul>  | ✓ | ✓ | ✓ | ✓ |
|                          | <b>Operation</b><br>Additional access to sensitive and restricts sites that may impact on Traditional Owner cultural values | <ul style="list-style-type: none"> <li>Highlighting the importance of cultural heritage sites with clear signage recommending trail-users do not impact on the areas</li> <li>Regular maintenance of SP1 alignment to clearly define trail areas and promote use of designated areas</li> </ul> | ✓ | ✓ | ✓ | ✓ |

## 4. Construction and operation phase

### 4.1 Staging and timing

Construction of SP1 is expected to commence in November 2019 with the construction of the viewing platform, underpass and bridge infrastructure. The trail, boardwalk and carpark areas will initiate construction in April 2020, with the entirety of SP1 expected to be in operation by September 2020. Timing of construction and operation for each aspect of SP1 is listed in Table 4-1.

Table 4-1 SP1 timing of construction and operation

|                                   | Construction  | Operation      |
|-----------------------------------|---------------|----------------|
| Trail (including gully crossings) | April 2020    | September 2020 |
| Boardwalk                         | April 2020    | September 2020 |
| Carpark                           | April 2020    | September 2020 |
| Observation viewing platform      | November 2019 | April 2020     |
| Underpass                         | November 2019 | April 2020     |
| Bridge                            | November 2019 | April 2020     |

It is expected that the rate of construction for the trail will be 50 m / crew / day, with crew sizes ranging from 3-6 people. For the construction of bridges and larger infrastructure, this work would not be completed by the trail team but would be constructed in parallel with the trail by bridge contractors.

### 4.2 Method of construction

#### **Trail**

The majority of the SP1 trail will be built using mini-excavators, which require a minimum tread width of 1m to operate safely. Where it is not safe, practical or desirable to use a mini-excavator, the trail will be hand constructed. The natural environment poses many unique challenges that will often dictate a change in trail alignment that could never have been anticipated during the design process. Additionally, the 'flow' of a trail that is critical to user enjoyment, and the trail drainage measures that are critical to sustainability typically require many adjustments during construction. For these reasons, highly experienced, specialist construction companies, with significant experience building mountain bike trails will be contracted to construct the SP1 trail. The final character and style of a trail is entirely dictated by the construction team, particularly the machine operator involved in the construction process, with due consideration for constraints and no-go areas as marked and defined within plans and as part of the construction environmental management plan (CEMP).

#### **Boardwalk**

The boardwalk will sit on piles and will be an elevated structure. Innovative and best practice construction methodologies will be selected for the construction of the boardwalk to minimise potential environmental impacts.

The anticipated method of construction to be adopted by the construction contractor for the boardwalk is outlined below. Construction of the boardwalk will commence once the trail path has been established.

- Site preparation works including clearing and grubbing and setting up works areas
- Material sourced for the boardwalk stockpiled on site
- Inspection and approval of material for use by the superintendent's representative
- Foundation and soil testing to correctly identify foundation conditions - provide and/or confirm design parameters for footing systems
- Foundation of boardwalk to be installed by driven piles
- Proposed boardwalk to be constructed with piles, timber subfloor, and wooden deck, with utilisation of durable materials and/or corrosion protection systems to achieve the design life (piles to comply with AS 2159 and are pre cast concrete or cast-in-situ concrete or timber)
- The boardwalk is to be assembled in situ by hand
- Protective treatments applied to boardwalk structure
- Removal of all construction materials from site and implementation of appropriate site rehabilitation prior to work completion.

The design and finish of the boardwalk areas will prioritise the use of local timbers and other materials that will age well over time i.e. rusted steel and silvery grey hardwood timbers. Built structures will be designed and fit-for purpose; to have minimal impact on the surrounding environment, minimal maintenance requirements and a minimalistic approach to materials given the remote nature of the trail. The boardwalk is designed with a width of 1.5 m, with a permanent construction and maintenance buffer of 0.5 m on either side (1 m total buffer area). Micro adjustments may be required to the proposed boardwalk alignment to avoid obstacles and to minimise vegetation clearing. This would be confirmed by the trail construction contractor and would be undertaken as a Design and Construction component.

### **Bridges**

While some adaptations to construction methodology exist between the two bridge crossing infrastructure types, works associated with all bridge crossings are similar. The built structures will be designed and engineered to be fit-for-purpose, to have minimal impact on the surrounding environment, to have minimal maintenance requirements and will need to take a minimalistic approach to materials given the remote nature of the trail and difficulties getting materials into the locations where they are required. Refer to Figure 3-1 below as an example.

The anticipated method of construction to be adopted by the construction contractor for the bridge at B38 and B39 are outlined below:

- Site preparation works including clearing and grubbing
- Setup of work areas, including a crane pad, on both sides of the waterway
- The top soil will be stripped and the ground cut to abutment base level
- A crane will move the bridge into place
- The bridge is to be assembled in situ by hand
- Removal of all construction materials from site and implementation of appropriate site rehabilitation prior to work completion.



Figure 4-1 Example of single span bridges for B38 and B39



Figure 4-2 Site photo of B38 location looking south (left) and north (right)



Figure 4-3 Site photo of B38 looking south upstream



Figure 4-4 Site photo of B39 looking west

The anticipated method of construction to be adopted by the construction contractor for the new Mowbray River Bridge is outlined below:

- Install silt fencing and all other environmental controls as per the Environmental Management Plan (EMP)
- Access tracks and work platforms, including a crane pad, will be installed on both sides of the river to access abutment locations
- Initial survey points will be set out for abutments assembly areas
- The top soil will be stripped and the ground cut to abutment base level



- The piling rig/crane platforms will be constructed and rig set up commencing at the pile and pier locations, respectively (pile locations will be set out with centres pegged)
- Once the pile is in place the hammer is placed over top of the pile and driving is commenced
- The piles will be driven to the required design depth and set, with sections joined at lengths and welded in accordance with the specification if splicing is required
- Once piles have reached the design depth and capacity is confirmed by the design engineer, casings will be cut to height and the tubes filled with concrete up to the development cage level
- The piling rig will then be established on the bank and the above process repeated
- Superstructure will be lifted and placed using a 200T Crane setup behind the abutments
- The span will be placed in the laydown area on the approach end of the bridge
- Once the pier and abutments are constructed the bridge spans will be removed and the new steel beams will be installed in position with bracing installed in accordance with relevant specifications
- Once the beams are in place and fixed down the precast deck slab units will be installed and grouted onto the nelson shear studs
- The hand railing and kerbing will be installed and the approach earthworks completed
- All equipment and plant will be de-established from site.

#### ***Removal of old Mowbray Bridge piers***

The anticipated construction methodology to be adopted by the nominated construction contractor is outlined below.

- Install all safety fences/barriers and site signage
- Install silt fencing and all other environmental controls as per the Environmental Management plan
- Access tracks and work platforms will be installed to reach piers; completed as part of the new bridge construction and not a separate task
- Contractor to demolish exiting piers and piles down to bed level with transport and dispose of material to licenced facility
- Removal of all construction materials from site and implementation of appropriate site rehabilitation prior to work completion.

#### ***Other built structures***

The built structures will be designed and engineered to be fit-for-purpose, to have minimal impact on the surrounding environment, to have minimal maintenance requirements and will take a minimalistic approach to materials given the remote nature of the trail and difficulties getting materials into the locations where they are required. Appropriate work areas and no-go areas will be marked and defined on site and will be included as part of the CEMP. Erosion and sediment control measures associated with the built structures will be outlined in an Erosion and sediment Control Plan (ESCP) developed by the construction contractor.

The anticipated construction methodology for the underpass and observation-viewing platform to be adopted by the nominated construction contractor is outlined below.

- Install all safety fences / barriers and site signage
- Install silt fencing and all other environmental controls as per the EMP
- Access tracks and work platforms will be installed to reach viewing platform
- Site preparation works including the clearing and grubbing and set up of work area
- The top soil will be stripped and the ground cut to abutment base level
- Excavation, Installation and backfilling of RCP culverts
- Install reinforced concrete inlet pit
- Install reinforced concrete retaining wall underpass
- Install Reinforced concrete viewing platform
- Backfill, grade and level approaching reinforced concrete ramps and pathway
- Install reinforced concrete ramps and pathways
- Install reinforced concrete stairs
- Reinstate grouted rock protection to embankment slopes
- Remove all construction materials from site and implement appropriate site rehabilitation prior to work completion.

## 5. Statutory considerations

### 5.1 Commonwealth approvals

#### ***Environmental Protection and Biodiversity Conservation Act 1999***

As part of the approvals process for SP1, an assessment of potential impacts to matters of national environmental significance (MNES) potentially impacted by the SP1 Mowbray North portion of the trail (GHD, 2019a) was undertaken in accordance with *MNES Significant Impact Guidelines 1.1* (DoE, 2013).

MNES addressed by this assessment included TECs, threatened species and migratory species listed under the EPBC Act. An *MNES Baseline Ecology Assessment* (GHD, 2019b) has recently been completed to assess the presence, or potential presence, of these MNES within the local landscape and serves to inform preparation of the current assessment.

Findings of the self-assessment confirmed that the SP1 Project would not cause a significant impact on MNES and therefore would not require referral under the EPBC Act.

### 5.2 Other planning and environmental approvals

Other planning and environmental approvals required for the SP1 Project area include:

- Marine Park permit by the Great Barrier Reef Marine Park Authority (GRMPA)
- Road corridor permit under the *Transport Infrastructure Act 1994* for work within State Controlled Road Reserve
- DSC local law permit for works within local government land

### 5.3 Future approvals

The SP1 Project area is unlikely to require future approvals in order to continue the operational phase of the trail. However, as part of the future development of the SP2 Project area, it is expected that a number of approvals will be required. The required approvals for SP2 will be assessed separately to this development application.

## 6. Pre-lodgement meeting outcomes

A pre-lodgement meeting was carried on the 15<sup>th</sup> May 2019 between:

- DITID
- Department of State Development, Manufacturing, Infrastructure and Planning (DSDMIP)
- DAF
- Department of Environment and Science (DES)
- DNRME
- TMR
- DSC
- GHD

The purpose of the meeting was to discuss the proposed material change of use and operational work for the SP1 Project area. Outcomes of the meeting have been summarised in Table 6-1.

A copy of the pre-lodgement meeting minutes is contained in Appendix C.

Table 6-1 Key issues raised in meeting for each regulatory authorities

| Regulatory Authorities | Key Issues raised in the meeting   | Applicant Response  |
|------------------------|--|---|
| DNRME                  | <p><i>Interest: Tenure</i></p> <ul style="list-style-type: none"> <li>Owner's consent from DNRME will be required for certain aspects associated with the proposed development (including work in local roads, USL and land below the high water mark (HWM). Can take 4-6 weeks.</li> </ul> <p>Tenure through USL should be resolved prior to lodging a development application. The formal process does not need to be completed but an acceptance of an offer from DNRME should be finalised. DNRME SLAM can facilitate a meeting to discuss tenure issues outside if required.</p> <p><i>Interest: Native vegetation clearing</i></p> <ul style="list-style-type: none"> <li>Any clearing of native vegetation (other than mangrove REs) can be carried out as exempt clearing work for the purposes of government supported transport infrastructure if the project meets the definitions under the Planning Regulation. If the project does not meet the definition of government supported transport infrastructure, clearing in Category X areas may still require referral depending on tenure.</li> </ul> | <p><i>Tenure</i></p> <ul style="list-style-type: none"> <li>Owners consent will be gained from DNRME for works proposed below HWM prior to construction.</li> <li>Tenure through USL is being resolved with SLAM</li> </ul> <p><i>Native vegetation clearing</i></p> <ul style="list-style-type: none"> <li>Development meets the definitions under the Planning Regulation for exempt clearing work for the purposes of government supported transport infrastructure</li> </ul>   |
| DAF                    | <p><i>Interest: Removal, destruction or damage of marine plants</i></p> <ul style="list-style-type: none"> <li>Application will be assessed against State code 11: Removal, destruction or damage of marine plants.</li> <li>Applicant will need to provide plans and designs identified by DAF in the application.</li> <li>The application should consider how disturbance during construction can be minimised, whilst a rehabilitation plan should be detailed in the application.</li> </ul> <p><i>Interest: Waterway barrier works</i></p> <ul style="list-style-type: none"> <li>Applicant will need to provide plans and designs identified by DAF in the application.</li> </ul>  | <p><i>Removal, destruction or damage of marine plants</i></p> <ul style="list-style-type: none"> <li>Supporting documentation for operational works that is the removal, destruction or damage of marine plants addresses State Code 11 and provides plans and designs of the Project</li> <li>The trails permanent footprint will not be rehabilitated. The construction footprint will be reinstated and marine plants allowed to re-establish naturally.</li> <li>Supporting documentation for operational works that is constructing or raising waterway barrier</li> </ul> |

|      |  |   |
|------|--|---|
|      |  | works addresses State Code 18 and provides plans and designs of the Project   |
| DES  | <p><i>Interest: Tidal works and work in the coastal management district</i></p> <ul style="list-style-type: none"> <li>• Will be required to address the requirement of the proposed development to be located in the erosion prone area and how the risks associated with erosion will be avoided and/or mitigated, including during construction.</li> <li>• An acid sulphate soil management plan should be included in the application material.</li> </ul> <p><i>Wetland protection area</i></p> <ul style="list-style-type: none"> <li>• Referral will be required for any identified high impact earthworks.</li> <li>• It is unclear if the proposed development involves high impact earthworks; it is recommended that the applicant determine this prior to applying for any development approval. If referral is required, the application will trigger assessment against State Code 9: Great Barrier Reef wetland protection areas.</li> </ul> <p><i>MSES</i></p> <ul style="list-style-type: none"> <li>• Impacts on regulated vegetation is assessed under State code 8 even where exemptions apply for clearing for government supported transport infrastructure.</li> </ul> | <p><i>Tidal works and work in the coastal management district</i></p> <ul style="list-style-type: none"> <li>• Construction contractor is to prepare an Erosion and Sediment Control Plan in accordance with the IECA Best Practice Erosion &amp; Sediment Control.</li> <li>• The proposed tidal works will involve limited excavation or displacement of soils associated with piling. The proposed tidal works will be undertaken in accordance with an acid sulfate soil management plan as part of the Construction Environmental Management Plan (CEMP), in line with the Queensland acid sulfate soils technical manual: soil management guidelines.</li> </ul> <p><i>Wetland protection area</i></p> <ul style="list-style-type: none"> <li>• Referral will not be required as no high impact earthworks are proposed.</li> </ul> <p><i>MSES</i></p> <ul style="list-style-type: none"> <li>• Refer to Appendix D.</li> </ul> |
| DTMR | <p><i>Interest: State-controlled road (SCR)</i></p> <ul style="list-style-type: none"> <li>• MCU application will require referral for impacts on SCR.</li> <li>• Will require an s33 under the <i>Transport Infrastructure Act 1994</i> approval to undertake the Channelized right turn (CHR(S)) and Auxiliary left turn (AUL(S)) road works as shown by GHD concept drawing SK100.</li> <li>• Will require a Road Corridor Permit under s50 under the <i>Transport Infrastructure Act 1994</i>.</li> </ul>  | <p><i>State-controlled road</i></p> <p>Approval to undertake the CHR(S) and (AUL(S)) road works and a road corridor permit will be sought from TMR.</p>   |

## 7. Community consultation

Queensland Ecotourism Trails is a Queensland Government initiative to identify and deliver adventure and nature-based experiences at iconic Queensland destinations. The program is delivered through an innovative and collaborative model, focused on Traditional Owners and working in close partnership with other levels of government, tourism operators and the wider community. One of the opportunities is the proposed Wangetti Trail, a multi-day walking and mountain biking trail stretching over 94 kilometres through stunning coastal and hinterland scenery between Port Douglas and Palm Cove.

The proposed alignment for SP1 with conceptual information around potential ecotourism offerings was released on 8 April 2019, facilitated by DITID (Tourism Development Projects Division). The public comment period extended over eight weeks and closed on 31 May 2019. During the period, members of the community were asked to share their ideas and comments on the alignment.

A summary of engagement processes and outcomes as provide by DITID is outlined below:

- 4160+ unique visits to online site (Social Pinpoint)
- 154 pieces of feedback (direct emails and online responses)
- 70% of respondents were in Queensland
- 20+ calls and on-ground meetings including 9 resident meetings
- 142,000+ people reached through Facebook
- 352 distributions of the e-newsletter including 36 new subscribers acquired
- majority of feedback is supportive or neutral/constructive
- 70% of online responses were positive or neutral

The key themes focused on the potential for dual-use across entire trail, conservation strategies, impacts of mountain biking, developing commercial opportunities

The engagements were targeted and cost competitive, when compared to a traditional print and stall-based engagement. The stakeholders and local communities engaged during the period were identified in the Wangetti Trail Communications and Engagement Plan, developed in May 2019.

The feedback provided during the engagement process has been collected and will considered by DITID as part of the SP1 Project.

### 7.1 Alternative considerations

Multiple alternatives were considered for the SP1 Project. This included two main alternatives as summarised in Table 7-1.

Within the alternatives considered, multiple infrastructure designs were also considered for boardwalk and bridge crossings including multiple options for the use and extent of boardwalks and bridges over watercourses. While other options were considered, with regard to boardwalks and bridges, the limited use of this infrastructure was chosen to reduce the impact associated with construction. This approach also lends to the minimalistic approach and earthy experience of the Wangetti Trail (World Trail Pty Ltd, 2018).

Multiple alternatives were considered for the bridge crossing over the Mowbray River, within the southern extent of SP1. Initially the crossing was proposed at the mouth of the Mowbray River,

considered to be a hero experience highlighting crocodile spotting, tidal movement, and ending in a mangrove boardwalk. However, the river estuary is not well suited to development due to an unstable, eroding sand embankment on the south side of the river with apparent shifting of the river course (PwC, 2018). The northern side of the river also consists of a low river silt bank supporting mangroves; this environment poses difficulty for the construction of suitable foundations. This alternative would increase disturbance to marine plants, both through the clearing of vegetation at the river mouth and the increased trail length to allow access to the area. The decision to inset the trail to retain primary coastal buffer plants and subsequently reduce trail length was made to avoid unnecessary impacts to marine plants.

An alternative upstream crossing location was identified adjacent to the Captain Cook highway bridge. While this is also the location of the chosen crossing design, two alternative options were identified for the area. One alternative option was a pedestrian bridge constructed as an attachment to the existing highway bridge infrastructure. However, this alternative was not considered viable based on the cost and level of upgrades required for the existing bridge to support the additional structure.

Decommissioned concrete pylons, remnant of the old highway bridge and located adjacent to the current highway bridge, were also assessed for use as foundational pylons for a new pedestrian bridge construction. This location was considered suitable for the bridge infrastructure, however the existing pylons require removal and replacement as structural integrity has been compromised over time. While pylon replacement will cause additional disturbance to marine plants in the short-term, comparative to the use of the original pylons, the upgrade of the bridge will have long-term benefits to marine plants as infrastructure life span will be far greater.

Table 7-1 Summary rationale of main project alternatives for SP1

| Alternatives considered | Description of Alternative  |
|-------------------------|---|
| Alternative A           | The trail alignment and infrastructure associated with Alternative A was considered as an initial alternative based on desktop assessment design of SP1. However, this alternative was not chosen as the marine plant disturbance area and impacts to TEC were much greater, in comparison to the chosen design.      |
| Alternative B           | The trail alignment and infrastructure associated with Alternative B was considered as an adaptation of alternative A, based on alignment changes informed by field study assessments. However, this alternative was not chosen as the marine plant disturbance area was greater, in comparison to the chosen design. |



## 8. Assessment against State legislation

### 8.1 Overview

This section provides an assessment of the consistency of the proposal with the relevant state legislation, State Planning Policy, Far North Queensland Regional Plan and the State Development Assessment Provisions.

### 8.2 Assessment of State Interests

An assessment of State interests applicable to the SP1 project has been summarised below in Table 8-1.

Table 8-1 Assessment of state interest impacted by SP1 Project

| State interest  | Impacted by SP1 Project  | Comments  |
|---|--|---|
| Protected areas   | <p>The majority of trail for SP1 and the mangrove boardwalk are located within the Great Barrier Reef Marine Park which is protected under the <i>Great Barrier Reef Marine Park Act 1975</i> and managed by the Great Barrier Reef Marine Park Authority.</p> <p>Refer to Section 2.4.8 and Appendix A.</p>   | <p>The SP1 Project area is located partially within the Great Barrier Reef Marine Park.</p> <p>The section of SP1 along Four Mile Beach intersects the 'conservation park' zoning area of the Great Barrier Reef Marine Park and a small portion of 'estuarine conservation' zoning near the proposed location of B38. However, no permanent works are proposed along Four Mile Beach, as hikes and cyclists will follow the alignment along the beach.</p> <p>The proposed boardwalk section within Lot 5 AP13754 and the remainder of the trail up to the Mowbray River Bridge is located within an 'estuarine conservation' zoned area of the Great Barrier Reef Marine Park, with the exception of where the alignment traverses Andreassen Road and lot 24 SR423.</p> <p>A Marine Park permit from the Great Barrier Reef Marine Park Authority.</p> |
| Protected state vegetation communities and fauna habitats | <p>The following vegetation areas are mapped over section of SP1 project area:</p> <ul style="list-style-type: none"> <li>• Regulated Vegetation (100 m from Wetland) -</li> <li>• Category R Regulated Vegetation (GBR Riverine)</li> <li>• Category B Regulated Vegetation (Endangered or of Concern)</li> <li>• Essential habitat</li> <li>• MSES - Wildlife habitat</li> </ul> | <p>Category R Regulated Vegetation (GBR Riverine) is mapped along sections of the Mowbray River.</p> <p>Category B Regulated Vegetation (Endangered or of Concern) is mapped along sections of the SP1 Project Area.</p> <p>Essential habitat and wildlife habitat is mapped of part of the SP1 project area</p>  |

|                    |  |  |
|--------------------|--|--|
|                    | <p>Refer to Section 2.4.7 and Appendix A.</p>                  | <p>and is associated with the following fauna species:</p> <ul style="list-style-type: none"> <li>• Southern cassowary (southern population)</li> <li>• Estuarine crocodile</li> <li>• Eastern curlew</li> <li>• Bar-tailed godwit</li> <li>• Lesser sand plover</li> <li>• Greater sand plover</li> </ul> <p>An ecological survey has been completed by ecologists for SP1 Project area and this is discussed further in Section 2.4.7. Mitigation measures have been developed to manage potential impacts to fauna habitat and are discussed in Section 3.5.</p> <p>However, taking into consideration the low-impact nature of the proposed works together with the sub-optimal characteristics of the impacted habitat, no significant residual impact to the species within the area because of SP1 proposed works.</p> <p>The SP1 project is exempt from triggering an operational work involving clearing native vegetation under Schedule 10, Part 3, Division 4, Table 1, Item 1, as the proposed works is considered to meet the definition of government supported transport infrastructure. Under Schedule 21, part 1, section 1, item 14(b) of the <i>Planning Regulation 2017</i>, an exemption applies for the clearing of native vegetation for constructing or maintaining infrastructure stated in Schedule 5 of the Planning Regulation if the infrastructure is government supported transport infrastructure.</p> <p>Schedule 5 of the <i>Planning Regulation 2017</i> covers transport infrastructure, including transport infrastructure stated in schedule 2 of the Act, definition development infrastructure. Given that SP1 work involves developing infrastructure for pedestrian and cyclists it is considered to be a 'public cycleway'.</p> <p>Therefore, SP1 project is exempt from the clearing of remnant Category B, Category C and Category R vegetation.</p> |
| Flora Trigger Area | SP1 project area does not intersect flora survey trigger area. | Not applicable   |

|   |   |   |
|---|---|---|
| Marine plants   | Marine plants are present within SP1 project areas and they have been confirmed via ecological survey.  | SP1 project will require the permanent and temporary disturbance of marine plants and triggers referral to SARA for operational works for disturbance/ damage to marine plants.<br>A marine plant report has been prepared and included in the development application package.   |
| Non-tidal / freshwater waterway or waterways listed under the <i>Water Act 2000</i> | SP 1 proposed works will not impact on upon waterways mapped under the <i>Water Act 2000</i> .  | An assessment of waterways within the SP1 project area is discussed in Section 2.4.1.   |
| The construction or raising of a temporary or permanent waterway barrier            | The Department of Agriculture and Fisheries (DAF) Waterways for waterway barrier works mapping identifies a number of mapped waterways within SP1 project area.<br><br>Refer to Section 2.4.1 for more information and Appendix A.  | Operational works that is constructing or raising a waterway barrier will not be required for the SP1 Project area (refer to section 2.4.1).  |
| Tidal waterway and a coastal management district navigable waterways                | The majority of the SP1 project area is located is located within tidal waterways and within coastal management district.<br>Refer to Section 2.4.1, Section 2.3.4 and Appendix A.  | A prescribed tidal works report has been prepared for SP1 project and is included as part of the development application package.<br>It includes details of the proposed works within tidal areas and discusses how the works will be managed to avoid adverse impacts to waterways.<br>An assessment against State code 8: Coastal development and tidal works has been undertaken.<br>Mowbray River is used by vessels and the proposed Bridge over Mowbray River has been designed to accommodate navigation of small vessels using the river. |
| Protected wetlands area including in a Wetland Protection Area                      | Northern section of the trail is located within the wetland protection area trigger area, wetland protection area.<br>High ecologically significant wetlands and trigger areas exist over the proposed alignment.<br><br>These include: <ul style="list-style-type: none"> <li>• Non-riverine wetlands of medium and very high conservation significance</li> <li>• Vegetation Management Act wetlands</li> <li>• MSES high ecological significance wetlands</li> <li>• Wetlands of high ecological significance</li> </ul> | The proposed works associated with SP1 are not considered to constitute high impact earthworks” as defined under Schedule 24 of the <i>Planning Regulation 2017</i> and therefore does not trigger an operational work within a wetland protection area.<br>Environmental controls proposed to protect the values of mapped wetland from the proposed development are discussed in Section 3.5 will be included in a construction environmental management plan for the SP1 project area.   |

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|                                | SP1 is not located within a Ramsar wetland. Refer to Section 2.4.2 and Appendix A.  |   |
| State transport infrastructure | <p>SP1 project interests State controlled road reserve as the southern section of the project area is located within Captain Cook Highway road reserve.</p> <p>Refer to Section 2.4.12 and Appendix A.</p>  | <p>The proposed works within the state controlled road reserve have been discussed with DTMR and they have provided their support of the proposed works including:</p> <ul style="list-style-type: none"> <li>• Mowbray River Bridge</li> <li>• Carpark</li> <li>• Underpass</li> <li>• Observation viewing platform, ramps and stairs</li> </ul> <p>The proposed uses are considered consistent with the intent of the road reserve. The development application has been assessed against State code 1: Development in a state-controlled road environment in Appendix D.</p> |
| Heritage and cultural heritage | <p>There were no listed cultural heritage identified on the Queensland Heritage database within the SP1 project area.</p> <p>There is no locally listed cultural heritage identified under the Douglas Shire Council Planning Scheme within the SP1 project area.</p> <p>A search of the (DATSIP <i>cultural Heritage Database</i>) was undertaken for SP1. The results revealed no known recorded artefacts and/or sites to occur within 3 km of a central point of the alignment (-16.5362, 145.4766). The closest recorded sighting is located at -16.5540, 145.4814 (refer to Figure 1 below) and is approximately 85 m southwest from the proposed observation platform with the site being a 'story place'.</p> <p>Refer to Section 2.4.9 and Appendix A.</p> | Refer to Section 2.4.9 for more information and Section 3.5.  |

### 8.3 State planning policy

The State Planning Policy (SPP) was introduced in December 2013 to replace the multiple policies previously in existence. The SPP details matters of state interest in land use planning which enables development, protects our natural environment, and allows communities to grow and prosper.

SP1 complies with the requirements of the SPP, with this being addressed in Table 8-2.

Table 8-2 Applicable State Interest Policy planning scheme codes relating to project

| State interest                          | Policy   | Compliance with policy provision   |
|---|--|--|
| <b>Liveable Communities and Housing</b> |  |  |
| Liveable Communities                    | <ol style="list-style-type: none"> <li>1. High quality urban design and place making outcomes are facilitated and promote                             <ol style="list-style-type: none"> <li>a. affordable living and sustainable and complete communities</li> <li>b. attractive, adaptable, accessible and inclusive built environments</li> <li>c. personal safety and security</li> <li>d. functional, accessible, legible and connected spaces</li> <li>e. community identity through considering local features, character, needs and aspirations.</li> </ol> </li> <li>2. Vibrant places and spaces, and diverse communities that meet lifestyle needs are facilitated by:                             <ol style="list-style-type: none"> <li>a. good neighbourhood planning and centre design</li> <li>b. a mix of land uses that meet the diverse demographic, social, cultural, economic and lifestyle needs of the community</li> <li>c. consolidating urban development in and around existing settlements</li> <li>d. higher density development in accessible and well-serviced locations</li> <li>e. efficient use of established infrastructure and services</li> <li>f. supporting a range of formal and informal sporting, recreational and community activities.</li> </ol> </li> <li>3. Development is designed to:                             <ol style="list-style-type: none"> <li>a. value and nurture local landscape character and the natural environment</li> <li>b. maintain or enhance important cultural landscapes and areas of high scenic amenity, including important views and vistas that contribute to natural and visual amenity</li> <li>c. maintain or enhance opportunities for public access and use of the natural environment</li> </ol> </li> </ol> | <p><b>Not Applicable.</b><br/>Development does not involve the construction of buildings.</p> <p><b>Complies.</b><br/>SP1 comprises of an environmental facility as defined under the Douglas Shire Council Planning Scheme, that offers a range of recreational eco-tourism activities such as hiking and mountain biking. SP1 does not comprise of significant infrastructure and is not considered urban development.</p> <p><b>Complies.</b><br/>Development has been designed to retain the natural environment and character through avoiding as much vegetation loss as possible and incorporating natural designs that blend in with the surrounding landscape. The trail promotes indigenous cultural landscapes through educating visitors of cultural heritage in the area. It will also promote the visual amenity that the Douglas region</p> |

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|                              |  | has to offer through scenic views and observation platforms.   |
|                              | 4. Connected pedestrian, cycling and public transport infrastructure networks are facilitated and provided.  | <b>Complies.</b><br>The trail enhances the connectivity between Craiglie and Port Douglas with cycling and pedestrian transport networks proposed.   |
|                              | 5. Community facilities and services, including education facilities (state and non-state providers), health facilities, emergency services, arts and cultural infrastructure, and sport, recreation and cultural facilities are well-located, cost-effective and multi-functional.  | <b>Not Applicable.</b><br>Development is classified as an environmental facility under the Douglas Shire Planning Scheme.  |
|                              | 6. Connection to fibre-optic telecommunications infrastructure (e.g. broadband) is supported in greenfield areas.  | <b>Not Applicable.</b><br>No telecommunication infrastructure is proposed for the development.   |
|                              | 7. All development accessed by common private title is provided with appropriate fire hydrant infrastructure and has unimpeded access for emergency service vehicles to protect people, property and the environment.  | <b>Not applicable.</b><br>The proposed development does not require building works, or works in proximity to existing buildings. The proposed development is not creating an occupancy risk that requires fire hydrant infrastructure. |
| Housing Supply and Diversity | 1. Land for housing development and redevelopment in areas that are accessible and well-connected to services, employment and infrastructure is identified.  | <b>Not Applicable.</b><br>Development is primarily located in an isolated natural landscape that does not consist of housing.  |
|                              | 2. The development of residential land is facilitated to address and cater for all groups in the current and projected demographic, economic and social profile of the local government area, including households on low to moderate incomes.   | <b>Not Applicable.</b><br>Development is located within non-residential areas.   |
|                              | 3. A diverse, affordable and comprehensive range of housing options in accessible and well-serviced locations, is facilitated through: <ul style="list-style-type: none"> <li>a. appropriate, responsive and proactive zoning</li> <li>b. supporting an appropriate mix of lot sizes and dwelling types, including housing for seniors and people requiring assisted living</li> <li>c. considering incentives to promote affordable and social housing outcomes, particularly in areas in close proximity to services and amenities.</li> </ul> | <b>Not Applicable.</b><br>Development does not involve the development of housing.   |

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|                        | 4. Best practice, innovative, and adaptable housing design and siting is provided for and encouraged.   |   |
|                        | 5. Sufficient zoned land for housing is provided in appropriate locations to support the projected non-resident workforce population associated with approved large-scale mining, agriculture, industry or infrastructure projects.   |   |
| <b>Economic growth</b> |   |   |
| Agriculture            | 1. Agriculture and agricultural development opportunities are promoted and enhanced in important agricultural areas (IAAs).   | <b>Not Applicable.</b><br>Development does not traverse important agricultural areas.   |
|                        | 2. Agricultural Land Classification (ALC) Class A and Class B land is protected for sustainable agricultural use by: <ul style="list-style-type: none"> <li>a. avoiding fragmentation of ALC Class A or Class B land into lot sizes inconsistent with the current or potential use of the land for agriculture</li> <li>b. avoiding development that will have an irreversible impact on, or adjacent to, ALC Class A or Class B land</li> <li>c. maintaining or enhancing land conditions and the biophysical resources underpinning ALC Class A or Class B land.</li> </ul>   | <b>Complies.</b><br>Agricultural land classifications Class A and/or B are located throughout the alignment. The alignment has been designed to limit fragmentation of potential agricultural areas and allow practical lot sizes to be developed. This has been done by aligning the trail on the fringes of these areas or traversing the land through the most practical space.  |
|                        | 3. Fisheries resources are protected from development that compromises long-term fisheries productivity, sustainability and accessibility.  | <b>Not Applicable.</b><br>Development does not include fisheries resources.   |
|                        | 4. Facilitate the growth in agricultural production and a strong agriculture industry. <ul style="list-style-type: none"> <li>a. promoting hard to locate intensive agricultural land uses, such as intensive animal industries, aquaculture, and intensive horticulture in appropriate locations</li> <li>b. protecting existing intensive agricultural land uses, such as intensive animal industries, aquaculture, and intensive horticulture, from encroachment by development that is incompatible and/or would compromise the safe and effective operation of the existing activity</li> <li>c. locating new development (such as sensitive land uses or land uses that present biosecurity risks for agriculture) in areas that avoid or minimise potential for conflict with existing agricultural uses through the provision of adequate separation areas or other measures</li> </ul> | <b>Complies.</b><br>Development does not include agricultural production. Biosecurity risk for surrounding agriculture is possible predominately from increased seed dispersal by trail users. This risk has been managed in the detail design to have feet washing facilities at the start and end of the trail to limit pest species distribution into adjacent landscapes. The development does not traverse any stock routes. |

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|                              | <ul style="list-style-type: none"> <li>d. facilitating opportunities for co-existence with development that is complementary to agricultural uses that do not reduce agricultural productivity (e.g. on-farm processing, farm gate sales, agricultural tourism etc)</li> <li>e. considering the provision of infrastructure and services necessary to support a strong agriculture industry and associated agricultural supply chains</li> <li>f. ensuring development on, or adjacent to, the stock route network does not compromise the network's primary use for moving stock on foot, and other uses and values including grazing, environmental, recreational, cultural heritage, and tourism values.</li> </ul> |  |
| Development and Construction | <ul style="list-style-type: none"> <li>1. A sufficient supply of suitable land for residential, retail, commercial, industrial and mixed use development is identified that considers: <ul style="list-style-type: none"> <li>a. existing and anticipated demand</li> <li>b. the physical constraints of the land</li> <li>c. surrounding land uses</li> <li>d. the availability of, and proximity to, essential infrastructure required to service and support such development.</li> </ul> </li> </ul>   | <p><b>Complies.</b><br/>Douglas Shire Planning Scheme identifies the land zones as conservation, rural and recreation and open space. There is limited infrastructure around the development to consider supporting the development.</p>   |
|                              | <ul style="list-style-type: none"> <li>2. Appropriate infrastructure required to support all land uses is planned for and provided.</li> </ul>   | <p><b>Complies.</b><br/>The development of the Wangetti trail supports the intended use of these zones. The dual use trail enhances the usability of the trail and increases business opportunities. Local indigenous communities will also be responsible for maintenance of the trail.</p> |
|                              | <ul style="list-style-type: none"> <li>3. Mixed-use development is achieved by appropriately zoning the land.</li> </ul>   | <p><b>Not Applicable.</b><br/>Development does not consist of mixed-use development.</p>   |
|                              | <ul style="list-style-type: none"> <li>4. An appropriate mix of lot sizes and configurations for residential, retail, commercial, mixed use and industrial development is provided for in response to the diverse needs of these uses and ancillary activities.</li> </ul>   | <p><b>Not Applicable.</b><br/>Development does not consist of reconfiguring a lot.</p>   |
|                              | <ul style="list-style-type: none"> <li>5. Efficient delivery of development is facilitated by the adoption of the lowest appropriate level of assessment for development that is consistent with the purpose of the zone.</li> </ul>   | <p><b>Complies.</b><br/>Development was identified as code assessable under the Douglas Shire Planning Scheme for the purposes of an environment facility within a rural zone and conservation zone. .</p>   |



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|                                 | 6. Land uses are consistent with the purpose of the zone.   | <b>Complies.</b><br>Land uses falls under conservation, whilst development falls under environmental facility under the Douglas Shire Planning Scheme. |
|                                 | 7. State development areas and Priority Development Areas are:<br>e. identified and appropriately considered in terms of their planning intent<br>f. supported by compatible and complementary land uses and services on surrounding land.  | <b>Not Applicable.</b><br>Development is not located in a State Development Area or Priority Development Area.   |
|                                 | 8. Public benefit outcomes on state-owned land are achieved by appropriately zoning the land.   | <b>Not Applicable.</b><br>Development consists of appropriate zoning of state-controlled zoning.   |
| Mining and extractive resources | 1. Key resource areas (KRAs) are identified, including the resource/ processing area, separation area, transport route and transport route separation area.   | <b>Not Applicable.</b><br>Development does not include mining and extractive resources.  |
|                                 | 2. KRAs are protected by:<br>g. maintaining the long-term availability of the extractive resource and access to the KRA<br>h. avoiding new sensitive land uses and other incompatible land uses within the resource/ processing area and the related separation area of a KRA that could impede the extraction of the resource<br>i. avoiding land uses along the transport route and transport route separation area of a KRA that are likely to compromise the ongoing use of the route for the haulage of extractive materials<br>j. avoiding new development adjacent to the transport route that is likely to adversely affect the safe and efficient transportation of the extractive resource. |  |
|                                 | 3. The importance of areas identified as having valuable minerals, coal, petroleum and gas resources, and areas of mining and resource tenures are considered.  |  |
|                                 | 4. Opportunities for mutually beneficial co-existence between coal, minerals, petroleum and gas resource development operations and other land uses are facilitated.  |  |
|                                 | 5. Opportunities for mutually beneficial co-existence between coal, minerals, petroleum and gas resource development operations and other land uses are facilitated.  |  |

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| Tourism | 1. The findings of state endorsed tourism studies and plans are considered and reflected where relevant.  | <p><b>Complies.</b></p> <p>A business case was developed by PwC in 2018 to better understand the demand for eco-tourism recreational infrastructure. Results from the report showed that tourism numbers are increasing in Far North Queensland, whilst there is currently a gap in this such industry. Diversification of product offering was also a positive aspect that the development offers, supporting a broader group of users to the region (PwC, 2018). The development also aligns with the Douglas Shire Council’s Corporate Plan where goal 3, section 2.3.5, states ‘Develop and promote Douglas as the “bicycle capital of Australia” through the planning and construction of a network of bicycle trails, traffic separation and management arrangements’.</p> |
|         | 2. Existing and potential opportunities, localities or areas appropriate for tourism development are identified and protected.  | <p><b>Complies.</b></p> <p>The Wangetti project has identified areas that are most attractive for tourism development, which the alignment has supported by determining the best places to have observation platforms and board walks in areas that have the highest environmental values and scenic amenities.</p>  |
|         | 3. The delivery of sustainable tourism development is facilitated where it: <ul style="list-style-type: none"> <li>a. is complementary to and compatible with other land uses, and</li> <li>b. promotes the protection or enhancement of the character, landscape and visual amenity, and the economic, social, cultural and environmental values of the natural and built assets associated with the tourism development.</li> </ul> | <p><b>Complies.</b></p> <p>SP1 will complement the area by providing a recreational eco-tourism area that is sustainable and showcases the local environment, whilst only having minor impacts on the surrounding environment through the development of a trail and boardwalk through the coastal area of the Port Douglas area.</p> <p>This will enhance the visual amenity of the natural landscape of the area and support other tourism developments such as cultural landscapes.</p>   |
|         | 4. Appropriate infrastructure to support and enable tourism development is planned for.   | <p><b>Complies.</b></p> <p>Development for SP1 includes limited built infrastructure requirements where only structures are proposed.</p>  |

## Environment and Heritage

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| Biodiversity | 1. Development is located in areas to avoid significant impacts on matters of national environmental significance and considers the requirements of the <i>Environment Protection and Biodiversity Conservation Act 1999</i> . | <b>Complies.</b><br>A baseline Matters of National Environmental Significance (MNES) has been prepared that provides a baseline of flora and fauna MNES present, or potentially present, within the area proposed for the SP1 Mowbray North Trail. The assessment is based on desktop and field assessments. As the next step, a significant impact assessment for each MNES confirmed or considered likely to occur in the study area will be undertaken relative to the direct and indirect impact of the SP1 component of the project. |
|              | 2. Matters of state environmental significance are identified and development is located in areas that avoid adverse impacts; where adverse impacts cannot be reasonably avoided, they are minimised <sup>3</sup> .            | <b>Complies.</b><br>A Matters of State Environmental Significance (MSES) report is being prepared for the MSES mapping layers present along the alignment. Trail alignment has been designed to avoid MSES where practical and feasible.  |
|              | 3. Matters of local environmental significance are identified and development is located in areas that avoid adverse impacts; where adverse impacts cannot be reasonably avoided, they are minimised.                          | <b>Complies.</b><br>Development does not traverse any matters of local significance.  |
|              | 4. Ecological processes and connectivity is maintained or enhanced by avoiding fragmentation of matters of environmental significance.   | <b>Complies.</b><br>Ecological connectivity will be maintained as the trail will have minimal effect on connectedness of the surrounding environmental values. The trail/boardwalk will range between 1-1.5 m in width which will allow for the continual movement of fauna species across the trail. The alignment has also been designed to avoid areas of high ecological significant, such as TEC.  |
|              | 5. Viable koala populations in South East Queensland are protected by conserving and enhancing koala habitat extent and condition.   | <b>Not Applicable.</b><br>No koala bushland habitat is mapped within the Project area.  |

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| Coastal Environment | <p>1. Coastal processes and coastal resources state-wide, including in the Great Barrier Reef catchment, are protected by:</p> <ul style="list-style-type: none"> <li>a. concentrating future development in existing urban areas through infill and redevelopment</li> <li>b. conserving the natural state of landforms, wetlands and native vegetation in the coastal management district</li> <li>c. maintaining or enhancing the scenic amenity and aesthetic values of important natural coastal landscapes, views and vistas</li> </ul>                                   | <p><b>Complies.</b><br/>Development is not for an urban purpose but for ecotourism. It will therefore contain minimal impacts through coastal areas and will conserve the natural state of landforms, wetlands and native vegetation.</p> |
|                     | <p>2. Development of canals, dry land marinas, artificial waterways or marine infrastructure avoids adverse impacts on coastal resources and processes.</p>   | <p><b>Not Applicable.</b><br/>Development does not consist of the following developments.</p>   |
|                     | <p>3. Reclamation of land under tidal water is avoided other than for the purpose of:</p> <ul style="list-style-type: none"> <li>a. coastal-dependent development, public marine development or community infrastructure, where there is no reasonable alternative; or</li> <li>b. strategic ports, priority ports, boat harbours or strategic airports and aviation facilities in accordance with a statutory land use plan, or statutory master plan; or</li> <li>c. coastal protection works or work necessary to protect coastal resources or coastal processes.</li> </ul> | <p><b>Complies.</b><br/>Development will not involve reclamation of land under tidal water.</p>   |
|                     | <p>4. Coastal-dependent development in areas adjoining tidal water is facilitated in preference to other types of development.</p>  | <p><b>Complies.</b><br/>Development is for the purposes of ecotourism and therefore relies on this area for its appeal to tourists and to increase awareness around the protection of these areas.</p>                                    |
|                     | <p>5. Opportunities for public use of and access to, and along, state coastal land is maintained or enhanced in a way that protects or enhances public safety and coastal resources.</p>  | <p><b>Complies.</b><br/>Development provides an opportunity for the public to safely observe the coastal/mangrove area.</p>   |

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| Cultural Heritage | 1. Matters of Aboriginal cultural heritage and Torres Strait Islander cultural heritage are appropriately conserved and considered to support the requirements of the Aboriginal Cultural Heritage Act 2003 and the Torres Strait Islander Cultural Heritage Act 2003.   | <p><b>Complies.</b></p> <p>As the nature of the works is likely to be regarded as category 4 (Areas previously subject to Significant Ground Disturbance) and category 5 (Activities causing additional surface disturbance), there could be additional unidentified cultural present on site. A formal site assessment should be undertaken by Cultural Heritage Officers to determine whether further engagement of the relevant indigenous parties will be required. Works within the preferred alignment to comply with the <i>Aboriginal Cultural Heritage Act 2003</i> Duty of Care Guidelines.</p> <p>A cultural heritage management plan may be developed and implemented prior to the construction stage.</p> |
|                   | 2. Adverse impacts on the cultural heritage significance of world heritage properties and national heritage places prescribed under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> are avoided.  | <p><b>Complies.</b></p> <p>Development is located within the Great Barrier Reef world heritage area. Development will comply with relevant permits and approvals.</p>  |
|                   | 3. Adverse impacts on the cultural heritage significance of state heritage places are avoided.   | <p><b>Not Applicable.</b></p> <p>There are no state heritage places located within the development.</p>  |
|                   | 4. Local heritage places and local heritage areas important to the history of the local government area are identified, including a statement of the local cultural heritage significance of the place or area.  | <p><b>Not Applicable.</b></p> <p>There are no local heritage areas located within the development.</p>   |
|                   | 5. Development of local heritage places or local heritage areas does not compromise the cultural heritage significance of the place or area by: <ul style="list-style-type: none"> <li>a. avoiding adverse impacts on the cultural heritage significance of the place or area; or</li> <li>b. minimising and mitigating unavoidable adverse impacts on the cultural heritage significance of the place or area.</li> </ul> |  |
|                   | 6. The conservation and adaptive reuse of local heritage places and local heritage areas are facilitated so that the cultural heritage significance is retained.   |  |
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| Water Quality | 7. Development facilitates the protection or enhancement of environmental values and the achievement of water quality objectives for Queensland waters.   | <b>Complies.</b><br>Development has considered the protection of environmental values and water quality objectives through culvert design to meet accepted development requirements. Works will also comply with the approvals and permits obtained for waterway barrier works. It will be the construction contractors responsibility to ensure that an Erosion and Sediment Control Plan is implemented to ensure water quality standards are complied with.   |
|               | 8. Land zoned for urban purposes is located in areas that avoid or minimise the disturbance to: <ul style="list-style-type: none"> <li>a. high risk soils</li> <li>b. high ecological value aquatic ecosystems</li> <li>c. groundwater dependent ecosystems</li> <li>d. natural drainage lines and landform features.</li> </ul>  | <b>Not Applicable.</b><br>Land is not zoned for urban purposes.  |
|               | 9. Development is located, designed, constructed and operated to avoid or minimise adverse impacts on environmental values of receiving waters arising from: <ul style="list-style-type: none"> <li>a. altered stormwater quality and hydrology</li> <li>b. waste water (other than contaminated stormwater and sewage)</li> <li>c. the creation or expansion of non-tidal artificial waterways</li> <li>d. the release and mobilisation of nutrients and sediments.</li> </ul> | <b>Complies.</b><br>Development is considered to have minimal affect on stormwater due to the limited infrastructure being proposed. Culverts are only proposed for the carpark at Mowbray Bridge. There will be no wastewater from the development. Waste solutions during construction will be prioritised according to the Waste Management Hierarchy Avoidance – Re-use – Recycling – Energy recovery – Disposal. Whilst bins will be provided during the operational phase at either end of the trail for trail users to use. |
|               | 10. At the construction phase, development achieves the applicable stormwater management design objectives in Table A (appendix 2).   | <b>Complies.</b><br>Development will comply with relevant stormwater management design objectives identified in Table A (Appendix 2). Development has included stormwater management design through drainage control through culverts at Mowbray Bridge, whilst it will be the construction contractor's responsibility to ensure that an Erosion and Sediment Control Plan  |

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|   |   | is implemented and spill kits are present on site to limit risks to contamination.  |
|   | 11. At the post-construction phase, development: <ul style="list-style-type: none"> <li>e. achieves the applicable stormwater management design objectives on-site, as identified in table B (appendix 2); or</li> <li>f. achieves an alternative locally appropriate solution off-site that achieves an equivalent or improved water quality outcome to the relevant stormwater management design objectives in table B (appendix 2).</li> </ul> | <b>Complies.</b><br>Development will comply with relevant stormwater management design objectives identified in table B (Appendix 2).   |
|   | 12. Development in water resource catchments and water supply buffer areas avoids potential adverse impacts on surface waters and groundwaters to protect drinking water supply environmental values.   | <b>Not Applicable.</b><br>Development is not situated within a water resource catchment or water supply buffer area.  |
| <b>Safety and Resilience to Hazards</b> |   |   |
| Emissions and hazardous activities      | 1. Industrial development, major gas, waste and sewerage infrastructure, and sport and recreation activities are located, designed and managed to avoid or mitigate adverse impacts of emissions on sensitive land uses and the natural environment.  | <b>Complies.</b><br>Development does not involve an industrial development and therefore will not produce emissions.  |
|   | 2. Activities involving the use, storage and disposal of hazardous materials and prescribed hazardous chemicals, dangerous goods, and flammable or combustible substances are located and managed to minimise the health and safety risks to communities and individuals.   | <b>Complies.</b><br>The Construction contractor will appropriately manage storage and disposal of hazardous materials, chemicals, dangerous goods, and flammable or combustible substances during construction. No Hazardous materials or chemicals will be present on site during operation. |
|   | 3. Prescribed hazardous chemicals, stored in a flood hazard area (where exceeding the hazardous chemicals flood hazard threshold), are located to minimise the risk of inundation and dispersion.   | <b>Complies.</b><br>Development is situated in a coastal inundation area, however, all chemicals (such as fuel) will be appropriately stored outside of inundation areas.   |
|   | 4. Sensitive land uses are protected from the impacts of previous activities that may cause risk to people or property including: <ul style="list-style-type: none"> <li>a. former mining activities and related hazards (e.g. disused underground mines, tunnels and shafts)</li> <li>b. former landfill and refuse sites</li> <li>c. contaminated land.</li> </ul>  | <b>Complies.</b><br>Development is not situated in an area that has had previous activities that may cause risk to people.  |

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|   | <p>5. Protect the following existing and approved land uses or areas from encroachment by development that would compromise the ability of the land use to function safely and effectively:</p> <ol style="list-style-type: none"> <li>a. Medium-impact, high-impact and special industries.</li> <li>b. Extractive industries.</li> <li>c. Hazardous chemical facilities.</li> <li>d. Explosives facilities and explosives reserves.</li> <li>e. High-pressure gas pipelines.</li> <li>f. Waste management facilities.</li> <li>g. Sewage treatment plants.</li> <li>h. Industrial land in a state development area, or an enterprise opportunity area or employment opportunity area identified in a regional plan.</li> <li>i. Major sport, recreation and entertainment facilities.</li> <li>j. Shooting facilities.</li> <li>k. Motor sport facilities.</li> </ol> | <p><b>Complies.</b><br/>Development is not situated in an area that will impact on existing or approved land uses identified in policy 5.</p>   |
|   | <p>6. Development that is incompatible with the existing and approved land uses or areas included in policy 5 above, is located to avoid adverse impacts of environmental emissions, or health and safety risks, and where the impacts cannot be practicably avoided, development is designed to minimise the impacts.</p>  | <p><b>Complies.</b><br/>Development is not situated in an area that will impact on existing or approved land uses identified in policy 5.</p>   |
|   | <p>7. Protect the natural and built environment, and human health from potential adverse impacts of acid sulfate soils by:</p> <ol style="list-style-type: none"> <li>a. identifying areas with high probability of containing acid sulfate soils</li> <li>b. providing preference to land uses that will avoid, or where avoidance is not practicable, minimise the disturbance of acid sulfate soils</li> <li>c. including requirements for managing the disturbance of acid sulfate soils to avoid or minimise the mobilisation and release of acid, iron or other contaminants.</li> </ol>  | <p><b>Complies.</b><br/>The proposed tidal works will involve limited excavation or displacement of soils associated with piling. The proposed tidal works will be undertaken in accordance with an acid sulfate soil management plan as part of the Construction Environmental Management Plan (CEMP), in line with the <i>Queensland acid sulfate soils technical manual: soil management guidelines</i>.</p> |
| <p><b>Natural Hazards, risks and resilience</b></p> | <p>1. Natural hazard areas are identified, including:</p> <ol style="list-style-type: none"> <li>a. bushfire prone areas</li> <li>b. flood hazard areas</li> <li>c. landslide hazard areas</li> <li>d. storm tide inundation areas</li> </ol>   | <p><b>Complies.</b><br/>All natural hazards have been identified and include:</p> <ul style="list-style-type: none"> <li>• flood hazard areas</li> <li>• storm tide inundation areas</li> <li>• erosion prone areas</li> </ul>  |



|  |   |  |
|--|---|--|
|  | e. erosion prone areas.   |  |
|  | 2. A fit-for-purpose risk assessment is undertaken to identify and achieve an acceptable or tolerable level of risk for personal safety and property in natural hazard areas.   | <b>Complies.</b><br>Risk assessment was carried out in 2018 for Wangetti Stage 2. The risk assessment provided appropriate treatments as a result of the current and residual risk ratings given to the risks (PwC, 2018). These treatments have been incorporated into the design.  |
|  | 3. Land in an erosion prone area is not to be used for urban purposes, unless the land is located in:<br>a. an urban area in a planning scheme; or<br>b. an urban footprint identified in a regional plan.  | <b>Not Applicable.</b><br>Development is not for urban purposes.   |
|  | 4. Development in bushfire, flood, landslide, storm tide inundation or erosion prone natural hazard areas:<br>a. avoids the natural hazard area; or<br>b. where it is not possible to avoid the natural hazard area, development mitigates the risks to people and property to an acceptable or tolerable level.  | <b>Complies.</b><br>Development will comply with the permits and approvals required for undertaking work. Where no approvals and permits are required, it will be the construction contractor's responsibility to implement a Construction Environmental Management Plan to mitigate risks to people or property to an acceptable or tolerable level.  |
|  | 5. Development in natural hazard areas:<br>a. supports, and does not hinder disaster management capacity and capabilities<br>b. directly, indirectly and cumulatively avoids an increase in the exposure or severity of the natural hazard and the potential for damage on the site or to other properties<br>c. avoids risks to public safety and the environment from the location of the storage of hazardous materials and the release of these materials as a result of a natural hazard<br>d. maintains or enhances the protective function of landforms and vegetation that can mitigate risks associated with the natural hazard. | <b>Complies.</b><br>The trail has been designed to minimise effects to the natural environment and maintain natural ecosystem services. This limits the potential of increasing exposure and severity of natural hazards and avoids increased risks to public safety. No storage of hazardous substances will occur in operation of the trail. It will be the construction contractor's responsibility to ensure the materials are resilient to natural hazards. |
|  | 6. Community infrastructure is located and designed to maintain the required level of functionality during and immediately after a natural hazard event.  | <b>Not Applicable.</b><br>Development is identified as an environmental facility under the Douglas Shire Planning Scheme.  |

|                         |   |   |
|-------------------------|---|---|
|                         | <p>7. Coastal protection work in an erosion prone area is undertaken only as a last resort where coastal erosion or inundation presents an imminent threat to public safety or existing buildings and structures , and all of the following apply:</p> <ul style="list-style-type: none"> <li>a. The building or structure cannot reasonably be relocated or abandoned.</li> <li>b. Any erosion control structure is located as far landward as practicable and on the lot containing the property to the maximum extent reasonable.</li> <li>c. Any increase in coastal hazard risk for adjacent areas from the coastal protection work is mitigated.</li> </ul> | <p><b>Not Applicable.</b><br/>Development does not include coastal protection work.</p>   |
|                         | <p>8. Development does not occur unless the development cannot feasibly be located elsewhere and is:</p> <ul style="list-style-type: none"> <li>d. coastal-dependent development; or</li> <li>e. temporary, readily relocatable or able to be abandoned development; or</li> <li>f. essential community infrastructure; or</li> <li>g. minor redevelopment of an existing permanent building or structure that cannot be relocated or abandoned.</li> </ul>   | <p><b>Not Applicable.</b><br/>Development does not consist of the listed land uses or works included in policy 8.</p>   |
|                         | <p>9. Development permitted in policy 8 above, mitigates the risks to people and property to an acceptable or tolerable level.</p>  | <p><b>Complies.</b><br/>Risk assessment for the development was carried out (PwC, 2018). Results from the risk assessment will be used to determine appropriate control measures for activities that pose a risk to people or property.</p> |
| <b>Infrastructure</b>   |   |   |
| Energy and Water Supply | <p>1. Existing and approved future major electricity infrastructure locations and corridors (including easements and electricity substations), and bulk water supply infrastructure locations and corridors (including easements) are protected from development that would compromise the corridor integrity, and the efficient delivery and functioning of the infrastructure.</p>  | <p><b>Not Applicable.</b><br/>Development does not involve current or future electricity infrastructure locations.</p>  |
|                         | <p>2. Major electricity infrastructure and bulk water supply infrastructure such as pump stations, water quality facilities and electricity substations, are protected from encroachment by sensitive land uses where practicable.</p>  | <p><b>Not Applicable.</b><br/>Development does not traverse major electricity infrastructure and bulk water supply infrastructure.</p>  |

|                                |   |   |
|--------------------------------|---|---|
|                                | 3. Development of major electricity infrastructure and bulk water supply infrastructure avoids or otherwise minimises adverse impacts on surrounding land uses and the natural environment.   | <b>Not Applicable.</b><br>Development does not traverse major electricity infrastructure and bulk water supply infrastructure.  |
|                                | 4. The development and supply of renewable energy at the regional, local and individual scale is enabled in appropriate locations.  | <b>Complies.</b><br>Since the majority of the trail does not require connection to electricity, solar PV panels and batteries have been proposed for places where it is required.   |
| State Transport Infrastructure | 1. Transport infrastructure and existing and future transport corridors are reflected and supported through compatible land uses.   | <b>Not Applicable,</b><br>Development does not include future significant infrastructure designations.  |
|                                | 2. Development is located in areas currently serviced by transport infrastructure, and where this cannot be achieved, development is facilitated in a logical and orderly location, form and sequence to enable cost-effective delivery of new transport infrastructure to service development. | <b>Complies.</b><br>The location of the development is traverses predominately conservation and rural zones, which are usually more isolated from services from local and state infrastructure. The trail does not require any such infrastructure, whilst works surrounding Mowbray Bridge are currently serviced by local and state infrastructure. |
|                                | 3. Development achieves a high level of integration with transport infrastructure and supports public passenger transport and active transport as attractive alternatives to private transport  | <b>Not Applicable.</b><br>The trail only supports pedestrian and bicycle transport, which links up to existing such infrastructure in Port Douglas.   |
|                                | 4. Development is located and designed to mitigate adverse impacts on development from environmental emissions generated by transport infrastructure.   | <b>Complies.</b><br>Development is situated in predominately rural and conservation zoning which allows for sufficient distance from existing infrastructure.   |
|                                | 5. A road hierarchy is identified that reflects the role of each category of road and effectively manages all types of traffic.   | <b>Complies.</b><br>Development is consistent with the road hierarchy detailed in the Douglas Shire Planning Scheme.  |
|                                | 6. Development in areas surrounding state transport infrastructure, and existing and future state transport corridors, is compatible with, or support the most efficient use of, the infrastructure and transport network.  | <b>Complies.</b><br>Mowbray Bridge and carpark development has considered the proximity of Captain Cook Highway being adjacent to the development.  |

|   |   |   |
|---|---|---|
|   | 7. The safety and efficiency of existing and future state transport infrastructure, corridors, and networks is not adversely affected by development. | <p><b>Complies.</b><br/>Access, parking and servicing has been addressed in the local planning code to maintain safety and efficiency of state transport infrastructure, therefore it complies with servicing requirements.</p> |
| <b>Strategic airports and Aviation Facilities</b> |   | <p><b>Not Applicable.</b><br/>Development does not consist of, or are located in the vicinity, of strategic airports and Aviation Facilities.</p>   |
| <b>Strategic Ports</b>                            |   | <p><b>Not Applicable.</b><br/>Development does not consist of, or are located in the vicinity, of strategic ports.</p>  |

## 8.4 Regional plan

SP1 falls under the Far North Queensland Regional Plan, which extends from Wujal Wujal to south of Cardwell and includes five regional councils. The Far North Queensland Regional Plan Regulatory Map FNQ RP 7 shows that most of the trail traverses 'Regional Landscape and Rural Production Area' in the southern extents, whilst north of B38 land use is classified as an urban footprint.

The intent of the regional landscape and rural production area (RLRPA) includes lands that have regional landscape, rural production or other non-urban values, and protects these areas from encroachment by inappropriate development, particularly urban or rural residential development. SP1 can be classified suitable to fall under RLRPA land uses from having wetlands, beaches and other coastal areas and outdoor recreation values present.

The intent of the urban footprint land use is land that provides for the region's urban development needs to 2031. The urban footprint includes existing urban areas and broad hectare land potentially suitable for future urban development. SP1 meets this intent by offering tourist facilities along the esplanade and is unsuitable for urban development because of coastal management values.

## 8.5 State development assessment provisions

The State Development Assessment Provisions (SDAP) set out the matters of interest to the State for development assessment, where the chief executive administering the *Planning Act 2016* is responsible for assessing or deciding development applications. An assessment against the applicable codes of the SDAP are provided in the relevant supporting documentation.

The following SDAP are relevant to this application:

- State Code 1: Development in a state-controlled road environment
- State Code 7: Maritime Safety
- State Code 8: Coastal development and tidal works
- State Code 11: Removal, destruction or damage of marine plants

State Code 1 and State Code 7 are addressed in Appendix D, whilst State Code 8 is addressed in the Planning Report for Operational Work Application – Prescribed Tidal works and works within a CMD, and State Code 11 addressed in the Planning Report for Operational Work Application – Removal, destruction or damage of marine plants.

# 9. Assessment against Local legislation

## 9.1 Rural zone code

The purpose of the Rural zone code is to:

- Provide for rural uses including cropping, intensive horticulture, intensive animal industries, animal husbandry, animal keeping and other primary production activities
- Provide opportunities for non-rural uses, such as ancillary tourism activities that are compatible with agriculture, the environmental features, and landscape character of the rural area where the uses do not compromise the long-term use of the land for rural purposes
- Protect or manage significant natural resources and processes to maintain the capacity for primary production.

The local government purpose of the code is to:

- Implement the policy direction set in the Strategic Framework, in particular:
  - Theme 2: Environment and landscape values, Element 3.5.5 – Scenic amenity
  - Theme 3: Natural resource management, Element 3.6.2 – Land and catchment management, Element 3.6.3 Primary production, forestry and fisheries, Element 3.6.4 – Resource extraction
  - Theme 5: Economy, Element 3.8.2 – Economic growth and diversification, Element 3.8.4 – Primary production
  - Theme 6: Infrastructure and transport, Element 3.9.4 – Transport
- Recognise the primacy of rural production, in particular sugar cultivation, and other farming practices in rural areas
- Provide protection to areas of ecological significance and scenic amenity significance where present.

Responses to demonstrate the consistency of SP1 with the intent of rural zoning are provided in Table 9-1.

Table 9-1 Overall outcomes and response against the rural zone code

| Overall outcomes  | Response  |
|---|---|
| <p>Areas for use for primary production are conserved and fragmentation is avoided.</p> <p>Development embraces sustainable land management practices and contributes to the amenity and landscape of the area.</p> <p>Adverse impacts of land use, both on-site and on adjoining areas, are avoided and any unavoidable impacts are minimised through location, design, operation and management.</p> <p>Areas of remnant and riparian vegetation are retained or rehabilitated.</p> | <p>Rural zone code response for SP1 can be found in Appendix D.</p> <p>SP1 has complied with the intent of the code through offering opportunities to enhance the presence of tourism activities, whilst retaining as much natural landscape of the area and its environmental features where practicable. The trail alignment was designed to limit interruption to the surrounding land uses by hugging the fringes of creeks where development is not suitable. SP1 includes most of the policy direction themes policy directions set in the Strategic Framework with a balance between social, economic and environmental outcomes</p> |

| Overall outcomes | Response  |
|------------------|---|
|                  | that will positively contribute to the regions further development. |

## 9.2 Conservation zone code

The purpose of the Conservation zone code is to provide for the protection, restoration and management of areas identified as supporting significant biological diversity and ecological integrity.

The local government purpose of the code is to:

- a. Implement the policy direction set in the Strategic Framework, in particular:
  - Theme 2 : Environmental and landscape values, Element 3.5.2 – Aboriginal cultural heritage values, Element 3.5.3 – Biodiversity, Element 3.5.3 – Coastal zones
  - Theme 3 – Natural resource management, Element 3.6.2 – Land and catchment management
  - Theme 4 – Strong communities and identity, Element 3.7.8 – Strengthening indigenous communities
- b. Conserve and maintain the integrity of biodiversity values, wildlife, habitats and other significant ecological assets and processes over time, across public and private lands.

Responses to demonstrate the consistency of SP1 with the intent of conservation zoning are provided in Table 9-2.

Table 9-2 Overall outcomes and response against the conservation zone code

| Overall outcomes  | Response   |
|---|--|
| <p>Biological diversity, ecological integrity and scenic amenity are protected;</p> <p>Any recreational or other uses of areas that are in the control of the Crown, or the Council, such as reserves, national parks and the Wet Tropics World Heritage Area or areas adjacent to these areas, are consistent with the management plans of the controlling authority so that conservation and scenic values of these areas are not adversely affected;</p> <p>Any use of land in private ownership does not affect the environmental, habitat, conservation or scenic values of that land or surrounding area;</p> <p>Any low intensity facilities based on the appreciation of the natural environment or nature based recreation only establish where there is a demonstrated need and provided they have a minimal impact on the environmental and scenic amenity values of the site or surrounding area.</p> | <p>Conservation zone code response for SP1 can be found in Appendix D.</p> <p>SP1 has complied with the intent of the code through avoiding as much vegetation clearing as possible, not constructing buildings and designing structures with the intent to not interrupt the natural landscape in the vicinity and enhance the nature experience the Wangetti trail offers. SP1 complies with Themes 2 and 4 of the policy directions set in the Strategic Framework, whilst conserving and maintaining the integrity of biodiversity values is a prime value of eco-tourism and land use being classified as an environmental facility. The design of the trail aligns with the intent for low intensity facilities based on the appreciation of the natural environment or nature based recreation through careful consideration of alignment on a practical and environmental basis to result in a minimal impact on the environmental and scenic amenity values of the surrounding area</p> |

The provisions of the Return to Country Local Plan facilitate economic and social opportunities on traditional Indigenous lands;

Further lot reconfigurations other than amalgamations, boundary realignments to resolve encroachments, or for the practical needs of essential

### 9.3 Applicable development and overlay codes

Development and overlay codes that are applicable to SP1 are detailed in Table 9-3. The applicable planning overlay code area mapping is included in Appendix E.

Table 9-3 Applicable development and overlay codes with responses.

| Code                                     | Purpose  | Response   | Reference    |
|--|--|--|--------------|
| Port Douglas/Craigie local plan code     | This code applies to assessing development within the Port Douglas/Craigie local plan area as identified on the Port Douglas/Craigie local plan maps contained in Schedule 2 of the Douglas Shire Planning Scheme. | <b>Complies.</b><br>SP1 has complied with the code by retaining the natural character of the site and aligning the development with the Port Douglas/Craigie local plan.   | <b>App D</b> |
| Acid sulfate soils overlay code          | The purpose of the acid sulfate soils overlay code is to enable an assessment of whether development is suitable on land within the Acid sulfate soils overlay sub-categories.                                     | <b>Complies.</b><br>Acid Sulfate Soils have been assessed for the development. It will be the construction contractor's responsibility to implement measures resulting from the assessment.  | <b>App D</b> |
| Bushfire hazard overlay code             | The purpose of the Bushfire overlay code is to enable an assessment of whether development is suitable on land within the Bushfire risk overlay sub-categories.  | <b>Complies.</b><br>The only bushfire prone area is the esplanade along Four Mile beach north of B38. The construction contractor will determine whether Bushfire Management Plan will be required.  | <b>App D</b> |
| Coastal environment overlay code         | The purpose of the Coastal environment overlay code is to enable an assessment of whether development is suitable on land within the Coastal processes sub-categories.   | <b>Complies.</b><br>Coastal processes will be maintained from the development having limited impact on coastal processes. It will be the construction contractor's responsibility to manage coastal processes, including managing erosion prone areas. | <b>App D</b> |
| Flood and storm tide hazard overlay code | The purpose of the Flood and storm tide hazard overlay code is to enable an assessment of whether development is suitable on land within the Flood and storm tide hazard sub-categories.                           | <b>Complies.</b><br>Development has complied with the performance outcomes of flood and storm tide hazards through limited impact on the trail and boardwalks.   | <b>App D</b> |



| Code                                    | Purpose   | Response   | Reference |
|---|---|--|-----------|
| Natural areas overlay code              | The purpose of the Natural areas overlay code is to enable an assessment of whether development is suitable on land within the Biodiversity area overlay sub-categories.    | <b>Complies.</b><br>The nature of the SP1 trail is based on low impact, eco-tourism based development and avoids land with high environmental values where possible.   | App D     |
| Places of significance overlay code     | The purpose of the Places of significance overlay code is to enable an assessment of whether development is suitable on land within the Places of significance overlay.     | <b>Complies.</b><br>There are no places of local significance in the vicinity of SP1.  | App D     |
| Potential landslide hazard overlay code | The purpose of the Potential landslide hazard overlay code is enable an assessment of whether development is suitable on land within the Potential landslip hazard overlay. | <b>Complies.</b><br>The alignment is not mapped within the potential landslide hazard overlay.   | App D     |
| Transport network overlay code          | The purpose of the Transport network overlay code is to enable an assessment of whether development is suitable on land within the Transport network overlay.               | <b>Complies.</b><br>The development will have a net positive impact on transport, considering the trail is a multi-use pedestrian and bicycle transport network connecting the outer suburbs to the inner suburbs of Port Douglas. | App D     |
| Access, parking and servicing code      | The purpose of the Access, parking and servicing code is to assess the suitability of access, parking and associated servicing aspects of a development.                    | <b>Complies.</b><br>Access, parking and servicing were assessed a part of the detailed design.   | App D     |
| Environmental performance code          | The purpose of the Environmental performance code is to ensure development is designed and operated to avoid or mitigate impacts on sensitive receiving environments.       | <b>Complies.</b><br>Development intent is to offer a nature based recreational attraction with limited environmental impacts.  | App D     |
| Filling and excavation code             | The purpose of the Filling and excavation code is to assess the suitability of development for filling or excavation.   | <b>Complies.</b><br>There is limited excavation and filling associated with the development to avoid impacts on natural processes.   | App D     |
| Infrastructure works code               | The purpose of the Infrastructure works code is to ensure that development is safely and efficiently serviced by, and connected to, infrastructure.                         | <b>Complies.</b><br>No buildings are proposed for the development. SP1 is primarily located in rural, isolated area that requires limited connection to infrastructure.  | App D     |
| Landscaping code                        | The purpose of the Landscaping code is to assess the landscaping aspects of a development.  | <b>Complies.</b><br>No landscaping is being undertaken for SP1.  | App D     |

| Code                       | Purpose   | Response  | Reference    |
|----------------------------|---|---|--------------|
| Vegetation management code | The purpose of the Vegetation management code is achieved through the overall outcomes. | <b>Complies.</b><br>Vegetation management consists of avoiding vegetation clearing as much as possible and complying with relevant approvals where clearing is unavoidable. | <b>App D</b> |

## 10. Conclusion

This report set out details in relation to the proposal SP1 Project; a dual use walking and mountain biking trail/boardwalk on the lots identified in Table 2-1. It further sets out details pertaining to the proposed development's performance against the provisions of the *Douglas Shire Council Planning Scheme 2018* in the context of a material change of use application to the Douglas Shire Council, alongside operational works for prescribed tidal works and works in a CMD and for the removal, destruction or damage of marine plants. With consideration of the following key factors, this assessment concludes that the development of the SP1 Project accords with the *Douglas Shire Council Planning Scheme 2018*, in that it:

- Provides a unique mangrove and ocean experience by showcase the beauty of the Great Barrier Reef World Heritage Area
- Provides opportunities for tourist operators to provide new eco-tourism experiences within the Port Douglas region
- Provides an opportunity to showcase that natural beauty of the Port Douglas region whilst protecting the surrounding habitat for ecologically significant species
- Aligns with adopted DSC's current planning intent for the region.

This report has demonstrated that the proposed development accords with the relevant provisions of the *Douglas Shire Council Planning Scheme 2018*. Approval of the proposed development is, therefore warranted on this basis. It is concluded that the development satisfies the tests of the *Planning Act 2016* and a development permit can therefore be issued.

# 11. References

- Aurecon (2018) *Appendix E - Environment and Planning Technical Report*. Prepared for DITID.
- BCC (2017) *Bayside Parklands*. Brisbane City Council. Accessed from:  
<https://www.brisbane.qld.gov.au/clean-and-green/natural-environment-and-water/bushland-reserves/bayside-parklands>
- Bligh Tanner (2018) *Appendix B - Wangetti Trail Final Report Update*. Prepared for DITID.
- GHD (2019a) *MNES Baseline Ecology Assessment*. Prepared for DITID.
- GHD (2019b) *EPBC Act Self-Assessment – SP1*. Prepared for DITID.
- PWC (2018) *Wangetti Trail Draft Business Case*. Prepared for DITID.
- Queensland Parks and Wildlife Service (2011) *Site planning and design for parks and forests*.
- Queensland Parks and Wildlife Service (2018) *Appendix D - Preliminary maintenance schedule*. Prepared for DITID.
- World Trail (2018) *Wangetti Trail: Detailed Design*. Prepared for DITID.

## Appendices

# Appendix A – Desktop searches

See Map Sheet ASS-016

## Acid Sulfate Soils Overlay Map

### Acid Sulfate Soils:

- Acid Sulfate Soils (5-20m AHD)
- Acid Sulfate Soils (< 5m AHD)

### Other Map Layers:

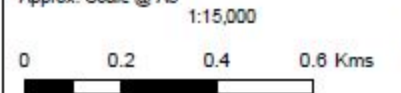
- 1:15,000 Map Extents
- Local Government Boundaries
- Property Boundaries
- Ocean

Based on or contains data provided by Douglas Shire Council and the State of Queensland. In consideration of these agencies permitting use of this data you acknowledge and agree that these agencies give no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accept no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.

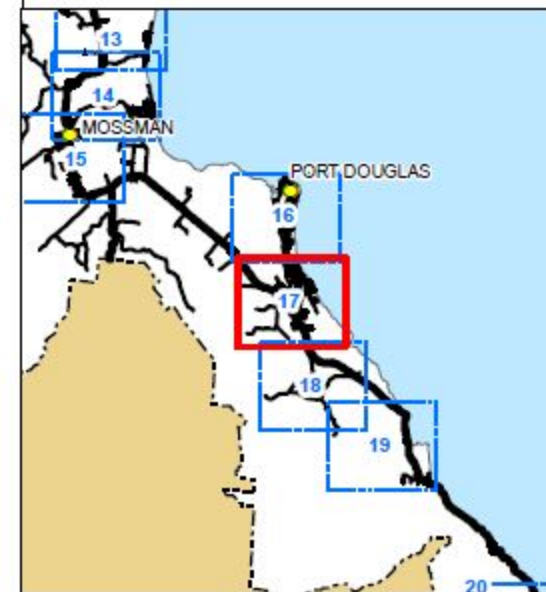
© Douglas Shire Council Planning Scheme Mapping 2018 Ver 1.0  
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Produced by: Mangoesmapping Pty Ltd on 25/10/2017  
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Projection: MGA04 Zone 55  
Approx. Scale @ A3






### Map Sheets:



## Flood and Storm Tide Inundation Overlay Map

### Flood and Storm Tide Inundation:

-  Storm Tide - High Hazard
-  Storm Tide - Medium Hazard
-  100 Year ARI (Mossman, Port Douglas and Daintree Flood Studies)
-  Floodplain Assessment Overlay

### Other Map Layers:

-  1:15,000 Map Extents
-  Property Boundaries
-  Ocean
-  Local Government Boundaries

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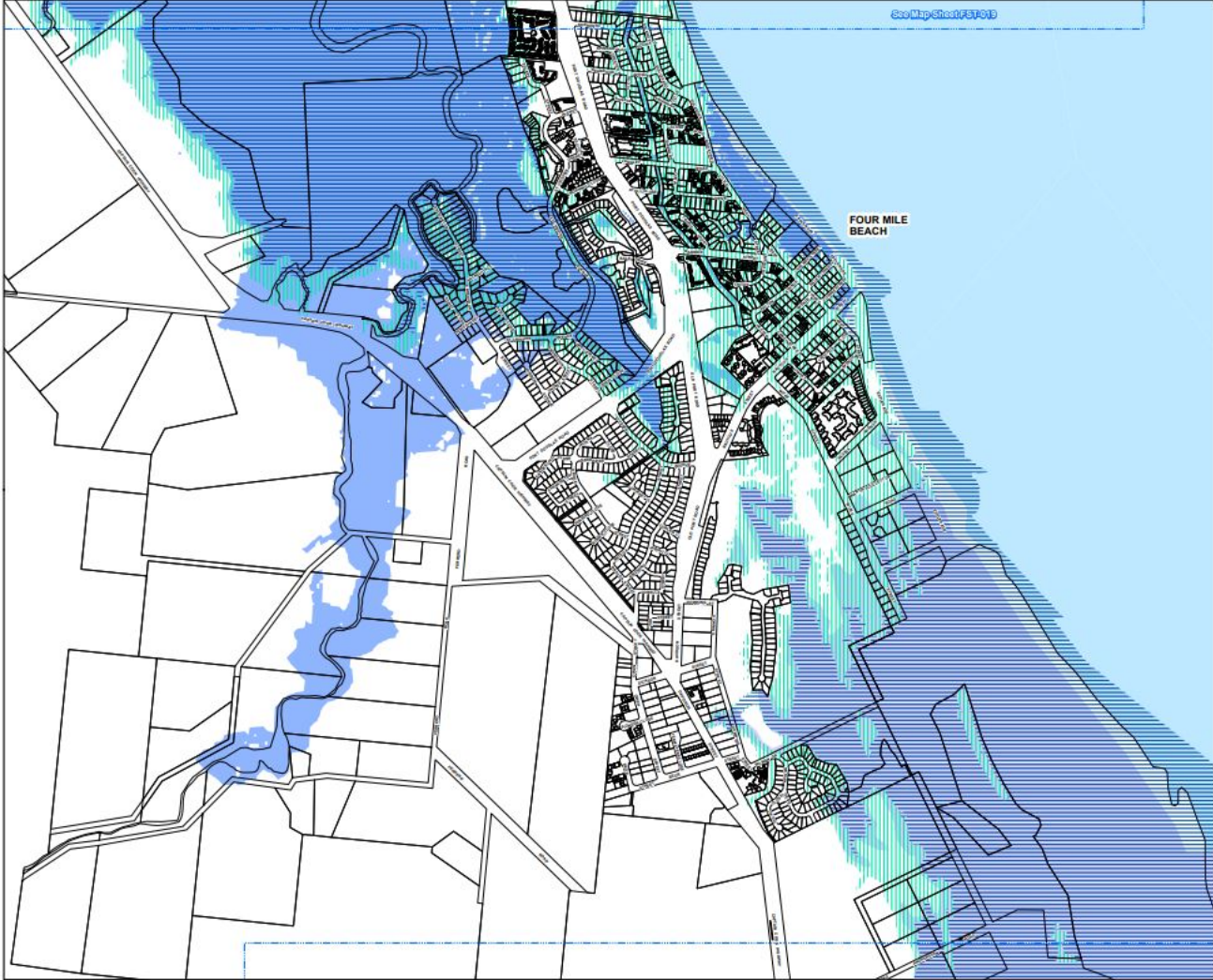
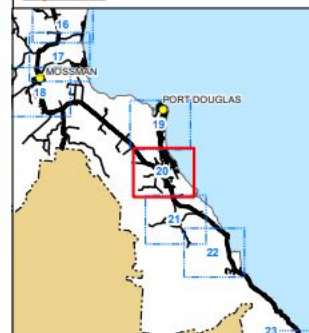
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Projection: MGAB4 Zone 55  
Approx. Scale @ A3: 1:15,000



### Map Sheets:



## Flood and Storm Tide Inundation Overlay Map Sheet - FST-020





# EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 12/02/19 11:00:04

[Summary](#)

[Details](#)

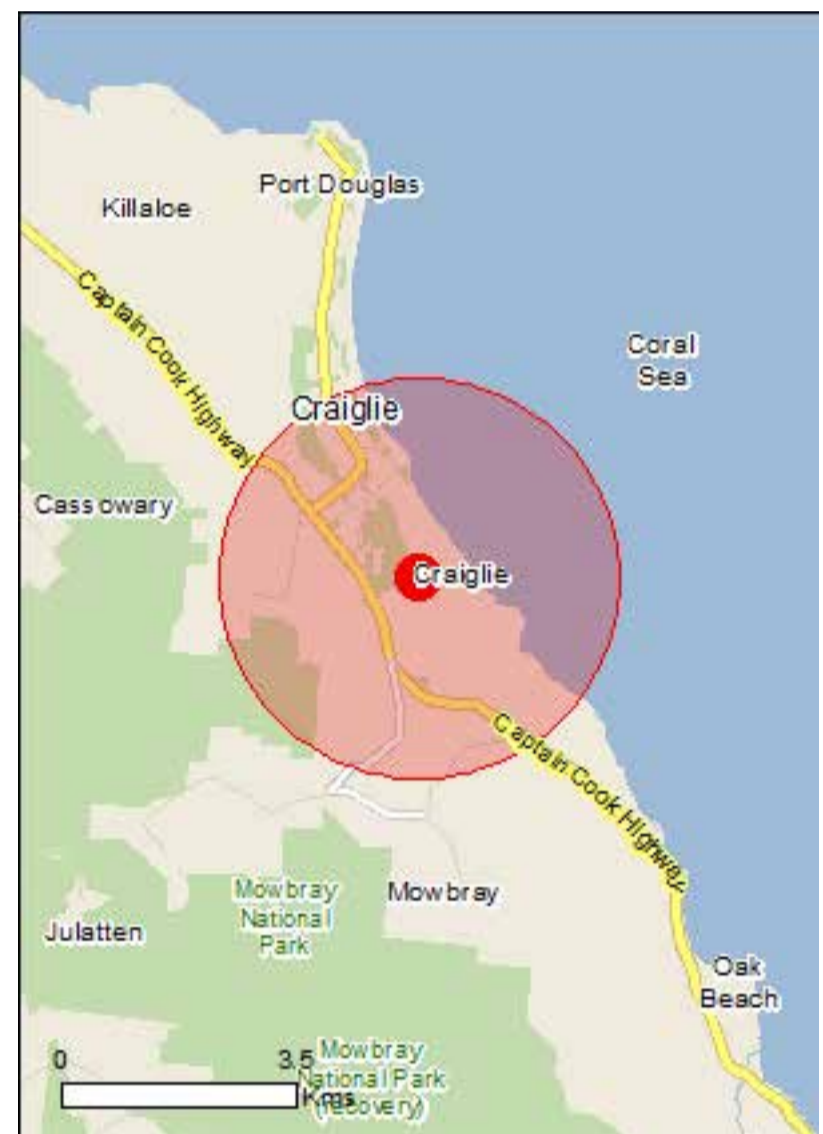
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

[Coordinates](#)

Buffer: 3.0Km



# Summary

## Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

|   |      |
|---|------|
| <a href="#">World Heritage Properties:</a>                | 2    |
| <a href="#">National Heritage Places:</a>                 | 3    |
| <a href="#">Wetlands of International Importance:</a>     | None |
| <a href="#">Great Barrier Reef Marine Park:</a>           | 1    |
| <a href="#">Commonwealth Marine Area:</a>                 | None |
| <a href="#">Listed Threatened Ecological Communities:</a> | 1    |
| <a href="#">Listed Threatened Species:</a>                | 46   |
| <a href="#">Listed Migratory Species:</a>                 | 46   |

## Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

|  |      |
|--|------|
| <a href="#">Commonwealth Land:</a>                 | None |
| <a href="#">Commonwealth Heritage Places:</a>      | None |
| <a href="#">Listed Marine Species:</a>             | 98   |
| <a href="#">Whales and Other Cetaceans:</a>        | 12   |
| <a href="#">Critical Habitats:</a>                 | None |
| <a href="#">Commonwealth Reserves Terrestrial:</a> | None |
| <a href="#">Australian Marine Parks:</a>           | None |

## Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

|  |      |
|--|------|
| <a href="#">State and Territory Reserves:</a>    | 1    |
| <a href="#">Regional Forest Agreements:</a>      | None |
| <a href="#">Invasive Species:</a>                | 23   |
| <a href="#">Nationally Important Wetlands:</a>   | 1    |
| <a href="#">Key Ecological Features (Marine)</a> | None |

# Details

## Matters of National Environmental Significance

| World Heritage Properties                 |       | <a href="#">[ Resource Information ]</a> |
|---|-------|--|
| Name                                      | State | Status                                   |
| <a href="#">Great Barrier Reef</a>        | QLD   | Declared property                        |
| <a href="#">Wet Tropics of Queensland</a> | QLD   | Declared property                        |

| National Heritage Properties  |       | <a href="#">[ Resource Information ]</a> |
|---|-------|--|
| Name  | State | Status                                   |
| Natural   |       |  |
| <a href="#">Great Barrier Reef</a>                                  | QLD   | Listed place                             |
| <a href="#">Wet Tropics of Queensland</a>                           | QLD   | Listed place                             |
| Indigenous  |       |  |
| <a href="#">Wet Tropics World Heritage Area (Indigenous Values)</a> | QLD   | Within listed place                      |

| Great Barrier Reef Marine Park |            | <a href="#">[ Resource Information ]</a> |
|--------------------------------|------------|--|
| Type                           | Zone       | IUCN                                     |
| Conservation Park              | CP-16-4032 | IV                                       |

## Listed Threatened Ecological Communities [\[ Resource Information \]](#)

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

| Name   | Status     | Type of Presence                |
|--|------------|---------------------------------|
| <a href="#">Broad leaf tea-tree (<i>Melaleuca viridiflora</i>) woodlands in high rainfall coastal north Queensland</a> | Endangered | Community may occur within area |

## Listed Threatened Species [\[ Resource Information \]](#)

| Name   | Status                | Type of Presence                                       |
|--|-----------------------|--|
| Birds  |                       |  |
| <a href="#">Calidris canutus</a><br>Red Knot, Knot [855]   | Endangered            | Species or species habitat known to occur within area  |
| <a href="#">Calidris ferruginea</a><br>Curlew Sandpiper [856]  | Critically Endangered | Species or species habitat known to occur within area  |
| <a href="#">Casuarius casuarius johnsonii</a><br>Southern Cassowary, Australian Cassowary, Double-wattled Cassowary [25986]                | Endangered            | Species or species habitat known to occur within area  |
| <a href="#">Erythrotriorchis radiatus</a><br>Red Goshawk [942]   | Vulnerable            | Species or species habitat likely to occur within area |
| <a href="#">Fregetta grallaria grallaria</a><br>White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438] | Vulnerable            | Species or species habitat likely to occur within area |
| <a href="#">Limosa lapponica baueri</a><br>Bar-tailed Godwit ( <i>baueri</i> ), Western Alaskan Bar-tailed Godwit [86380]                  | Vulnerable            | Species or species habitat known to occur within area  |
| <a href="#">Limosa lapponica menzbieri</a><br>Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit ( <i>menzbieri</i> ) [86432]          | Critically Endangered | Species or species habitat may occur within area       |

| Name  | Status                | Type of Presence                                       |
|---|-----------------------|--|
| <a href="#">Numenius madagascariensis</a><br>Eastern Curlew, Far Eastern Curlew [847]   | Critically Endangered | Species or species habitat known to occur within area  |
| <a href="#">Rostratula australis</a><br>Australian Painted-snipe, Australian Painted Snipe [77037]  | Endangered            | Species or species habitat may occur within area       |
| <a href="#">Tyto novaehollandiae kimberli</a><br>Masked Owl (northern) [26048]  | Vulnerable            | Species or species habitat likely to occur within area |
| <b>Frogs</b>  |                       |  |
| <a href="#">Litoria dayi</a><br>Australian Lace-lid, Lace-eyed Tree Frog, Day's Big-eyed Treefrog [86707]   | Endangered            | Species or species habitat likely to occur within area |
| <a href="#">Litoria nannotis</a><br>Waterfall Frog, Torrent Tree Frog [1817]  | Endangered            | Species or species habitat may occur within area       |
| <a href="#">Litoria rheocola</a><br>Common Mistfrog [1802]  | Endangered            | Species or species habitat likely to occur within area |
| <b>Mammals</b>  |                       |  |
| <a href="#">Balaenoptera musculus</a><br>Blue Whale [36]  | Endangered            | Species or species habitat may occur within area       |
| <a href="#">Dasyurus hallucatus</a><br>Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]   | Endangered            | Species or species habitat likely to occur within area |
| <a href="#">Dasyurus maculatus gracilis</a><br>Spotted-tailed Quoll (North Queensland), Yarri [64475]   | Endangered            | Species or species habitat may occur within area       |
| <a href="#">Hipposideros semoni</a><br>Semon's Leaf-nosed Bat, Greater Wart-nosed Horseshoe-bat [180]   | Vulnerable            | Species or species habitat may occur within area       |
| <a href="#">Macroderma gigas</a><br>Ghost Bat [174]   | Vulnerable            | Species or species habitat likely to occur within area |
| <a href="#">Megaptera novaeangliae</a><br>Humpback Whale [38]   | Vulnerable            | Species or species habitat known to occur within area  |
| <a href="#">Mesembriomys gouldii rattoides</a><br>Black-footed Tree-rat (north Queensland), Shaggy Rabbit-rat [87620]   | Vulnerable            | Species or species habitat may occur within area       |
| <a href="#">Petauroides volans</a><br>Greater Glider [254]  | Vulnerable            | Species or species habitat may occur within area       |
| <a href="#">Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)</a><br>Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104] | Vulnerable            | Species or species habitat may occur within area       |
| <a href="#">Pteropus conspicillatus</a><br>Spectacled Flying-fox [185]  | Vulnerable            | Species or species habitat likely to occur within area |
| <a href="#">Rhinolophus robertsi</a><br>Large-eared Horseshoe Bat, Greater Large-eared Horseshoe Bat [87639]  | Vulnerable            | Species or species habitat likely to occur within area |
| <a href="#">Saccolaimus saccolaimus nudicluniatus</a><br>Bare-rumped Sheath-tailed Bat, Bare-rumped Sheath-tail Bat [66889]   | Vulnerable            | Species or species habitat likely to occur             |

| Name   | Status     | Type of Presence within area                                      |
|--|------------|---|
| <a href="#">Xeromys myoides</a><br>Water Mouse, False Water Rat, Yirrkoo [66]              | Vulnerable | Species or species habitat may occur within area                  |
| <b>Plants</b>  |            |   |
| <a href="#">Acriopsis emarginata</a><br>Pale Chandelier Orchid [83928]                     | Vulnerable | Species or species habitat may occur within area                  |
| <a href="#">Canarium acutifolium</a><br>[23956]  | Vulnerable | Species or species habitat likely to occur within area            |
| <a href="#">Cyclophyllum costatum</a><br>a shrub [82770]                                   | Vulnerable | Species or species habitat may occur within area                  |
| <a href="#">Myrmecodia beccarii</a><br>Ant Plant [11852]                                   | Vulnerable | Species or species habitat likely to occur within area            |
| <a href="#">Phaius australis</a><br>Lesser Swamp-orchid [5872]                             | Endangered | Species or species habitat may occur within area                  |
| <a href="#">Phaius pictus</a><br>[22564]   | Vulnerable | Species or species habitat likely to occur within area            |
| <a href="#">Phalaenopsis amabilis subsp. rosenstromii</a><br>Native Moth Orchid [87535]    | Endangered | Species or species habitat likely to occur within area            |
| <a href="#">Vappodes lithocola</a><br>Dwarf Butterfly Orchid, Cooktown Orchid [78893]      | Endangered | Species or species habitat likely to occur within area            |
| <a href="#">Vappodes phalaenopsis</a><br>Cooktown Orchid [78894]                           | Vulnerable | Species or species habitat may occur within area                  |
| <b>Reptiles</b>  |            |   |
| <a href="#">Caretta caretta</a><br>Loggerhead Turtle [1763]                                | Endangered | Breeding likely to occur within area                              |
| <a href="#">Chelonia mydas</a><br>Green Turtle [1765]                                      | Vulnerable | Breeding known to occur within area                               |
| <a href="#">Dermochelys coriacea</a><br>Leatherback Turtle, Leathery Turtle, Luth [1768]   | Endangered | Breeding likely to occur within area                              |
| <a href="#">Egernia rugosa</a><br>Yakka Skink [1420]                                       | Vulnerable | Species or species habitat may occur within area                  |
| <a href="#">Eretmochelys imbricata</a><br>Hawksbill Turtle [1766]                          | Vulnerable | Species or species habitat known to occur within area             |
| <a href="#">Lepidochelys olivacea</a><br>Olive Ridley Turtle, Pacific Ridley Turtle [1767] | Endangered | Breeding likely to occur within area                              |
| <a href="#">Natator depressus</a><br>Flatback Turtle [59257]                               | Vulnerable | Foraging, feeding or related behaviour known to occur within area |
| <b>Sharks</b>  |            |   |
| <a href="#">Carcharodon carcharias</a><br>White Shark, Great White Shark [64470]           | Vulnerable | Species or species habitat may occur within area                  |

| Name   | Status     | Type of Presence                                      |
|--|------------|---|
| <a href="#">Pristis pristis</a><br>Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756] | Vulnerable | Species or species habitat known to occur within area |
| <a href="#">Pristis zijsron</a><br>Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]  | Vulnerable | Breeding likely to occur within area                  |
| <a href="#">Rhincodon typus</a><br>Whale Shark [66680]   | Vulnerable | Species or species habitat may occur within area      |

### Listed Migratory Species

[ [Resource Information](#) ]

\* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

| Name   | Threatened | Type of Presence                                       |
|--|------------|--|
| <b>Migratory Marine Birds</b>  |            |  |
| <a href="#">Anous stolidus</a><br>Common Noddy [825]                           |            | Species or species habitat known to occur within area  |
| <a href="#">Apus pacificus</a><br>Fork-tailed Swift [678]                      |            | Species or species habitat likely to occur within area |
| <a href="#">Fregata ariel</a><br>Lesser Frigatebird, Least Frigatebird [1012]  |            | Species or species habitat known to occur within area  |
| <a href="#">Fregata minor</a><br>Great Frigatebird, Greater Frigatebird [1013] |            | Species or species habitat known to occur within area  |
| <a href="#">Sternula albifrons</a><br>Little Tern [82849]                      |            | Species or species habitat may occur within area       |

### Migratory Marine Species

|  |            |  |
|--|------------|--|
| <a href="#">Anoxypristis cuspidata</a><br>Narrow Sawfish, Knifetooth Sawfish [68448]     |            | Species or species habitat likely to occur within area |
| <a href="#">Balaenoptera edeni</a><br>Bryde's Whale [35]                                 |            | Species or species habitat may occur within area       |
| <a href="#">Balaenoptera musculus</a><br>Blue Whale [36]                                 | Endangered | Species or species habitat may occur within area       |
| <a href="#">Carcharodon carcharias</a><br>White Shark, Great White Shark [64470]         | Vulnerable | Species or species habitat may occur within area       |
| <a href="#">Caretta caretta</a><br>Loggerhead Turtle [1763]                              | Endangered | Breeding likely to occur within area                   |
| <a href="#">Chelonia mydas</a><br>Green Turtle [1765]                                    | Vulnerable | Breeding known to occur within area                    |
| <a href="#">Crocodylus porosus</a><br>Salt-water Crocodile, Estuarine Crocodile [1774]   |            | Species or species habitat likely to occur within area |
| <a href="#">Dermochelys coriacea</a><br>Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Breeding likely to occur within area                   |
| <a href="#">Dugong dugon</a><br>Dugong [28]  |            | Species or species habitat known to occur within area  |
| <a href="#">Eretmochelys imbricata</a><br>Hawksbill Turtle [1766]                        | Vulnerable | Species or species                                     |

| Name   | Threatened | Type of Presence   |
|--|------------|--|
| <a href="#">Lepidochelys olivacea</a><br>Olive Ridley Turtle, Pacific Ridley Turtle [1767]   | Endangered | habitat known to occur within area<br>Breeding likely to occur within area |
| <a href="#">Manta alfredi</a><br>Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]   |            | Species or species habitat likely to occur within area                     |
| <a href="#">Manta birostris</a><br>Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]   |            | Species or species habitat likely to occur within area                     |
| <a href="#">Megaptera novaeangliae</a><br>Humpback Whale [38]  | Vulnerable | Species or species habitat known to occur within area                      |
| <a href="#">Natator depressus</a><br>Flatback Turtle [59257]   | Vulnerable | Foraging, feeding or related behaviour known to occur within area          |
| <a href="#">Orcaella heinsohni</a><br>Australian Snubfin Dolphin [81322]   |            | Species or species habitat may occur within area                           |
| <a href="#">Orcinus orca</a><br>Killer Whale, Orca [46]  |            | Species or species habitat may occur within area                           |
| <a href="#">Pristis pristis</a><br>Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756] | Vulnerable | Species or species habitat known to occur within area                      |
| <a href="#">Pristis zijsron</a><br>Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]  | Vulnerable | Breeding likely to occur within area                                       |
| <a href="#">Rhincodon typus</a><br>Whale Shark [66680]   | Vulnerable | Species or species habitat may occur within area                           |
| <a href="#">Sousa chinensis</a><br>Indo-Pacific Humpback Dolphin [50]  |            | Foraging, feeding or related behaviour known to occur within area          |
| <b>Migratory Terrestrial Species</b>   |            |  |
| <a href="#">Cecropis daurica</a><br>Red-rumped Swallow [80610]   |            | Species or species habitat known to occur within area                      |
| <a href="#">Cuculus optatus</a><br>Oriental Cuckoo, Horsfield's Cuckoo [86651]   |            | Species or species habitat may occur within area                           |
| <a href="#">Hirundapus caudacutus</a><br>White-throated Needletail [682]   |            | Species or species habitat known to occur within area                      |
| <a href="#">Hirundo rustica</a><br>Barn Swallow [662]  |            | Species or species habitat known to occur within area                      |
| <a href="#">Monarcha frater</a><br>Black-winged Monarch [607]  |            | Species or species habitat may occur within area                           |
| <a href="#">Monarcha melanopsis</a><br>Black-faced Monarch [609]   |            | Species or species habitat known to occur within area                      |
| <a href="#">Monarcha trivirgatus</a><br>Spectacled Monarch [610]   |            | Species or species habitat known to occur within area                      |

| Name  | Threatened            | Type of Presence                                       |
|---|-----------------------|--|
| <a href="#">Motacilla flava</a><br>Yellow Wagtail [644]                               |                       | Species or species habitat likely to occur within area |
| <a href="#">Myiagra cyanoleuca</a><br>Satin Flycatcher [612]                          |                       | Species or species habitat known to occur within area  |
| <a href="#">Rhipidura rufifrons</a><br>Rufous Fantail [592]                           |                       | Species or species habitat known to occur within area  |
| <b>Migratory Wetlands Species</b>   |                       |  |
| <a href="#">Actitis hypoleucos</a><br>Common Sandpiper [59309]                        |                       | Species or species habitat known to occur within area  |
| <a href="#">Calidris acuminata</a><br>Sharp-tailed Sandpiper [874]                    |                       | Species or species habitat known to occur within area  |
| <a href="#">Calidris canutus</a><br>Red Knot, Knot [855]                              | Endangered            | Species or species habitat known to occur within area  |
| <a href="#">Calidris ferruginea</a><br>Curlew Sandpiper [856]                         | Critically Endangered | Species or species habitat known to occur within area  |
| <a href="#">Calidris melanotos</a><br>Pectoral Sandpiper [858]                        |                       | Species or species habitat likely to occur within area |
| <a href="#">Gallinago hardwickii</a><br>Latham's Snipe, Japanese Snipe [863]          |                       | Species or species habitat may occur within area       |
| <a href="#">Limosa lapponica</a><br>Bar-tailed Godwit [844]                           |                       | Species or species habitat known to occur within area  |
| <a href="#">Numenius madagascariensis</a><br>Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat known to occur within area  |
| <a href="#">Pandion haliaetus</a><br>Osprey [952]                                     |                       | Species or species habitat known to occur within area  |
| <a href="#">Tringa nebularia</a><br>Common Greenshank, Greenshank [832]               |                       | Species or species habitat likely to occur within area |

## Other Matters Protected by the EPBC Act

| Listed Marine Species  |            | [ <a href="#">Resource Information</a> ]              |
|--|------------|---|
| * Species is listed under a different scientific name on the EPBC Act - Threatened Species list. |            |   |
| Name   | Threatened | Type of Presence                                      |
| <b>Birds</b>   |            |   |
| <a href="#">Actitis hypoleucos</a><br>Common Sandpiper [59309]                                   |            | Species or species habitat known to occur within area |
| <a href="#">Anous stolidus</a><br>Common Noddy [825]   |            | Species or species habitat known to occur within area |



| Name   | Threatened            | Type of Presence                                       |
|--|-----------------------|--|
| <a href="#">Anseranas semipalmata</a><br>Magpie Goose [978]                    |                       | Species or species habitat may occur within area       |
| <a href="#">Apus pacificus</a><br>Fork-tailed Swift [678]                      |                       | Species or species habitat likely to occur within area |
| <a href="#">Ardea alba</a><br>Great Egret, White Egret [59541]                 |                       | Species or species habitat known to occur within area  |
| <a href="#">Ardea ibis</a><br>Cattle Egret [59542]                             |                       | Species or species habitat may occur within area       |
| <a href="#">Calidris acuminata</a><br>Sharp-tailed Sandpiper [874]             |                       | Species or species habitat known to occur within area  |
| <a href="#">Calidris canutus</a><br>Red Knot, Knot [855]                       | Endangered            | Species or species habitat known to occur within area  |
| <a href="#">Calidris ferruginea</a><br>Curlew Sandpiper [856]                  | Critically Endangered | Species or species habitat known to occur within area  |
| <a href="#">Calidris melanotos</a><br>Pectoral Sandpiper [858]                 |                       | Species or species habitat likely to occur within area |
| <a href="#">Chrysococcyx osculans</a><br>Black-eared Cuckoo [705]              |                       | Species or species habitat may occur within area       |
| <a href="#">Fregata ariel</a><br>Lesser Frigatebird, Least Frigatebird [1012]  |                       | Species or species habitat known to occur within area  |
| <a href="#">Fregata minor</a><br>Great Frigatebird, Greater Frigatebird [1013] |                       | Species or species habitat known to occur within area  |
| <a href="#">Gallinago hardwickii</a><br>Latham's Snipe, Japanese Snipe [863]   |                       | Species or species habitat may occur within area       |
| <a href="#">Haliaeetus leucogaster</a><br>White-bellied Sea-Eagle [943]        |                       | Species or species habitat known to occur within area  |
| <a href="#">Hirundapus caudacutus</a><br>White-throated Needletail [682]       |                       | Species or species habitat known to occur within area  |
| <a href="#">Hirundo daurica</a><br>Red-rumped Swallow [59480]                  |                       | Species or species habitat known to occur within area  |
| <a href="#">Hirundo rustica</a><br>Barn Swallow [662]                          |                       | Species or species habitat known to occur within area  |
| <a href="#">Limosa lapponica</a><br>Bar-tailed Godwit [844]                    |                       | Species or species habitat known to occur within area  |
| <a href="#">Merops ornatus</a><br>Rainbow Bee-eater [670]                      |                       | Species or species habitat may occur within area       |

| Name   | Threatened            | Type of Presence                                       |
|--|-----------------------|--|
| <a href="#">Monarcha frater</a><br>Black-winged Monarch [607]  |                       | Species or species habitat may occur within area       |
| <a href="#">Monarcha melanopsis</a><br>Black-faced Monarch [609]   |                       | Species or species habitat known to occur within area  |
| <a href="#">Monarcha trivirgatus</a><br>Spectacled Monarch [610]   |                       | Species or species habitat known to occur within area  |
| <a href="#">Motacilla flava</a><br>Yellow Wagtail [644]  |                       | Species or species habitat likely to occur within area |
| <a href="#">Myiagra cyanoleuca</a><br>Satin Flycatcher [612]   |                       | Species or species habitat known to occur within area  |
| <a href="#">Numenius madagascariensis</a><br>Eastern Curlew, Far Eastern Curlew [847]                                  | Critically Endangered | Species or species habitat known to occur within area  |
| <a href="#">Pandion haliaetus</a><br>Osprey [952]  |                       | Species or species habitat known to occur within area  |
| <a href="#">Rhipidura rufifrons</a><br>Rufous Fantail [592]  |                       | Species or species habitat known to occur within area  |
| <a href="#">Rostratula benghalensis (sensu lato)</a><br>Painted Snipe [889]  | Endangered*           | Species or species habitat may occur within area       |
| <a href="#">Sterna albifrons</a><br>Little Tern [813]  |                       | Species or species habitat may occur within area       |
| <a href="#">Tringa nebularia</a><br>Common Greenshank, Greenshank [832]  |                       | Species or species habitat likely to occur within area |
| <b>Fish</b>  |                       |  |
| <a href="#">Acentronura tentaculata</a><br>Shortpouch Pygmy Pipehorse [66187]  |                       | Species or species habitat may occur within area       |
| <a href="#">Bulbonaricus davaoensis</a><br>Davao Pughead Pipefish [66190]  |                       | Species or species habitat may occur within area       |
| <a href="#">Choeroichthys brachysoma</a><br>Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]               |                       | Species or species habitat may occur within area       |
| <a href="#">Choeroichthys sculptus</a><br>Sculptured Pipefish [66197]  |                       | Species or species habitat may occur within area       |
| <a href="#">Choeroichthys suillus</a><br>Pig-snouted Pipefish [66198]  |                       | Species or species habitat may occur within area       |
| <a href="#">Corythoichthys amplexus</a><br>Fijian Banded Pipefish, Brown-banded Pipefish [66199]                       |                       | Species or species habitat may occur within area       |
| <a href="#">Corythoichthys flavofasciatus</a><br>Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200] |                       | Species or species habitat may occur within area       |

| Name   | Threatened | Type of Presence                                 |
|--|------------|--|
| <a href="#">Corythoichthys intestinalis</a><br>Australian Messmate Pipefish, Banded Pipefish [66202]                           |            | Species or species habitat may occur within area |
| <a href="#">Corythoichthys ocellatus</a><br>Orange-spotted Pipefish, Ocellated Pipefish [66203]                                |            | Species or species habitat may occur within area |
| <a href="#">Corythoichthys paxtoni</a><br>Paxton's Pipefish [66204]  |            | Species or species habitat may occur within area |
| <a href="#">Corythoichthys schultzi</a><br>Schultz's Pipefish [66205]  |            | Species or species habitat may occur within area |
| <a href="#">Cosmocampus maxweberi</a><br>Maxweber's Pipefish [66209]   |            | Species or species habitat may occur within area |
| <a href="#">Doryrhamphus dactyliophorus</a><br>Banded Pipefish, Ringed Pipefish [66210]  |            | Species or species habitat may occur within area |
| <a href="#">Doryrhamphus excisus</a><br>Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211] |            | Species or species habitat may occur within area |
| <a href="#">Doryrhamphus janssi</a><br>Cleaner Pipefish, Janss' Pipefish [66212]   |            | Species or species habitat may occur within area |
| <a href="#">Festucalex cinctus</a><br>Girdled Pipefish [66214]   |            | Species or species habitat may occur within area |
| <a href="#">Festucalex gibbsi</a><br>Gibbs' Pipefish [66215]   |            | Species or species habitat may occur within area |
| <a href="#">Halicampus dunckeri</a><br>Red-hair Pipefish, Duncker's Pipefish [66220]   |            | Species or species habitat may occur within area |
| <a href="#">Halicampus grayi</a><br>Mud Pipefish, Gray's Pipefish [66221]  |            | Species or species habitat may occur within area |
| <a href="#">Halicampus macrorhynchus</a><br>Whiskered Pipefish, Ornate Pipefish [66222]  |            | Species or species habitat may occur within area |
| <a href="#">Halicampus mataafae</a><br>Samoan Pipefish [66223]   |            | Species or species habitat may occur within area |
| <a href="#">Halicampus nitidus</a><br>Glittering Pipefish [66224]  |            | Species or species habitat may occur within area |
| <a href="#">Halicampus spirostris</a><br>Spiny-snout Pipefish [66225]  |            | Species or species habitat may occur within area |
| <a href="#">Hippichthys cyanospilos</a><br>Blue-speckled Pipefish, Blue-spotted Pipefish [66228]                               |            | Species or species habitat may occur within area |
| <a href="#">Hippichthys heptagonus</a><br>Madura Pipefish, Reticulated Freshwater Pipefish [66229]                             |            | Species or species habitat may occur within area |

| Name  | Threatened | Type of Presence                                 |
|---|------------|--|
| <a href="#">Hippichthys penicillus</a><br>Beady Pipefish, Steep-nosed Pipefish [66231]                                  |            | Species or species habitat may occur within area |
| <a href="#">Hippichthys spicifer</a><br>Belly-barred Pipefish, Banded Freshwater Pipefish [66232]                       |            | Species or species habitat may occur within area |
| <a href="#">Hippocampus bargibanti</a><br>Pygmy Seahorse [66721]  |            | Species or species habitat may occur within area |
| <a href="#">Hippocampus histrix</a><br>Spiny Seahorse, Thorny Seahorse [66236]  |            | Species or species habitat may occur within area |
| <a href="#">Hippocampus kuda</a><br>Spotted Seahorse, Yellow Seahorse [66237]   |            | Species or species habitat may occur within area |
| <a href="#">Hippocampus planifrons</a><br>Flat-face Seahorse [66238]  |            | Species or species habitat may occur within area |
| <a href="#">Hippocampus zebra</a><br>Zebra Seahorse [66241]   |            | Species or species habitat may occur within area |
| <a href="#">Micrognathus andersonii</a><br>Anderson's Pipefish, Shortnose Pipefish [66253]                              |            | Species or species habitat may occur within area |
| <a href="#">Micrognathus brevirostris</a><br>thorntail Pipefish, Thorn-tailed Pipefish [66254]                          |            | Species or species habitat may occur within area |
| <a href="#">Microphis brachyurus</a><br>Short-tail Pipefish, Short-tailed River Pipefish [66257]                        |            | Species or species habitat may occur within area |
| <a href="#">Nannocampus pictus</a><br>Painted Pipefish, Reef Pipefish [66263]   |            | Species or species habitat may occur within area |
| <a href="#">Phoxocampus diacanthus</a><br>Pale-blotched Pipefish, Spined Pipefish [66266]                               |            | Species or species habitat may occur within area |
| <a href="#">Siokunichthys breviceps</a><br>Softcoral Pipefish, Soft-coral Pipefish [66270]                              |            | Species or species habitat may occur within area |
| <a href="#">Solegnathus hardwickii</a><br>Pallid Pipehorse, Hardwick's Pipehorse [66272]                                |            | Species or species habitat may occur within area |
| <a href="#">Solenostomus cyanopterus</a><br>Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]                   |            | Species or species habitat may occur within area |
| <a href="#">Solenostomus paradoxus</a><br>Ornate Ghostpipefish, Harlequin Ghost Pipefish, Ornate Ghost Pipefish [66184] |            | Species or species habitat may occur within area |
| <a href="#">Syngnathoides biaculeatus</a><br>Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]   |            | Species or species habitat may occur within area |
| <a href="#">Trachyrhamphus bicoarctatus</a><br>Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]   |            | Species or species habitat may occur within area |

| Name  | Threatened | Type of Presence                                       |
|---|------------|--|
| <a href="#">Trachyrhamphus longirostris</a><br>Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281] |            | Species or species habitat may occur within area       |
| <b>Mammals</b>  |            |  |
| <a href="#">Dugong dugon</a><br>Dugong [28]   |            | Species or species habitat known to occur within area  |
| <b>Reptiles</b>   |            |  |
| <a href="#">Acalyptophis peronii</a><br>Horned Seasnake [1114]  |            | Species or species habitat may occur within area       |
| <a href="#">Aipysurus duboisii</a><br>Dubois' Seasnake [1116]   |            | Species or species habitat may occur within area       |
| <a href="#">Aipysurus eydouxii</a><br>Spine-tailed Seasnake [1117]  |            | Species or species habitat may occur within area       |
| <a href="#">Aipysurus laevis</a><br>Olive Seasnake [1120]   |            | Species or species habitat may occur within area       |
| <a href="#">Astrotia stokesii</a><br>Stokes' Seasnake [1122]  |            | Species or species habitat may occur within area       |
| <a href="#">Caretta caretta</a><br>Loggerhead Turtle [1763]   | Endangered | Breeding likely to occur within area                   |
| <a href="#">Chelonia mydas</a><br>Green Turtle [1765]   | Vulnerable | Breeding known to occur within area                    |
| <a href="#">Crocodylus porosus</a><br>Salt-water Crocodile, Estuarine Crocodile [1774]                                      |            | Species or species habitat likely to occur within area |
| <a href="#">Dermochelys coriacea</a><br>Leatherback Turtle, Leathery Turtle, Luth [1768]                                    | Endangered | Breeding likely to occur within area                   |
| <a href="#">Disteira kingii</a><br>Spectacled Seasnake [1123]   |            | Species or species habitat may occur within area       |
| <a href="#">Disteira major</a><br>Olive-headed Seasnake [1124]  |            | Species or species habitat may occur within area       |
| <a href="#">Enhydrina schistosa</a><br>Beaked Seasnake [1126]   |            | Species or species habitat may occur within area       |
| <a href="#">Eretmochelys imbricata</a><br>Hawksbill Turtle [1766]   | Vulnerable | Species or species habitat known to occur within area  |
| <a href="#">Hydrophis elegans</a><br>Elegant Seasnake [1104]  |            | Species or species habitat may occur within area       |
| <a href="#">Hydrophis mcdowellii</a><br>null [25926]  |            | Species or species habitat may occur within area       |
| <a href="#">Hydrophis ornatus</a><br>Spotted Seasnake, Ornate Reef Seasnake [1111]  |            | Species or species habitat may occur within area       |
| <a href="#">Lapemis hardwickii</a><br>Spine-bellied Seasnake [1113]   |            | Species or species                                     |

| Name   | Threatened | Type of Presence  |
|--|------------|---|
| <a href="#">Laticauda colubrina</a><br>a sea krait [1092]                                  |            | habitat may occur within area<br><br>Species or species habitat may occur within area |
| <a href="#">Laticauda laticaudata</a><br>a sea krait [1093]                                |            | Species or species habitat may occur within area                                      |
| <a href="#">Lepidochelys olivacea</a><br>Olive Ridley Turtle, Pacific Ridley Turtle [1767] | Endangered | Breeding likely to occur within area  |
| <a href="#">Natator depressus</a><br>Flatback Turtle [59257]                               | Vulnerable | Foraging, feeding or related behaviour known to occur within area                     |
| <a href="#">Pelamis platurus</a><br>Yellow-bellied Seasnake [1091]                         |            | Species or species habitat may occur within area                                      |

## Whales and other Cetaceans

[ [Resource Information](#) ]

| Name  | Status     | Type of Presence  |
|---|------------|---|
| <b>Mammals</b>  |            |   |
| <a href="#">Balaenoptera acutorostrata</a><br>Minke Whale [33]  |            | Species or species habitat may occur within area                  |
| <a href="#">Balaenoptera edeni</a><br>Bryde's Whale [35]  |            | Species or species habitat may occur within area                  |
| <a href="#">Balaenoptera musculus</a><br>Blue Whale [36]  | Endangered | Species or species habitat may occur within area                  |
| <a href="#">Delphinus delphis</a><br>Common Dolphin, Short-beaked Common Dolphin [60]                   |            | Species or species habitat may occur within area                  |
| <a href="#">Grampus griseus</a><br>Risso's Dolphin, Grampus [64]  |            | Species or species habitat may occur within area                  |
| <a href="#">Megaptera novaeangliae</a><br>Humpback Whale [38]   | Vulnerable | Species or species habitat known to occur within area             |
| <a href="#">Orcaella brevirostris</a><br>Irrawaddy Dolphin [45]   |            | Species or species habitat may occur within area                  |
| <a href="#">Orcinus orca</a><br>Killer Whale, Orca [46]   |            | Species or species habitat may occur within area                  |
| <a href="#">Sousa chinensis</a><br>Indo-Pacific Humpback Dolphin [50]                                   |            | Foraging, feeding or related behaviour known to occur within area |
| <a href="#">Stenella attenuata</a><br>Spotted Dolphin, Pantropical Spotted Dolphin [51]                 |            | Species or species habitat may occur within area                  |
| <a href="#">Tursiops aduncus</a><br>Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418] |            | Species or species habitat likely to occur within area            |
| <a href="#">Tursiops truncatus s. str.</a><br>Bottlenose Dolphin [68417]                                |            | Species or species habitat may occur within area                  |

## Extra Information

### State and Territory Reserves [\[ Resource Information \]](#)

| Name    | State |
|---------|-------|
| Mowbray | QLD   |

### Invasive Species [\[ Resource Information \]](#)

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

| Name | Status | Type of Presence |
|------|--------|------------------|
|------|--------|------------------|

#### Birds

|  |  |  |
|--|--|--|
| Acridotheres tristis<br>Common Myna, Indian Myna [387] |  | Species or species habitat likely to occur within area |
|--|--|--|

|  |  |  |
|--|--|--|
| Columba livia<br>Rock Pigeon, Rock Dove, Domestic Pigeon [803] |  | Species or species habitat likely to occur within area |
|--|--|--|

|  |  |  |
|--|--|--|
| Lonchura punctulata<br>Nutmeg Mannikin [399] |  | Species or species habitat likely to occur within area |
|--|--|--|

|  |  |  |
|--|--|--|
| Passer domesticus<br>House Sparrow [405] |  | Species or species habitat likely to occur within area |
|--|--|--|

|   |  |  |
|---|--|--|
| Streptopelia chinensis<br>Spotted Turtle-Dove [780] |  | Species or species habitat likely to occur within area |
|---|--|--|

#### Frogs

|                                      |  |   |
|--------------------------------------|--|---|
| Rhinella marina<br>Cane Toad [83218] |  | Species or species habitat known to occur within area |
|--------------------------------------|--|---|

#### Mammals

|  |  |  |
|--|--|--|
| Canis lupus familiaris<br>Domestic Dog [82654] |  | Species or species habitat likely to occur within area |
|--|--|--|

|  |  |  |
|--|--|--|
| Felis catus<br>Cat, House Cat, Domestic Cat [19] |  | Species or species habitat likely to occur within area |
|--|--|--|

|                                   |  |  |
|-----------------------------------|--|--|
| Mus musculus<br>House Mouse [120] |  | Species or species habitat likely to occur within area |
|-----------------------------------|--|--|

| Name   | Status | Type of Presence                                       |
|--|--------|--|
| Oryctolagus cuniculus<br>Rabbit, European Rabbit [128] |        | Species or species habitat likely to occur within area |
| Rattus rattus<br>Black Rat, Ship Rat [84]              |        | Species or species habitat likely to occur within area |
| Sus scrofa<br>Pig [6]                                  |        | Species or species habitat likely to occur within area |

## Plants

|  |  |  |
|--|--|--|
| Andropogon gayanus<br>Gamba Grass [66895]  |  | Species or species habitat likely to occur within area |
| Cenchrus ciliaris<br>Buffel-grass, Black Buffel-grass [20213]  |  | Species or species habitat may occur within area       |
| Cryptostegia grandiflora<br>Rubber Vine, Rubbervine, India Rubber Vine, India Rubbervine, Palay Rubbervine, Purple Allamanda [18913]   |  | Species or species habitat likely to occur within area |
| Dolichandra unguis-cati<br>Cat's Claw Vine, Yellow Trumpet Vine, Cat's Claw Creeper, Funnel Creeper [85119]  |  | Species or species habitat likely to occur within area |
| Hymenachne amplexicaulis<br>Hymenachne, Olive Hymenachne, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754]  |  | Species or species habitat likely to occur within area |
| Lantana camara<br>Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892] |  | Species or species habitat likely to occur within area |
| Opuntia spp.<br>Prickly Pears [82753]  |  | Species or species habitat likely to occur within area |
| Parthenium hysterophorus<br>Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]  |  | Species or species habitat likely to occur within area |
| Sagittaria platyphylla<br>Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]  |  | Species or species habitat likely to occur within area |
| Salvinia molesta<br>Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]  |  | Species or species habitat likely to occur within area |

## Reptiles

|  |  |  |
|--|--|--|
| Ramphotyphlops braminus<br>Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258] |  | Species or species habitat likely to occur within area |
|--|--|--|

## Nationally Important Wetlands

| Name   | State |
|--|-------|
| <a href="#">Great Barrier Reef Marine Park</a> | QLD   |

[ [Resource Information](#) ]



# Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

# Coordinates

-16.53621 145.47662

# Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

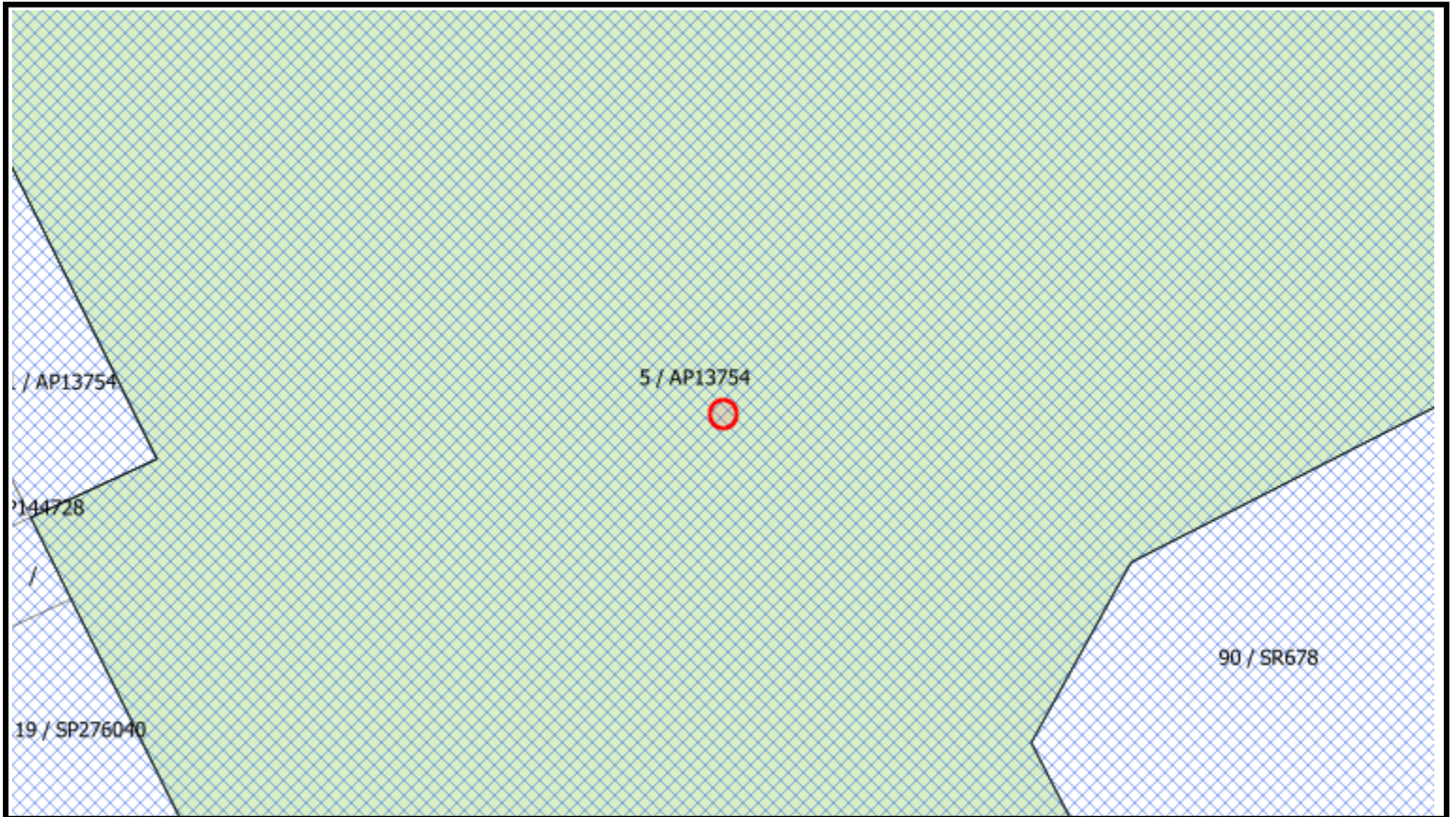
- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

## Latitude/Longitude Search

|                   |            |
|-------------------|------------|
| Reference Number: | 48860      |
| Latitude:         | -16.536210 |
| Longitude:        | 145.476620 |
| Buffer Distance:  | 3 metres   |



There are no Aboriginal or Torres Strait Islander cultural heritage site points recorded in your specific search area.

There are no Aboriginal or Torres Strait Islander cultural heritage site polygons recorded in your specific search area.

## Latitude/Longitude Search

Cultural heritage party for the area is:

| QC Ref Number | QUD Ref Number | Party Name                     | Contact Details  |
|---------------|----------------|--------------------------------|--|
| QC2012/015    | QUD602/2012    | Yirrganydji (Irukandji) People | Yirrganydji Gurabana Aboriginal Corporation<br>c/- Ms Jeanette Singleton<br>PO Box 717<br>MANUNDA QLD 4870<br><br>Phone: (07) 4032 4854<br>Fax: (07) 4032 1890<br>Email: yirrganydjigurabana@gmail.com |

Cultural heritage body for the area is:

| Name  | Contact Details  |
|---|--|
| Yirrganydji Gurabana Aboriginal Corporation | Ms Jeanette Singleton<br>Chairperson<br>PO Box 717<br>Manunda QLD 4870<br><br>Phone: (07) 4032 4854<br>Fax: (07) 4032 1890<br>Email: yirrganydjigurabana@gmail.com |

There are no cultural heritage management plans recorded in your specific search area.

There are no Designated Landscape Areas (DLA) recorded in your specific search area.

There are no Registered Cultural Heritage Study Areas in your specific search area.

Regional Coordinator:

| Name          | Position                                   | Phone        | Mobile       | Email                          |
|---------------|--|--------------|--------------|--------------------------------|
| Leigh Preston | Cultural Heritage Coordinator North Region | 07 4799 7562 | 0427 142 782 | Leigh.Preston@atsip.qld.gov.au |

**Disclaimer:** Department of Aboriginal and Torres Strait Islander Partnerships is the custodian of spatial data provided by various third parties for inclusion in the Aboriginal and Torres Strait Islander cultural heritage online portal. This includes spatial data provided by the National Native Title Tribunal and Aboriginal and Torres Strait Islander parties. Department of Aboriginal and Torres Strait Islander Partnerships is not responsible for the accuracy of information



## Latitude/Longitude Search

provided by third parties or any errors in this search report arising from such information.

## Latitude/Longitude Search

I refer to your submission in which you requested advice regarding Aboriginal or Torres Strait Islander cultural heritage recorded at your nominated location.

The Cultural Heritage Database and Register have been searched in accordance with the location description provided, and the results are set out in the above report.

Aboriginal or Torres Strait Islander cultural heritage which may exist within the search area is protected under the terms of the *Aboriginal Cultural Heritage Act 2003* and the *Torres Strait Islander Cultural Heritage Act 2003*, even if the Department of Aboriginal and Torres Strait Islander Partnerships has no records relating to it.

Under the legislation a person carrying out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal or Torres Strait Islander cultural heritage. This applies whether or not such places are recorded in an official register and whether or not they are located on private land.

Please refer to our website <https://www.datsip.qld.gov.au/people-communities/aboriginal-torres-strait-islander-cultural-heritage> for a copy of the gazetted Cultural Heritage Duty of Care Guidelines, which set out reasonable and practicable measure for meeting the cultural heritage duty of care.

In order to meet your duty of care, any land-use activity within the vicinity of recorded cultural heritage should not proceed without the agreement of the Aboriginal or Torres Strait Islander Party for the area, or by developing a Cultural Heritage Management Plan under Part 7 of the legislation.

If your proposed activity is deemed a Category 5 activity pursuant to the Duty of Care Guidelines, there is generally a high risk that it may harm cultural heritage. In these circumstances, the activity should not proceed without cultural heritage assessment.

Where a category 5 activity is proposed, it is necessary to notify the Aboriginal or Torres Strait Islander Party and seek:

- a. Advice as to whether the area is culturally significant;
- b. If it is, agreement on how best the activity may be managed to avoid or minimise harm to any cultural heritage values.

The extent to which the person has complied with Cultural Heritage Duty of Care Guidelines and the extent the person consulted Aboriginal or Torres Strait Islander Parties about carrying out the activity – and the results of the consultation – are factors a court may consider when determining if a land user has complied with the cultural heritage duty of care.



## Latitude/Longitude Search

Should you have any further queries, please do not hesitate to contact the Search Approval Officer on 1300 378 401.

Kind regards

The Director  
Cultural Heritage | Community Participation | Department of Aboriginal and Torres Strait Islander Partnerships



# Queensland Government

## Wildlife Online Extract

Search Criteria: Species List for a Specified Point

Species: All

Type: All

Status: All

Records: All

Date: All

Latitude: -16.5362

Longitude: 145.4766

Distance: 3

Email: oscar.harvey@ghd.com

Date submitted: Tuesday 12 Feb 2019 11:19:44

Date extracted: Tuesday 12 Feb 2019 11:20:13

The number of records retrieved = 241

### **Disclaimer**

As the DSITIA is still in a process of collating and vetting data, it is possible the information given is not complete. The information provided should only be used for the project for which it was requested and it should be appropriately acknowledged as being derived from Wildlife Online when it is used.

The State of Queensland does not invite reliance upon, nor accept responsibility for this information. Persons should satisfy themselves through independent means as to the accuracy and completeness of this information.

No statements, representations or warranties are made about the accuracy or completeness of this information. The State of Queensland disclaims all responsibility for this information and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.



| Kingdom | Class | Family        | Scientific Name                  | Common Name                          | I | Q  | A | Records |
|---------|-------|---------------|----------------------------------|--------------------------------------|---|----|---|---------|
| animals | birds | Acanthizidae  | <i>Gerygone mouki</i>            | brown gerygone                       |   | C  |   | 1       |
| animals | birds | Acanthizidae  | <i>Gerygone palpebrosa</i>       | fairy gerygone                       |   | C  |   | 3       |
| animals | birds | Accipitridae  | <i>Haliastur indus</i>           | brahminy kite                        |   | C  |   | 6       |
| animals | birds | Accipitridae  | <i>Elanus axillaris</i>          | black-shouldered kite                |   | C  |   | 1       |
| animals | birds | Accipitridae  | <i>Pandion cristatus</i>         | eastern osprey                       |   | SL |   | 5       |
| animals | birds | Accipitridae  | <i>Milvus migrans</i>            | black kite                           |   | C  |   | 3       |
| animals | birds | Accipitridae  | <i>Aquila audax</i>              | wedge-tailed eagle                   |   | C  |   | 1       |
| animals | birds | Accipitridae  | <i>Accipiter fasciatus</i>       | brown goshawk                        |   | C  |   | 1       |
| animals | birds | Accipitridae  | <i>Accipiter novaehollandiae</i> | grey goshawk                         |   | C  |   | 1       |
| animals | birds | Accipitridae  | <i>Aviceda subcristata</i>       | Pacific baza                         |   | C  |   | 1       |
| animals | birds | Accipitridae  | <i>Haliastur sphenurus</i>       | whistling kite                       |   | C  |   | 2       |
| animals | birds | Accipitridae  | <i>Haliaeetus leucogaster</i>    | white-bellied sea-eagle              |   | C  |   | 5       |
| animals | birds | Accipitridae  | <i>Hamirostra melanosternon</i>  | black-breasted buzzard               |   | C  |   | 1       |
| animals | birds | Alaudidae     | <i>Mirafra javanica</i>          | Horsfield's bushlark                 |   | C  |   | 1       |
| animals | birds | Alcedinidae   | <i>Ceyx azureus</i>              | azure kingfisher                     |   | C  |   | 2       |
| animals | birds | Anatidae      | <i>Anas superciliosa</i>         | Pacific black duck                   |   | C  |   | 5       |
| animals | birds | Anatidae      | <i>Tadorna radjah</i>            | radjah shelduck                      |   | C  |   | 1       |
| animals | birds | Anatidae      | <i>Dendrocygna arcuata</i>       | wandering whistling-duck             |   | C  |   | 1       |
| animals | birds | Apodidae      | <i>Apus pacificus</i>            | fork-tailed swift                    |   | SL |   | 2       |
| animals | birds | Apodidae      | <i>Hirundapus caudacutus</i>     | white-throated needletail            |   | SL |   | 1       |
| animals | birds | Apodidae      | <i>Aerodramus terraereginae</i>  | Australian swiftlet                  |   | C  |   | 17      |
| animals | birds | Ardeidae      | <i>Butorides striata</i>         | striated heron                       |   | C  |   | 5       |
| animals | birds | Ardeidae      | <i>Ardea alba modesta</i>        | eastern great egret                  |   | C  |   | 5       |
| animals | birds | Ardeidae      | <i>Egretta garzetta</i>          | little egret                         |   | C  |   | 4       |
| animals | birds | Ardeidae      | <i>Ardea intermedia</i>          | intermediate egret                   |   | C  |   | 1       |
| animals | birds | Ardeidae      | <i>Egretta sacra</i>             | eastern reef egret                   |   | C  |   | 4       |
| animals | birds | Ardeidae      | <i>Egretta novaehollandiae</i>   | white-faced heron                    |   | C  |   | 9       |
| animals | birds | Artamidae     | <i>Artamus cinereus</i>          | black-faced woodswallow              |   | C  |   | 1       |
| animals | birds | Artamidae     | <i>Cracticus tibicen</i>         | Australian magpie                    |   | C  |   | 1       |
| animals | birds | Artamidae     | <i>Artamus leucorhynchus</i>     | white-breasted woodswallow           |   | C  |   | 15      |
| animals | birds | Artamidae     | <i>Cracticus nigrogularis</i>    | piebald butcherbird                  |   | C  |   | 1       |
| animals | birds | Artamidae     | <i>Cracticus quoyi</i>           | black butcherbird                    |   | C  |   | 8       |
| animals | birds | Burhinidae    | <i>Esacus magnirostris</i>       | beach stone-curlew                   |   | V  |   | 17      |
| animals | birds | Burhinidae    | <i>Burhinus grallarius</i>       | bush stone-curlew                    |   | C  |   | 1       |
| animals | birds | Cacatuidae    | <i>Eolophus roseicapilla</i>     | galah                                |   | C  |   | 1       |
| animals | birds | Cacatuidae    | <i>Cacatua galerita</i>          | sulphur-crested cockatoo             |   | C  |   | 4       |
| animals | birds | Campephagidae | <i>Coracina tenuirostris</i>     | cicadabird                           |   | C  |   | 1       |
| animals | birds | Campephagidae | <i>Coracina novaehollandiae</i>  | black-faced cuckoo-shrike            |   | C  |   | 3       |
| animals | birds | Campephagidae | <i>Coracina papuensis</i>        | white-bellied cuckoo-shrike          |   | C  |   | 12      |
| animals | birds | Campephagidae | <i>Lalage tricolor</i>           | white-winged triller                 |   | C  |   | 1       |
| animals | birds | Campephagidae | <i>Lalage leucomela</i>          | varied triller                       |   | C  |   | 25      |
| animals | birds | Charadriidae  | <i>Pluvialis fulva</i>           | Pacific golden plover                |   | SL |   | 9       |
| animals | birds | Charadriidae  | <i>Charadrius mongolus</i>       | lesser sand plover                   |   | E  | E | 8       |
| animals | birds | Charadriidae  | <i>Elseyornis melanops</i>       | black-fronted dotterel               |   | C  |   | 7       |
| animals | birds | Charadriidae  | <i>Pluvialis squatarola</i>      | grey plover                          |   | SL |   | 1       |
| animals | birds | Charadriidae  | <i>Vanellus miles miles</i>      | masked lapwing (northern subspecies) |   | C  |   | 6       |

| Kingdom | Class | Family         | Scientific Name                        | Common Name                           | I | Q  | A | Records |
|---------|-------|----------------|--|---------------------------------------|---|----|---|---------|
| animals | birds | Charadriidae   | <i>Vanellus miles</i>                  | masked lapwing                        |   | C  |   | 4       |
| animals | birds | Charadriidae   | <i>Charadrius leschenaultii</i>        | greater sand plover                   |   | V  | V | 7       |
| animals | birds | Charadriidae   | <i>Charadrius ruficapillus</i>         | red-capped plover                     |   | C  |   | 4       |
| animals | birds | Ciconiidae     | <i>Ephippiorhynchus asiaticus</i>      | black-necked stork                    |   | C  |   | 2       |
| animals | birds | Cisticolidae   | <i>Cisticola exilis</i>                | golden-headed cisticola               |   | C  |   | 1       |
| animals | birds | Climacteridae  | <i>Cormobates leucophaea minor</i>     | white-throated treecreeper (northern) |   | C  |   | 1       |
| animals | birds | Columbidae     | <i>Streptopelia chinensis</i>          | spotted dove                          | Y |    |   | 5       |
| animals | birds | Columbidae     | <i>Macropygia amboinensis</i>          | brown cuckoo-dove                     |   | C  |   | 1       |
| animals | birds | Columbidae     | <i>Ptilinopus magnificus</i>           | wompoo fruit-dove                     |   | C  |   | 1       |
| animals | birds | Columbidae     | <i>Ptilinopus superbus</i>             | superb fruit-dove                     |   | C  |   | 2       |
| animals | birds | Columbidae     | <i>Geopelia humeralis</i>              | bar-shouldered dove                   |   | C  |   | 30      |
| animals | birds | Columbidae     | <i>Chalcophaps indica</i>              | emerald dove                          |   | C  |   | 2       |
| animals | birds | Columbidae     | <i>Ptilinopus regina</i>               | rose-crowned fruit-dove               |   | C  |   | 7       |
| animals | birds | Columbidae     | <i>Columba leucomela</i>               | white-headed pigeon                   |   | C  |   | 1       |
| animals | birds | Columbidae     | <i>Geopelia striata</i>                | peaceful dove                         |   | C  |   | 12      |
| animals | birds | Columbidae     | <i>Ducula bicolor</i>                  | pieb imperial-pigeon                  |   | C  |   | 16      |
| animals | birds | Coraciidae     | <i>Eurystomus orientalis</i>           | dollarbird                            |   | C  |   | 4       |
| animals | birds | Corvidae       | <i>Corvus orru</i>                     | Torresian crow                        |   | C  |   | 1       |
| animals | birds | Cuculidae      | <i>Cacomantis variolosus</i>           | brush cuckoo                          |   | C  |   | 4       |
| animals | birds | Cuculidae      | <i>Scythrops novaehollandiae</i>       | channel-billed cuckoo                 |   | C  |   | 3       |
| animals | birds | Cuculidae      | <i>Cacomantis flabelliformis</i>       | fan-tailed cuckoo                     |   | C  |   | 1       |
| animals | birds | Cuculidae      | <i>Centropus phasianinus</i>           | pheasant coucal                       |   | C  |   | 3       |
| animals | birds | Cuculidae      | <i>Eudynamys orientalis</i>            | eastern koel                          |   | C  |   | 3       |
| animals | birds | Cuculidae      | <i>Chalcites minutillus</i>            | little bronze-cuckoo                  |   | C  |   | 1       |
| animals | birds | Cuculidae      | <i>Chalcites minutillus russatus</i>   | Gould's bronze-cuckoo                 |   | C  |   | 2       |
| animals | birds | Dicruridae     | <i>Dicrurus bracteatus</i>             | spangled drongo                       |   | C  |   | 24      |
| animals | birds | Estrildidae    | <i>Lonchura punctulata</i>             | nutmeg mannikin                       | Y |    |   | 6       |
| animals | birds | Estrildidae    | <i>Lonchura castaneothorax</i>         | chestnut-breasted mannikin            |   | C  |   | 3       |
| animals | birds | Estrildidae    | <i>Neochmia temporalis</i>             | red-browed finch                      |   | C  |   | 1       |
| animals | birds | Falconidae     | <i>Falco berigora</i>                  | brown falcon                          |   | C  |   | 1       |
| animals | birds | Haematopodidae | <i>Haematopus longirostris</i>         | Australian pied oystercatcher         |   | C  |   | 1       |
| animals | birds | Halcyonidae    | <i>Dacelo novaeguineae</i>             | laughing kookaburra                   |   | C  |   | 7       |
| animals | birds | Halcyonidae    | <i>Dacelo leachii</i>                  | blue-winged kookaburra                |   | C  |   | 1       |
| animals | birds | Halcyonidae    | <i>Todiramphus sanctus</i>             | sacred kingfisher                     |   | C  |   | 15      |
| animals | birds | Halcyonidae    | <i>Todiramphus macleayii</i>           | forest kingfisher                     |   | C  |   | 6       |
| animals | birds | Halcyonidae    | <i>Todiramphus sordidus</i>            | Torresian kingfisher                  |   | C  |   | 2       |
| animals | birds | Hirundinidae   | <i>Hirundo neoxena</i>                 | welcome swallow                       |   | C  |   | 14      |
| animals | birds | Hirundinidae   | <i>Petrochelidon nigricans</i>         | tree martin                           |   | C  |   | 3       |
| animals | birds | Laridae        | <i>Sterna sumatrana</i>                | black-naped tern                      |   | SL |   | 1       |
| animals | birds | Laridae        | <i>Thalasseus bergii</i>               | crested tern                          |   | SL |   | 3       |
| animals | birds | Laridae        | <i>Hydroprogne caspia</i>              | Caspian tern                          |   | SL |   | 6       |
| animals | birds | Laridae        | <i>Chroicocephalus novaehollandiae</i> | silver gull                           |   | C  |   | 4       |
| animals | birds | Laridae        | <i>Gelochelidon nilotica</i>           | gull-billed tern                      |   | SL |   | 4       |
| animals | birds | Laridae        | <i>Thalasseus bengalensis</i>          | lesser crested tern                   |   | C  |   | 1       |
| animals | birds | Laridae        | <i>Sternula albifrons</i>              | little tern                           |   | SL |   | 2       |
| animals | birds | Maluridae      | <i>Malurus amabilis</i>                | lovely fairy-wren                     |   | C  |   | 3       |

| Kingdom | Class | Family            | Scientific Name                            | Common Name               | I | Q  | A | Records |
|---------|-------|-------------------|--|---------------------------|---|----|---|---------|
| animals | birds | Megapodiidae      | <i>Megapodius reinwardt</i>                | orange-footed scrubfowl   |   | C  |   | 16      |
| animals | birds | Meliphagidae      | <i>Meliphaga notata</i>                    | yellow-spotted honeyeater |   | C  |   | 44      |
| animals | birds | Meliphagidae      | <i>Myzomela obscura</i>                    | dusky honeyeater          |   | C  |   | 63      |
| animals | birds | Meliphagidae      | <i>Stomiopera flava</i>                    | yellow honeyeater         |   | C  |   | 2       |
| animals | birds | Meliphagidae      | <i>Meliphaga lewinii</i>                   | Lewin's honeyeater        |   | C  |   | 2       |
| animals | birds | Meliphagidae      | <i>Entomyzon cyanotis</i>                  | blue-faced honeyeater     |   | C  |   | 4       |
| animals | birds | Meliphagidae      | <i>Meliphaga gracilis</i>                  | graceful honeyeater       |   | C  |   | 27      |
| animals | birds | Meliphagidae      | <i>Philemon buceroides</i>                 | helmeted friarbird        |   | C  |   | 18      |
| animals | birds | Meliphagidae      | <i>Gavicalis versicolor</i>                | varied honeyeater         |   | C  |   | 21      |
| animals | birds | Meliphagidae      | <i>Lichmera indistincta</i>                | brown honeyeater          |   | C  |   | 11      |
| animals | birds | Meliphagidae      | <i>Melithreptus lunatus</i>                | white-naped honeyeater    |   | C  |   | 2       |
| animals | birds | Meliphagidae      | <i>Ramsayornis modestus</i>                | brown-backed honeyeater   |   | C  |   | 9       |
| animals | birds | Meliphagidae      | <i>Philemon corniculatus</i>               | noisy friarbird           |   | C  |   | 3       |
| animals | birds | Meliphagidae      | <i>Xanthotis macleayanus</i>               | Macleay's honeyeater      |   | C  |   | 16      |
| animals | birds | Meliphagidae      | <i>Philemon citreogularis</i>              | little friarbird          |   | C  |   | 1       |
| animals | birds | Meliphagidae      | <i>Melithreptus albogularis</i>            | white-throated honeyeater |   | C  |   | 2       |
| animals | birds | Meropidae         | <i>Merops ornatus</i>                      | rainbow bee-eater         |   | C  |   | 22      |
| animals | birds | Monarchidae       | <i>Grallina cyanoleuca</i>                 | magpie-lark               |   | C  |   | 10      |
| animals | birds | Monarchidae       | <i>Carterornis leucotis</i>                | white-eared monarch       |   | C  |   | 2       |
| animals | birds | Monarchidae       | <i>Monarcha melanopsis</i>                 | black-faced monarch       |   | SL |   | 1       |
| animals | birds | Monarchidae       | <i>Myiagra ruficollis</i>                  | broad-billed flycatcher   |   | C  |   | 1       |
| animals | birds | Monarchidae       | <i>Myiagra rubecula</i>                    | leaden flycatcher         |   | C  |   | 16      |
| animals | birds | Monarchidae       | <i>Myiagra alecto</i>                      | shining flycatcher        |   | C  |   | 5       |
| animals | birds | Monarchidae       | <i>Arses kaupi</i>                         | ped monarch               |   | C  |   | 2       |
| animals | birds | Monarchidae       | <i>Symposiachrus trivirgatus</i>           | spectacled monarch        |   | SL |   | 6       |
| animals | birds | Monarchidae       | <i>Machaerirhynchus flaviventer</i>        | yellow-breasted boatbill  |   | C  |   | 1       |
| animals | birds | Motacillidae      | <i>Anthus novaeseelandiae</i>              | Australasian pipit        |   | C  |   | 1       |
| animals | birds | Nectariniidae     | <i>Nectarinia jugularis</i>                | olive-backed sunbird      |   | C  |   | 27      |
| animals | birds | Nectariniidae     | <i>Dicaeum hirundinaceum</i>               | mistletoebird             |   | C  |   | 22      |
| animals | birds | Oriolidae         | <i>Oriolus sagittatus</i>                  | olive-backed oriole       |   | C  |   | 3       |
| animals | birds | Oriolidae         | <i>Sphecotheres vieilloti</i>              | Australasian figbird      |   | C  |   | 17      |
| animals | birds | Oriolidae         | <i>Oriolus flavocinctus</i>                | yellow oriole             |   | C  |   | 12      |
| animals | birds | Pachycephalidae   | <i>Pachycephala simplex peninsulae</i>     | grey whistler             |   | C  |   | 3       |
| animals | birds | Pachycephalidae   | <i>Pachycephala pectoralis</i>             | golden whistler           |   | C  |   | 1       |
| animals | birds | Pachycephalidae   | <i>Pachycephala melanura</i>               | mangrove golden whistler  |   | C  |   | 1       |
| animals | birds | Pachycephalidae   | <i>Colluricincla megarrhyncha</i>          | little shrike-thrush      |   | C  |   | 8       |
| animals | birds | Paradisaeidae     | <i>Ptiloris victoriae</i>                  | Victoria's riflebird      |   | C  |   | 1       |
| animals | birds | Passeridae        | <i>Passer domesticus</i>                   | house sparrow             | Y |    |   | 1       |
| animals | birds | Petroicidae       | <i>Tregellasia capito</i>                  | pale-yellow robin         |   | C  |   | 1       |
| animals | birds | Petroicidae       | <i>Microeca flavigaster</i>                | lemon-bellied flycatcher  |   | C  |   | 1       |
| animals | birds | Phalacrocoracidae | <i>Microcarbo melanoleucos</i>             | little pied cormorant     |   | C  |   | 3       |
| animals | birds | Phasianidae       | <i>Coturnix ypsilophora</i>                | brown quail               |   | C  |   | 1       |
| animals | birds | Pittidae          | <i>Pitta versicolor</i>                    | noisy pitta               |   | C  |   | 1       |
| animals | birds | Podicipedidae     | <i>Tachybaptus novaehollandiae</i>         | Australasian grebe        |   | C  |   | 1       |
| animals | birds | Psittacidae       | <i>Cyclopsitta diophthalma macleayana</i>  | Macleay's fig-parrot      |   | V  |   | 6       |
| animals | birds | Psittacidae       | <i>Trichoglossus haematodus moluccanus</i> | rainbow lorikeet          |   | C  |   | 21      |

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|---------|-------------------|-------------------|---|-----------------------------------|---|----|----|---------|
| animals | birds             | Psophodidae       | <i>Psophodes olivaceus</i>                          | eastern whipbird                  |   | C  |    | 1       |
| animals | birds             | Ptilonorhynchidae | <i>Ailuroedus maculosus</i>                         | spotted catbird                   |   | C  |    | 2       |
| animals | birds             | Ptilonorhynchidae | <i>Ptilonorhynchus nuchalis</i>                     | great bowerbird                   |   | C  |    | 1       |
| animals | birds             | Recurvirostridae  | <i>Himantopus himantopus</i>                        | black-winged stilt                |   | C  |    | 1       |
| animals | birds             | Rhipiduridae      | <i>Rhipidura leucophrys</i>                         | willie wagtail                    |   | C  |    | 7       |
| animals | birds             | Rhipiduridae      | <i>Rhipidura rufiventris</i>                        | northern fantail                  |   | C  |    | 3       |
| animals | birds             | Rhipiduridae      | <i>Rhipidura albiscapa</i>                          | grey fantail                      |   | C  |    | 4       |
| animals | birds             | Rhipiduridae      | <i>Rhipidura rufifrons</i>                          | rufous fantail                    |   | SL |    | 5       |
| animals | birds             | Scolopacidae      | <i>Calidris ruficollis</i>                          | red-necked stint                  |   | SL |    | 6       |
| animals | birds             | Scolopacidae      | <i>Actitis hypoleucos</i>                           | common sandpiper                  |   | SL |    | 3       |
| animals | birds             | Scolopacidae      | <i>Numenius phaeopus</i>                            | whimbrel                          |   | SL |    | 19      |
| animals | birds             | Scolopacidae      | <i>Tringa nebularia</i>                             | common greenshank                 |   | SL |    | 6       |
| animals | birds             | Scolopacidae      | <i>Numenius madagascariensis</i>                    | eastern curlew                    |   | E  | CE | 17      |
| animals | birds             | Scolopacidae      | <i>Tringa brevipes</i>                              | grey-tailed tattler               |   | SL |    | 12      |
| animals | birds             | Scolopacidae      | <i>Xenus cinereus</i>                               | terek sandpiper                   |   | SL |    | 1       |
| animals | birds             | Scolopacidae      | <i>Limosa lapponica baueri</i>                      | Western Alaskan bar-tailed godwit |   | V  | V  | 18      |
| animals | birds             | Scolopacidae      | <i>Numenius minutus</i>                             | little curlew                     |   | SL |    | 1       |
| animals | birds             | Sturnidae         | <i>Acridotheres tristis</i>                         | common myna                       | Y |    |    | 14      |
| animals | birds             | Sturnidae         | <i>Aplonis metallica</i>                            | metallic starling                 |   | C  |    | 4       |
| animals | birds             | Threskiornithidae | <i>Threskiornis molucca</i>                         | Australian white ibis             |   | C  |    | 2       |
| animals | birds             | Threskiornithidae | <i>Platalea regia</i>                               | royal spoonbill                   |   | C  |    | 2       |
| animals | mammals           | Pteropodidae      | <i>Pteropus scapulatus</i>                          | little red flying-fox             |   | C  |    | 1       |
| animals | ray-finned fishes | Eleotridae        | <i>Giuris margaritacea</i>                          | snakehead gudgeon                 |   |    |    | 1       |
| animals | reptiles          | Crocodylidae      | <i>Crocodylus porosus</i>                           | estuarine crocodile               |   | V  |    | 4       |
| animals | reptiles          | Crocodylidae      | <i>Crocodylus sp.</i>                               |                                   |   |    |    | 1       |
| animals | uncertain         | Indeterminate     | <i>Indeterminate</i>                                | Unknown or Code Pending           |   | C  |    | 2       |
| fungi   | lecanoromycetes   | Pannariaceae      | <i>Parmeliella brisbanensis</i>                     |                                   |   | C  |    | 1/1     |
| fungi   | uncertain         | Fungus            | <i>Fungus</i>                                       |                                   |   | C  |    | 1/1     |
| plants  | higher dicots     | Acanthaceae       | <i>Hemigraphis alternata</i>                        |                                   | Y |    |    | 1/1     |
| plants  | higher dicots     | Acanthaceae       | <i>Avicennia marina subsp. australasica</i>         |                                   |   | C  |    | 1/1     |
| plants  | higher dicots     | Acanthaceae       | <i>Nelsonia campestris</i>                          |                                   |   | C  |    | 1/1     |
| plants  | higher dicots     | Aizoaceae         | <i>Trianthema portulacastrum</i>                    | black pigweed                     | Y |    |    | 1/1     |
| plants  | higher dicots     | Asteraceae        | <i>Ageratum conyzoides</i>                          | billygoat weed                    | Y |    |    | 1/1     |
| plants  | higher dicots     | Asteraceae        | <i>Sphagneticola trilobata</i>                      |                                   | Y |    |    | 1       |
| plants  | higher dicots     | Caesalpiiniaceae  | <i>Senna alata</i>                                  |                                   | Y |    |    | 1/1     |
| plants  | higher dicots     | Capparaceae       | <i>Capparis lucida</i>                              |                                   |   | C  |    | 2/2     |
| plants  | higher dicots     | Celastraceae      | <i>Elaeodendron melanocarpum</i>                    |                                   |   | C  |    | 1/1     |
| plants  | higher dicots     | Chenopodiaceae    | <i>Sarcocornia quinqueflora subsp. quinqueflora</i> |                                   |   | C  |    | 1/1     |
| plants  | higher dicots     | Chenopodiaceae    | <i>Tecticornia australasica</i>                     |                                   |   | C  |    | 1/1     |
| plants  | higher dicots     | Euphorbiaceae     | <i>Macaranga tanarius</i>                           | macaranga                         |   | C  |    | 2/2     |
| plants  | higher dicots     | Euphorbiaceae     | <i>Dimorphocalyx australiensis</i>                  |                                   |   | C  |    | 1/1     |
| plants  | higher dicots     | Euphorbiaceae     | <i>Euphorbia bifida</i>                             |                                   |   | C  |    | 1/1     |
| plants  | higher dicots     | Fabaceae          | <i>Desmodium scorpiurus</i>                         |                                   | Y |    |    | 1/1     |
| plants  | higher dicots     | Loranthaceae      | <i>Amyema sanguinea var. sanguinea</i>              |                                   |   | C  |    | 1/1     |
| plants  | higher dicots     | Loranthaceae      | <i>Decaisnina brittenii subsp. brittenii</i>        |                                   |   | C  |    | 1/1     |
| plants  | higher dicots     | Mimosaceae        | <i>Acacia oraria</i>                                |                                   |   | C  |    | 1/1     |

| Kingdom | Class         | Family           | Scientific Name                                 | Common Name    | I | Q | A | Records |
|---------|---------------|------------------|---|----------------|---|---|---|---------|
| plants  | higher dicots | Mimosaceae       | <i>Albizia procera</i>                          |                |   | C |   | 2/2     |
| plants  | higher dicots | Mimosaceae       | <i>Acacia flavescens</i>                        | toothed wattle |   | C |   | 1/1     |
| plants  | higher dicots | Moraceae         | <i>Trophis scandens subsp. scandens</i>         |                |   | C |   | 1/1     |
| plants  | higher dicots | Myrtaceae        | <i>Psidium guineense</i>                        | cherry guava   | Y |   |   | 1/1     |
| plants  | higher dicots | Nyctaginaceae    | <i>Boerhavia diffusa</i>                        |                | Y |   |   | 1/1     |
| plants  | higher dicots | Opiliaceae       | <i>Cansjera leptostachya</i>                    |                |   | C |   | 1/1     |
| plants  | higher dicots | Passifloraceae   | <i>Passiflora kuranda</i>                       |                |   | C |   | 1/1     |
| plants  | higher dicots | Phyllanthaceae   | <i>Glochidion benthamianum</i>                  |                |   | C |   | 2/2     |
| plants  | higher dicots | Phyllanthaceae   | <i>Phyllanthus novae-hollandiae</i>             |                |   | C |   | 1/1     |
| plants  | higher dicots | Phyllanthaceae   | <i>Glochidion harveyanum var. harveyanum</i>    |                |   | C |   | 1/1     |
| plants  | higher dicots | Proteaceae       | <i>Grevillea baileyana</i>                      |                |   | C |   | 1/1     |
| plants  | higher dicots | Rhizophoraceae   | <i>Ceriops australis</i>                        |                |   | C |   | 1/1     |
| plants  | higher dicots | Rubiaceae        | <i>Ixora timorensis</i>                         |                |   | C |   | 1/1     |
| plants  | higher dicots | Rubiaceae        | <i>Dentella repens</i>                          | dentella       |   | C |   | 1/1     |
| plants  | higher dicots | Salicaceae       | <i>Scolopia braunii</i>                         | flintwood      |   | C |   | 1/1     |
| plants  | higher dicots | Sapindaceae      | <i>Allophylus cobbe</i>                         |                |   | C |   | 1/1     |
| plants  | higher dicots | Sapindaceae      | <i>Guioa acutifolia</i>                         | northern guioa |   | C |   | 1/1     |
| plants  | higher dicots | Stylidiaceae     | <i>Stylidium alsinoides</i>                     |                |   | C |   | 1/1     |
| plants  | higher dicots | Symplocaceae     | <i>Symplocos puberula</i>                       |                |   | C |   | 1/1     |
| plants  | lower dicots  | Annonaceae       | <i>Polyalthia nitidissima</i>                   | polyalthia     |   | C |   | 1/1     |
| plants  | lower dicots  | Annonaceae       | <i>Miliusa brahei</i>                           |                |   | C |   | 1/1     |
| plants  | lower dicots  | Apocynaceae      | <i>Alyxia spicata</i>                           |                |   | C |   | 1/1     |
| plants  | lower dicots  | Apocynaceae      | <i>Tabernaemontana orientalis</i>               |                |   | C |   | 1/1     |
| plants  | lower dicots  | Boraginaceae     | <i>Heliotropium indicum</i>                     |                | Y |   |   | 1/1     |
| plants  | lower dicots  | Ceratophyllaceae | <i>Ceratophyllum demersum</i>                   | hornwort       |   | C |   | 1/1     |
| plants  | lower dicots  | Convolvulaceae   | <i>Lepistemon urceolatus</i>                    |                |   | C |   | 1/1     |
| plants  | lower dicots  | Convolvulaceae   | <i>Distimake quinquefolius</i>                  |                | Y |   |   | 1/1     |
| plants  | lower dicots  | Convolvulaceae   | <i>Ipomoea polymorpha</i>                       |                |   | C |   | 1/1     |
| plants  | monocots      | Aponogetonaceae  | <i>Aponogeton cuneatus</i>                      |                |   | C |   | 1/1     |
| plants  | monocots      | Araceae          | <i>Syngonium podophyllum</i>                    |                | Y |   |   | 1/1     |
| plants  | monocots      | Araceae          | <i>Aglaonema commutatum</i>                     |                | Y |   |   | 1/1     |
| plants  | monocots      | Arecaceae        | <i>Livistona muelleri</i>                       | dwarf fan palm |   | C |   | 1/1     |
| plants  | monocots      | Commelinaceae    | <i>Commelina diffusa</i>                        | wandering jew  |   | C |   | 1/1     |
| plants  | monocots      | Cyperaceae       | <i>Fimbristylis polytrichoides</i>              |                |   | C |   | 1/1     |
| plants  | monocots      | Cyperaceae       | <i>Schoenoplectus subulatus</i>                 |                |   | C |   | 1/1     |
| plants  | monocots      | Cyperaceae       | <i>Fimbristylis pubisquama</i>                  |                |   | C |   | 1/1     |
| plants  | monocots      | Cyperaceae       | <i>Fimbristylis acicularis</i>                  |                |   | C |   | 1/1     |
| plants  | monocots      | Cyperaceae       | <i>Fimbristylis ferruginea</i>                  |                |   | C |   | 1/1     |
| plants  | monocots      | Cyperaceae       | <i>Fimbristylis pauciflora</i>                  |                |   | C |   | 1/1     |
| plants  | monocots      | Cyperaceae       | <i>Fuirena ciliaris</i>                         |                |   | C |   | 1/1     |
| plants  | monocots      | Cyperaceae       | <i>Cyperus javanicus</i>                        |                |   | C |   | 1/1     |
| plants  | monocots      | Cyperaceae       | <i>Fuirena umbellata</i>                        |                |   | C |   | 1/1     |
| plants  | monocots      | Cyperaceae       | <i>Eleocharis equisetina</i>                    |                |   | C |   | 1/1     |
| plants  | monocots      | Dracaenaceae     | <i>Pleomele angustifolia</i>                    |                |   | C |   | 1/1     |
| plants  | monocots      | Dracaenaceae     | <i>Sansevieria trifasciata var. trifasciata</i> |                | Y |   |   | 1/1     |
| plants  | monocots      | Hydrocharitaceae | <i>Hydrilla verticillata</i>                    | hydrilla       |   | C |   | 1/1     |

| Kingdom  | Class       | Family       | Scientific Name                         | Common Name      | I | Q | A | Records |
|----------|-------------|--------------|---|------------------|---|---|---|---------|
| plants   | monocots    | Poaceae      | <i>Themeda quadrivalvis</i>             | grader grass     | Y |   |   | 1       |
| plants   | monocots    | Poaceae      | <i>Pseudoraphis jagonis</i>             |                  |   | C |   | 5/5     |
| plants   | monocots    | Poaceae      | <i>Leersia hexandra</i>                 | swamp rice grass |   | C |   | 1/1     |
| plants   | monocots    | Poaceae      | <i>Perotis rara</i>                     | comet grass      |   | C |   | 1/1     |
| plants   | monocots    | Poaceae      | <i>Eragrostis pubescens</i>             |                  |   | C |   | 1/1     |
| plants   | monocots    | Poaceae      | <i>Sporobolus jacquemontii</i>          |                  | Y |   |   | 2/2     |
| plants   | monocots    | Poaceae      | <i>Panicum seminudum var. seminudum</i> |                  |   | C |   | 1/1     |
| plants   | monocots    | Poaceae      | <i>Andropogon gayanus</i>               | gamba grass      | Y |   |   | 1/1     |
| plants   | monocots    | Poaceae      | <i>Eriochloa crebra</i>                 | spring grass     |   | C |   | 1/1     |
| protists | brown algae | Phaeophyceae | <i>Sargassum</i>                        |                  |   | C |   | 1/1     |
| protists | red algae   | Rhodophyceae | <i>Amphiroa foliacea</i>                |                  |   | C |   | 1/1     |

#### CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992*. The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999*. The values of EPBC are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V).

Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).

This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.

This number is output as 999 if it equals or exceeds this value.

# CMD

16°30'52"S 145°27'29"E

16°30'52"S 145°29'55"E



16°33'12"S 145°27'29"E

16°33'12"S 145°29'55"E

A product of  
 Queensland Globe



500 metres

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# Contours

16°31'8"S 145°27'40"E

16°31'8"S 145°29'59"E



16°33'21"S 145°27'40"E

16°33'21"S 145°29'59"E

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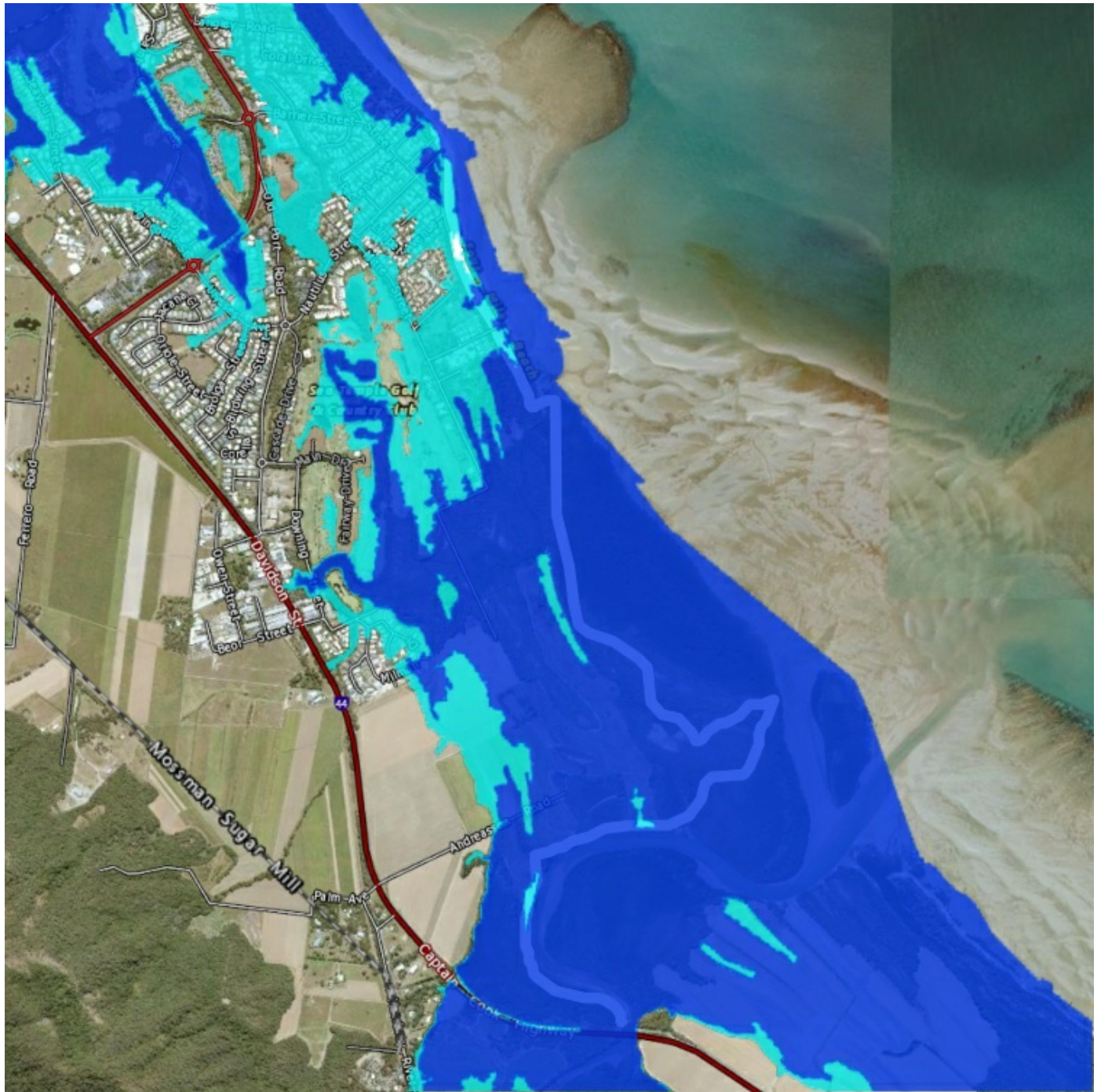
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# Flood Hazard

16°30'58"S 145°27'29"E

16°30'58"S 145°29'56"E



16°33'18"S 145°27'29"E

16°33'18"S 145°29'56"E

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# NC Act Flora Trigger Map

16°30'44"S 145°27'21"E

16°30'44"S 145°30'17"E



16°33'34"S 145°27'21"E

16°33'34"S 145°30'17"E

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500 metres

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# GBR Coastal Zoning

16°30'49"S 145°27'43"E

16°30'49"S 145°30'9"E



16°33'10"S 145°27'43"E

16°33'10"S 145°30'9"E

A product of  
 Queensland Globe



500 metres

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# Koala Mapping

16°30'48"S 145°27'34"E

16°30'48"S 145°30'30"E



16°33'37"S 145°27'34"E

16°33'37"S 145°30'30"E



500 metres

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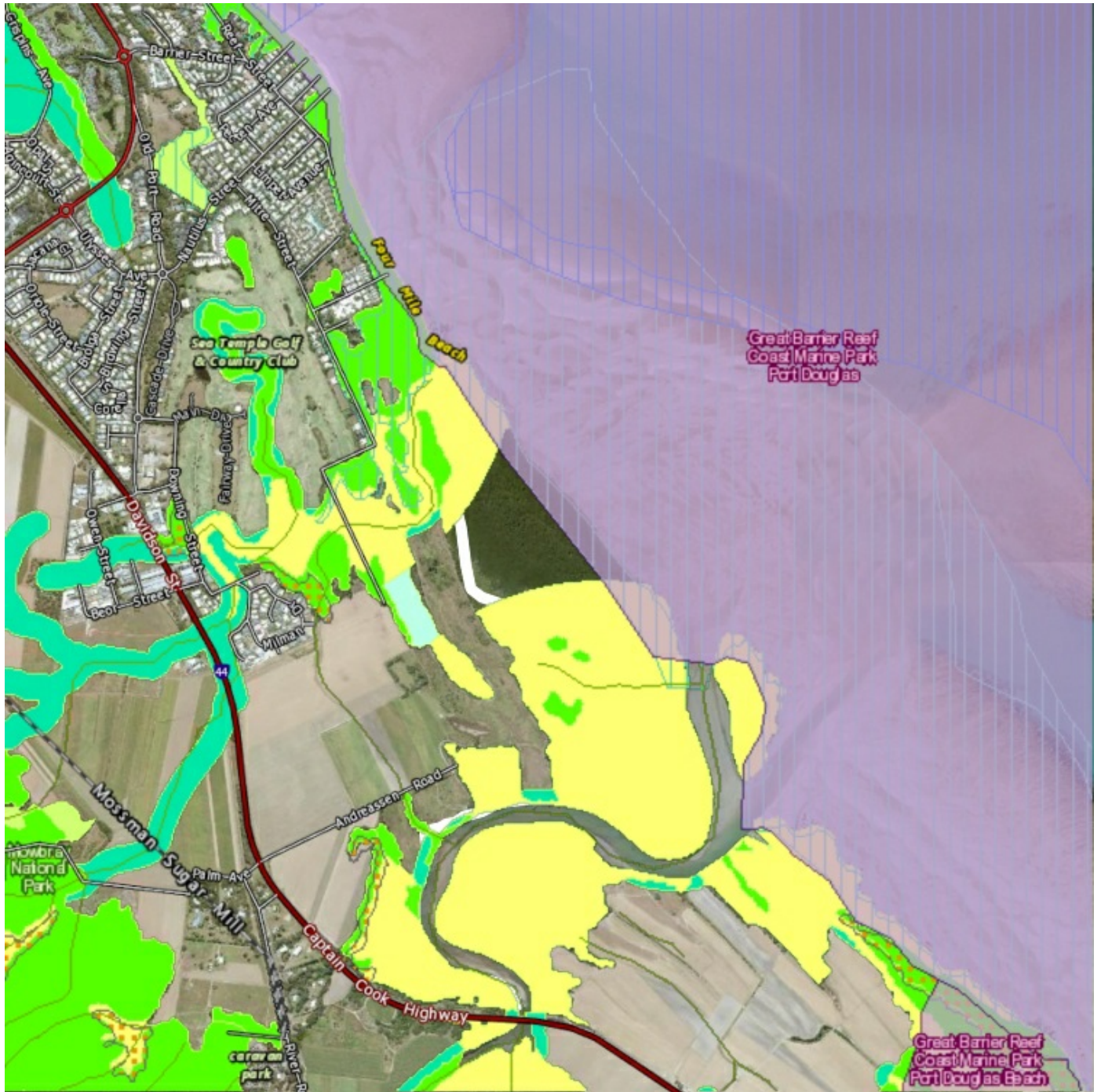
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# MSES

16°31'6"S 145°27'47"E

16°31'6"S 145°30'6"E



16°33'20"S 145°27'47"E

16°33'20"S 145°30'6"E

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500 metres

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# Native Title Claims

16°30'10"S 145°26'50"E

16°30'10"S 145°30'54"E



16°34'4"S 145°26'50"E

16°34'4"S 145°30'54"E

A product of  
 Queensland Globe



1 km

Print Date: 12/2/2019

Paper Size: A4

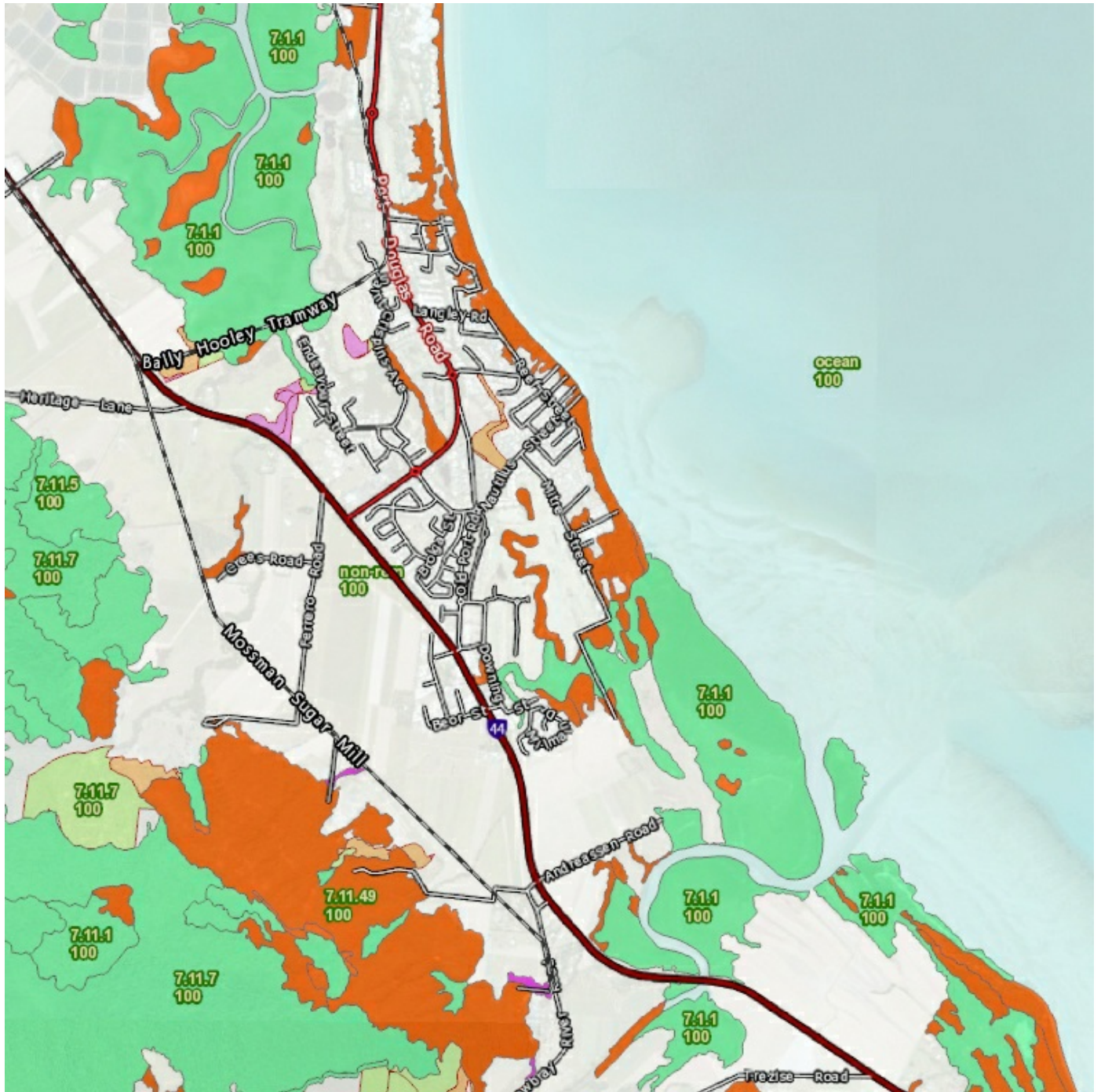
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1 km

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# Soil

16°30'59"S 145°27'50"E

16°30'59"S 145°30'9"E



16°33'12"S 145°27'50"E

16°33'12"S 145°30'9"E

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500 metres

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# Strategic Environmental Areas

16°30'56"S 145°27'38"E

16°30'56"S 145°30'4"E



16°33'17"S 145°27'38"E

16°33'17"S 145°30'4"E

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500 metres

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# Tenure

16°30'40"S 145°27'12"E

16°30'40"S 145°30'12"E



16°33'32"S 145°27'12"E

16°33'32"S 145°30'12"E

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500 metres

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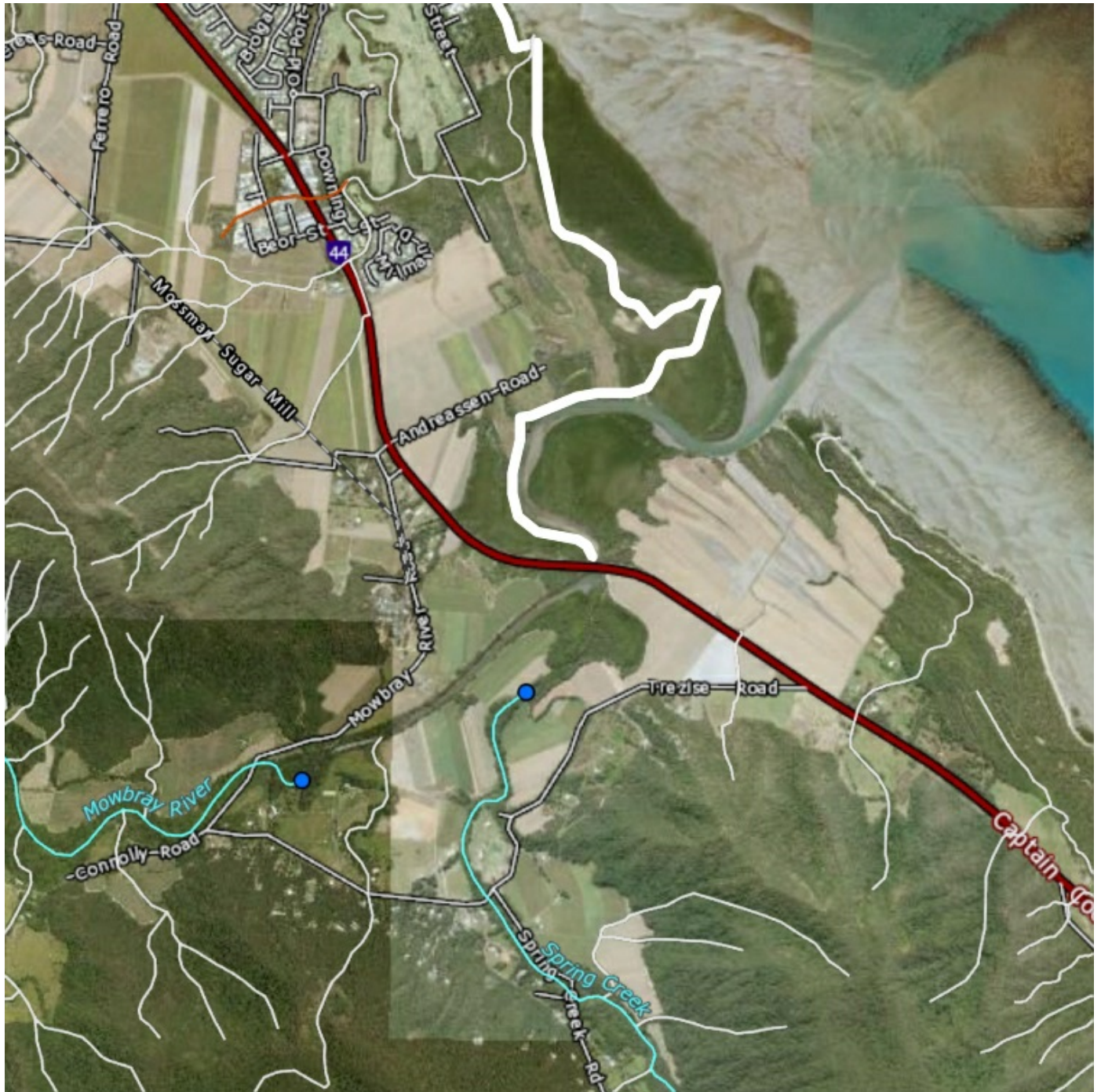
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# Waterways (Water Act 2000)

16°31'43"S 145°27'17"E

16°31'43"S 145°30'14"E



16°34'32"S 145°27'17"E

16°34'32"S 145°30'14"E

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500 metres

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# Wetlands

16°30'44"S 145°27'34"E

16°30'44"S 145°30'0"E



16°33'4"S 145°27'34"E

16°33'4"S 145°30'0"E

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500 metres

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## Legend

## Attribution

### Road

-  Highway
-  Main
-  Local
-  Private

### Railway



### Register of native title claims



### Soil associations of Batavia Downs BAT



### Soils of the Cape York Peninsula CYP



### Soils and land use survey of part of the Dawson Valley DAW



### Soils land resources of the Dalrymple Shire DLR



### Soils land inventory of the granite and traprock areas southeast Queensland GRT SOIL



### Soils of the Inglewood Talwood Tara Glenmorgan region ITTG



### Soils and vegetation of the Mayvale Land System Gulf of Carpentaria Region MVL





### Soils land resources of the Einasleigh Atherton dry tropics SAT






### Cities and Towns






### Contour

-  Index
-  Intermediate






### Bushland habitat [SEQ]

-  High value bushland
-  Medium value bushland
-  Low value bushland

### Suitable for rehabilitation [SEQ]

-  High value rehabilitation
-  Medium value rehabilitation
-  Low value rehabilitation

### Other areas of value [SEQ]

-  High value other
-  Medium value other
-  Low value other
-  Generally not suitable
-  Water

### DigitalGlobe

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## Legend

---

Vegetation management regional ecosystem map labels

Category A or B area containing endangered regional ecosystems



Category A or B area containing of concern regional ecosystems



Category A or B area that is least concern regional ecosystems



Category A or B area containing endangered and is S20AH



Category A or B area containing of concern and is S20AH



Category A or B area that is least concern and S20AH



Category C area containing endangered regional ecosystems



Category C area containing of concern regional ecosystems



Water



Non-remnant



Protected plants trigger map



Great Barrier Reef coast zoning



General use



Habitat protection



Conservation park



Buffer



Scientific research



Marine national park



Preservation



Estuarine conservation

Wetlands of high ecological significance



MSES protected area [estates]



MSES protected area [nature refuges]



 **Legend**

---

**Tenure**

-  Below the Depth Plans
-  Boat Harbours
-  Carbon Abatement Interest
-  Commonwealth Acquisition
-  Covenant
-  Easement
-  Forest Reserve
-  Freehold
-  Housing Land
-  Industrial Estates
-  Lands Lease
-  Main Road
-  Mines Tenure
-  National Park
-  Port and Harbours Boards
-  Profit à Prendre
-  Railway
-  Reserve
-  State Forest
-  State Land
-  Timber Reserve
-  Water Resource

MSES marine park [highly protected]



MSES declared fish habitat area [A and B areas]



MSES legally secured offset area [offset register]



MSES legally secured offset area [vegetation offsets]



MSES regulated vegetation [defined watercourse]



MSES declared high ecological value waters [watercourse]



MSES declared high ecological value waters [wetland]



MSES high ecological significance wetlands



MSES strategic environmental area [designated precinct]



MSES wildlife habitat [threatened and special least concern animal]



MSES regulated vegetation [category B - endangered or of concern]



MSES regulated vegetation

 **Legend**

---

MSES regulated vegetation  
[category R- GBR riverine]



Coastal management district



MSES regulated vegetation  
[essential habitat]



High hazard area



MSES regulated vegetation  
[100m from wetland]



Medium hazard area



Lake [defined by Water Act  
2000]



Non-riverine wetlands -  
conservation significance



Very High



High



Medium



Low

Downstream limit [defined by  
Water Act 2000]



Very Low

Watercourse [defined by  
Water Act 2000]



Drainage feature [defined by  
Water Act 2000]



Unmapped



Strategic Environmental Area



Strategic Environmental  
Area



Strategic Environmental  
Area - Designated  
Precinct



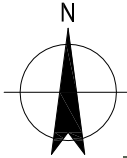
# Appendix B Design drawings

# DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT

## WANGETTI TRAIL

### MOWBRAY RIVER CARPARK

# 42-21067



| DRAWING LIST  |  |
|---------------|--|
| DRG No.       | TITLE                                  |
| 42-21067-C001 | COVER SHEET AND DRAWING INDEX          |
| 42-21067-C002 | CONTROL LINE SET-OUT PLAN              |
| 42-21067-C003 | TYPICAL CROSS SECTIONS                 |
| 42-21067-C004 | GENERAL ARRANGEMENT                    |
| 42-21067-C005 | INTERSECTION SET-OUT PLAN              |
| 42-21067-C006 | INTERSECTION SETOUT POINTS AND DETAILS |
| 42-21067-C007 | CULVERT LAYOUT AND SECTION             |
| 42-21067-C008 | ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| 42-21067-C009 | ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| 42-21067-C010 | ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| 42-21067-C011 | ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| 42-21067-C012 | ANNOTATED CROSS SECTION CTRL LINE MCA1 |

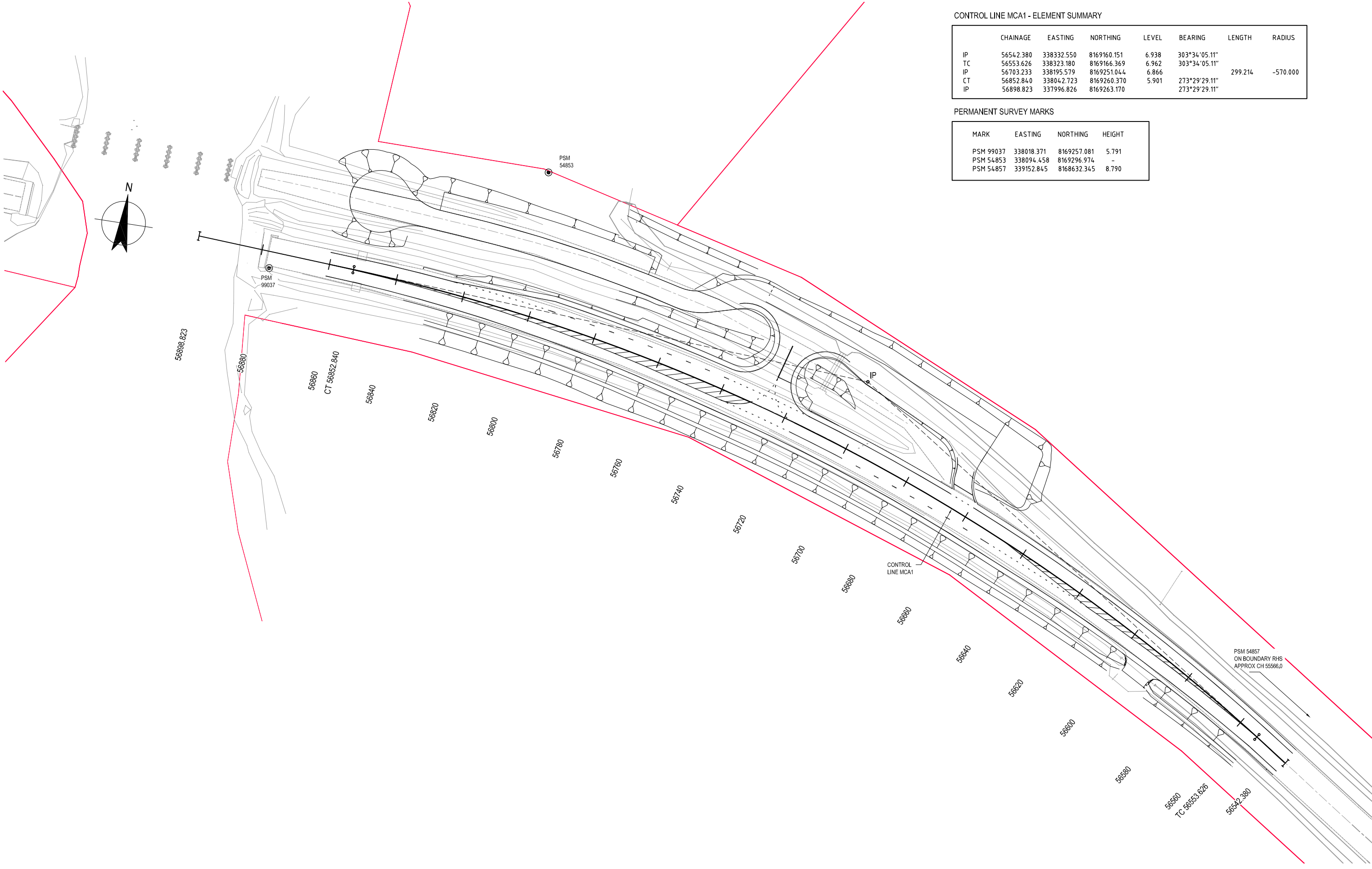
| No | Revision       | Note: * Indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date    |
|----|----------------|---|-------|-------------|------------------|---------|
| 0  | APPROVED ISSUE |   | JPT   | *MI         | *AA              | 11/7/19 |

NOT TO SCALE



|   |  |  |
|---|--|--|
| <b>DO NOT SCALE</b>   | Drawn: MGM                                 | Designer: JPT  |
| Conditions of Use:<br>This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose. | Drafting Check: *J.A.RAE                   | Design Check: *D.K.TROTTER   |
|   | Approved: *A.HILADELLIS (Project Director) | Date: 11/7/19  |
|   | Scale: NOT TO SCALE                        | This Drawing must not be used for construction unless signed as Approved |

|               |  |
|---------------|--|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT |
| Project       | WANGETTI TRAIL   |
| Title         | MOWBRAY RIVER CARPARK<br>COVER SHEET AND DRAWING INDEX     |
| Original Size | A1   |
| Drawing No:   | 42-21067-C001  |
| Rev:          | 0  |



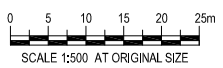
**CONTROL LINE MCA1 - ELEMENT SUMMARY**

|    | CHAINAGE  | EASTING    | NORTHING    | LEVEL | BEARING       | LENGTH  | RADIUS   |
|----|-----------|------------|-------------|-------|---------------|---------|----------|
| IP | 56542.380 | 338332.550 | 8169160.151 | 6.938 | 303°34'05.11" |         |          |
| TC | 56553.626 | 338323.180 | 8169166.369 | 6.962 | 303°34'05.11" |         |          |
| IP | 56703.233 | 338195.579 | 8169251.044 | 6.866 |               | 299.214 | -570.000 |
| CT | 56852.840 | 338042.723 | 8169260.370 | 5.901 | 273°29'29.11" |         |          |
| IP | 56898.823 | 337996.826 | 8169263.170 |       | 273°29'29.11" |         |          |

**PERMANENT SURVEY MARKS**

| MARK      | EASTING    | NORTHING    | HEIGHT |
|-----------|------------|-------------|--------|
| PSM 99037 | 338018.371 | 8169257.081 | 5.791  |
| PSM 54853 | 338094.458 | 8169296.974 | -      |
| PSM 54857 | 339152.845 | 8168632.345 | 8.790  |

| No | Revision       | Note | Drawn | Job Manager | Project Director | Date    |
|----|----------------|------|-------|-------------|------------------|---------|
| 0  | APPROVED ISSUE |      | JPT   | *MI         | *AA              | 11/7/19 |



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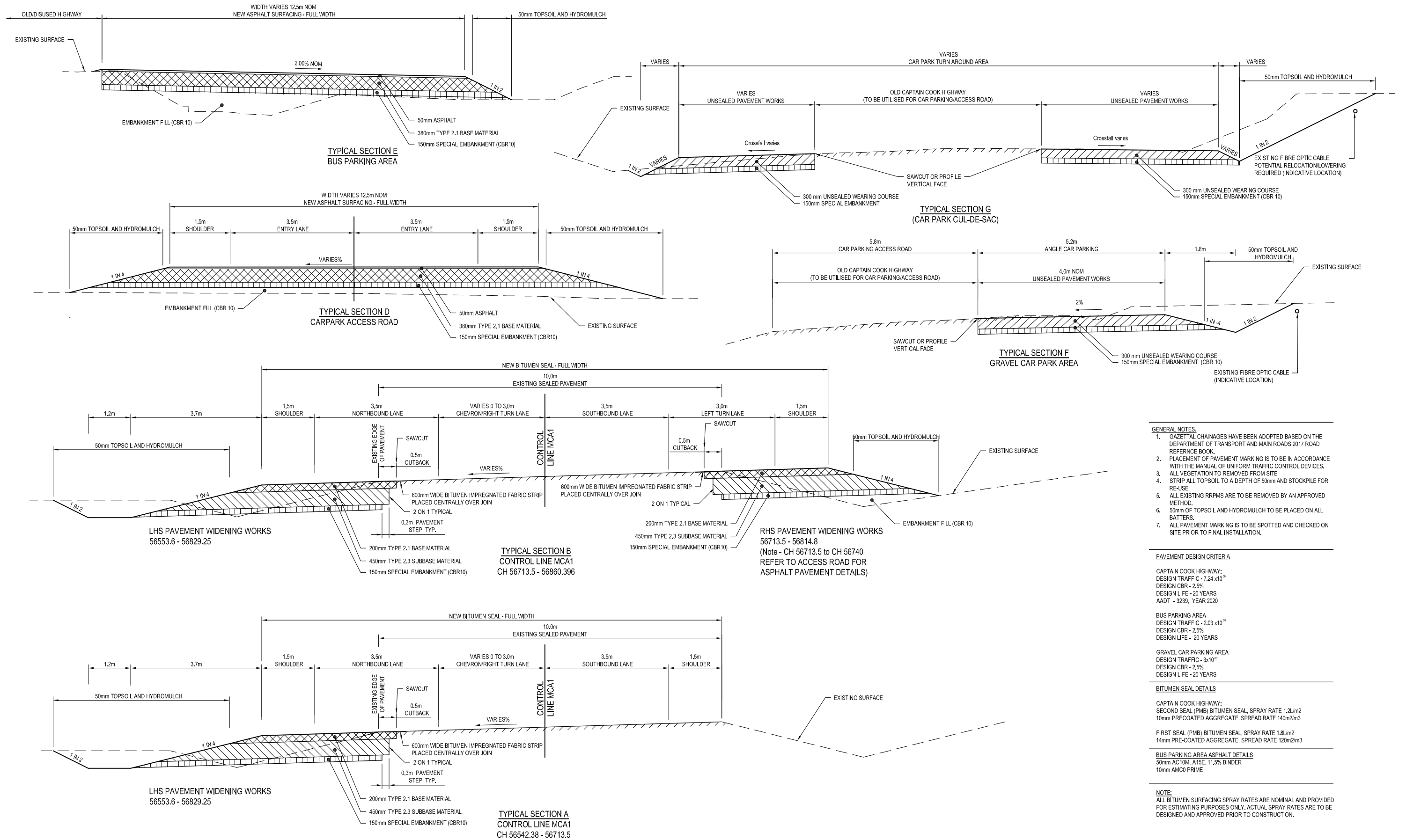
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| Drawn          | MGM                              | Designer     | JPT          |
| Drafting Check | *J.A.RAE                         | Design Check | *D.K.TROTTER |
| Approved       | *A.HILADELLIS (Project Director) |              |              |
| Date           | 11/7/19                          |              |              |
| Scale          | AS SHOWN                         |              |              |

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|               |  |
|---------------|--|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT |
| Project       | WANGETTI TRAIL   |
| Title         | MOWBRAY RIVER CARPARK CONTROL LINE SET-OUT PLAN            |
| Original Size | A1   |
| Drawing No:   | 42-21067-C002  |
| Rev:          | 0  |



- GENERAL NOTES.**
- GAZETTED CHAINAGES HAVE BEEN ADOPTED BASED ON THE DEPARTMENT OF TRANSPORT AND MAIN ROADS 2017 ROAD REFERENCE BOOK.
  - PLACEMENT OF PAVEMENT MARKING IS TO BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
  - ALL VEGETATION TO BE REMOVED FROM SITE.
  - STRIP ALL TOPSOIL TO A DEPTH OF 50mm AND STOCKPILE FOR RE-USE.
  - ALL EXISTING RRPMS ARE TO BE REMOVED BY AN APPROVED METHOD.
  - 50mm OF TOPSOIL AND HYDROMULCH TO BE PLACED ON ALL BATTERS.
  - ALL PAVEMENT MARKING IS TO BE SPOTTED AND CHECKED ON SITE PRIOR TO FINAL INSTALLATION.

**PAVEMENT DESIGN CRITERIA**

**CAPTAIN COOK HIGHWAY:**  
DESIGN TRAFFIC - 7.24 x10<sup>6</sup>  
DESIGN CBR - 2.5%  
DESIGN LIFE - 20 YEARS  
AADT - 3239, YEAR 2020

**BUS PARKING AREA**  
DESIGN TRAFFIC - 2.03 x10<sup>6</sup>  
DESIGN CBR - 2.5%  
DESIGN LIFE - 20 YEARS

**GRAVEL CAR PARKING AREA**  
DESIGN TRAFFIC - 3x10<sup>6</sup>  
DESIGN CBR - 2.5%  
DESIGN LIFE - 20 YEARS

**BITUMEN SEAL DETAILS**

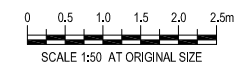
**CAPTAIN COOK HIGHWAY:**  
SECOND SEAL (PMB) BITUMEN SEAL, SPRAY RATE 1.2L/m<sup>2</sup>  
10mm PRE-COATED AGGREGATE, SPREAD RATE 140m<sup>2</sup>/m<sup>3</sup>

**FIRST SEAL (PMB) BITUMEN SEAL, SPRAY RATE 1.8L/m<sup>2</sup>  
14mm PRE-COATED AGGREGATE, SPREAD RATE 120m<sup>2</sup>/m<sup>3</sup>**

**BUS PARKING AREA ASPHALT DETAILS**  
50mm AC10M, A15E, 11.5% BINDER  
10mm AMC0 PRIME

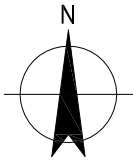
**NOTE:**  
ALL BITUMEN SURFACING SPRAY RATES ARE NOMINAL AND PROVIDED FOR ESTIMATING PURPOSES ONLY. ACTUAL SPRAY RATES ARE TO BE DESIGNED AND APPROVED PRIOR TO CONSTRUCTION.

|    |                |       |             |                  |         |
|----|----------------|-------|-------------|------------------|---------|
| 0  | APPROVED ISSUE | JPT   | *MI         | *AA              | 11/7/19 |
| No | Revision       | Drawn | Job Manager | Project Director | Date    |

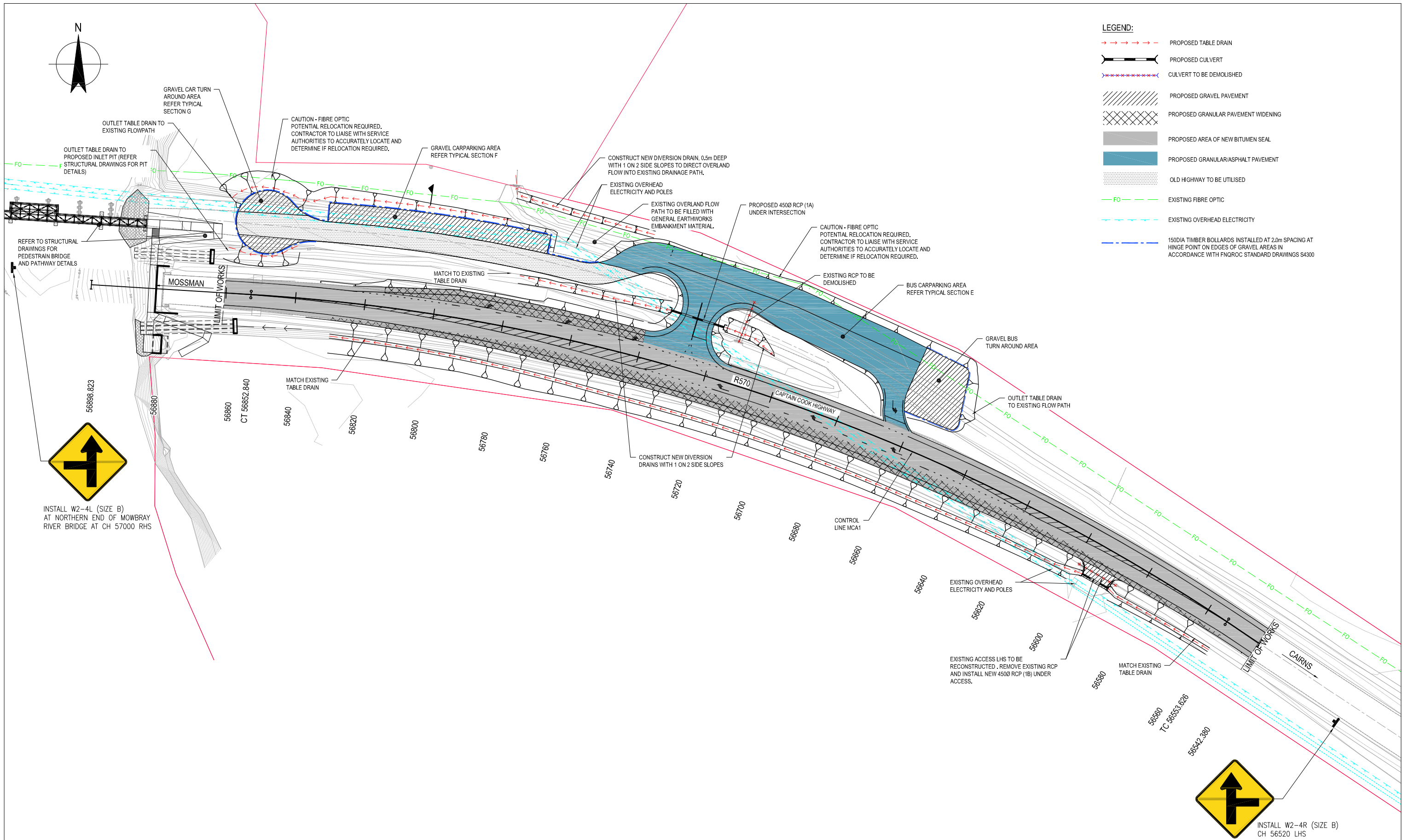


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|   | Approved *A.HILADELLIS (Project Director) | Date 11/7/19   |
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| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT |
| Project       | WANGETTI TRAIL   |
| Title         | MOWBRAY RIVER CARPARK<br>TYPICAL CROSS SECTIONS            |
| Original Size | A1   |
| Drawing No:   | 42-21067-C003  |
| Rev:          | 0  |



- LEGEND:**
- PROPOSED TABLE DRAIN
  - PROPOSED CULVERT
  - CULVERT TO BE DEMOLISHED
  - PROPOSED GRAVEL PAVEMENT
  - PROPOSED GRANULAR PAVEMENT WIDENING
  - PROPOSED AREA OF NEW BITUMEN SEAL
  - PROPOSED GRANULAR/ASPHALT PAVEMENT
  - OLD HIGHWAY TO BE UTILISED
  - EXISTING FIBRE OPTIC
  - EXISTING OVERHEAD ELECTRICITY
  - 150DIA TIMBER BOLLARDS INSTALLED AT 20m SPACING AT HINGE POINT ON EDGES OF GRAVEL AREAS IN ACCORDANCE WITH FNRQC STANDARD DRAWINGS S4300



THIS DRAWING INCLUDES COLOURED INFORMATION, IF YOU HAVE A BLACK AND WHITE COPY YOU DO NOT HAVE ALL THE INFORMATION, THIS NOTE IS COLOURED RED.



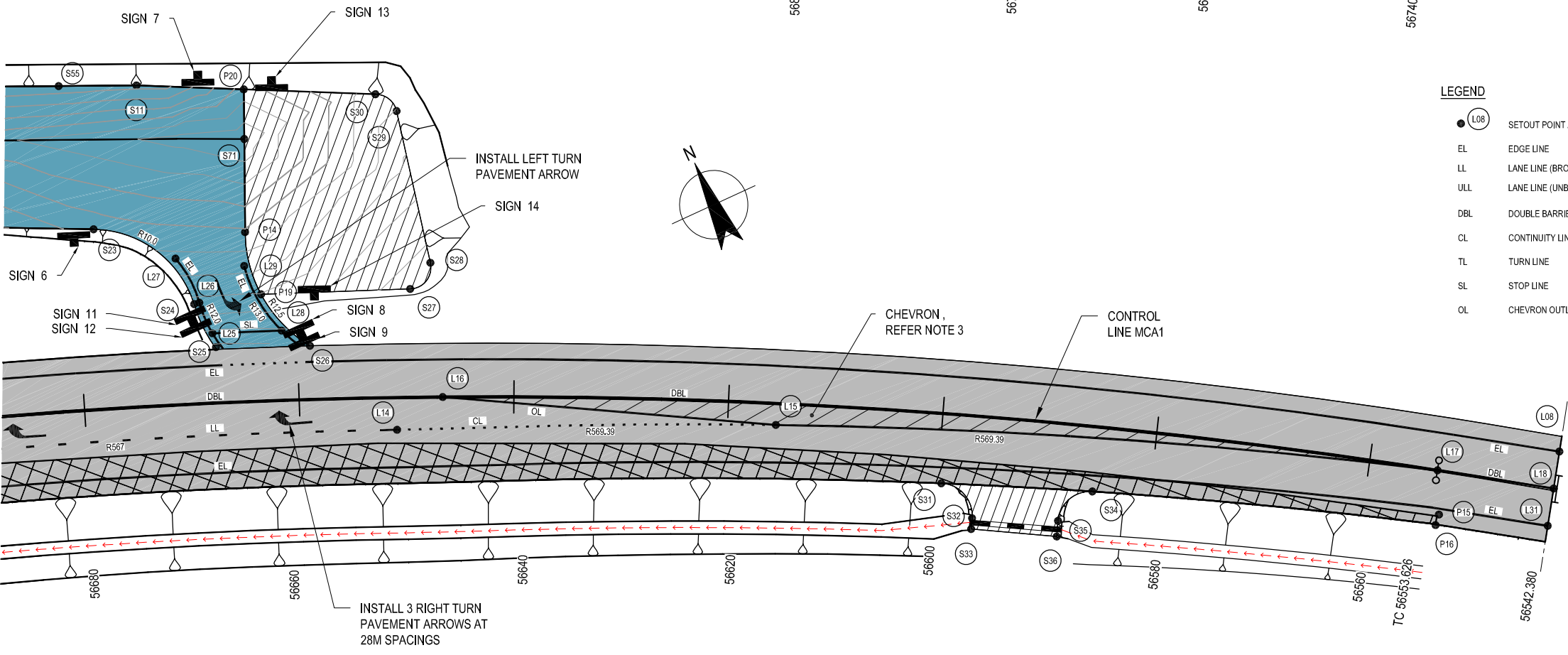
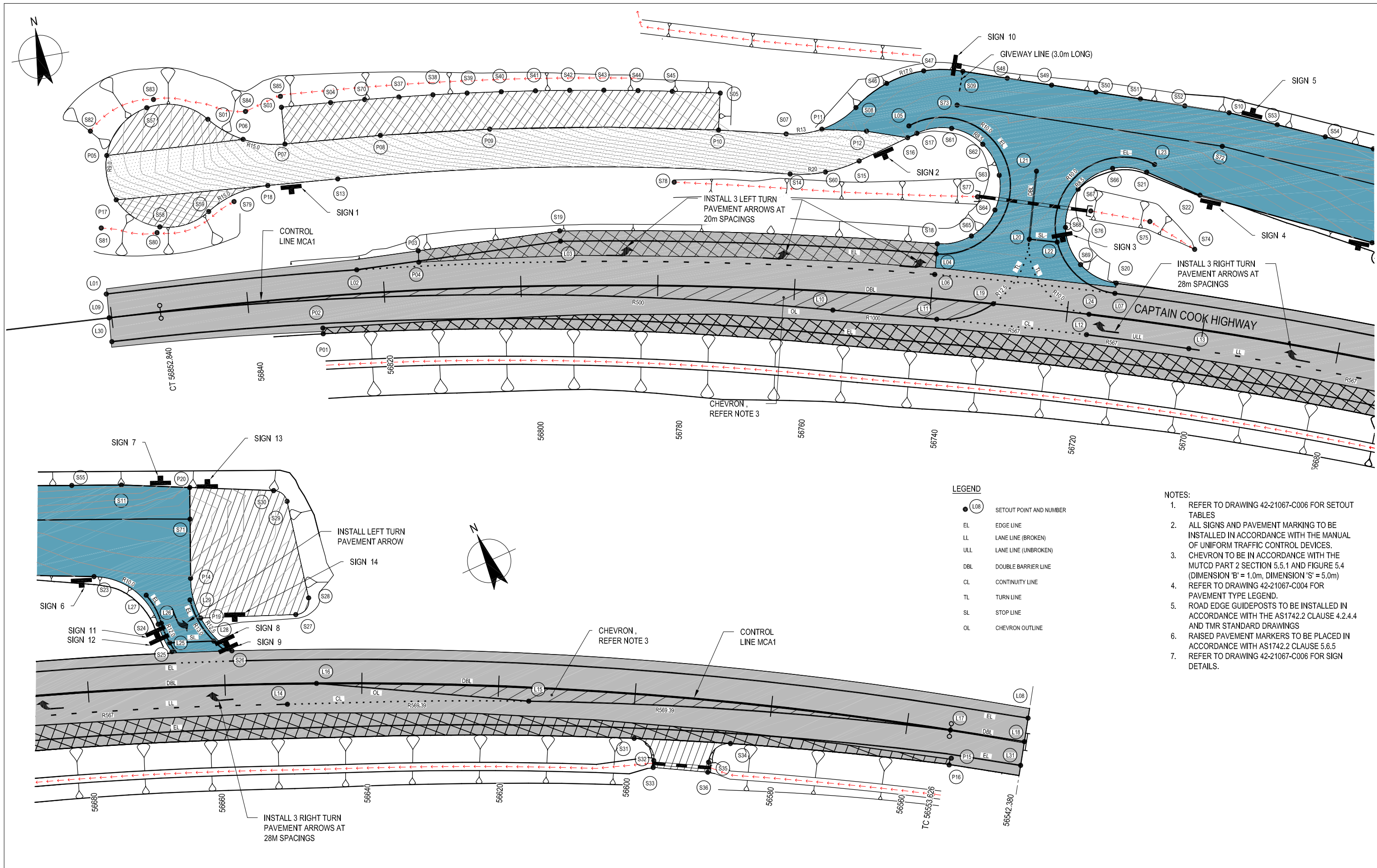
|    |                |       |             |                  |         |
|----|----------------|-------|-------------|------------------|---------|
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| No | Revision       | Drawn | Job Manager | Project Director | Date    |



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|---------------|--|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT |
| Project       | WANGETTI TRAIL   |
| Title         | MOWBRAY RIVER CARPARK<br>GENERAL ARRANGEMENT               |
| Original Size | A1   |
| Drawing No:   | 42-21067-C004  |
| Rev:          | 0  |

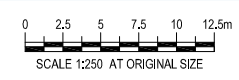


**LEGEND**

|         |                         |
|---------|-------------------------|
| ● (L08) | SETOUT POINT AND NUMBER |
| EL      | EDGE LINE               |
| LL      | LANE LINE (BROKEN)      |
| ULL     | LANE LINE (UNBROKEN)    |
| DBL     | DOUBLE BARRIER LINE     |
| CL      | CONTINUITY LINE         |
| TL      | TURN LINE               |
| SL      | STOP LINE               |
| OL      | CHEVRON OUTLINE         |

- NOTES:**
- REFER TO DRAWING 42-21067-C006 FOR SETOUT TABLES
  - ALL SIGNS AND PAVEMENT MARKING TO BE INSTALLED IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
  - CHEVRON TO BE IN ACCORDANCE WITH THE MUTCD PART 2 SECTION 5.5.1 AND FIGURE 5.4 (DIMENSION 'B' = 1.0m, DIMENSION 'S' = 5.0m)
  - REFER TO DRAWING 42-21067-C004 FOR PAVEMENT TYPE LEGEND.
  - ROAD EDGE GUIDEPOSTS TO BE INSTALLED IN ACCORDANCE WITH THE AS1742.2 CLAUSE 4.2.4.4 AND TMR STANDARD DRAWINGS
  - RAISED PAVEMENT MARKERS TO BE PLACED IN ACCORDANCE WITH AS1742.2 CLAUSE 5.6.5
  - REFER TO DRAWING 42-21067-C006 FOR SIGN DETAILS.

|    |                |   |       |             |                  |      |
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| Drafting Check | *J.A.RAE                         | Design Check | *D.K.TROTTER |
| Approved       | *A.HILADELLIS (Project Director) |              |              |
| Date           | 11/7/19                          |              |              |
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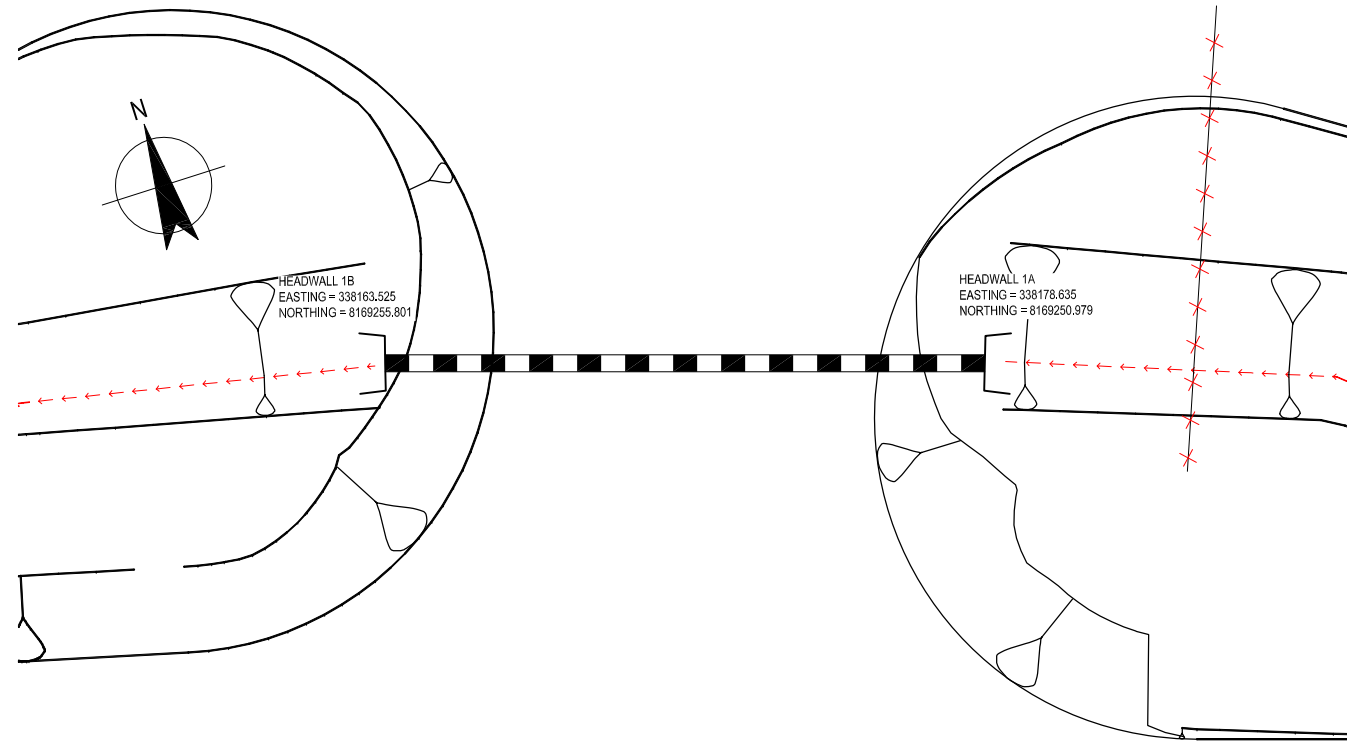
Client **DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT**

Project **WANGETTI TRAIL**

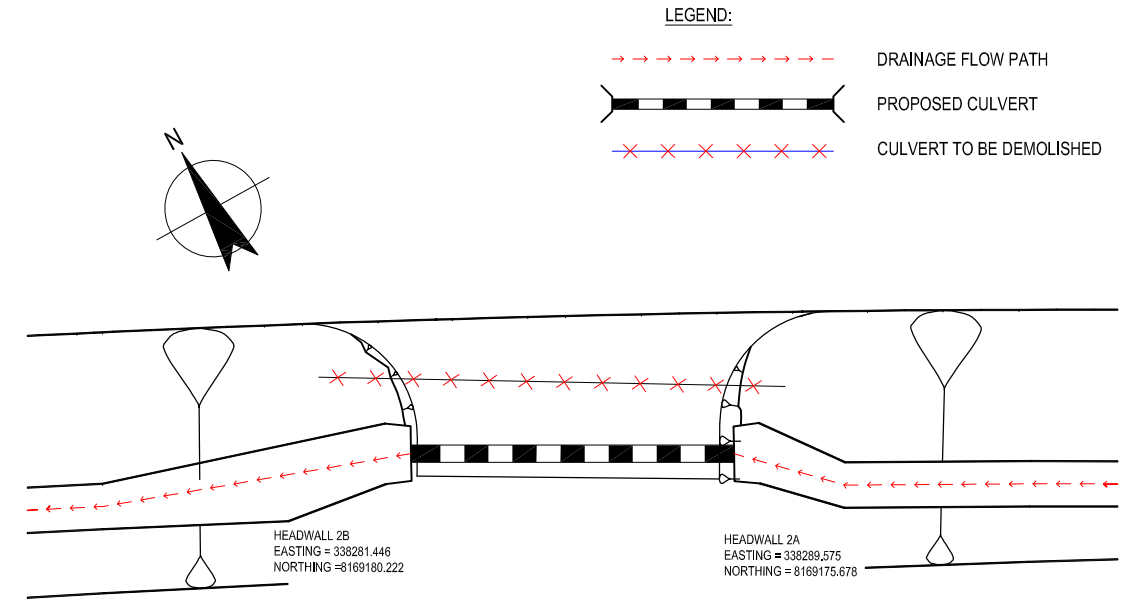
Title **MOWBRAY RIVER CARPARK INTERSECTION SET-OUT PLAN**

Original Size **A1** Drawing No: **42-21067-C005** Rev: **0**

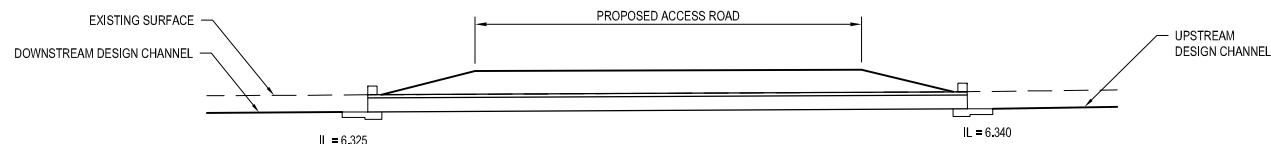




**CULVERT 1A  
PLAN VIEW**  
SCALE 1:100

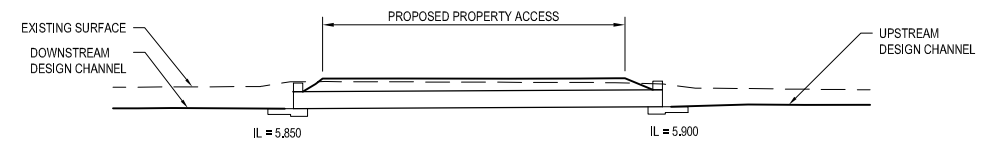


**CULVERT 1B  
PLAN VIEW**  
SCALE 1:100



450 RCP CLASS 2  
LENGTH = 15.06  
PRECAST CONCRETE  
SLOPING ENDWALLS X2

**CULVERT 1A  
SECTION VIEW**  
SCALE 1:100



450 RCP CLASS 2  
LENGTH = 9.76  
PRECAST CONCRETE  
SLOPING ENDWALLS X2

**CULVERT 1B  
SECTION VIEW**  
SCALE 1:100



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|   |  | Approved: *A.HILADELLIS (Project Director) | Date: 11/7/19  |  |
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CONTROL LINE MC02  
 X = 338300.874  
 Y = 8169180.438  
 Z = 7.021

Datum 4.00

|                  |  |  |  |         |         |        |  |        |        |  |       |
|------------------|--|--|--|---------|---------|--------|--|--------|--------|--|-------|
| EXISTING SURFACE |  |  |  | 6.427   | 6.411   | 6.345  |  | 6.609  | 6.776  |  | 7.021 |
| DESIGN SURFACE   |  |  |  | 6.427   | 5.695   | 5.695  |  | 6.695  | 6.776  |  | 7.021 |
| OFFSETS          |  |  |  | -12.523 | -11.060 | -9.860 |  | -5.860 | -4.415 |  | 0.000 |

CHAINAGE 56580.000

CONTROL LINE MC02  
 X = 338317.849  
 Y = 8169169.864  
 Z = 6.976

Datum 4.00

|                  |  |  |  |         |         |        |  |        |        |  |       |
|------------------|--|--|--|---------|---------|--------|--|--------|--------|--|-------|
| EXISTING SURFACE |  |  |  | 6.289   | 6.256   | 6.189  |  | 6.741  | 6.803  |  | 6.976 |
| DESIGN SURFACE   |  |  |  | 6.289   | 5.770   | 5.770  |  | 6.770  | 6.803  |  | 6.976 |
| OFFSETS          |  |  |  | -11.450 | -10.414 | -9.214 |  | -5.214 | -4.394 |  | 0.000 |

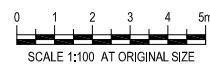
CHAINAGE 56560.000

CONTROL LINE MC02  
 X = 338323.201  
 Y = 8169166.355  
 Z = 6.962

Datum 4.00

|                  |  |  |  |         |         |        |  |        |        |  |       |
|------------------|--|--|--|---------|---------|--------|--|--------|--------|--|-------|
| EXISTING SURFACE |  |  |  | 6.270   | 6.217   | 6.146  |  | 6.768  | 6.806  |  | 6.962 |
| DESIGN SURFACE   |  |  |  | 6.270   | 5.781   | 5.781  |  | 6.761  | 6.806  |  | 6.962 |
| OFFSETS          |  |  |  | -11.188 | -10.210 | -9.010 |  | -5.010 | -4.325 |  | 0.000 |

CHAINAGE 56553.600

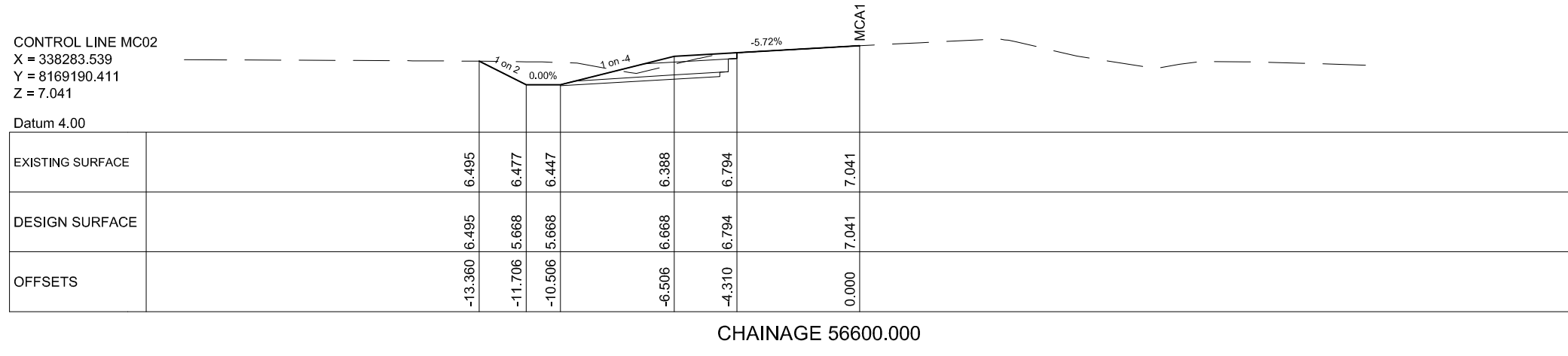
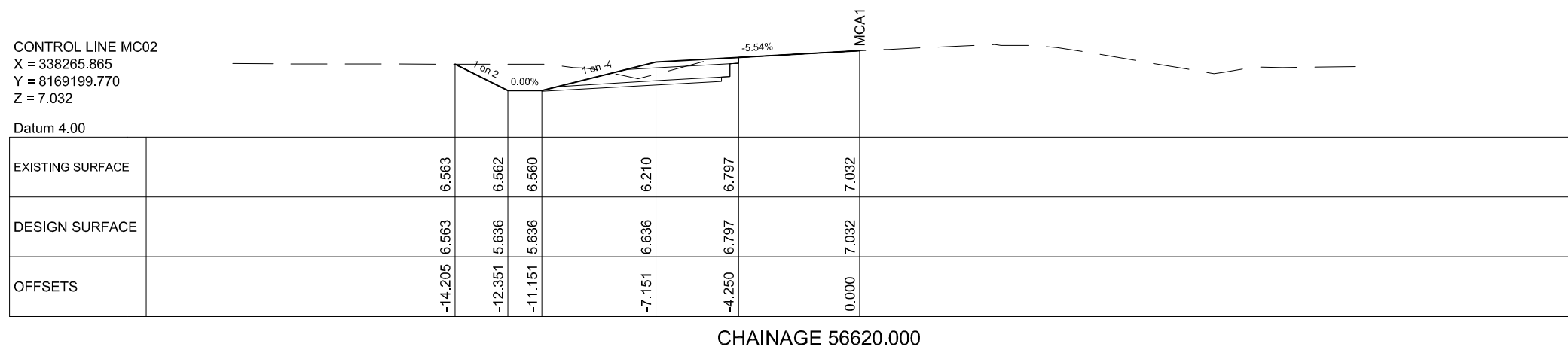
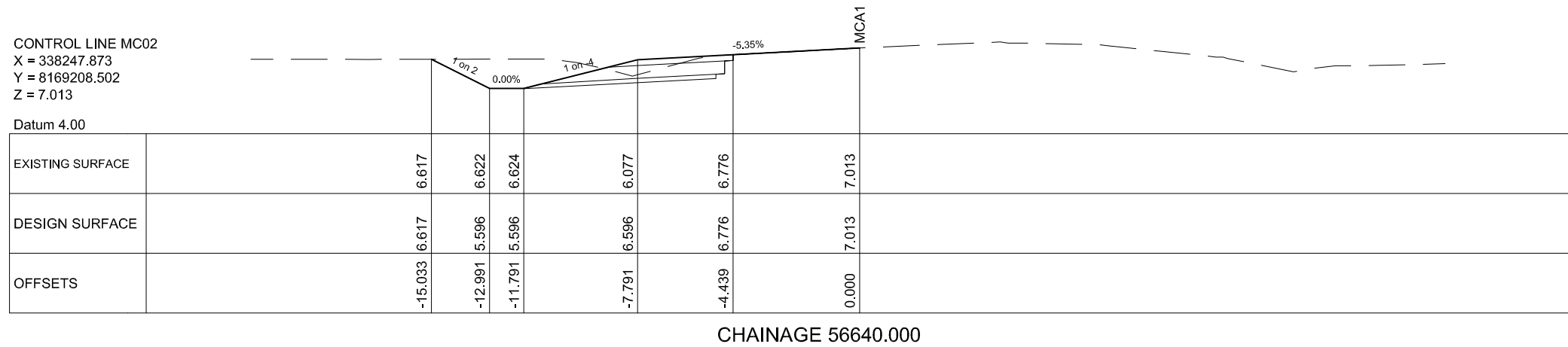


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|  | Approved (Project Director) | *A.HILADELLIS |  |              |
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| Project       | WANGETTI TRAIL  |
| Title         | MOWBRAY RIVER CARPARK<br>ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| Original Size | A1  |
| Drawing No:   | 42-21067-C008   |
| Rev:          | 0   |

|    |                |   |       |             |                  |         |
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| Project       | WANGETTI TRAIL  |
| Title         | MOWBRAY RIVER CARPARK<br>ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| Original Size | A1  |
| Drawing No:   | 42-21067-C009   |
| Rev:          | 0   |

CONTROL LINE MC02  
 X = 338192.217  
 Y = 8169230.842  
 Z = 6.874

Datum 4.00

|                  |  |         |         |         |       |        |        |       |       |
|------------------|--|---------|---------|---------|-------|--------|--------|-------|-------|
| EXISTING SURFACE |  |         | 6.608   | 6.631   | 6.642 |        | 5.907  | 6.646 | 6.874 |
| DESIGN SURFACE   |  | 6.608   | 5.458   | 5.458   |       | 6.458  | 6.646  | 6.874 |       |
| OFFSETS          |  | -15.505 | -13.205 | -12.005 |       | -8.005 | -4.401 | 0.000 |       |

CHAINAGE 56700.000

CONTROL LINE MC02  
 X = 338211.027  
 Y = 8169224.048  
 Z = 6.934

Datum 4.00

|                  |  |         |         |         |       |        |        |       |       |
|------------------|--|---------|---------|---------|-------|--------|--------|-------|-------|
| EXISTING SURFACE |  |         | 6.641   | 6.639   | 6.638 |        | 5.966  | 6.705 | 6.934 |
| DESIGN SURFACE   |  | 6.641   | 5.530   | 5.530   |       | 6.530  | 6.705  | 6.934 |       |
| OFFSETS          |  | -15.426 | -13.204 | -12.004 |       | -8.004 | -4.541 | 0.000 |       |

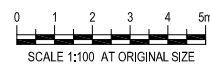
CHAINAGE 56680.000

CONTROL LINE MC02  
 X = 338229.587  
 Y = 8169216.599  
 Z = 6.980

Datum 4.00

|                  |  |         |         |         |       |        |        |       |       |
|------------------|--|---------|---------|---------|-------|--------|--------|-------|-------|
| EXISTING SURFACE |  |         | 6.660   | 6.654   | 6.650 |        | 6.020  | 6.747 | 6.980 |
| DESIGN SURFACE   |  | 6.660   | 5.563   | 5.563   |       | 6.563  | 6.747  | 6.980 |       |
| OFFSETS          |  | -15.398 | -13.204 | -12.004 |       | -8.004 | -4.471 | 0.000 |       |

CHAINAGE 56660.000



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| Drafting Check | *J.A.RAE                         | Design Check | *D.K.TROTTER |
| Approved       | *A.HILADELLIS (Project Director) |              |              |
| Date           | 11/7/19                          |              |              |
| Scale          | NOT TO SCALE                     |              |              |

|               |   |
|---------------|---|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT      |
| Project       | WANGETTI TRAIL  |
| Title         | MOWBRAY RIVER CARPARK<br>ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| Original Size | A1  |
| Drawing No:   | 42-21067-C010   |
| Rev:          | 0   |

CONTROL LINE MC02  
 X = 338134.522  
 Y = 8169247.211  
 Z = 6.593

Datum 4.00

|                |  |         |         |         |        |        |       |       |       |        |
|----------------|--|---------|---------|---------|--------|--------|-------|-------|-------|--------|
| TIN EXST       |  | 6.840   | 6.771   | 6.738   | 5.556  | 6.290  | 6.593 | 6.793 | 6.071 | 6.345  |
| DESIGN SURFACE |  | 6.840   | 5.073   | 5.073   | 6.073  | 6.290  | 6.593 | 6.793 | 6.898 | 6.345  |
| OFFSETS        |  | -16.245 | -12.711 | -11.511 | -7.511 | -4.373 | 0.000 | 4.477 | 8.000 | 10.214 |

CHAINAGE 56760.000

CONTROL LINE MC02  
 X = 338153.941  
 Y = 8169242.431  
 Z = 6.701

Datum 4.00

|                |  |         |         |         |        |        |       |       |       |        |
|----------------|--|---------|---------|---------|--------|--------|-------|-------|-------|--------|
| TIN EXST       |  | 6.781   | 6.781   | 6.782   | 5.639  | 6.466  | 6.701 | 6.900 | 6.267 | 6.461  |
| DESIGN SURFACE |  | 6.781   | 5.262   | 5.262   | 6.262  | 6.466  | 6.701 | 6.900 | 7.004 | 6.461  |
| OFFSETS        |  | -16.238 | -13.200 | -12.000 | -8.000 | -4.276 | 0.000 | 4.551 | 8.000 | 10.173 |

CHAINAGE 56740.000

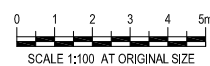
CONTROL LINE MC02  
 X = 338173.181  
 Y = 8169236.973  
 Z = 6.819

Datum 4.00

|                  |  |         |         |         |        |        |       |       |  |  |
|------------------|--|---------|---------|---------|--------|--------|-------|-------|--|--|
| EXISTING SURFACE |  | 6.661   | 6.644   | 6.636   | 5.785  | 6.571  | 6.819 | 6.995 |  |  |
| DESIGN SURFACE   |  | 6.661   | 5.360   | 5.360   | 6.360  | 6.571  | 6.819 | 6.995 |  |  |
| OFFSETS          |  | -15.808 | -13.205 | -12.005 | -8.005 | -4.323 | 0.000 | 4.409 |  |  |

CHAINAGE 56720.000

INTERSECTION RHS  
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|  | Drafting Check              | *J.A.RAE        | Design Check   | *D.K.TROTTER |
|  | Approved (Project Director) | *A.A.HILADELLIS |  |              |
|  | Date                        | 11/7/19         |  |              |
| Scale  | NOT TO SCALE                |                 | This Drawing must not be used for Construction unless signed as Approved |              |

|               |   |
|---------------|---|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT      |
| Project       | WANGETTI TRAIL  |
| Title         | MOWBRAY RIVER CARPARK<br>ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| Original Size | A1  |
| Drawing No:   | 42-21067-C011   |
| Rev:          | 0   |

|    |                |   |       |             |                  |         |
|----|----------------|---|-------|-------------|------------------|---------|
| No | Revision       | Note: * Indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date    |
| 0  | APPROVED ISSUE |   | JPT   | *MI         | *AA              | 11/7/19 |

CONTROL LINE MC02  
 X = 338066.233  
 Y = 8169258.447  
 Z = 6.078

Datum 4.00

|                  |  |         |  |         |        |  |        |        |  |       |
|------------------|--|---------|--|---------|--------|--|--------|--------|--|-------|
| EXISTING SURFACE |  | 6.939   |  | 6.479   | 5.392  |  | 5.727  | 5.843  |  | 6.078 |
| DESIGN SURFACE   |  | 6.939   |  | 4.801   | 4.801  |  | 5.801  | 5.843  |  | 6.078 |
| OFFSETS          |  | -14.958 |  | -10.683 | -9.483 |  | -5.483 | -4.643 |  | 0.000 |

CHAINAGE 56829.250

CONTROL LINE MC02  
 X = 338075.426  
 Y = 8169257.427  
 Z = 6.166

Datum 4.00

|                  |  |         |  |         |        |  |        |        |  |       |
|------------------|--|---------|--|---------|--------|--|--------|--------|--|-------|
| EXISTING SURFACE |  | 6.964   |  | 6.650   | 5.733  |  | 5.773  | 5.919  |  | 6.166 |
| DESIGN SURFACE   |  | 6.964   |  | 4.866   | 4.866  |  | 5.866  | 5.919  |  | 6.166 |
| OFFSETS          |  | -15.085 |  | -10.889 | -9.689 |  | -5.689 | -4.689 |  | 0.000 |

CHAINAGE 56820.000

CONTROL LINE MC02  
 X = 338095.240  
 Y = 8169254.714  
 Z = 6.313

Datum 4.00

|                |  |         |  |         |         |  |        |        |  |       |  |       |  |       |  |        |
|----------------|--|---------|--|---------|---------|--|--------|--------|--|-------|--|-------|--|-------|--|--------|
| TIN EXST       |  | 6.937   |  | 6.770   | 6.339   |  | 5.721  | 6.091  |  | 6.313 |  | 6.498 |  | 5.931 |  | 5.638  |
| DESIGN SURFACE |  | 6.937   |  | 5.009   | 5.009   |  | 6.009  | 6.091  |  | 6.313 |  | 6.498 |  | 6.590 |  | 5.638  |
| OFFSETS        |  | -15.255 |  | -11.400 | -10.200 |  | -6.200 | -4.544 |  | 0.000 |  | 4.249 |  | 7.289 |  | 15.655 |

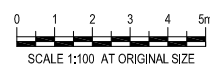
CHAINAGE 56800.000

CONTROL LINE MC02  
 X = 338114.947  
 Y = 8169251.307  
 Z = 6.448

Datum 4.00

|                |  |         |  |         |         |  |        |        |  |       |  |       |  |       |  |        |
|----------------|--|---------|--|---------|---------|--|--------|--------|--|-------|--|-------|--|-------|--|--------|
| TIN EXST       |  | 6.880   |  | 6.775   | 6.742   |  | 5.504  | 6.169  |  | 6.448 |  | 6.674 |  | 6.062 |  | 6.092  |
| DESIGN SURFACE |  | 6.880   |  | 5.006   | 5.006   |  | 6.006  | 6.169  |  | 6.448 |  | 6.674 |  | 6.783 |  | 6.092  |
| OFFSETS        |  | -15.754 |  | -12.007 | -10.807 |  | -6.807 | -4.310 |  | 0.000 |  | 4.386 |  | 8.000 |  | 15.412 |

CHAINAGE 56780.000

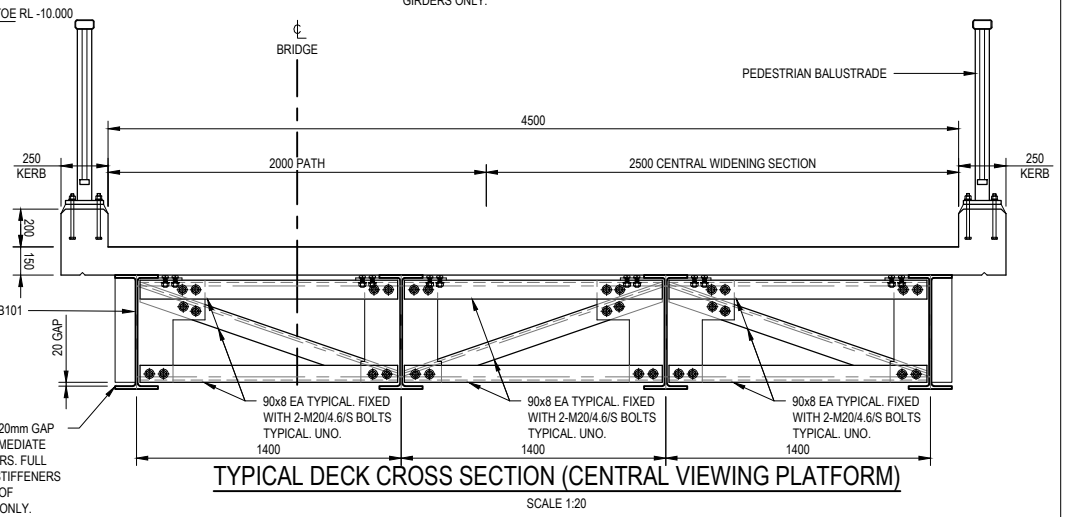
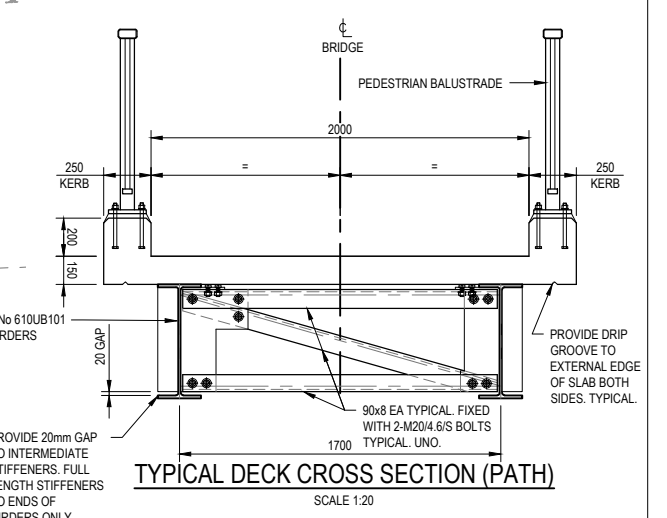
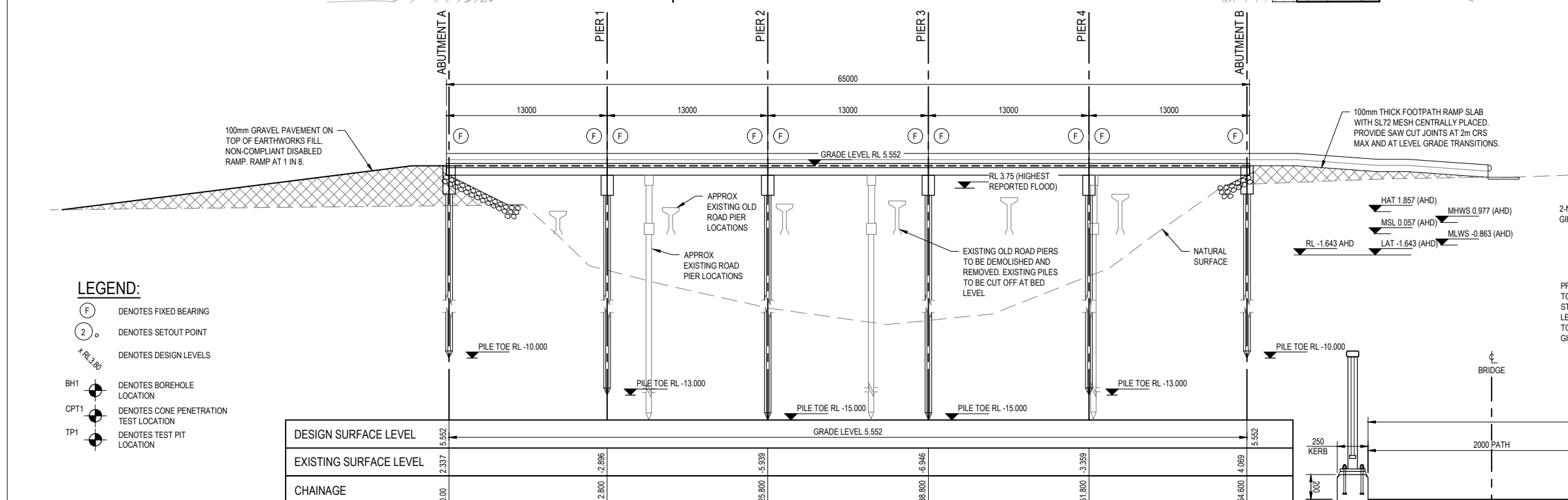
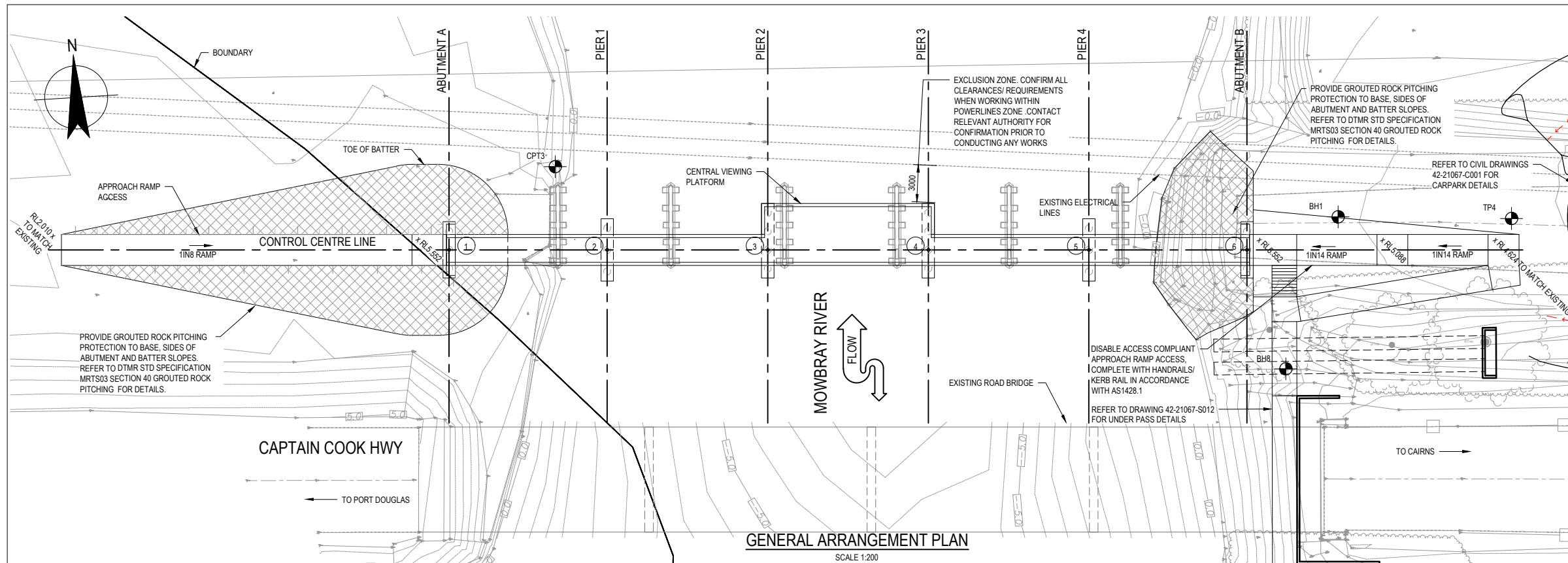


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|  | Drafting Check              | *J.A.RAE        | Design Check | *D.K.TROTTER |
|  | Approved (Project Director) | *A.A.HILADELLIS |              |              |
|  | Date                        | 11/7/19         |              |              |
| Scale  | NOT TO SCALE                |                 |              |              |

|               |   |
|---------------|---|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT      |
| Project       | WANGETTI TRAIL  |
| Title         | MOWBRAY RIVER CARPARK<br>ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| Original Size | A1  |
| Drawing No:   | 42-21067-C012   |
| Rev:          | 0   |

**GENERAL NOTES**

1. READ THESE NOTES IN CONJUNCTION WITH OTHER ENGINEERING DRAWINGS AND SPECIFICATIONS, AND WITH SUCH OTHER WRITTEN INSTRUCTIONS ISSUED. IN CASE OF DISCREPANCY, PRECEDENCE IS GIVEN TO DRAWINGS, THEN NOTES THEN SPECIFICATION.
2. CARRY OUT WORK IN A SAFE MANNER IN ACCORDANCE WITH APPLICABLE STATUTORY REGULATIONS, BY-LAWS OR RULES. CONTRACTOR IS RESPONSIBLE FOR OCCUPATIONAL HEALTH AND SAFETY OF SITE PERSONAL AND GENERAL PUBLIC IN ACCORDANCE WITH LEGISLATIVE REQUIREMENTS, INDUSTRIAL AGREEMENTS AND ACCEPTED INDUSTRY PRACTICE.
3. REFER TO GEOTECHNICAL INVESTIGATION REPORT No90810.00 PREPARED BY DOUGLAS PARTNERS DATED MAY 2019. NOTIFY SUPERINTENDENT IF CONDITIONS ENCOUNTERED DIFFER FROM THOSE DESCRIBED IN THE REPORT AND SEEK DIRECTIONS.
4. LEVELS DATUM - AHD  
ORIGIN OF LEVELS: OPSM 58688 (RL 8.533)  
MERIDIAN: MGA ZONE 55
5. NO FILLING TO BE PLACED ABOVE SOFFIT OF ABUTMENT HEADSTOCKS UNTIL AT LEAST TWO (2) DAYS AFTER ERECTION OF ALL SPANS AND GROUTING OF HOLD DOWN BOLTS.
6. REINFORCING STEEL TO BE AUSTRALIAN MADE GRADE 500M TO AS 1302.
7. ALL BOLTS AND NUTS TO BE HOT DIP GALVANISED TO AS 1214 UNO. ALL WASHERS TO BE HOT DIP GALVANISED TO AS1650 UNO. ANY GALVANISED ELEMENT IN CONTACT WITH CEMENTITIOUS MATERIAL TO BE PASSIVATED IN 0.2% SODIUM DICHROMATE SOLUTION.
8. SPACING OF REINFORCEMENT IN HEADSTOCKS MAYBE ALTERED SLIGHTLY IF NECESSARY TO CLEAR HOLD DOWN BOLTS.
9. ALL EXPOSED EDGES TO HAVE 25x25 CHAMFERS UNLESS SHOWN OTHERWISE.
10. A DATE PLATE IS TO BE CAST INTO THE TOP OF THE LEFT HAND SIDE WALL AT ABUTMENT A SIMILAR TO DTMR STANDARD DATE PLATE DRAWING 1063. CONFIRM DATE PLATE WITH CLIENT.
11. A BRASS BENCH MARK IS TO BE CAST INTO THE TOP OF THE LEFT HAND WINGWALL AT ABUTMENT A.
12. LOADINGS IN ACCORDANCE WITH:
  - (a) DESIGN LIVE LOAD IS IN ACCORDANCE WITH AS2156.2 - 1.4 kN CONCENTRATED LOAD TAKEN OVER AN AREA OF 75mm BY 75mm, OR 4kPa FOR VIEWING PLATFORM AND 3 kPa FOR ACCESS WAYS FOR TRACK
  - (b) PILE TIP LEVELS SHOWN ARE CONTRACT LEVELS AND ARE SUBJECT TO VARIANCE AS DIRECTED BY THE SUPERINTENDENT.
  - (c) DESIGN MAXIMUM STREAM VELOCITY - 3.1m/s (ARI 100)
  - (d) BRIDGE IS DESIGNED AS SUBMERGED WITH 1.0m DEBRIS MAT
  - (e) LOG IMPACT PLUS STREAM FORCE = 200kN ACTING AT BASE OF PIER HEADSTOCK
  - (f) DESIGN SCOUR = 1m
13. PILE ULTIMATE LOAD:
  - 550 OCT PILE - ULTIMATE LIMIT STATE 500 kN (1100 kN GEOTECHNICAL LOAD)
  - 550 OCT PILE - ULTIMATE LIMIT STATE UPLIFT 125 kN (280 kN GEOTECHNICAL LOAD)
14. ALL EXISTING SERVICES AND UTILITIES SHALL BE PROTECTED FROM DAMAGE BY THE OPERATIONS OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OF SERVICES DAMAGED DURING CONSTRUCTION. CONTRACTOR TO LOCATE ALL SERVICES ON SITE PRIOR TO COMMENCEMENT OF ANY WORKS.
15. CONTRACTOR SHALL VERIFY ALL SETOUT DETAILS AND DIMENSIONS ON SITE PRIOR TO COMMENCEMENT OF SITE WORKS. ANY DISCREPANCIES TO BE REPORTED TO THE SUPERINTENDENT IMMEDIATELY.
16. SPOIL MATERIAL TO BE USED ON SITE AS DIRECTED BY SUPERINTENDENT.
17. GRADE EVENLY BETWEEN LEVELS SHOWN.
18. SUPERSTRUCTURE STRUCTURAL STEELWORK TO BE COATED USING EITHER 2 PACK EPOXY (PURS) OR HIGH BUILD EPOXY COATING (EHB6) IN ACCORDANCE WITH AS2312.1.



- LEGEND:**
- (F) DENOTES FIXED BEARING
  - (2) DENOTES SETOUT POINT
  - x RL 3.80 DENOTES DESIGN LEVELS
  - BH1 DENOTES BOREHOLE LOCATION
  - CPT1 DENOTES CONE PENETRATION TEST LOCATION
  - TP1 DENOTES TEST PIT LOCATION

| SETOUT POINTS |            |             |
|---------------|------------|-------------|
| POINT         | EASTING    | NORTHING    |
| 1             | 337947.995 | 8169284.821 |
| 2             | 337960.770 | 8169284.023 |
| 3             | 337973.744 | 8169283.213 |
| 4             | 337986.719 | 8169282.404 |
| 5             | 337999.694 | 8169281.594 |
| 6             | 338012.469 | 8169280.796 |

|    |                |   |       |             |                  |      |
|----|----------------|---|-------|-------------|------------------|------|
| 0  | APPROVED ISSUE | WRC   | *MI   | *AA         | 08.07.19         |      |
| No | Revision       | Note: * indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date |



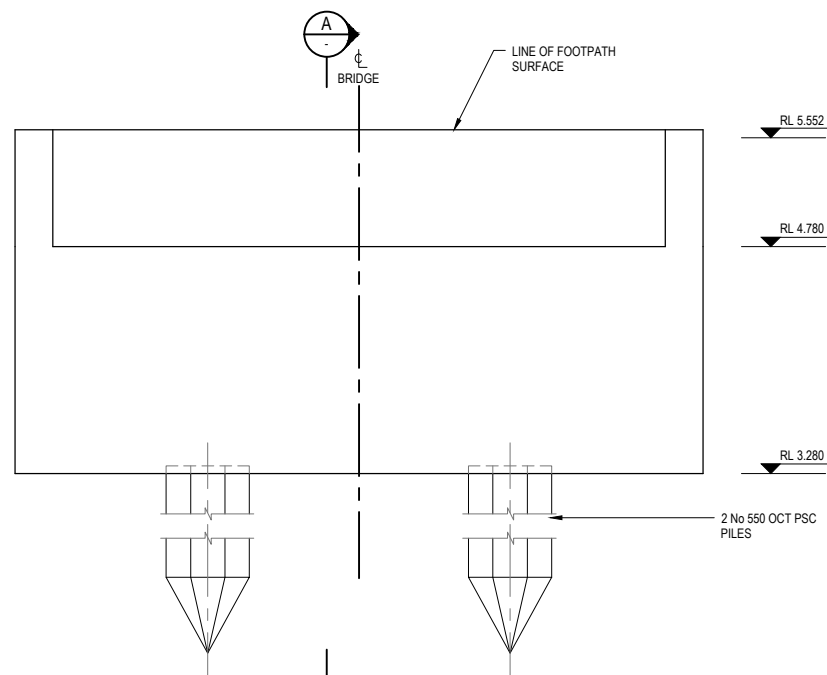
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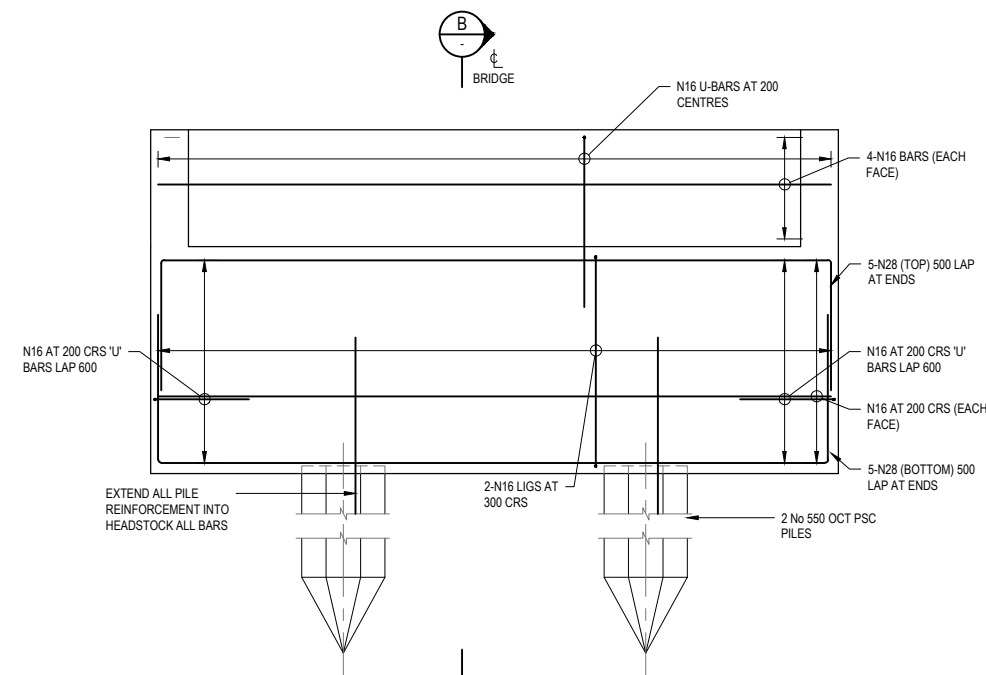
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 Designer: A.AHILADELLIS  
 Drafting Check: \*M.ISENBERT  
 Design Check: \*M.ISENBERT  
 Approved (Project Director): \*A.AHILADELLIS  
 Date: 08.07.19  
 Scale: AS SHOWN

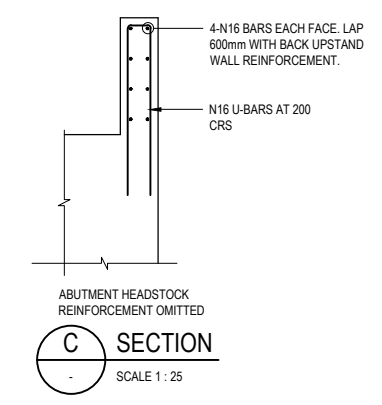
Client: **DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT**  
 Project: **WANGETTI TRAIL**  
 Title: **BRIDGE WORK GENERAL ARRANGEMENT**  
 Original Size: **A1**  
 Drawing No: **42-21067-S001**  
 Rev: **0**



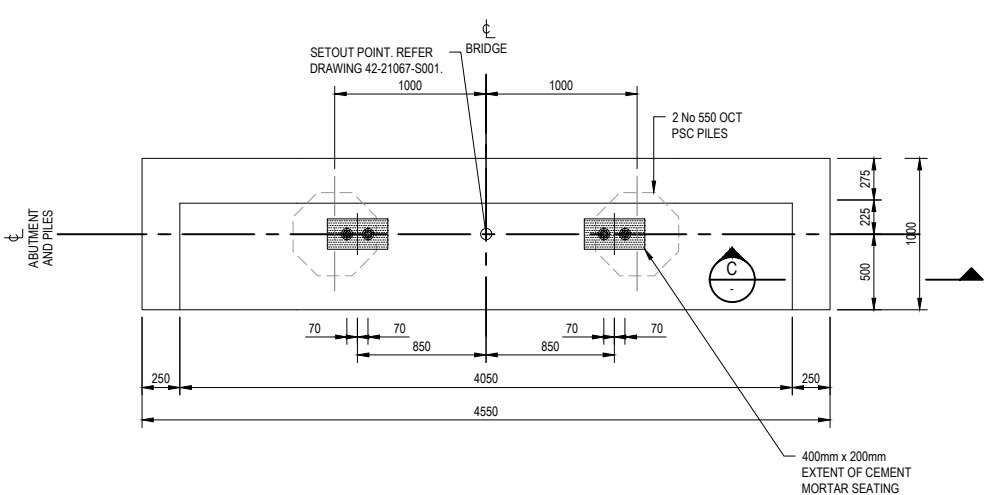
**ELEVATION - ABUTMENT A**  
(ABUTMENT B SIMILAR)  
SCALE 1:25



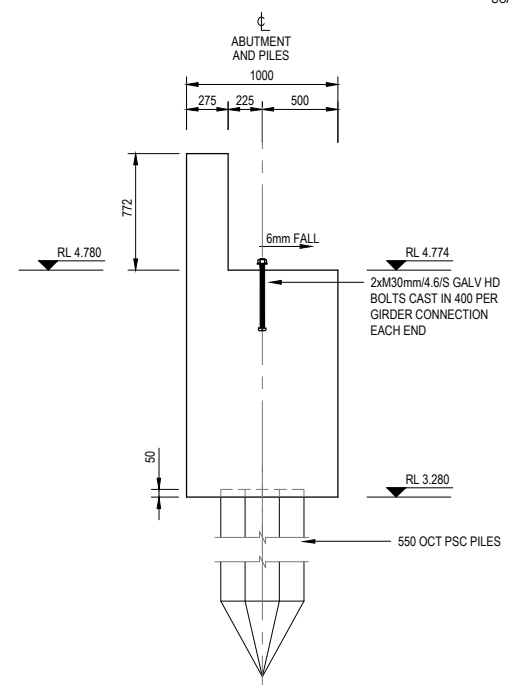
**ELEVATION - ABUTMENT A**  
(ABUTMENT B SIMILAR)  
SCALE 1:25



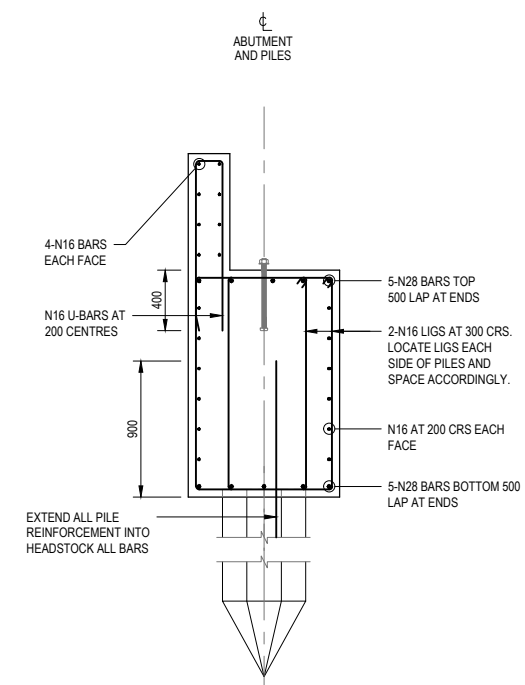
**SECTION C**  
SCALE 1:25



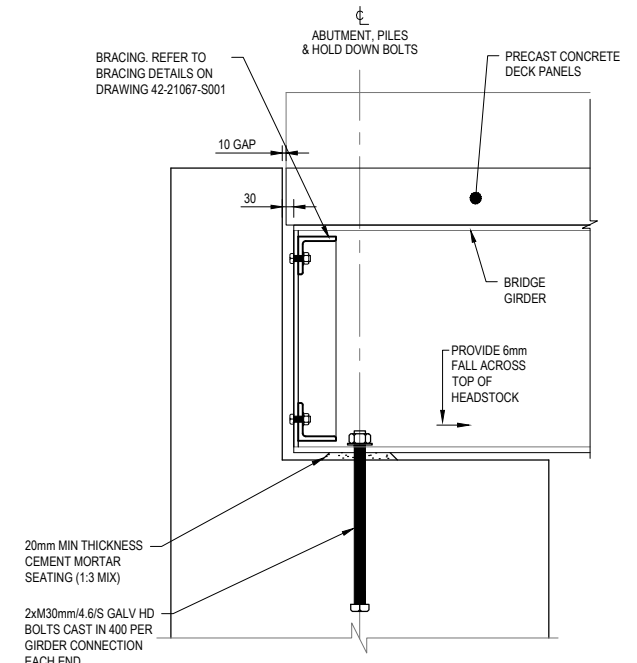
**PLAN ON HEADSTOCK**  
SCALE 1:25



**SECTION A**  
SCALE 1:25

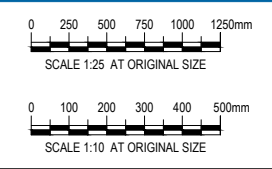


**SECTION B**  
SCALE 1:25



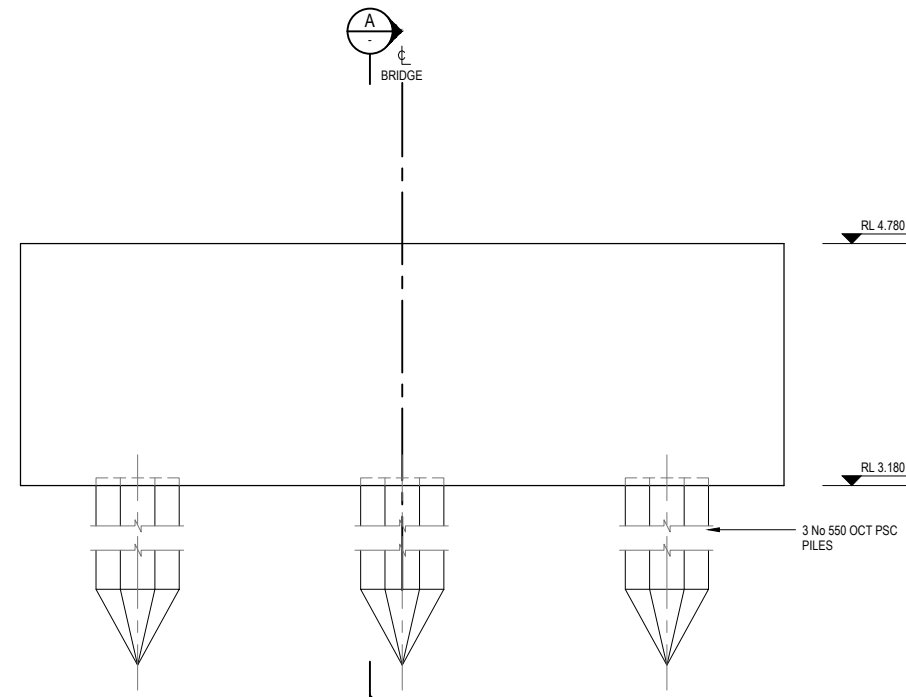
**TYPICAL ABUTMENT ANCHOR DETAILS**  
SCALE 1:10

|    |                |   |       |             |                  |          |
|----|----------------|---|-------|-------------|------------------|----------|
| No | Revision       | Note: * indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date     |
| 0  | APPROVED ISSUE |   | WRC   | *MI         | *AA              | 08.07.19 |

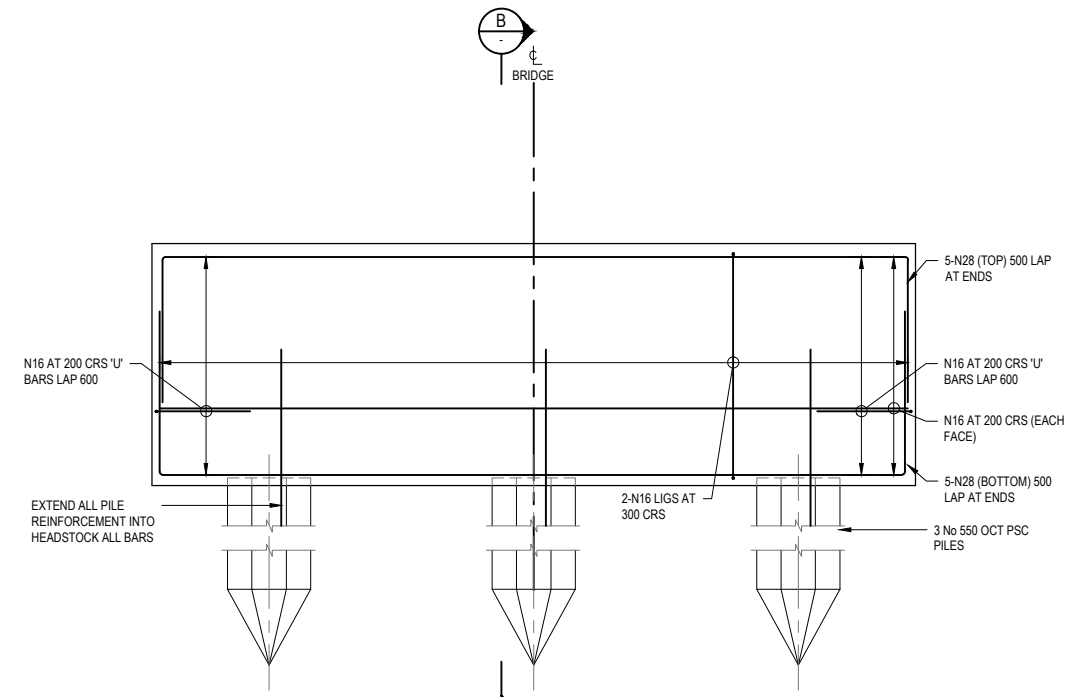


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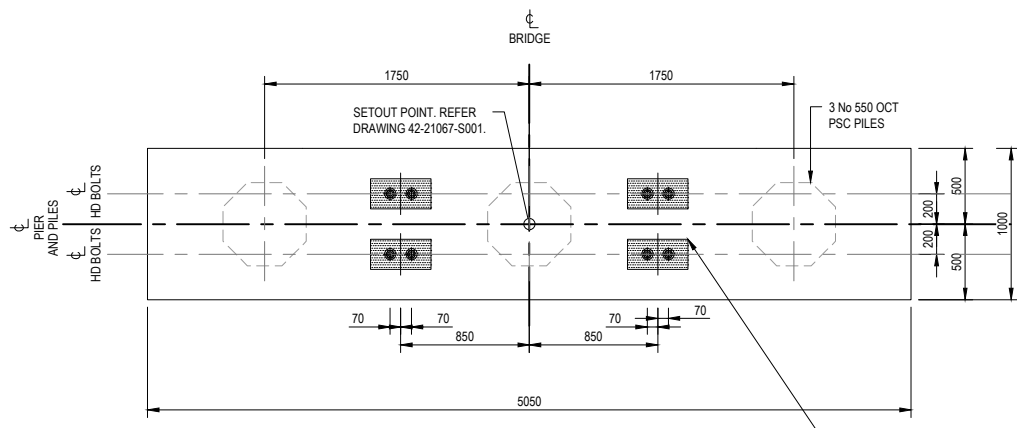
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|  | Drafting Check              | *M.ISENBERT    | Design Check   | *M.ISENBERT   | Project          | WANGETTI TRAIL   |
|  | Approved (Project Director) | *A.AHILADELLIS |  | Title         | BRIDGE WORK      |  |
|  | Date                        | 08.07.19       |  | Title         | ABUTMENT DETAILS |  |
| Scale  | AS SHOWN                    |                | This Drawing must not be used for Construction unless signed as Approved |               | Original Size    | A1 Drawing No: 42-21067-S002                           |
|  |                             |                |  |               |                  | Rev: 0   |



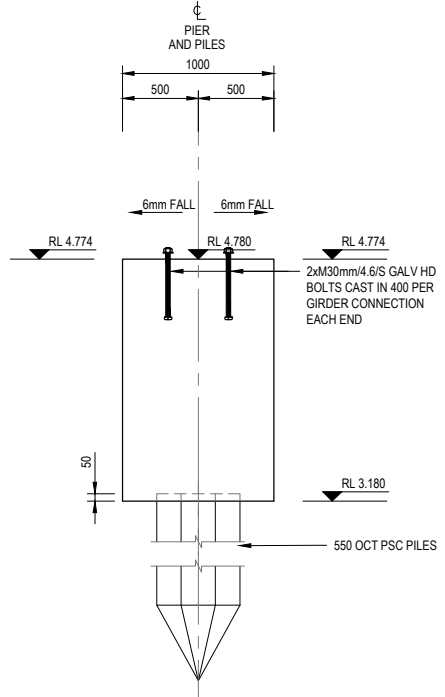
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SCALE 1:25



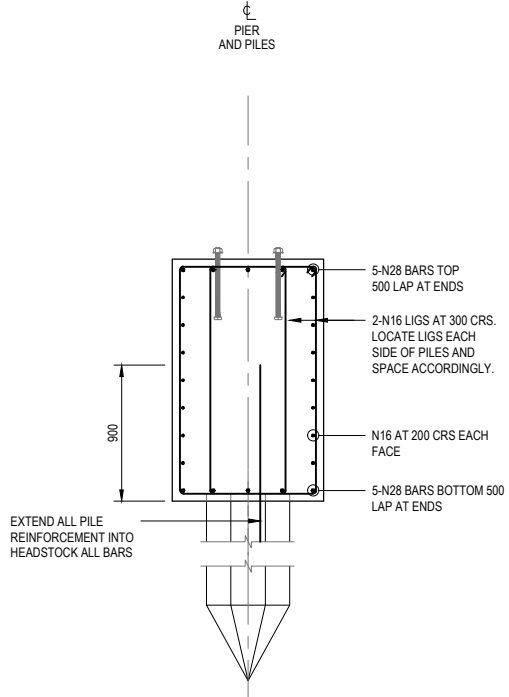
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(PIER 4 SIMILAR)  
SCALE 1:25



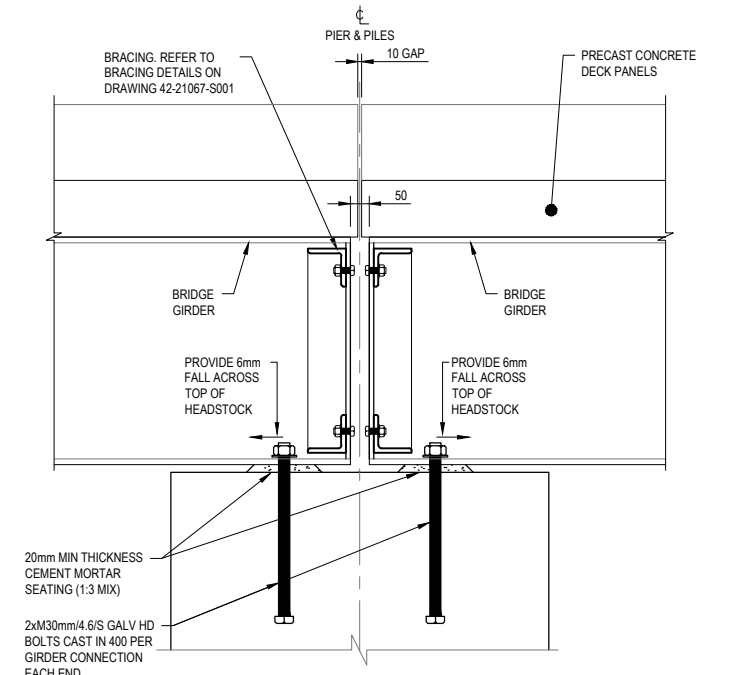
**PLAN ON HEADSTOCK**  
SCALE 1:25



**A SECTION**  
SCALE 1: 25

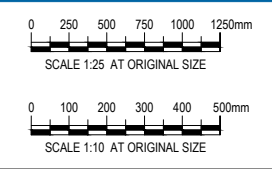


**B SECTION**  
SCALE 1: 25



**TYPICAL PIER ANCHOR DETAILS**  
SCALE 1:10

|    |                |   |       |             |                  |          |
|----|----------------|---|-------|-------------|------------------|----------|
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| 0  | APPROVED ISSUE |   | WRC   | *MI         | *AA              | 08.07.19 |

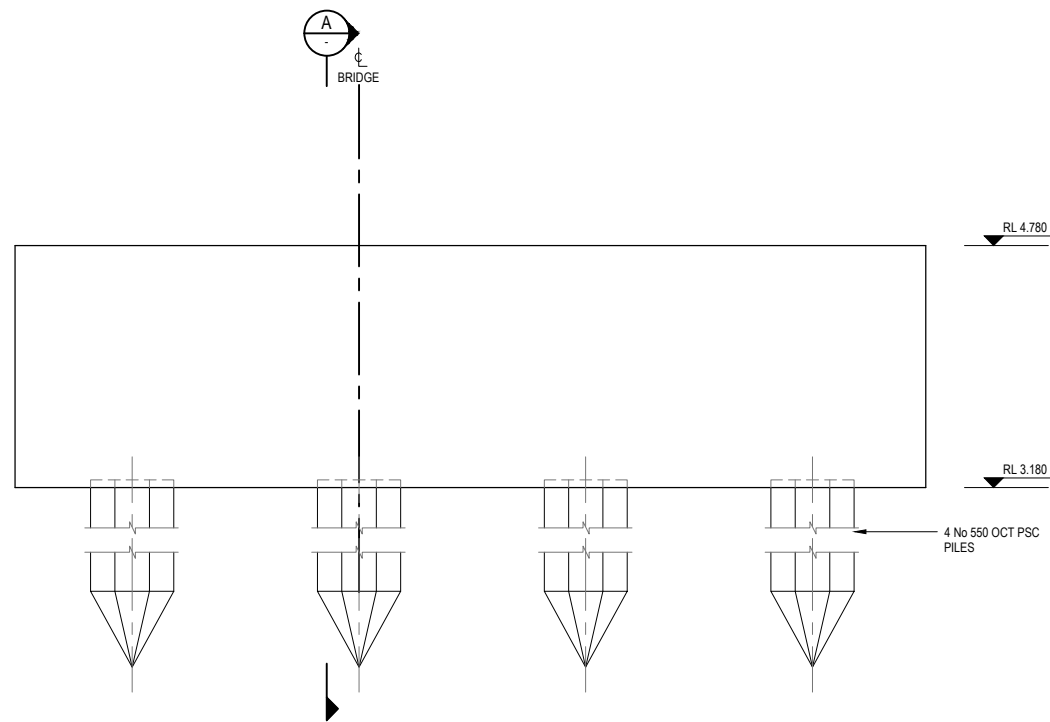


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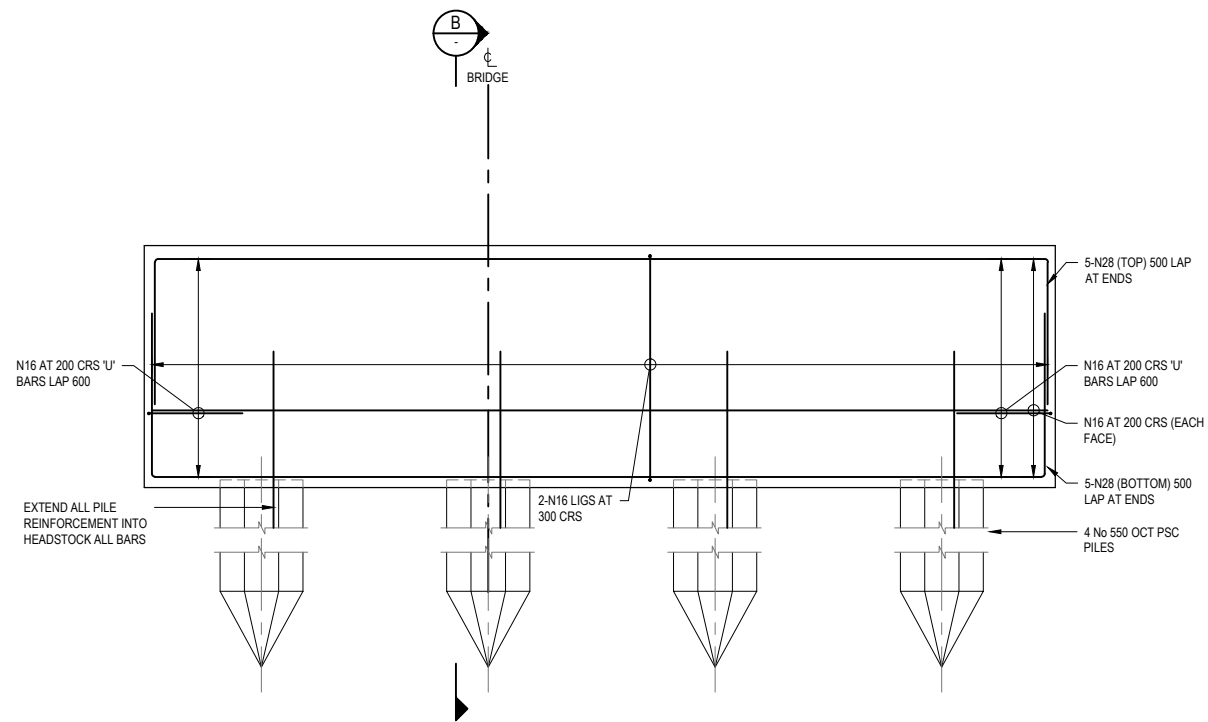
|   |  |  |
|---|--|--|
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|   | Approved (Project Director) *A.AHILADELLIS | Date 08.07.19  |
|   | Scale AS SHOWN                             | This Drawing must not be used for Construction unless signed as Approved |

|               |  |
|---------------|--|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT |
| Project       | WANGETTI TRAIL   |
| Title         | BRIDGE WORK<br>PIERS 1 & 4 DETAILS                     |
| Original Size | A1 Drawing No: 42-21067-S003                           |
| Rev:          | 0  |

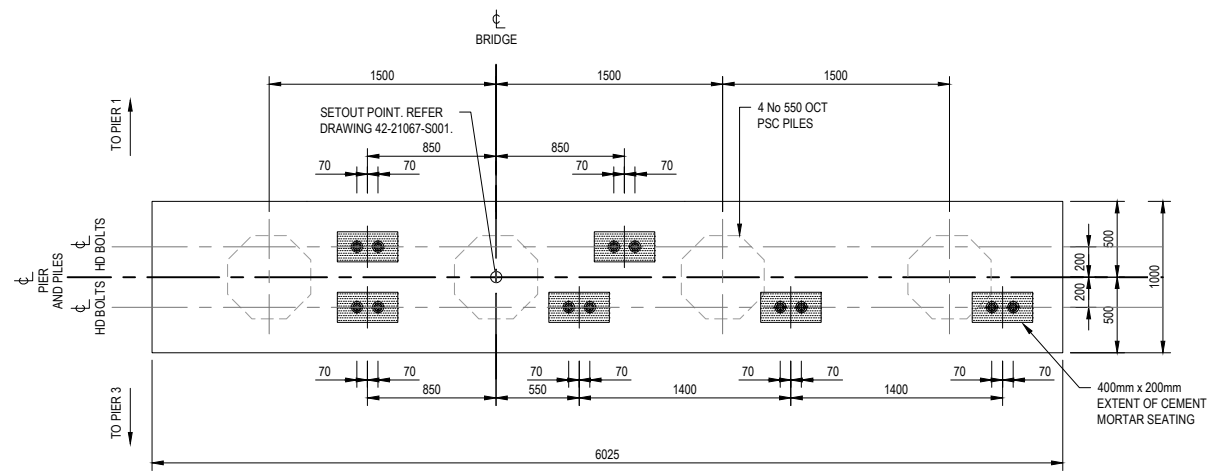




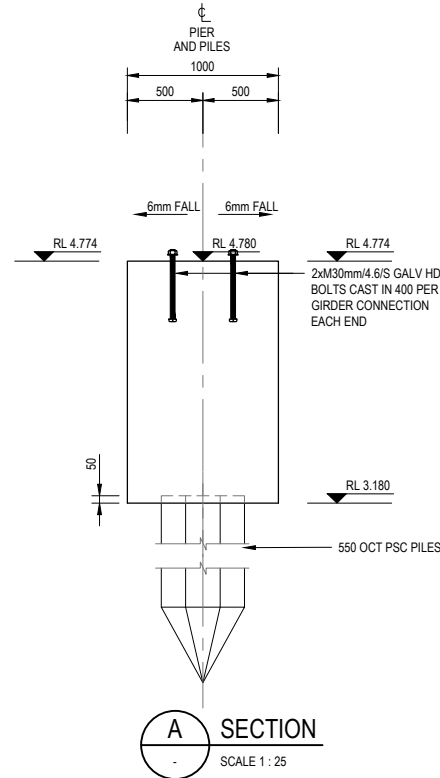
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**(PIER 3 SIMILAR)**  
SCALE 1:25



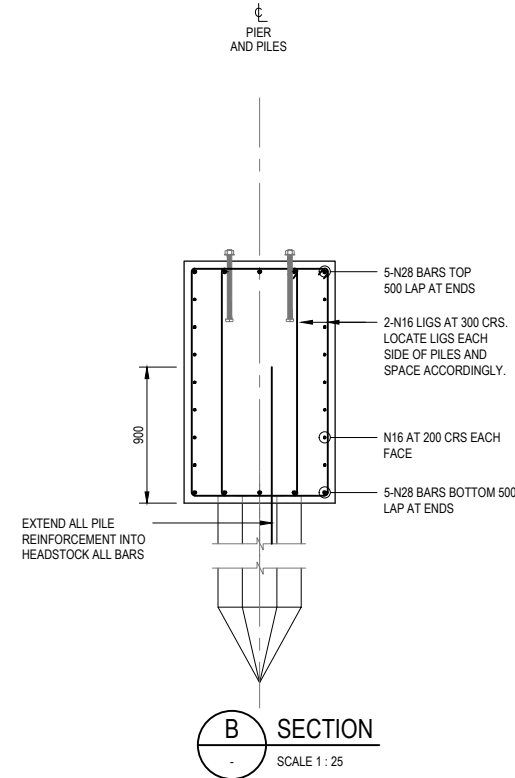
**ELEVATION - PIER 2**  
**(PIER 3 SIMILAR)**  
SCALE 1:25



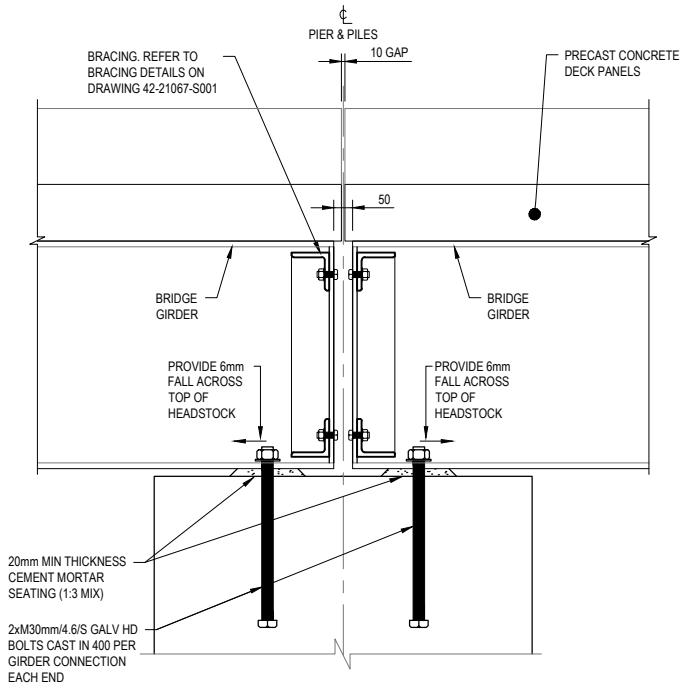
**PLAN ON HEADSTOCK**  
SCALE 1:25



**A SECTION**  
SCALE 1:25

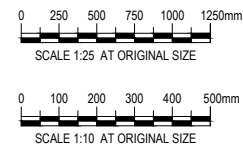


**B SECTION**  
SCALE 1:25



**TYPICAL PIER ANCHOR DETAILS**  
SCALE 1:10

|    |                |   |       |             |                  |          |
|----|----------------|---|-------|-------------|------------------|----------|
| No | Revision       | Note: * indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date     |
| 0  | APPROVED ISSUE |   | WRC   | *MI         | *AA              | 08.07.19 |



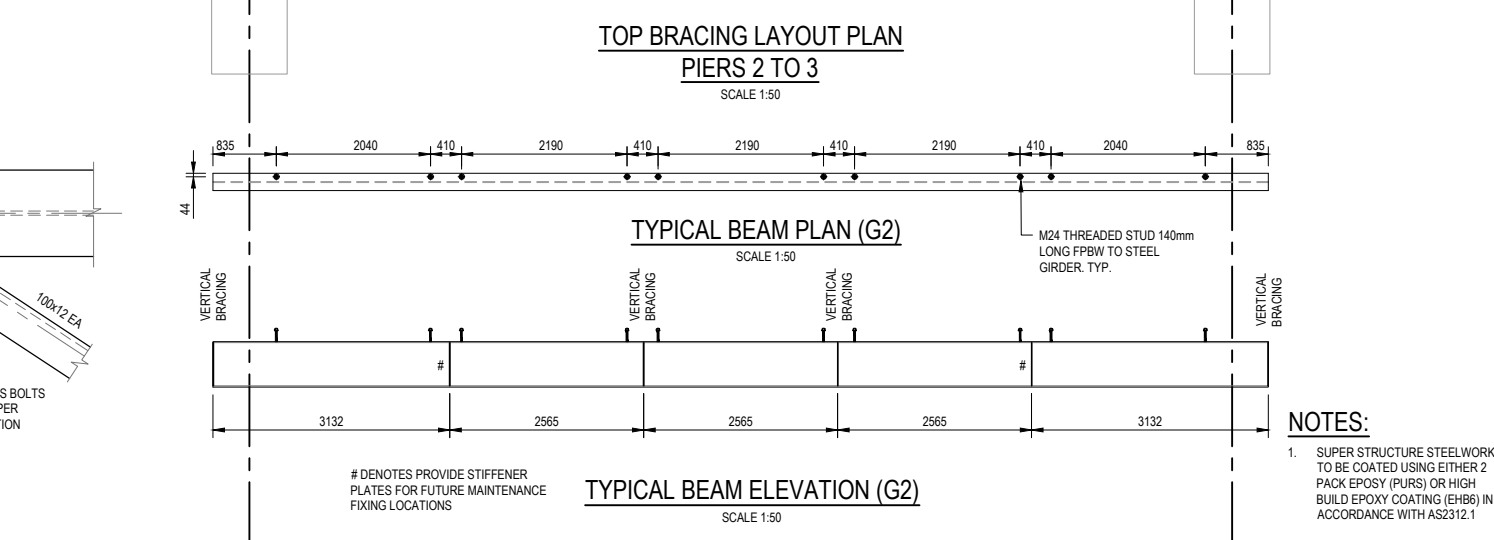
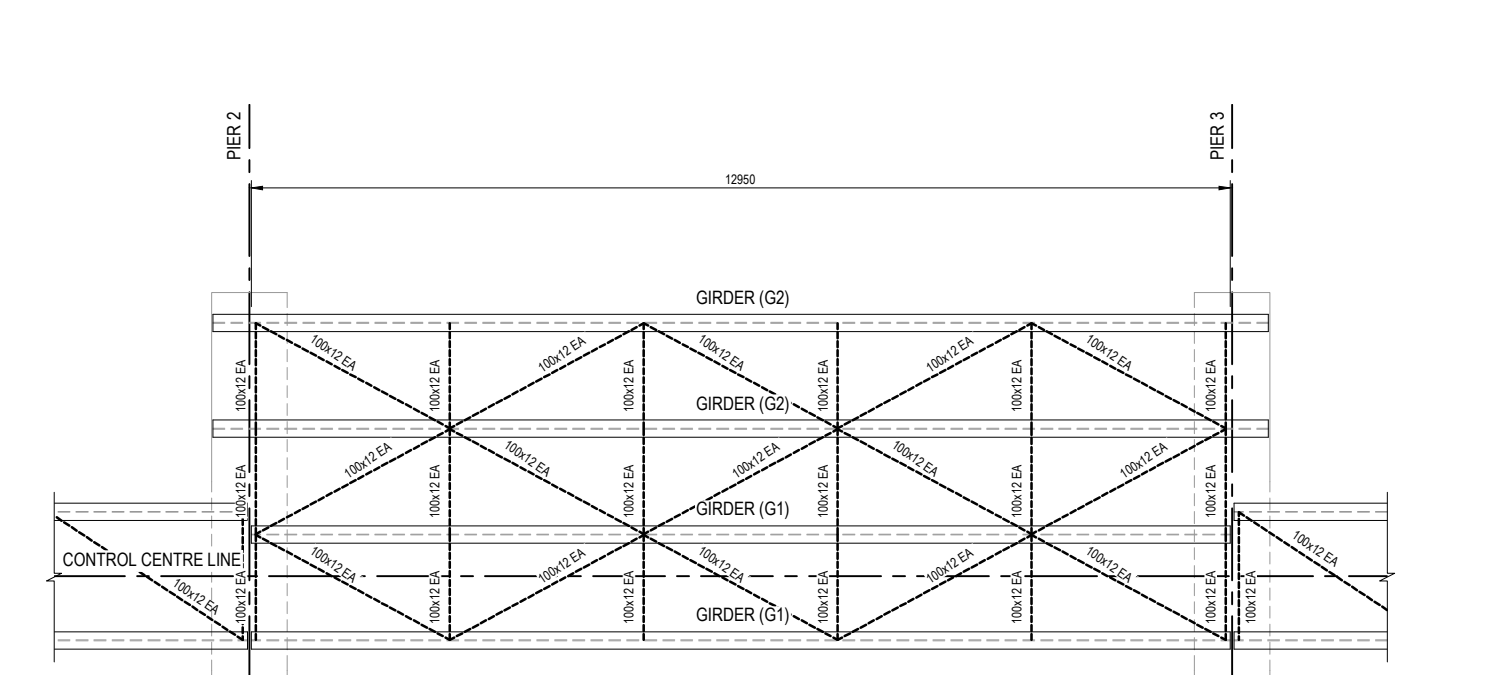
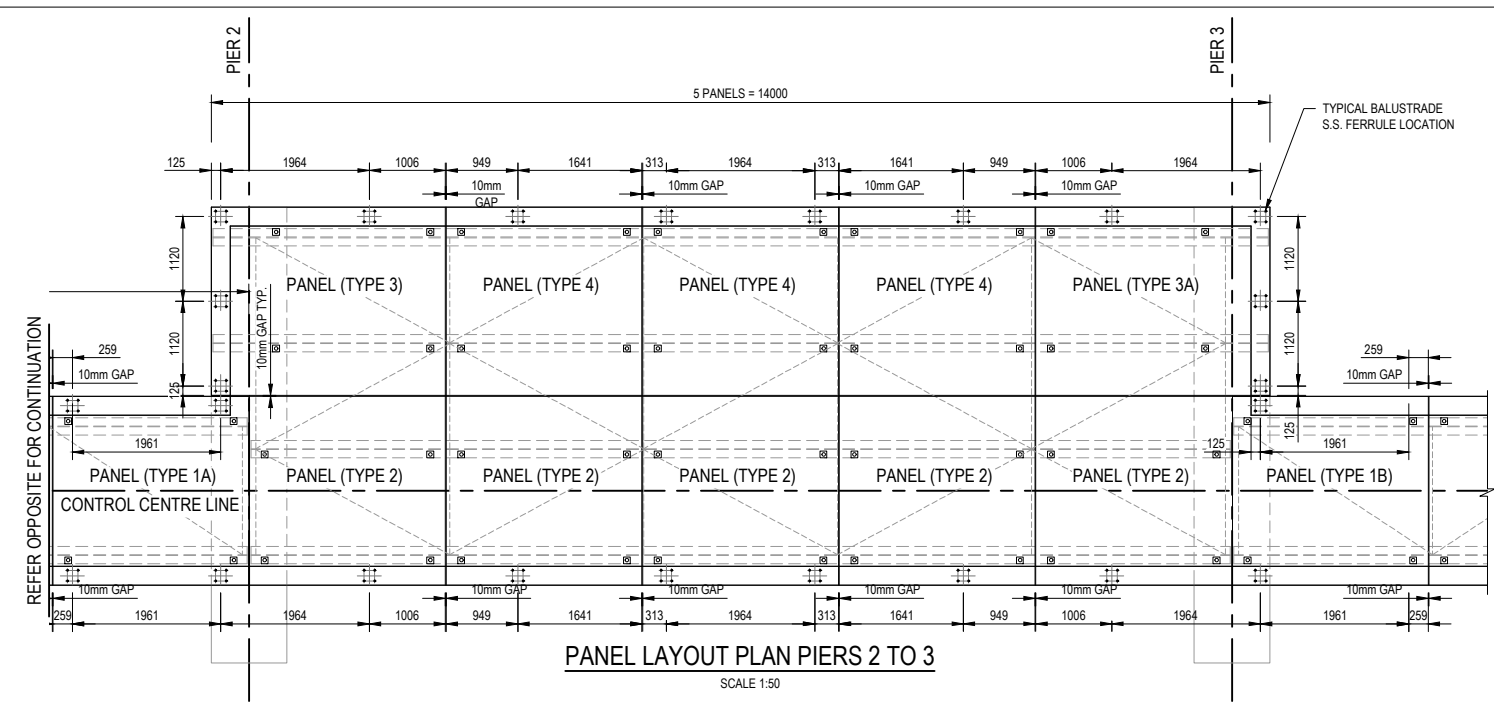
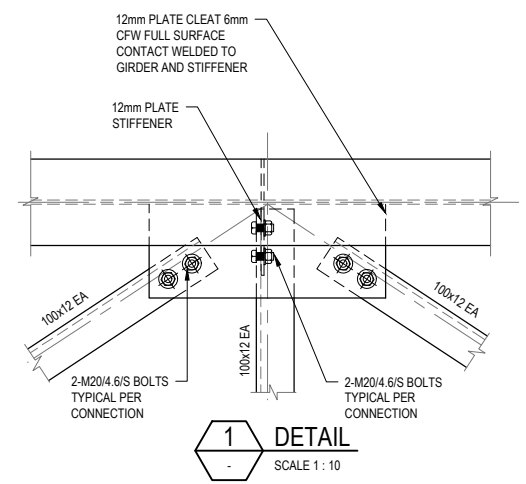
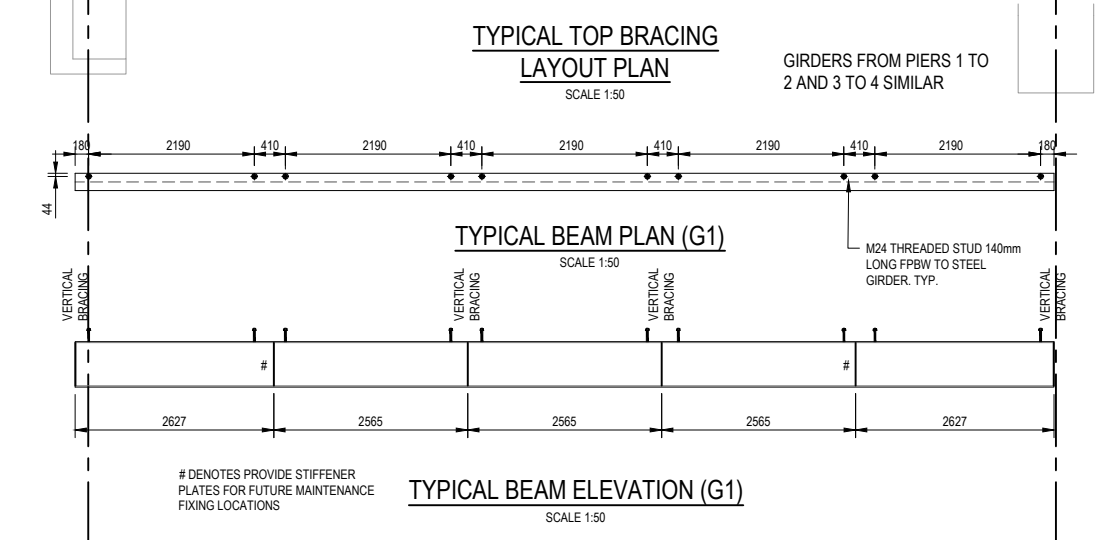
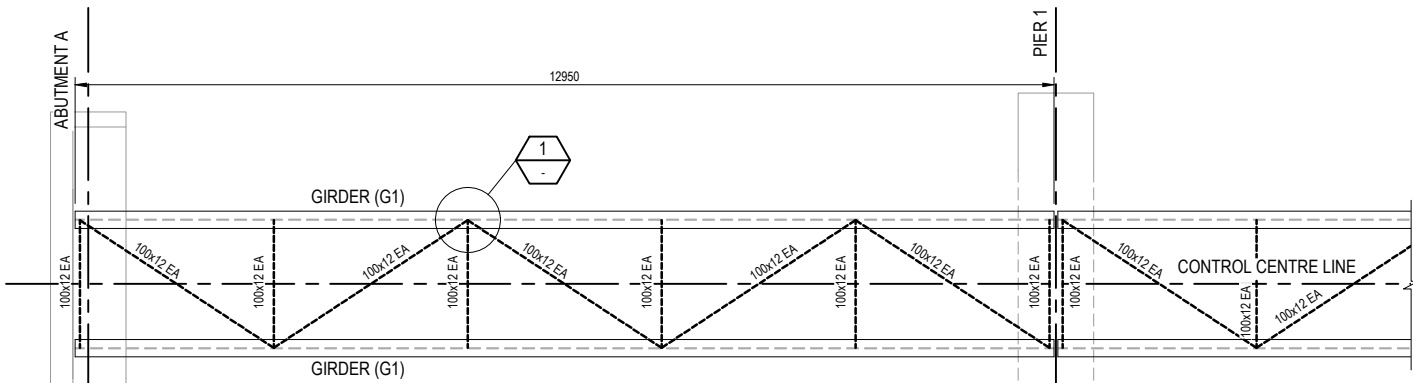
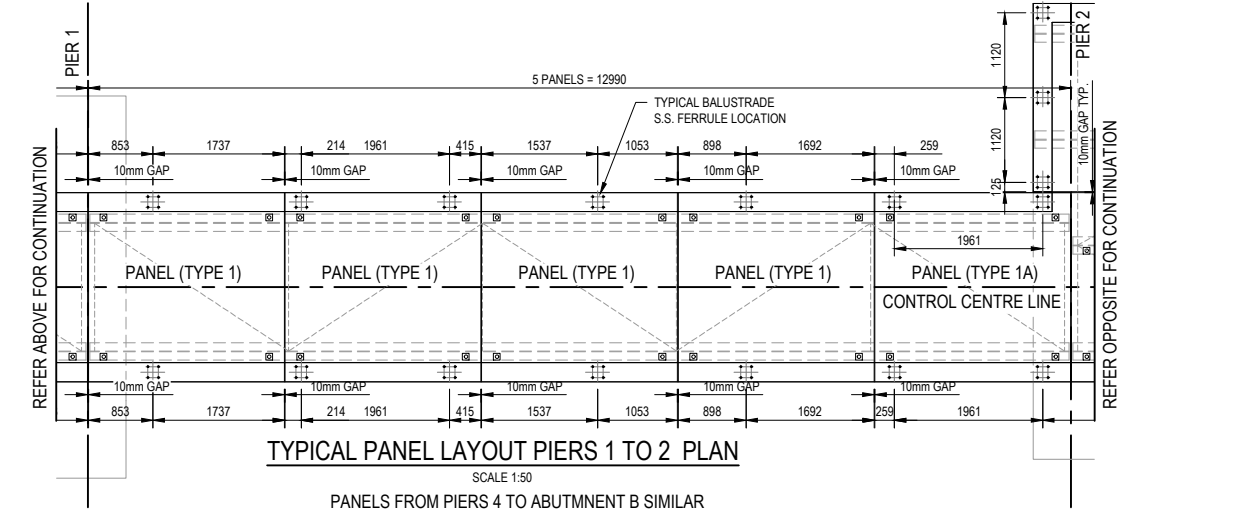
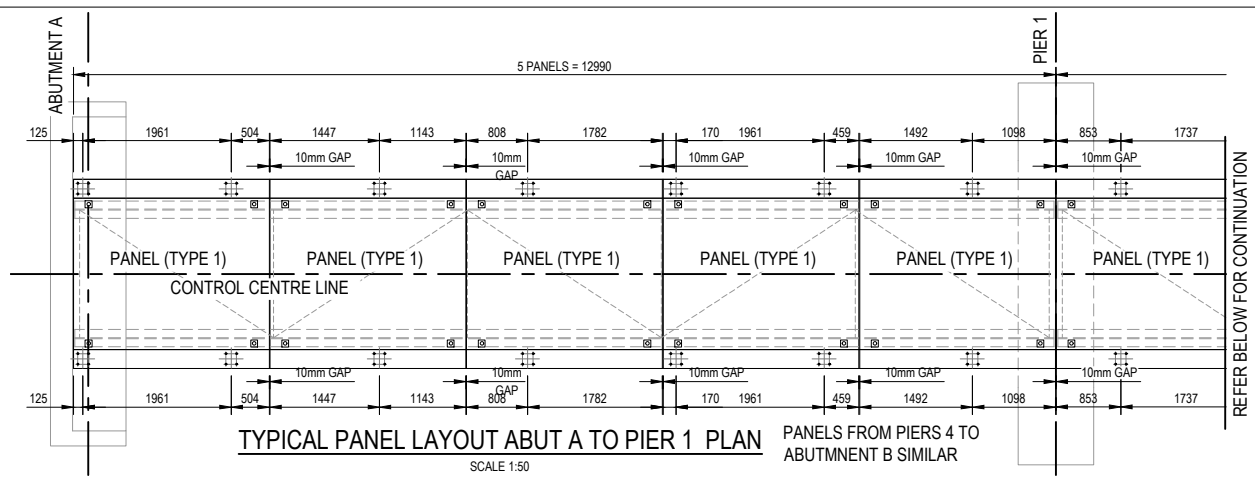
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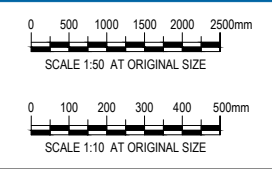
|                             |                |              |               |
|-----------------------------|----------------|--------------|---------------|
| Drawn                       | W.CLARKE       | Designer     | A.AHILADELLIS |
| Drafting Check              | *M.ISENBERT    | Design Check | *M.ISENBERT   |
| Approved (Project Director) | *A.AHILADELLIS |              |               |
| Date                        | 08.07.19       |              |               |
| Scale                       | AS SHOWN       |              |               |

|               |  |             |               |
|---------------|--|-------------|---------------|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT |             |               |
| Project       | WANGETTI TRAIL   |             |               |
| Title         | BRIDGE WORK<br>PIERS 2 & 3 DETAILS                     |             |               |
| Original Size | A1   | Drawing No: | 42-21067-S004 |
| Rev:          | 0  |             |               |



**NOTES:**  
 1. SUPER STRUCTURE STEELWORK TO BE COATED USING EITHER 2 PACK EPOXY (PURS) OR HIGH BUILD EPOXY COATING (EHB6) IN ACCORDANCE WITH AS2312.1

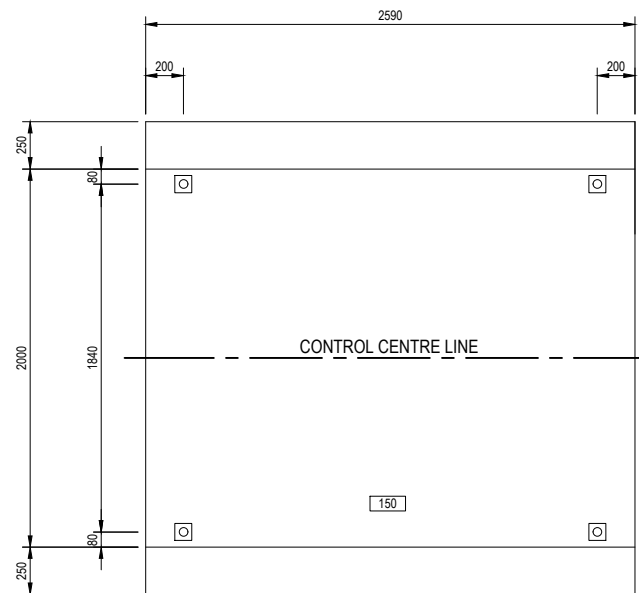
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| No | Revision       | Drawn | Job Manager | Project Director | Date     |



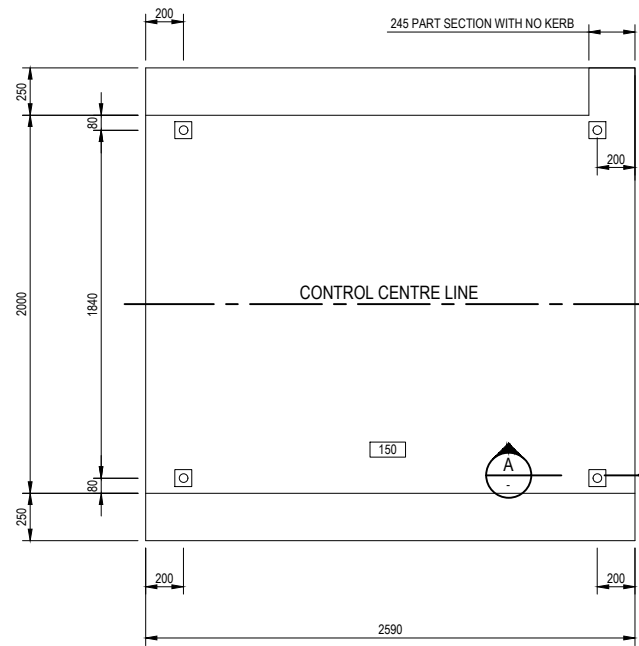
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|  |  |  |
|--|--|--|
| <b>DO NOT SCALE</b>  | Drawn W.CLARKE                             | Designer A.AHILADELLIS   |
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|  | Approved (Project Director) *A.AHILADELLIS | Date 08.07.19  |
|  | Scale AS SHOWN                             | This Drawing must not be used for Construction unless signed as Approved |

Client **DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT**  
 Project **WANGETTI TRAIL**  
 Title **BRIDGE WORK GIRDER AND DECK SLAB DETAILS - SHEET 1**  
 Original Size **A1** Drawing No: **42-21067-S005** Rev: **0**

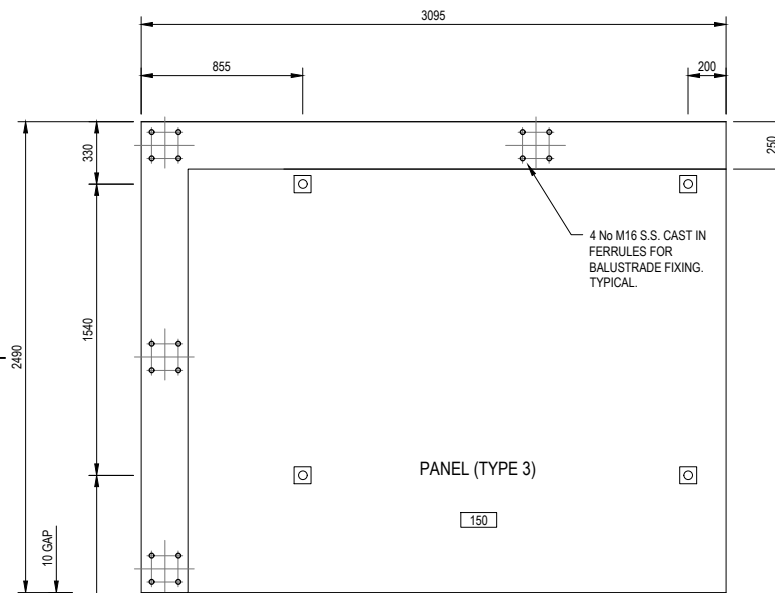


**TYPICAL PANEL DETAIL (TYPE 1)**  
SCALE 1:20

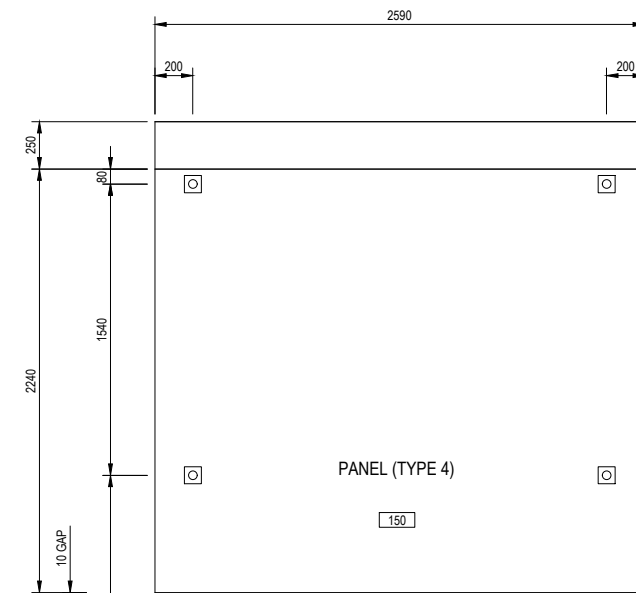


**TYPICAL PANEL DETAIL (TYPE 1A)**  
SCALE 1:20

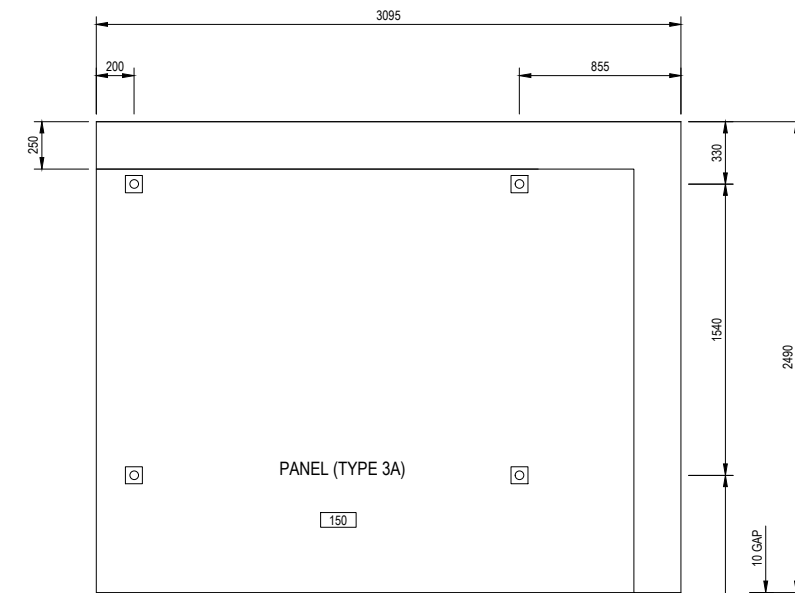
NOTE TYPE 1B SIMILAR  
OPPOSITE HAND



**TYPICAL PANEL DETAIL (TYPES 2 & 3)**  
SCALE 1:20



**TYPICAL PANEL DETAIL (TYPES 2 & 4)**  
SCALE 1:20



**TYPICAL PANEL DETAIL (TYPES 2 & 3A)**  
SCALE 1:20

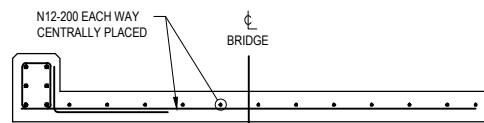
NOTE STAINLESS STEEL FERRULES SHOWN ON PANEL TYPE 3 ONLY FOR CLARITY. ENSURE FERRULES ARE CAST IN ALL PANELS. REFER TO DRAWING 42-21067-S005 FOR LOCATIONS.

**LEGEND:**

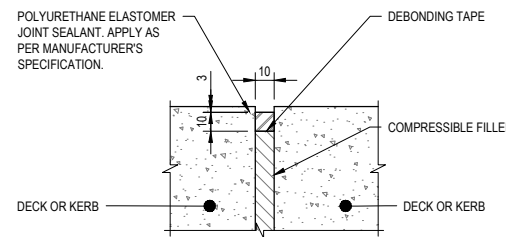
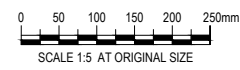
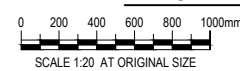
150 DENOTES SLAB THICKNESS



**TYPICAL PANEL (TYPES 1, 1A & 1B) REINFORCEMENT SECTION**  
SCALE 1:20

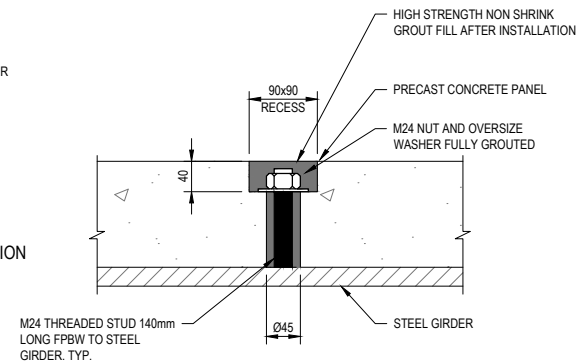


**TYPICAL PANEL (TYPE 2,3,4 & 3A) REINFORCEMENT SECTION**  
SCALE 1:20 AT ORIGINAL SIZE

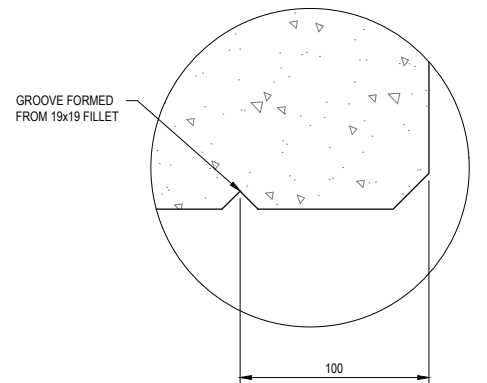


**TYPICAL DETAIL ABOVE GIRDER**  
SCALE 1:2

PROVIDE SEAL MIN 50mm PAST EACH GIRDER LOCATION TO PROTECT GIRDERS FROM DRIPPING WATER



**A SECTION**  
SCALE 1:5



**TYPICAL DRIP GROOVE DETAIL**  
SCALE 1:2  
REINFORCEMENT OMITTED FOR CLARITY

|    |                |       |             |                  |          |
|----|----------------|-------|-------------|------------------|----------|
| 0  | APPROVED ISSUE | WRC   | *MI         | *AA              | 08.07.19 |
| No | Revision       | Drawn | Job Manager | Project Director | Date     |



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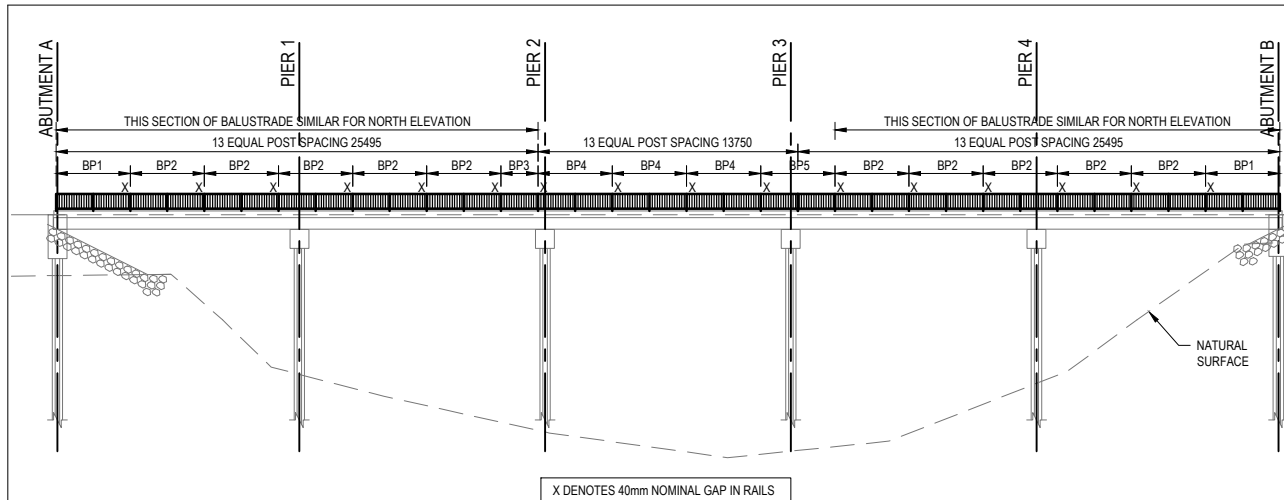
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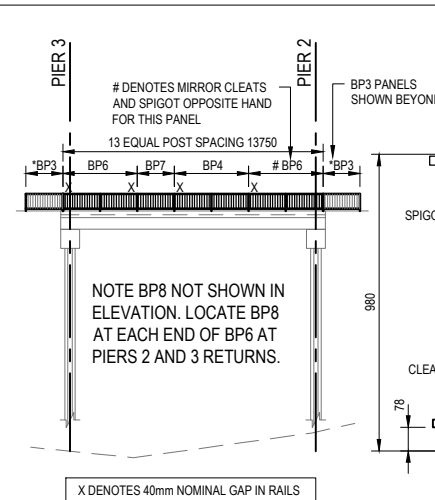
|                             |                |              |               |
|-----------------------------|----------------|--------------|---------------|
| Drawn                       | W.CLARKE       | Designer     | A.AHILADELLIS |
| Drafting Check              | *M.ISENBERT    | Design Check | *M.ISENBERT   |
| Approved (Project Director) | *A.AHILADELLIS |              |               |
| Date                        | 08.07.19       |              |               |
| Scale                       | AS SHOWN       |              |               |

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|               |  |             |               |
|---------------|--|-------------|---------------|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT |             |               |
| Project       | WANGETTI TRAIL   |             |               |
| Title         | BRIDGE WORK GIRDER AND DECK SLAB DETAILS - SHEET 2     |             |               |
| Original Size | A1   | Drawing No: | 42-21067-S006 |
| Rev:          | 0  |             |               |



**SOUTH ELEVATION - BRIDGE RAILING**  
SCALE 1:100



**NORTH ELEVATION - BRIDGE RAILING**  
SCALE 1:100

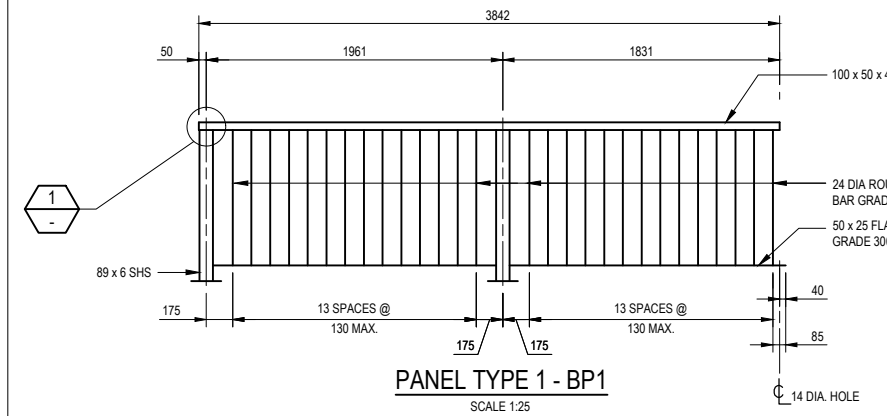
**ELEVATION**

**ELEVATION POST DETAILS**  
SCALE 1:25

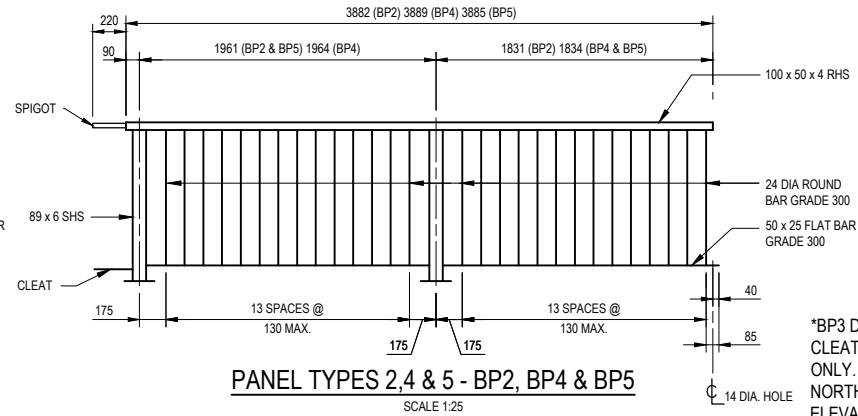
**TYPICAL SECTION**

**NOTES**

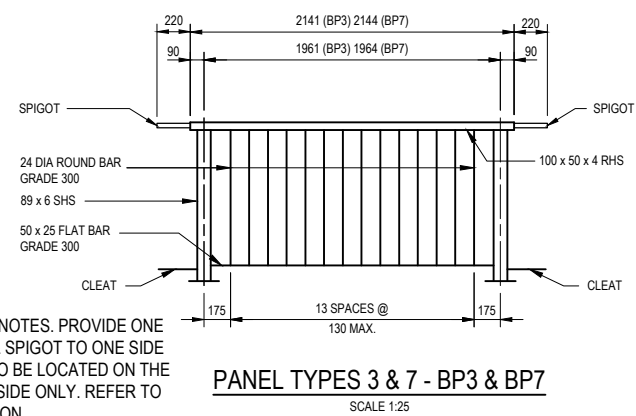
- RHS AND SHS TUBE TO BE GRADE C450L0 TO AS/NZS 1163.
- BASE PLATES AND RAIL CONNECTORS TO BE GRADE 350 TO AS/NZS 3678.
- ALL OTHER PLATES AND FLAT BAR TO BE GRADE 300 TO AS/NZS 3679.1.
- BOLTS CLASS 8.8, NUTS CLASS 8 AND WASHERS FOR CLASS 8.8 BOLTS TO AS/NZS 1252, THIN NUTS CLASS 5 TO AS 1112 AND ELS WASHERS TO AS 1237. UNO.
- ALL BOLTS AND NUTS TO BE HOT DIP GALVANISED TO AS 1214. WASHERS TO BE HOT DIP GALVANISED TO AS/NZS 4680. UNO.
- ALL STRUCTURAL STEELWORK FOR THE BALUSTRADE TO BE HOT DIPPED GALVANISED TO 85 MICRONS THICKNESS. UNO.
- STEELWORK TO BE FABRICATED TO THE REQUIREMENTS OF MRTS 78 FABRICATION OF STRUCTURAL STEELWORK.
- WELDING SYMBOLS CONFORM TO AS 1101.3.
- ALL WELDING TO CONFORM TO MRTS 78 AND AS/NZS 1654.1. ALL WELDS TO BE SP CATEGORY.
- WELDING CONSUMABLES FOR GRADE C450L0 RHS/SHS TO BE CONTROLLED HYDROGEN TYPE: E49XX OR W503.
- WELDING CONSUMABLES FOR ALL OTHER STRUCTURAL STEEL SHALL BE CONTROLLED HYDROGEN TYPE: E49XX OR W50X UNLESS SHOWN OTHERWISE.
- MEMBERS TO BE BRANDED WITH APPROPRIATE TYPE NUMBER AFTER FABRICATION.
- RAIL, POSTS AND CONNECTORS TO HAVE WELD SPLATTER AND WELDING SLAG REMOVED PRIOR TO HOT DIP GALVANISING TO AS/NZS 4680.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.



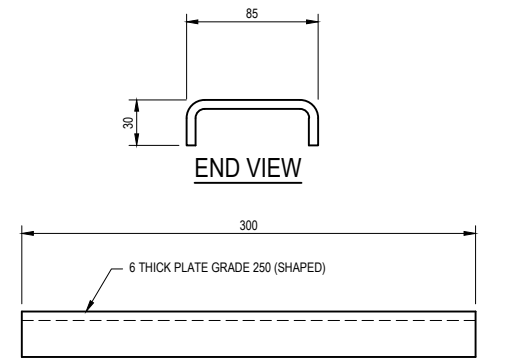
**PANEL TYPE 1 - BP1**  
SCALE 1:25



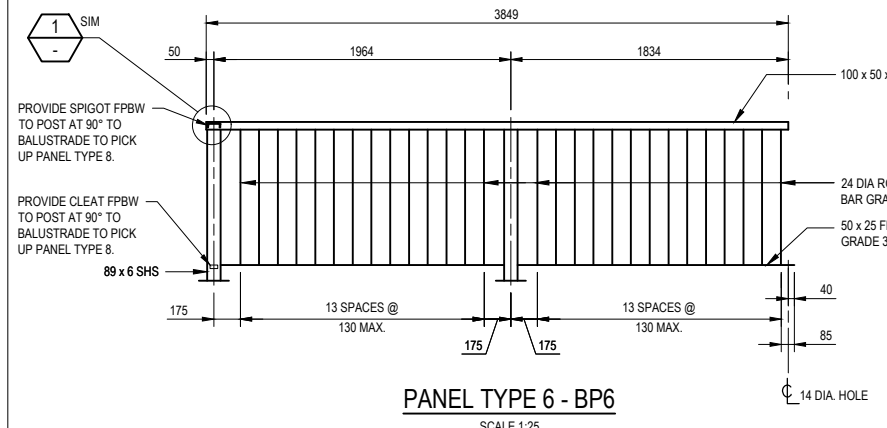
**PANEL TYPES 2, 4 & 5 - BP2, BP4 & BP5**  
SCALE 1:25



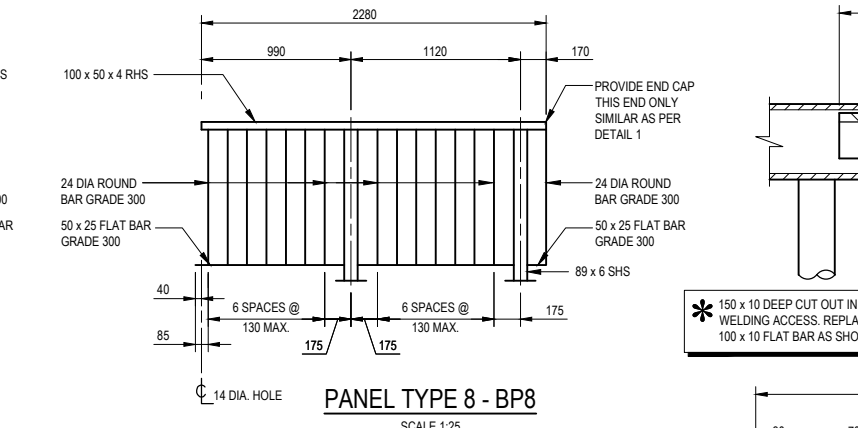
**PANEL TYPES 3 & 7 - BP3 & BP7**  
SCALE 1:25



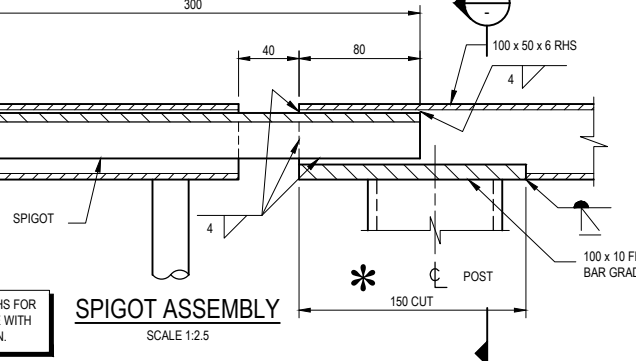
**ELEVATION SPIGOT DETAIL**  
SCALE 1:2.5



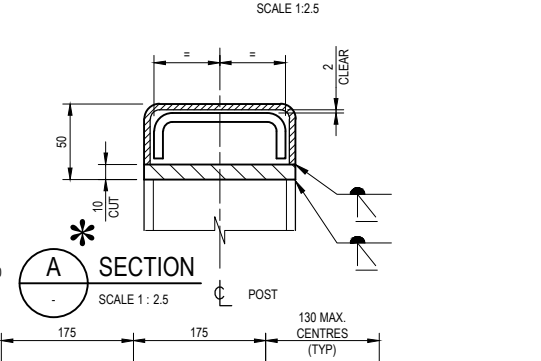
**PANEL TYPE 6 - BP6**  
SCALE 1:25



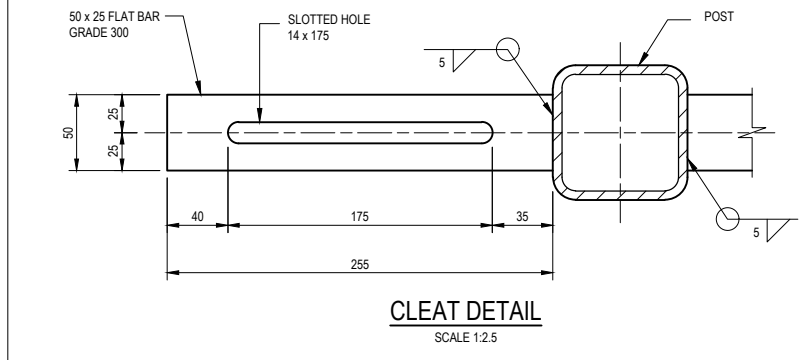
**PANEL TYPE 8 - BP8**  
SCALE 1:25



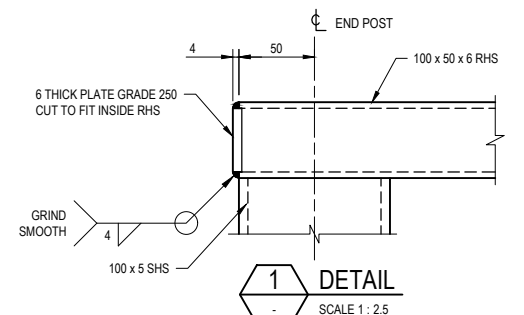
**SPIGOT ASSEMBLY**  
SCALE 1:2.5



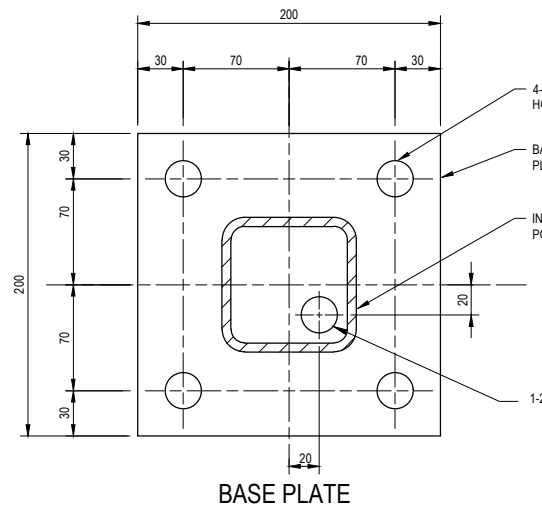
**SECTION A**  
SCALE 1:2.5



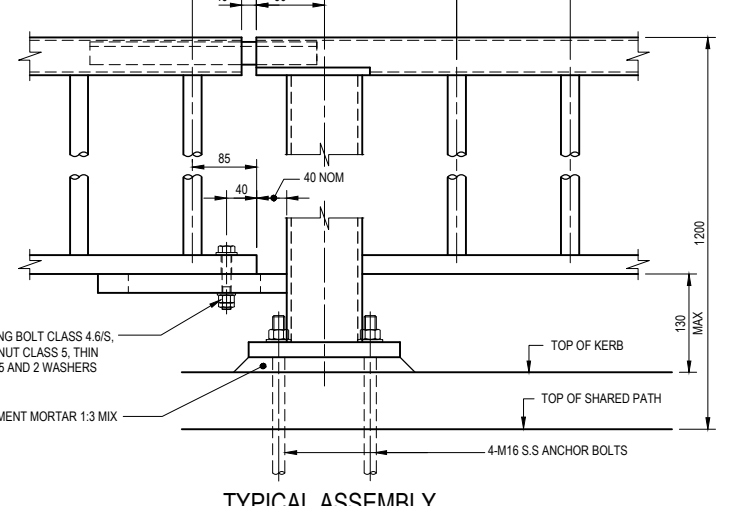
**CLEAT DETAIL**  
SCALE 1:2.5



**DETAIL**  
SCALE 1:2.5

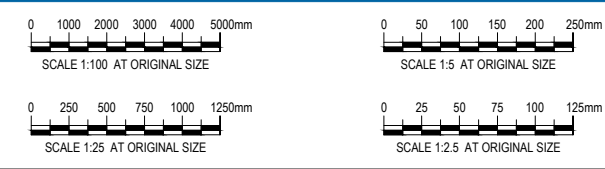


**BASE PLATE**  
SCALE 1:2.5



**TYPICAL ASSEMBLY**  
SCALE 1:5

| No | Revision       | Note | Drawn | Job Manager | Project Director | Date     |
|----|----------------|------|-------|-------------|------------------|----------|
| 0  | APPROVED ISSUE |      | WRC   | *MI         | *AA              | 08.07.19 |



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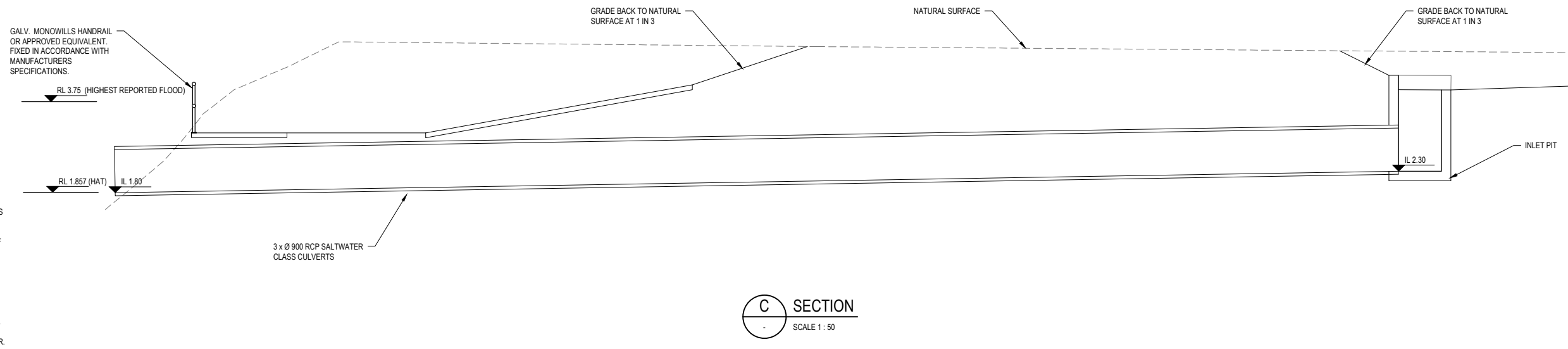
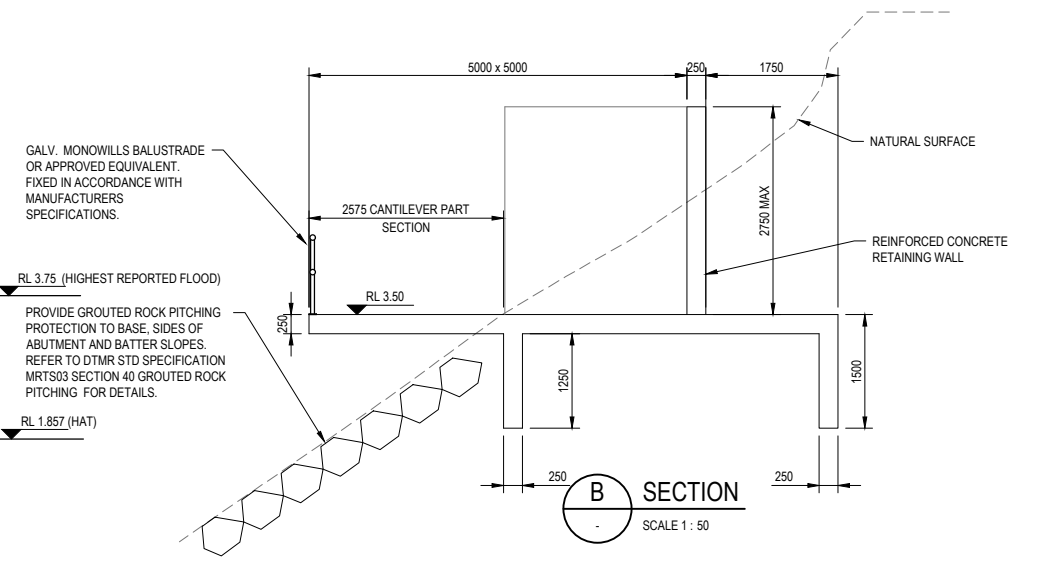
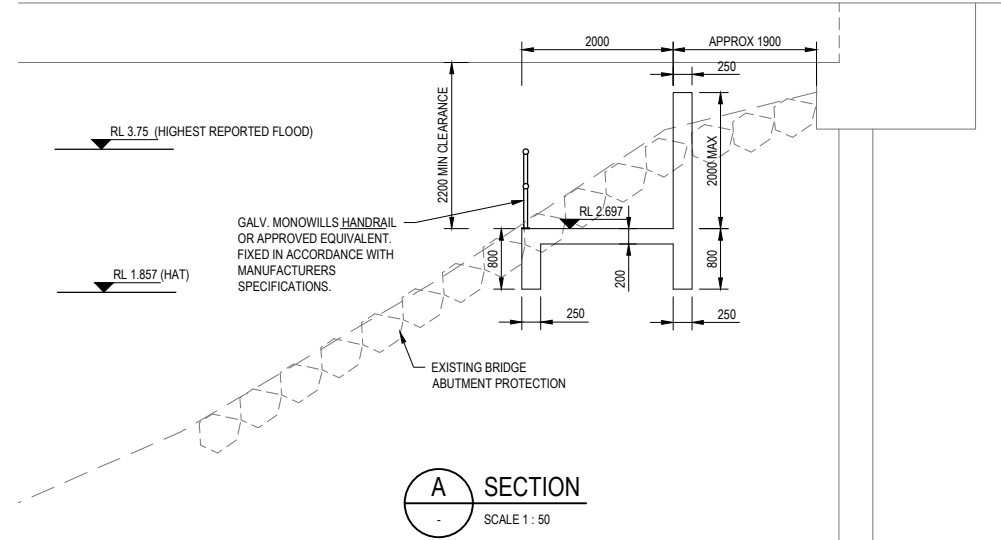
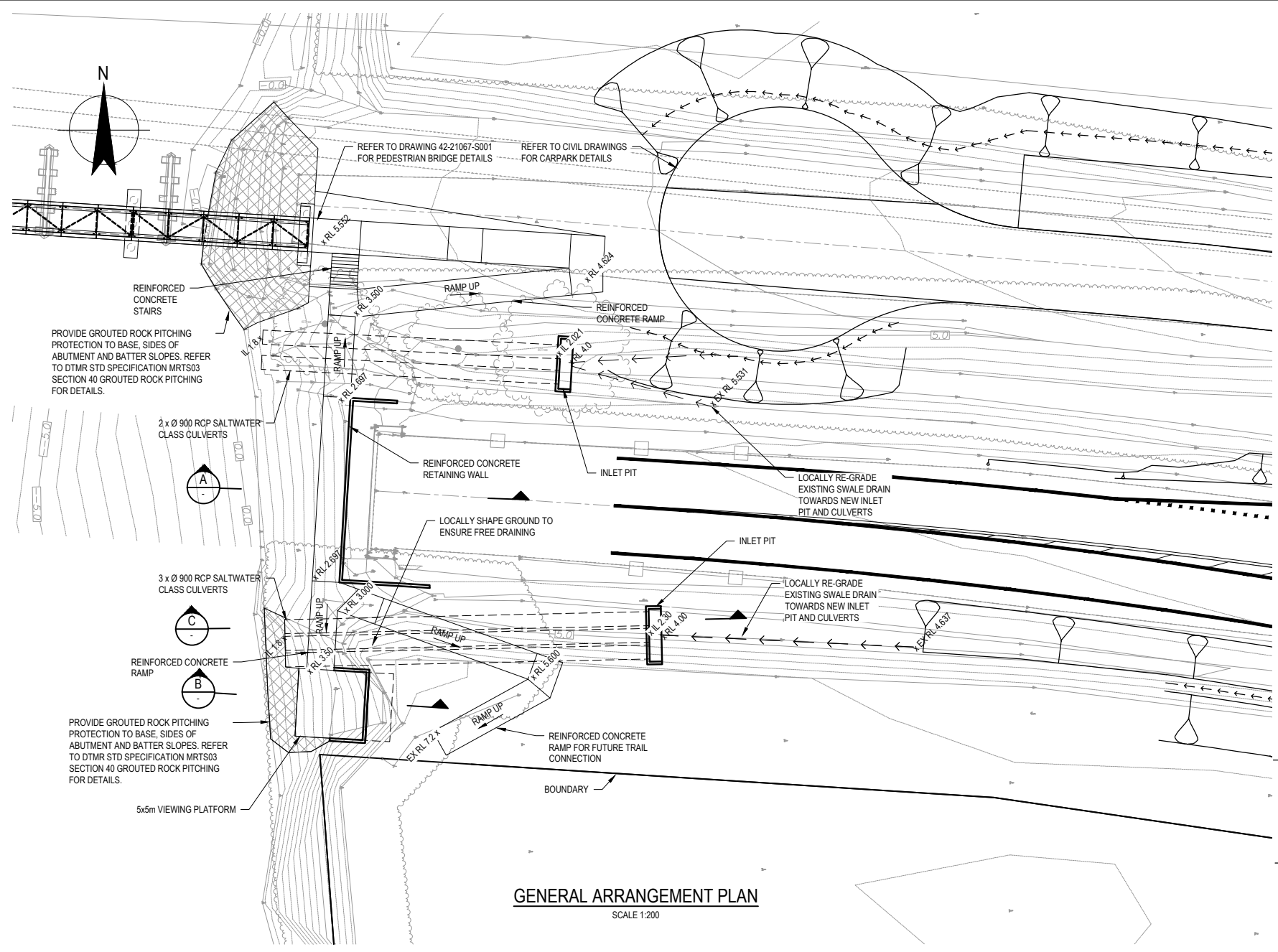
Drawn: W.CLARKE  
Designer: A.AHILADELLIS  
Drafting Check: \*M.ISENBERT  
Design Check: \*M.ISENBERT  
Approved (Project Director): \*A.AHILADELLIS  
Date: 08.07.19  
Scale: AS SHOWN

Client: DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT  
Project: WANGETTI TRAIL  
Title: BRIDGE WORK BALUSTRADE DETAILS  
Original Size: A1  
Drawing No: 42-21067-S007  
Rev: 0



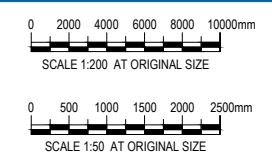






- NOTES:**
- REFER TO DRAWING 42-21067-S009 TO S011 FOR NOTES.
  - UNSUITABLE MATERIALS SHALL BE REMOVED TO A MINIMUM DEPTH OF 300mm AND REPLACED WITH APPROVED BACKFILL.
  - INSTALLATION AND BACKFILLING OF CULVERTS TO BE IN ACCORDANCE WITH FNQROC STD DWG 1046
  - CARRY OUT WORK IN A SAFE MANNER IN ACCORDANCE WITH APPLICABLE LEGISLATION, STATUTORY REGULATIONS, BY-LAWS OR RULES. CONTRACTOR IS RESPONSIBLE FOR OCCUPATIONAL HEALTH AND SAFETY OF SITE PERSONNEL AND GENERAL PUBLIC IN ACCORDANCE WITH WORK HEALTH AND SAFETY ACT 2010, LEGISLATIVE REQUIREMENTS, ASSOCIATED REGULATIONS AND CODES OF PRACTICE, INDUSTRIAL AGREEMENTS AND ACCEPTED INDUSTRY PRACTICE.
  - HAVE SURVEY AND SETTING OUT UNDERTAKEN BY A REGISTERED SURVEYOR.
  - DISPOSE OF SURPLUS MATERIAL OFF SITE IN ACCORDANCE WITH LOCAL AUTHORITY WASTE REGULATIONS.
  - IMPLEMENT SOIL AND WATER MANAGEMENT PROCEDURES TO AVOID EROSION, CONTAMINATION AND SEDIMENTATION OF SITE, SURROUNDING AREAS AND DRAINAGE SYSTEMS.
  - MAKE GOOD ANY DAMAGE TO EXISTING ELEMENTS AT COMPLETION OF WORKS.
  - THESE DRAWINGS DO NOT DETAIL TEMPORARY WORKS. CONSTRUCTION METHODS AND TEMPORARY WORKS ARE RESPONSIBILITY OF THE CONTRACTOR.

|    |                |   |       |             |                  |      |
|----|----------------|---|-------|-------------|------------------|------|
| 0  | APPROVED ISSUE | WRC   | *MI   | *AA         | 08.07.19         |      |
| No | Revision       | Note: * indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date |



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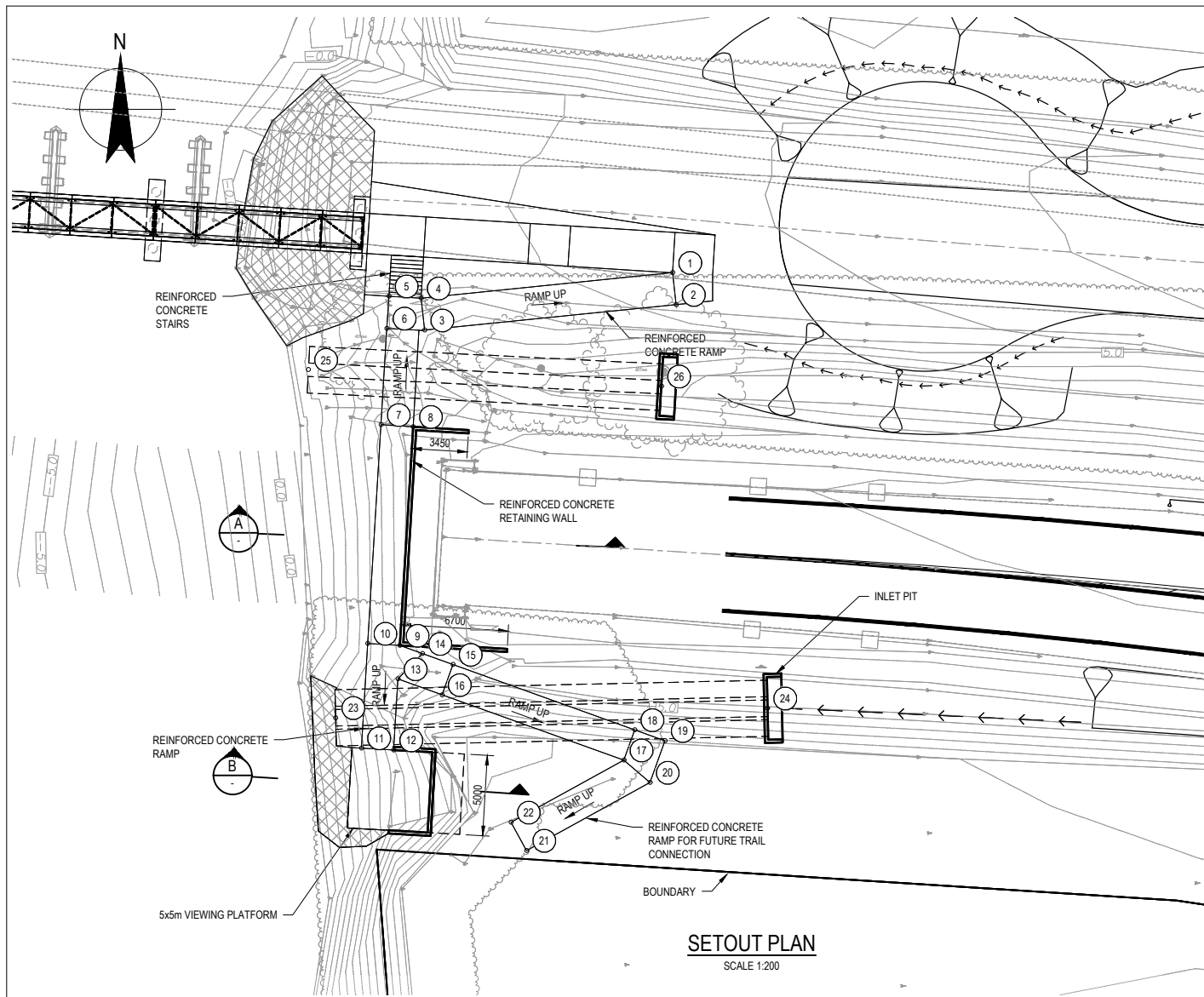
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|---------------------|-----------------------------|----------------|--------------|---------------|
| <b>DO NOT SCALE</b> | Drawn                       | W.CLARKE       | Designer     | A.AHILADELLIS |
|                     | Drafting Check              | *M.ISENBERT    | Design Check | *S.DURAIRAJ   |
|                     | Approved (Project Director) | *A.AHILADELLIS |              |               |
|                     | Date                        | 08.07.19       |              |               |
| Scale               | AS SHOWN                    |                |              |               |

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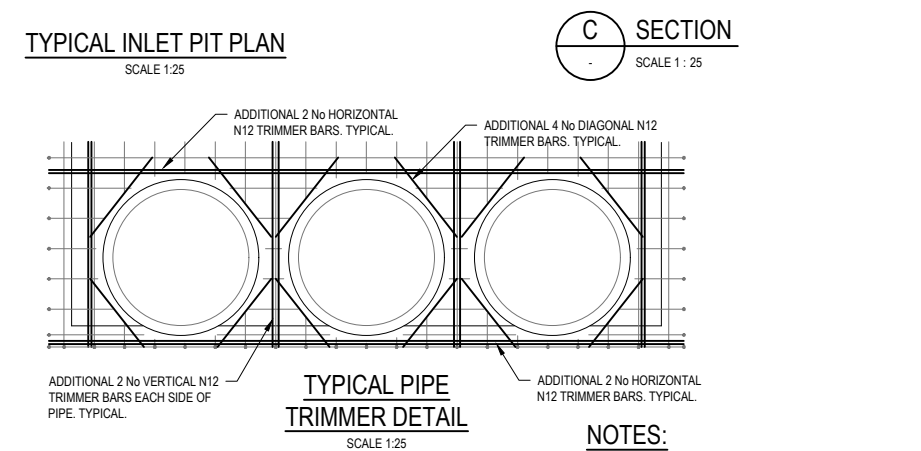
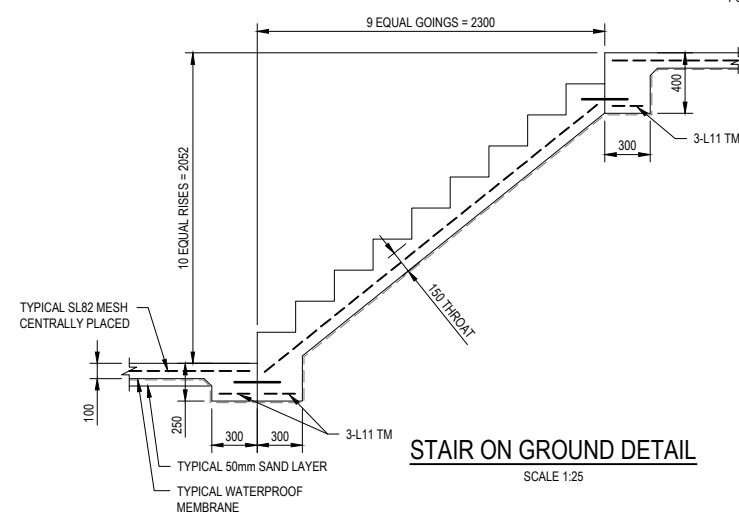
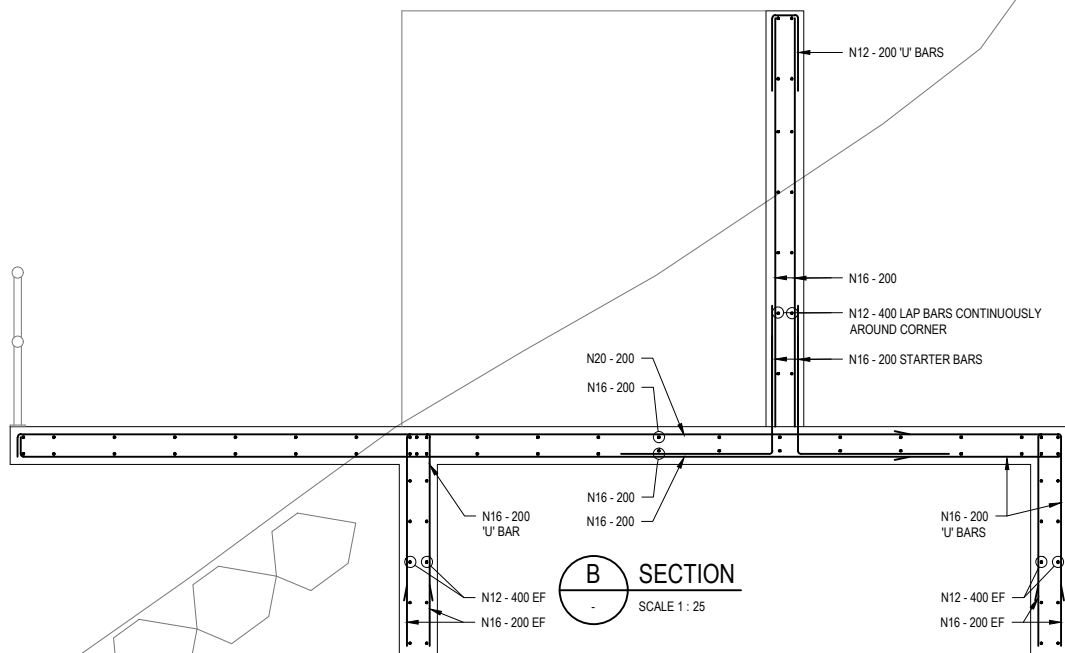
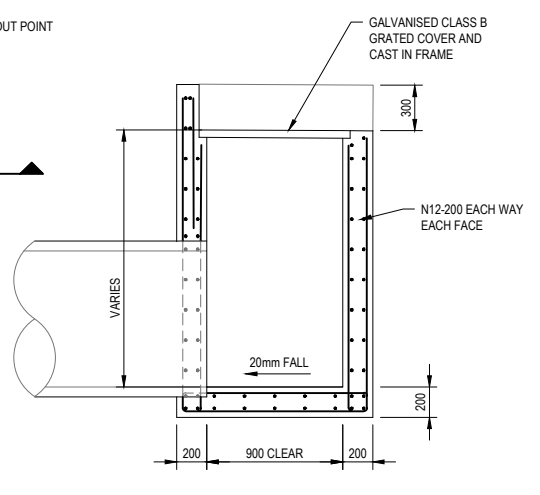
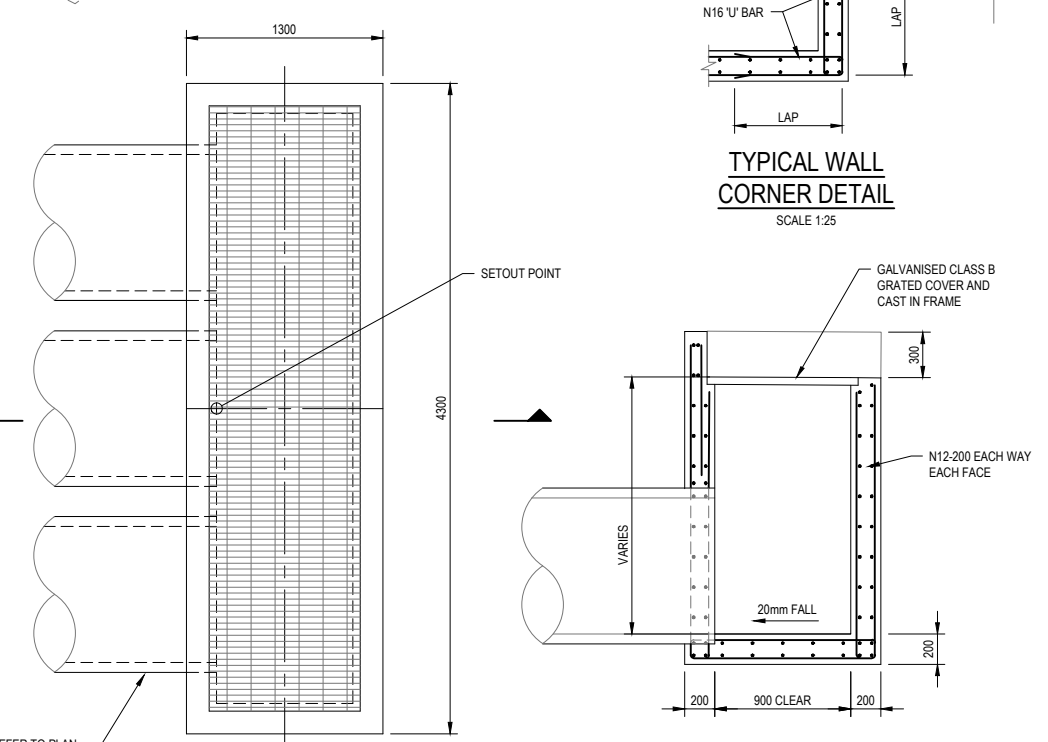
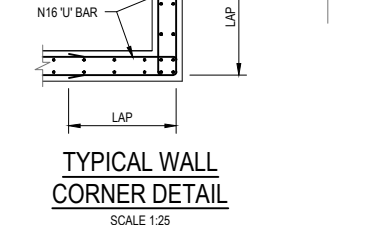
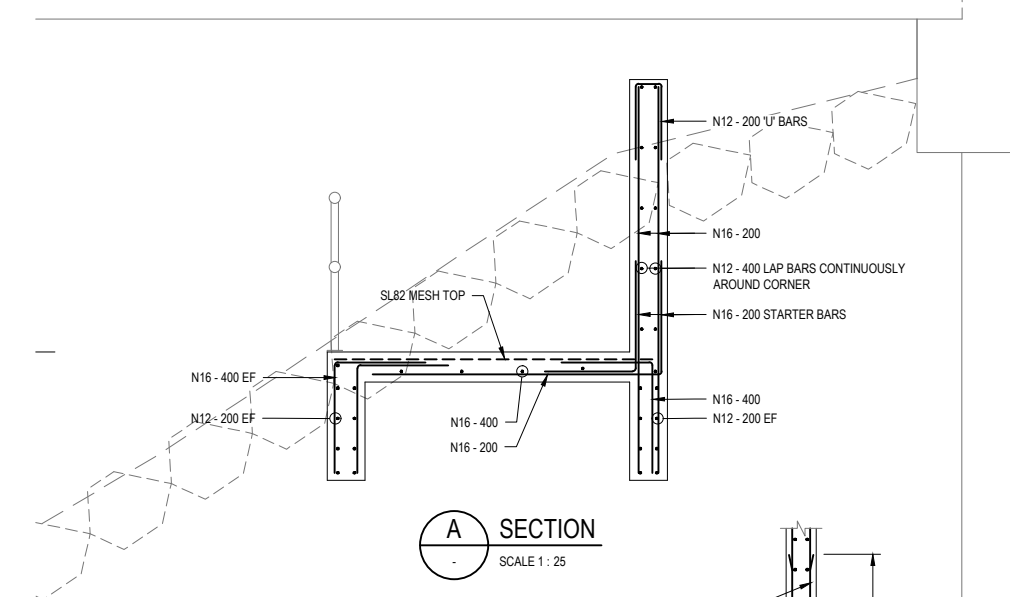
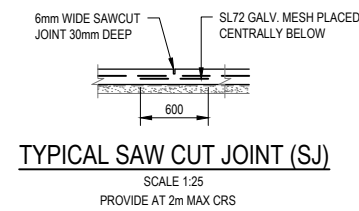
This Drawing must not be used for Construction unless signed as Approved

|               |  |             |               |
|---------------|--|-------------|---------------|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT |             |               |
| Project       | WANGETTI TRAIL   |             |               |
| Title         | TRAIL UNDERPASS<br>GENERAL ARRANGEMENT                 |             |               |
| Original Size | A1   | Drawing No: | 42-21067-S012 |
| Rev:          | 0  |             |               |



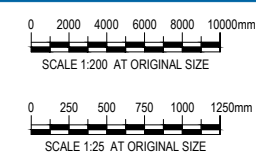


| SETOUT POINTS |            |             |
|---------------|------------|-------------|
| POINT         | EASTING    | NORTHING    |
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| 2             | 338032.096 | 8169276.349 |
| 3             | 338016.470 | 8169274.764 |
| 4             | 338016.247 | 8169276.751 |
| 5             | 338014.250 | 8169276.873 |
| 6             | 338014.129 | 8169274.876 |
| 7             | 338013.764 | 8169268.887 |
| 8             | 338015.761 | 8169268.766 |
| 9             | 338014.934 | 8169255.174 |
| 10            | 338012.938 | 8169255.296 |
| 11            | 338012.542 | 8169248.802 |
| 12            | 338014.539 | 8169248.680 |
| 13            | 338014.807 | 8169253.095 |
| 14            | 338016.346 | 8169254.667 |
| 15            | 338018.228 | 8169253.991 |
| 16            | 338017.552 | 8169252.109 |
| 17            | 338028.845 | 8169248.052 |
| 18            | 338029.521 | 8169249.934 |
| 19            | 338031.404 | 8169249.258 |
| 20            | 338030.472 | 8169246.665 |
| 21            | 338022.806 | 8169242.437 |
| 22            | 338021.840 | 8169244.189 |
| 23            | 338010.945 | 8169250.685 |
| 24            | 338037.778 | 8169251.277 |
| 25            | 338009.251 | 8169272.310 |
| 26            | 338031.180 | 8169271.279 |



**NOTES:**  
1. REFER TO DRAWING 42-21067-S009 TO S011 FOR NOTES.

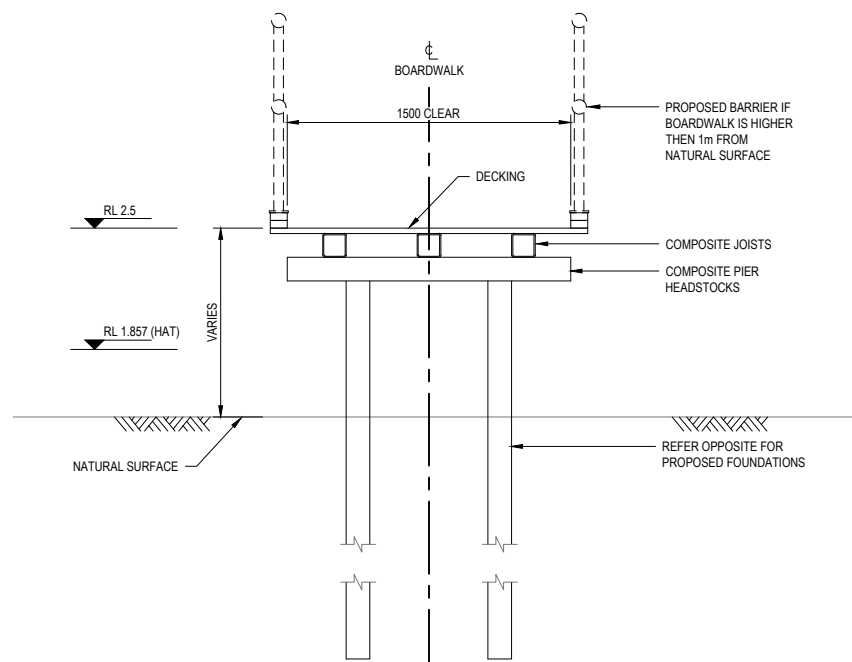
| No | Revision       | Note | Drawn | Job Manager | Project Director | Date     |
|----|----------------|------|-------|-------------|------------------|----------|
| 0  | APPROVED ISSUE |      | WRC   | *MI         | *AA              | 08.07.19 |



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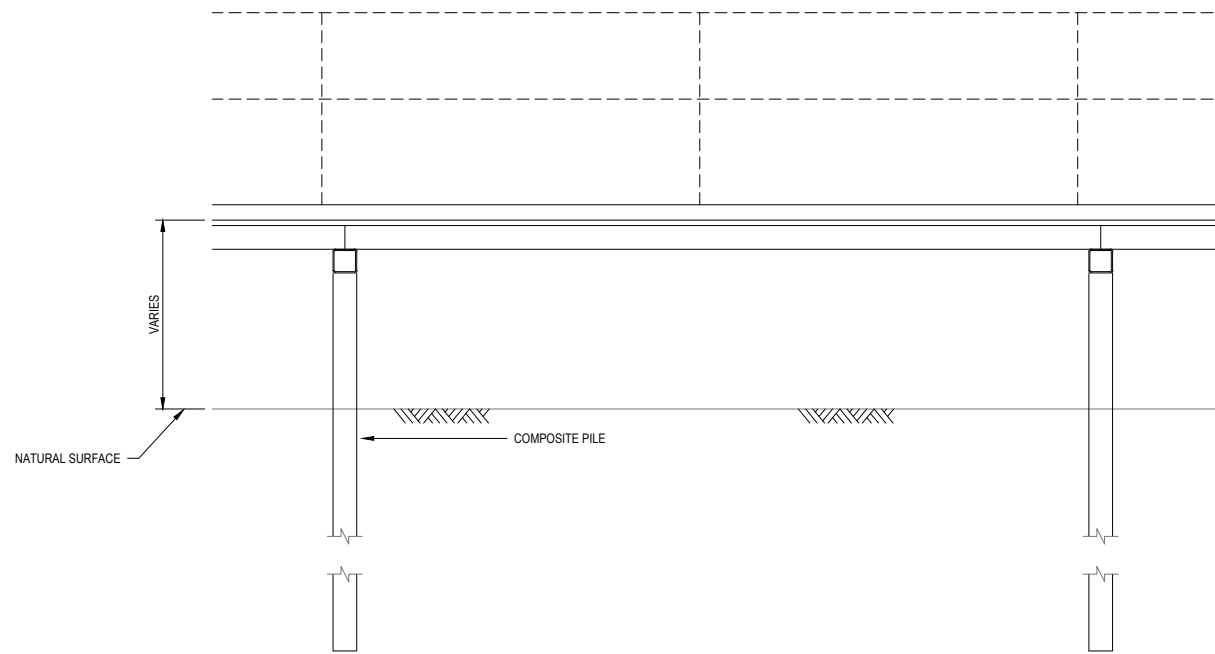
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|-----------------------------|----------------|
| Drawn                       | W.CLARKE       |
| Designer                    | A.AHILADELLIS  |
| Drafting Check              | *M.ISENBERT    |
| Design Check                | *S.DURAIRAJ    |
| Approved (Project Director) | *A.AHILADELLIS |
| Date                        | 08.07.19       |
| Scale                       | AS SHOWN       |

Client **DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT**  
Project **WANGETTI TRAIL**  
Title **TRAIL UNDERPASS SETOUT AND REINFORCEMENT DETAILS**  
Original Size **A1** Drawing No: **42-21067-S013** Rev: **0**



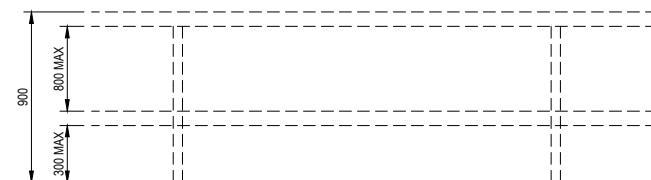
TYPICAL BOARDWALK SECTION (COMPOSITE)

SCALE 1:20



TYPICAL BOARDWALK ELEVATION (COMPOSITE)

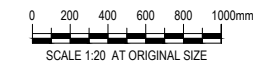
SCALE 1:20



TYPICAL BARRIER ELEVATION (TYPE C)

SCALE 1:20

NOTE: PROVIDE TYPE C IN AREAS 1m OR GREATER.  
PROVIDE TYPE C WITH MESH IN AREAS PRONE TO NATIVE WILDLIFE ATTACK



PRELIMINARY

| rev | description   | app'd | date     |
|-----|---------------|-------|----------|
| A   | CONCEPT ISSUE | *AA   | 16.05.19 |

DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT  
WANGETTI TRAIL  
CONCEPT BOARDWALKS  
GA - OPTION



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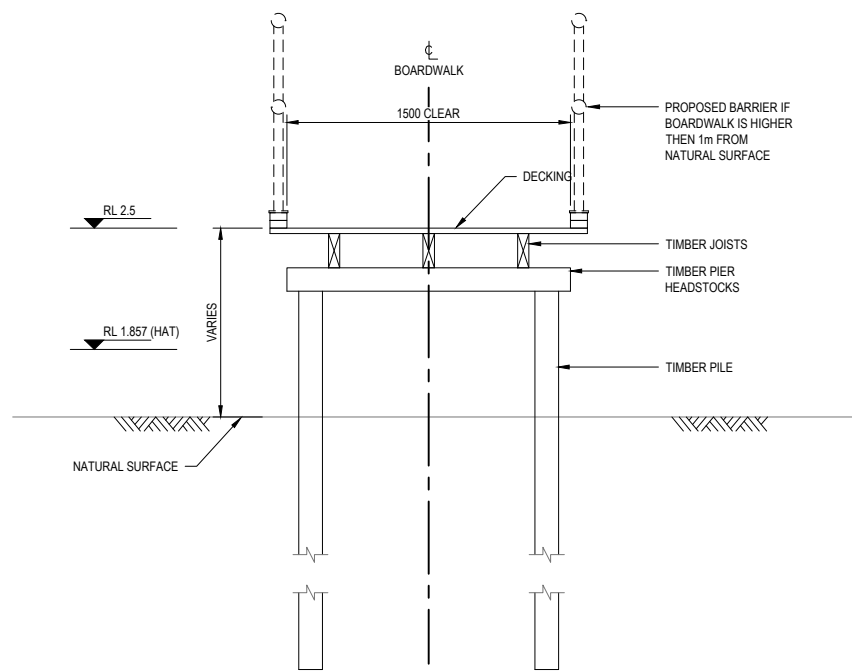
scale AS SHOWN for A1 job no. 42-21067  
date MAY 2019 rev no. A

approved (PD) ..... SK010

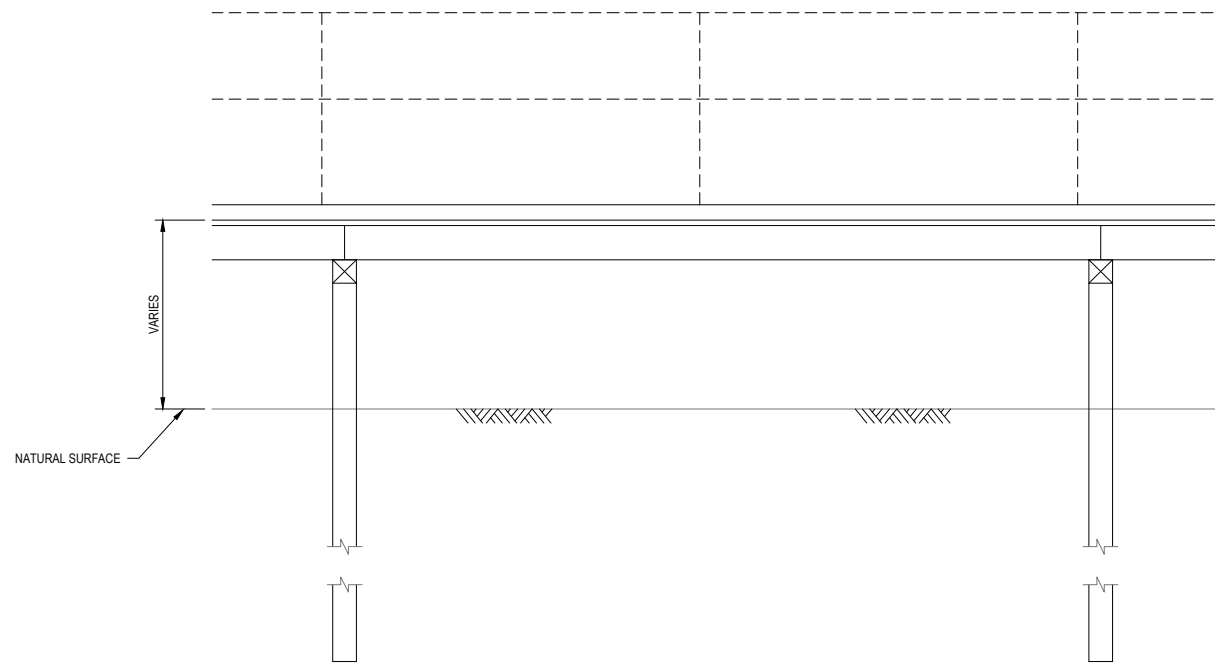
NOTES:

PROPOSED WORKS OUTCOMES

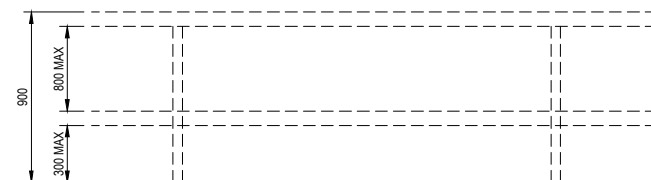
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- PROPOSED CLEAR WIDTH ON PATH TO BE 1.5m.



TYPICAL BOARDWALK SECTION (TIMBER)  
SCALE 1:20



TYPICAL BOARDWALK ELEVATION (TIMBER)  
SCALE 1:20



TYPICAL BARRIER ELEVATION (TYPE C)  
SCALE 1:20

NOTE: PROVIDE TYPE C IN AREAS 1m OR GREATER.  
PROVIDE TYPE C WITH MESH IN AREAS PRONE TO NATIVE WILDLIFE  
ATTACK



PRELIMINARY

| rev | description   | app'd | date     |
|-----|---------------|-------|----------|
| A   | CONCEPT ISSUE | *AA   | 16.05.19 |

DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT  
WANGETTI TRAIL  
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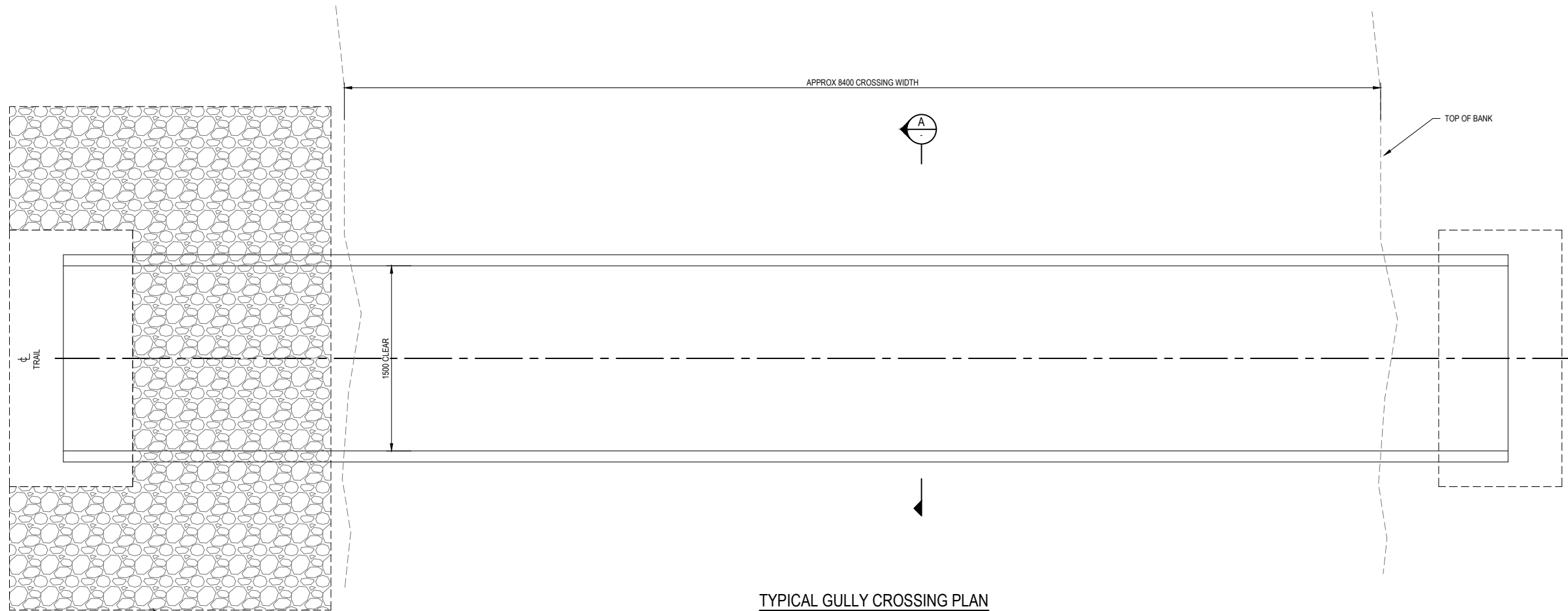
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date MAY 2019 rev no. A

approved (PD) ..... SK011

NOTES:  
PROPOSED WORKS OUTCOMES

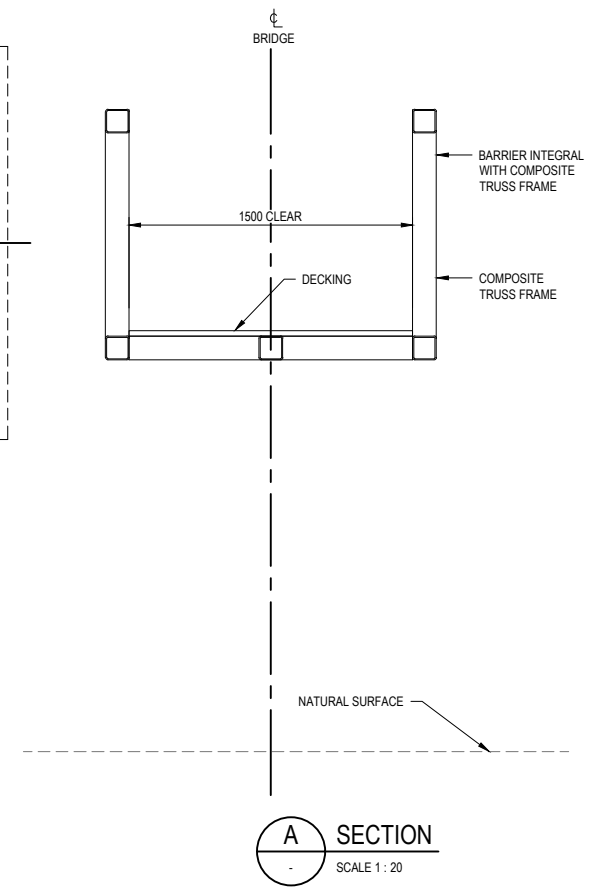
- LIVE LOAD TO AS2156.2 - 4 kPa FOR VIEWING PLATFORMS AND 3kPa FOR ACCESS WAYS FOR TRACKS CLASS 3
- PROPOSED CLEAR WIDTH ON PATH TO BE 1.5m.



TYPICAL GULLY CROSSING PLAN

SCALE 1:20

IF SCOUR SURROUNDING CROSSING FOUNDATIONS ENCOUNTERED PROVIDE 150 THICK RENO MATTRESS FILLED WITH ROCK

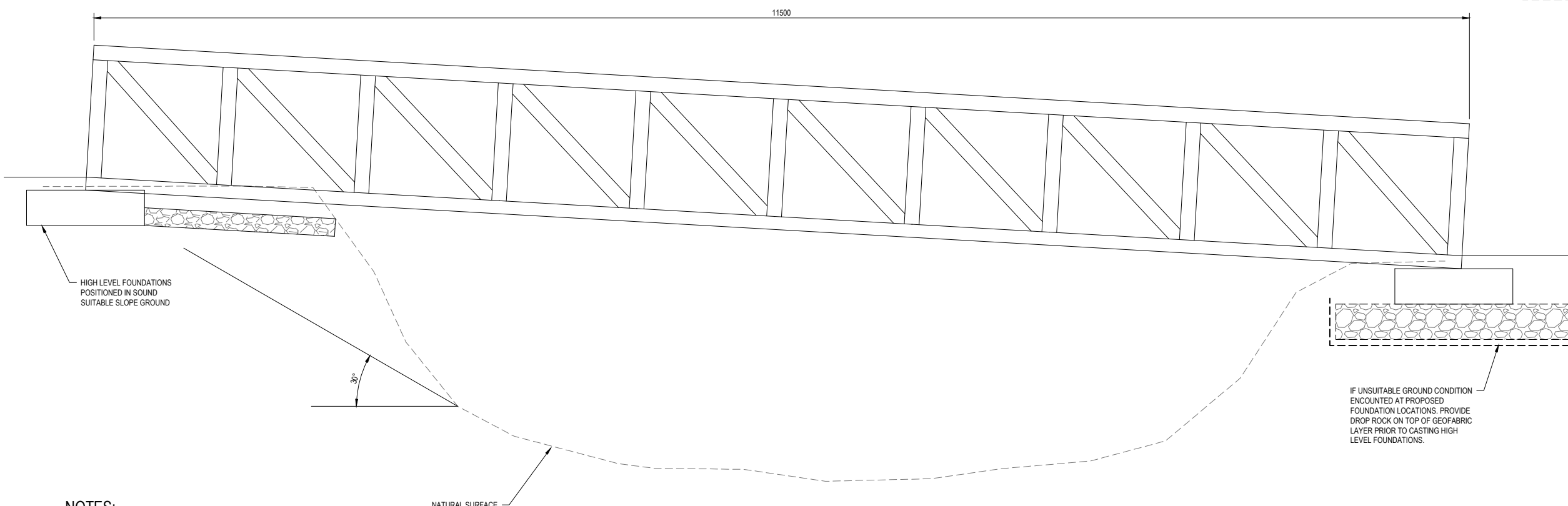


A SECTION

SCALE 1:20



SCALE 1:20 AT ORIGINAL SIZE



TYPICAL GULLY CROSSING SECTION

SCALE 1:20

CONCEPT GULLY CROSSING SHOWN FOR B41  
 CONCEPT CROSSING B40 - 5.3m APPROX CROSSING WIDTH SIMILAR  
 CONCEPT CROSSING B39 - 6.0m APPROX CROSSING WIDTH SIMILAR

**NOTES:**  
 PROPOSED WORKS OUTCOMES

- LIVE LOAD TO AS2156.2 - 4 kPa FOR VIEWING PLATFORMS AND 3kPa FOR ACCESS WAYS FOR TRACKS CLASS 3
- PROPOSED CLEAR WIDTH ON PATH TO BE 1.5m.

**PRELIMINARY**

| rev | description   | app'd | date     |
|-----|---------------|-------|----------|
| A   | CONCEPT ISSUE | *AA   | 16.05.19 |

DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT  
 WANGETTI TRAIL  
 CONCEPT GULLY CROSSINGS  
 GA - OPTION



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 date MAY 2019 rev no. A

approved (PD) ..... SK017

# Appendix C Pre-lodgement Meeting Minutes


# SARA pre-lodgement minutes

## 1905-10980 SPL

|                              |   |  |   |
|------------------------------|---|--|---|
| <b>Date</b>                  | 15 May 2019   |  |   |
| <b>Time</b>                  | 10am  |  |   |
| <b>Proposal details:</b>     |   |  |   |
| <b>Proponent:</b>            | Department of Innovation, Tourism industry Development and the Commonwealth Games c/- GHD |  |   |
| <b>Proposed development:</b> | Material change of use and operational work   |  |   |
| <b>Premises:</b>             | 131SR529, 161SR673, 164SR673, 24SR423, 3USL8610, 5AP13754 and 87SR370                     |  |   |
| <b>Attendees:</b>            | <b>Name</b>   | <b>Position</b>                        | <b>Organisation</b>   |
|                              | Brett Nancarrow   | Manager (Planning)                     | Department of State Development, Manufacturing, Infrastructure and Planning |
|                              | Joanne Manson   | Principal Planning Officer             | Department of State Development, Manufacturing, Infrastructure and Planning |
|                              | Bec Turner  | Student Planning Officer               | Department of State Development, Manufacturing, Infrastructure and Planning |
|                              | Gavin Taylor  | Principal Economic Development Officer | Department of State Development, Manufacturing, Infrastructure and Planning |
|                              | Chris Clague  | Senior Fisheries Biologist             | Department of Agriculture and Fisheries                                     |
|                              | Mif Press<br>(via teleconference)   | Environmental Officer                  | Department of Environment and Science                                       |
|                              | Cameron Venables  | Senior Natural Resource Officer        | Department of Natural Resources, Mines and Energy                           |
|                              | Tricia Gadsden  | Natural Resource Officer               | Department of Natural Resources, Mines and Energy                           |

|  |                                      |                                       |   |
|--|--------------------------------------|---------------------------------------|---|
|  | Steve Zelenika                       | Senior Town Planner                   | Department of Transport and Main Roads                                |
|  | Ron Kaden                            | Development Control Officer           | Department of Transport and Main Roads                                |
|  | Neil Beck                            | Team Leader Planning                  | Douglas Shire Council   |
|  | Paul Hoye                            | Manager, Environment and Planning     | Douglas Shire Council   |
|  | Sarah Wilson                         | Senior Town Planner                   | GHD   |
|  | Geraldine Squires                    | Project Director                      | GHD   |
|  | Kerry Nisbit<br>(via teleconference) | Project Manager – Tourism Development | Department of Innovation, Tourism Industry and the Commonwealth Games |
|  | Timothy Hartz                        | Project Manager - Design              | Department of Innovation, Tourism Industry and the Commonwealth Games |

| Item                      | Topics  | Action |
|---------------------------|---|--------|
| <b>Proposal</b>           |   |        |
| 1.                        | <p>The Department of Innovation, Tourism Industry and the Commonwealth Games proposing to establish the Wangetti trail, a 94 km dual use trail (mountain bike and hikers) from Palm Cove in the south, the Port Douglas in the north.</p> <p>The project is split into two sections, with section 1 (SP1) is located between Nautilus Street, Port Douglas to the Mowbray River and the subject of this pre-lodgement meeting.</p> <p>SP1 involves the following:</p> <ul style="list-style-type: none"> <li>• Mowbray River pedestrian bridge crossing</li> <li>• Bridge underpass</li> <li>• Visitors' carpark and safety upgrades to the Captain Cook Highway</li> <li>• Crocodile viewing platform</li> <li>• Boardwalk (mangrove experience)</li> <li>• Trail</li> <li>• Minor gully crossings (four low-level crossings)</li> </ul> <p>Future Section 2 (SP2 – Wangetti balance) is located between the Mowbray River to Palm Cove.</p> |        |
| <b>Meeting discussion</b> |   |        |
| 2.                        | <p><b>Proponent</b></p> <ul style="list-style-type: none"> <li>• GHD gave a presentation of an overview of the project.</li> <li>• GHD are considering splitting SP1 into 3 development applications to ensure at least part of the project will have approval and can commence construction this year.</li> </ul>  |        |

|           |  |  |
|-----------|--|--|
|           | <ul style="list-style-type: none"> <li>• Application 1: trail, boardwalk and gully crossings</li> <li>• Application 2: new multi-span pedestrian bridge over Mowbray River</li> <li>• Application 3: pedestrian and cyclist underpass below the state-controlled road, carpark and crocodile viewing platform</li> <li>• An ecological walkthrough survey has been undertaken over the accessible parts of the trail.</li> <li>• The existing piers adjacent to Mowbray bridge are unable to be re-used for the pedestrian bridge and will be cut down to bed level and new piers used.</li> <li>• DITID would like construction to commence in September 2019.</li> </ul>  <p>Wangetti Trail Approvals Map.pdf</p>   |  |
| <p>3.</p> | <p><b>Douglas Shire Council</b></p> <ul style="list-style-type: none"> <li>• GHD considered that the material change of use application will be impact assessable. DSC confirmed that provided the development doesn't include structures with a gross floor area (ie. all trails, boardwalks and other open structures), the application will be code assessable.</li> <li>• As the splitting of SP1 into 3 applications was to reduce timeframes, but public notification is not required, DSC recommended lodging as one application.</li> <li>• DAF agreed that lodging as one application for all of SP1 would assist in justifying any disturbance to marine plants and fisheries resources.</li> </ul>  |  |
| <p>4.</p> | <p><b>Department of Natural Resources, Mines and Energy</b></p> <p><i>Interest: Tenure</i></p> <ul style="list-style-type: none"> <li>• Proposed section 1 of the Wangetti trail will traverse multiple tenures, including freehold, unallocated state land, reserves and state land (Mowbray River).</li> <li>• There are multiple tenure options available for both freehold land and state owned land to facilitate the proposed trail.</li> <li>• Owner's consent from the Department of Natural Resources, Mines and Energy will be required for certain aspects associated with the proposed development (including work in local roads, USL and land below the high water mark (HWM))</li> <li>• Can take 4-6 weeks</li> <li>• DITID have been in discussion with two impacted land owners where land within esplanade is no longer above water. Considering ambulatory adjustment of cadastral boundaries.</li> <li>• In reserves, the development would be considered consistent with the purpose of the lease.</li> <li>• Opportunity for road opening through USL.</li> <li>• The location of the croc viewing platform within the road corridor is acceptable with regard to tenure.</li> <li>• Tenure through USL should be resolved prior to lodging a development application. The formal process does not need to be completed but an acceptance of an offer from DNRME should be finalised.</li> <li>• DNRME SLAM can facilitate a meeting to discuss tenure issues outside if required.</li> </ul> | <p>DNRME to provide advice if tenure is required in Mowbray River for bridge piers</p> |





|           |   |   |
|-----------|---|---|
|           | <p><i>Interest: Native vegetation clearing</i></p> <ul style="list-style-type: none"> <li>Any clearing of native vegetation (other than mangrove regional ecosystems) can be carried out as exempt clearing work for the purposes of government supported transport infrastructure if the project meets the definitions under the Planning Regulation.</li> <li>If the project does not meet the definition of government supported transport infrastructure, clearing in Category X areas may still require referral depending on tenure. A relevant purpose determination cannot be issued for clearing in Category R areas within freehold, other tenures may be able to apply. Clearing in Category R areas could be undertaken under the accepted development code for clearing (ADCC)</li> <li>The proposed trail will be 1.5 to 1.8m wide and will avoid any clearing of vegetation (including mangroves) where possible; exact alignment will not be known until on the ground work commences.</li> </ul>   | <p>DNRME to provide further advice on government supported transport infrastructure</p> |
| <p>5.</p> | <p><b>Department of Agriculture and Fisheries</b></p> <p><i>Interest: Removal, destruction or damage of marine plants</i></p> <ul style="list-style-type: none"> <li>Application will be assessed against State code 11: Removal, destruction or damage of marine plants.</li> <li>Provide plans showing: <ul style="list-style-type: none"> <li>the exact alignment of the structure where possible.</li> <li>the total amount of marine plants that will be disturbed, identifying portion of permanent and/or temporary disturbance (in square meters or hectares).</li> <li>the location of the marine plants to be disturbed in relation to the development works.</li> <li>the level of HAT, mean high water spring tide, and low water spring tide; and</li> <li>if applicable, a plan clearly showing the location of the marine plants to be disturbed that will result in a significant residual impact.</li> </ul> </li> <li>The design of the boardwalk should: <ul style="list-style-type: none"> <li>avoid disturbance where possible</li> <li>incorporate a 1m buffer on either side of the boardwalk to allow for future maintenance.</li> <li>minimise widths, this could be done by incorporating 'step aside' sections.</li> <li>Allow for sufficient light infiltration (40%) under structure, this could be achieved by considering height that allows light to enter from sides.</li> </ul> </li> <li>The application should consider how disturbance during construction can be minimised.</li> <li>A rehabilitation plan should be detailed in the application.</li> <li>Photos and/or drone footage may be useful for inclusion in application material.</li> </ul> <p><i>Interest: Waterway barrier works</i></p> <ul style="list-style-type: none"> <li>Application will be assessed against State code 18: Constructing or raising waterway barrier works (WWBW).</li> <li>Provide plans: <ul style="list-style-type: none"> <li>clearly showing the location of the proposed works in relation to existing mapped waterways;</li> <li>showing a cross section of the proposed waterway barrier works in relation to the existing bed and banks of each impacted waterway, and</li> </ul> </li> </ul> |   |



|           |   |  |
|-----------|---|--|
|           | <ul style="list-style-type: none"> <li>○ a longitudinal section of the proposed waterway barrier works in relation to the bed of the waterway upstream and downstream of the works.</li> <li>● If footings can be outside the bed and banks, the bridges would not be considered WWBW; it is recommended that this is reflected in the design of smaller crossings.</li> <li>● Features that are below HAT (even where not mapped) are considered grey waterways.</li> <li>● Important that the application demonstrates why the crossing is necessary.</li> <li>● RPEQ certified design may not be required at application stage, may be conditioned.</li> <li>● Bridge over Mowbray River should be designed to accommodate navigation of small vessels using the waterway.</li> </ul> <p>Matters of State environmental significance (MSES)</p> <ul style="list-style-type: none"> <li>● Marine plants and fish passage are MSES</li> <li>● If more than 25m<sup>2</sup> are impacted, an environmental offset may be required.</li> <li>● The Department of Environment and Science website has an offset calculator that can be used to estimate potential offset requirements.</li> <li>● Impacts must follow the avoid, minimise or mitigate hierarchy for offsets to meet the relevant performance outcome in the State Development Assessment Provisions.</li> </ul>   |  |
| <p>6.</p> | <p><b>Department of Environment and Science</b></p> <p><i>Interest: Tidal works and work in the coastal management district</i></p> <ul style="list-style-type: none"> <li>● Application will be assessed against State code 8: Coastal development and tidal works.</li> <li>● Will be required to address the requirement of the proposed development to be located in the erosion prone area and how the risks associated with erosion will be avoided and/or mitigated, including during construction.</li> <li>● An acid sulphate soil management plan should be included in the application material.</li> <li>● RPEQ certified design plans are not required at application stage, it is likely the approval will be conditioned to provide this at construction stage.</li> </ul> <p><i>Wetland protection area</i></p> <ul style="list-style-type: none"> <li>● If the proposed development includes high impact earthworks (which is defined as operational work that changed the form of land or involves placing a structure on land, in a way that diverts water to or from a wetland in a wetland protection area and involves excavating or filling more than 100m<sup>3</sup>), referral will apply.</li> <li>● It is unclear if the proposed development involves high impact earthworks, it is recommended that the applicant determine this prior to applying for any development approval.</li> <li>● If referral is required, the application will trigger assessment against State Code 9: Great Barrier Reef wetland protection areas.</li> </ul> <p><i>Interfering with quarry material</i></p> <ul style="list-style-type: none"> <li>● Allocation of quarry material will only be required if removed from below MHWS and placed above MHWS.</li> </ul> |  |



|    |   |   |
|----|---|---|
|    | <ul style="list-style-type: none"> <li>Allocation may be required if a substantial volume of material is being removed for the new footings within Mowbray River.</li> <li>Exemptions for allocation may apply, refer to guideline.</li> </ul> <p><b>MSES</b></p> <ul style="list-style-type: none"> <li>The application will also need to demonstrate the avoid, minimise, mitigate hierarchy has been considered in design in relation to wetlands and regulated vegetation under State code 8.</li> <li>Impacts on regulated vegetation is assessed under State code 8 even where exemptions apply for clearing for government supported transport infrastructure.</li> <li></li> </ul>  | DES to provide further information about allocation exemptions. |
| 7. | <p><b>Department of Transport and Main Roads</b></p> <p><i>Interest: State-controlled road (SCR)</i></p> <ul style="list-style-type: none"> <li>MCU application will require referral for impacts on SCR.</li> <li>Application will be assessed against State code 1: Development in a state-controlled road environment.</li> <li>The proposed carpark is located completely within the state-controlled road reserve and not within a registered allotment.</li> <li>Provide detailed design drawing(s) certified by a Registered Professional Engineer of Queensland.</li> <li>Will not require a s62 under the <i>Transport Infrastructure Act 1994</i> approval from the Department of Transport and Main Roads.</li> <li>Will require a s33 under the <i>Transport Infrastructure Act 1994</i> approval to undertake the Channelized right turn (CHR(S)) and Auxiliary left turn (AUL(S)) road works as shown by GHD concept drawing SK100.</li> <li>Will require a Road Corridor Permit under s50 under the <i>Transport Infrastructure Act 1994</i>.</li> <li>Road works/access permits can be applied for independent of development application.</li> <li>The car park concept plans have been reviewed and DTMR see no major issues.</li> <li>The under pass design is still being reviewed and negotiated.</li> </ul> |   |
| 8. | <p><b>Maritime Safety Queensland</b></p> <p><i>Interest: Tidal works</i></p> <ul style="list-style-type: none"> <li>If government supported transport infrastructure referral for tidal works assessable against State code 7: Maritime safety will not be required.</li> <li>It is recommended GHD/DITID liaise with the harbour master prior to construction.</li> </ul>  | DSDMIP to provide contact details for the Harbour Master        |
| 9. | <p><b>Further discussion</b></p> <ul style="list-style-type: none"> <li>If further information is required from technical agencies, direct queries via SARA</li> <li>Draft application material can be reviewed prior to lodgement, request via MyDAS2</li> </ul>   |   |

Signed agreement



Joanne Manson  
SARA Coordinating Officer  
15 May 2019



Sarah Wilson  
GHD  
15 May 2019



Our reference: 1905-10980 SPL  
Your reference: Wangetti Trail (SP1)

31 May 2019

Department of Innovation, Tourism industry Development and the Commonwealth Games  
C/- GHD  
Level 13, The Rocket  
203 Robina Town Centre Drive  
ROBINA QLD 4226  
Sarah.Wilson@ghd.com

Attention: Sarah Wilson

Dear Sir/Madam

### Pre-lodgement meeting record

This pre-lodgement record provides a summary of the matters discussed at the pre-lodgement meeting in addition to providing further advice prepared subsequent to the meeting. This record provides advice regarding the likely major issues relevant to the development proposal to assist in the timely processing of a development application. While this advice is provided in good faith, if the proposal is changed from that which was discussed with the department during the pre-application meeting, this advice is not binding.

### Reference information

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|----------------------------|--|
| Departmental role:         | Referral agency  |
| Departmental jurisdiction: | <p><b>Material change of use</b></p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 3, Division 4, Table 3, Item 1 – Material change of use involving clearing native vegetation (if applicable)</li> <li>• Schedule 10, Part 6, Division 3, Subdivision 3, Table 2, Item 1 – Material change of use involving removal, destruction or damage of marine plants</li> <li>• Schedule 10, Part 9, Division 4, Subdivision 2, Table 4, Item 1 – Material change of use of premises near a State transport corridor</li> <li>• Schedule 10, Part 17, Division 3, Table 6, Item 1 – Material change of use involving work in a coastal management district (if applicable)</li> <li>• Schedule 10, Part 20, Division 4, Table 3, Item 1 – Material change of use of premises in a wetland protection area (if applicable)</li> </ul> |

**Operational work**

- Schedule 10, Part 3, Division 4, Table 1, Item 1 – Operational work involving clearing native vegetation (if applicable).
- Schedule 10, Part 6, Division 3, Subdivision 3, Table 1, Item 1 – Operational work that is the removal, destruction or damage of a marine plants
- Schedule 10, Part 6, Division 4, Subdivision 3, Table 1, Item 1 – Operational work that is constructing or raising waterway barrier works
- Schedule 10, Part 9, Division 4, Subdivision 2, Table 5, Item 1 – Operational work on premises near a State transport corridor (if applicable)
- Schedule 10, Part 17, Division 3, Table 1, Item 1 – Operational work that is tidal works or work in a coastal management district
- Schedule 10, Part 17, Division 3, Table 2, Item 1 – Operational work that is the tidal works or work in a coastal management district (navigable waters) (if applicable)
- Schedule 10, Part 20, Division 4, Table 1 – Operational work in a wetland protection area (if applicable)

Pre-lodgement meeting date: 15 May 2019

Meeting attendees:

| <b>Name</b>                       | <b>Position</b>                        | <b>Organisation</b>   |
|-----------------------------------|--|---|
| Brett Nancarrow                   | Manager (Planning)                     | Department of State Development, Manufacturing, Infrastructure and Planning |
| Joanne Manson                     | Principal Planning Officer             | Department of State Development, Manufacturing, Infrastructure and Planning |
| Bec Turner                        | Student Planning Officer               | Department of State Development, Manufacturing, Infrastructure and Planning |
| Gavin Taylor                      | Principal Economic Development Officer | Department of State Development, Manufacturing, Infrastructure and Planning |
| Chris Clague                      | Senior Fisheries Biologist             | Department of Agriculture and Fisheries                                     |
| Mif Press<br>(via teleconference) | Environmental Officer                  | Department of Environment and Science                                       |
| Cameron Venables                  | Senior Natural Resource Officer        | Department of Natural Resources, Mines and Energy                           |
| Tricia Gadsden                    | Natural Resource Officer               | Department of Natural Resources, Mines and Energy                           |
| Steve Zelenika                    | Senior Town Planner                    | Department of Transport and Main Roads                                      |
| Ron Kaden                         | Development Control Officer            | Department of Transport and Main Roads                                      |
| Neil Beck                         | Team Leader Planning                   | Douglas Shire Council   |
| Paul Hoye                         | Manager, Environment and Planning      | Douglas Shire Council   |
| Sarah Wilson                      | Senior Town Planner                    | GHD   |

|                                      |                                       |   |
|--------------------------------------|---------------------------------------|---|
| Geraldine Squires                    | Project Director                      | GHD   |
| Kerry Nisbit<br>(via teleconference) | Project Manager – Tourism Development | Department of Innovation, Tourism Industry and the Commonwealth Games |
| Timothy Hartz                        | Project Manager - Design              | Department of Innovation, Tourism Industry and the Commonwealth Games |

### Location details

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|----------------------------|--|
| Street address:            | Between Nautilus Street, Port Douglas to the Mowbray River   |
| Real property description: | On and adjacent to Lot 161 on SR673, Lot 164 on SR673, Lot 24 on SR423, Lot 5 on AP13754, Lot 87 on SR370, Lot 131 on SR529 and Lot 3 on USL8610 |
| Local government area:     | Douglas Shire Council  |
| Existing use:              | Various uses/tenures (road reserve, reserve, beach and private land)   |

### Details of proposal

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|--------------------------|--|
| Development type:        | Material change of use AND Operational work  |
| Development description: | <p>The Department of Innovation, Tourism Industry and the Commonwealth Games is proposing to establish the Wangetti Trail, a 94 km dual use trail (mountain bikers and hikers) from Palm Cove in the south, the Port Douglas in the north.</p> <p>The project is split into two sections, with section 1 (SP1) located between Nautilus Street, Port Douglas to the Mowbray River and the subject of this pre-lodgement advice.</p> <p>SP1 involves the following:</p> <ul style="list-style-type: none"> <li>• Mowbray River pedestrian bridge crossing</li> <li>• Bridge underpass</li> <li>• Visitors' carpark and safety upgrades to the Captain Cook Highway</li> <li>• Crocodile viewing platform</li> <li>• Boardwalk (mangrove experience)</li> <li>• Trail</li> <li>• Minor gully crossings (four low-level crossings)</li> </ul> <p>Future Section 2 (SP2 – Wangetti balance) is located between the Mowbray River to Palm Cove.</p> |

### Supporting information


| Drawing/report title                  | Prepared by | Date       | Reference no.                    | Version/issue |
|---------------------------------------|-------------|------------|----------------------------------|---------------|
| Request for pre-lodgement advice form | GHD         | 01/05/2019 | 1905-10980 SPL                   | -             |
| Wangetti Trail Alignment – SP1 North  | GHD         | 28/02/2019 | Figure 1<br>Project No. 41-32458 | B             |
| Wangetti Trail Alignment – SP1 South  | GHD         | 28/02/2019 | Figure 2<br>Project No. 41-32458 | B             |

|  |     |            |                           |   |
|--|-----|------------|---------------------------|---|
| Intersection and Carpark Layout, CHRs and AULs | GHD | 17/04/2019 | SK100<br>Job No. 42-21067 | A |
| Sheetpiled Underpass, GA – Option 1            | GHD | April 2019 | SK002<br>Job No. 42-21067 | A |
| Sheetpiled Underpass, GA – Option 2            | GHD | April 2019 | SK003<br>Job No. 42-21067 | A |
| Wangetti Trail Project presentation            | GHD | 15/05/2019 | SP1 Mowbray North         | - |
| Wangetti Trail Approvals Map                   | GHD | -          | -                         | - |
| Concept Gully Crossings, GA – Option           | GHD | May 2019   | SK017<br>Job No. 42-21067 | A |
| Mowbray Pedestrian Bridge, GA – Option         | GHD | April 2019 | SK005<br>Job No. 42-21067 | A |

### Meeting minutes

| Item                      | Topics  | Action |
|---------------------------|---|--------|
| <b>Proposal</b>           |   |        |
| 1.                        | <p>The Department of Innovation, Tourism Industry and the Commonwealth Games proposing to establish the Wangetti trail, a 94 km dual use trail (mountain bike and hikers) from Palm Cove in the south, the Port Douglas in the north.</p> <p>The project is split into two sections, with section 1 (SP1) is located between Nautilus Street, Port Douglas to the Mowbray River and the subject of this pre-lodgement meeting.</p> <p>SP1 involves the following:</p> <ul style="list-style-type: none"> <li>• Mowbray River pedestrian bridge crossing</li> <li>• Bridge underpass</li> <li>• Visitors' carpark and safety upgrades to the Captain Cook Highway</li> <li>• Crocodile viewing platform</li> <li>• Boardwalk (mangrove experience)</li> <li>• Trail</li> <li>• Minor gully crossings (four low-level crossings)</li> </ul> <p>Future Section 2 (SP2 – Wangetti balance) is located between the Mowbray River to Palm Cove.</p> |        |
| <b>Meeting discussion</b> |   |        |
| 2.                        | <p><b>Proponent</b></p> <ul style="list-style-type: none"> <li>• GHD gave a presentation of an overview of the project.</li> <li>• GHD are considering splitting SP1 into 3 development applications to ensure at least part of the project will have approval and can commence construction this year.</li> <li>• Application 1: trail, boardwalk and gully crossings</li> <li>• Application 2: new multi-span pedestrian bridge over Mowbray River</li> <li>• Application 3: pedestrian and cyclist underpass below the state-controlled road, carpark and crocodile viewing platform</li> </ul>  |        |



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|    | <ul style="list-style-type: none"> <li>• An ecological walkthrough survey has been undertaken over the accessible parts of the trail.</li> <li>• The existing piers adjacent to Mowbray bridge are unable to be re-used for the pedestrian bridge and will be cut down to bed level and new piers used.</li> <li>• DITID would like construction to commence in September 2019.</li> </ul>  <p>Wangetti Trail Approvals Map.pdf</p>   |  |
| 3. | <p><b>Douglas Shire Council</b></p> <ul style="list-style-type: none"> <li>• GHD considered that the material change of use application will be impact assessable. DSC confirmed that provided the development doesn't include structures with a gross floor area (ie. all trails, boardwalks and other open structures), the application will be code assessable.</li> <li>• As the splitting of SP1 into 3 applications was to reduce timeframes, but public notification is not required, DSC recommended lodging as one application.</li> <li>• DAF agreed that lodging as one application for all of SP1 would assist in justifying any disturbance to marine plants and fisheries resources.</li> </ul>  |  |
| 4. | <p><b>Department of Natural Resources, Mines and Energy</b></p> <p><i>Interest: Tenure</i></p> <ul style="list-style-type: none"> <li>• Proposed section 1 of the Wangetti trail will traverse multiple tenures, including freehold, unallocated state land, reserves and state land (Mowbray River).</li> <li>• There are multiple tenure options available for both freehold land and state owned land to facilitate the proposed trail.</li> <li>• Owner's consent from the Department of Natural Resources, Mines and Energy will be required for certain aspects associated with the proposed development (including work in local roads, USL and land below the high water mark (HWM))</li> <li>• Can take 4-6 weeks</li> <li>• DITID have been in discussion with two impacted land owners where land within esplanade is no longer above water. Considering ambulatory adjustment of cadastral boundaries.</li> <li>• In reserves, the development would be considered consistent with the purpose of the lease.</li> <li>• Opportunity for road opening through USL.</li> <li>• The location of the croc viewing platform within the road corridor is acceptable with regard to tenure.</li> <li>• Tenure through USL should be resolved prior to lodging a development application. The formal process does not need to be completed but an acceptance of an offer from DNRME should be finalised.</li> <li>• DNRME SLAM can facilitate a meeting to discuss tenure issues outside if required.</li> </ul> <p><i>Interest: Native vegetation clearing</i></p> <ul style="list-style-type: none"> <li>• Any clearing of native vegetation (other than mangrove regional ecosystems) can be carried out as exempt clearing work for the purposes of government supported transport infrastructure if the project meets the definitions under the Planning Regulation.</li> <li>• If the project does not meet the definition of government supported transport infrastructure, clearing in Category X areas may still require referral depending on tenure. A relevant purpose determination cannot be issued for clearing in Category R areas within freehold, other tenures may be able to apply. Clearing in Category R areas could be</li> </ul> | <p>DNRME to provide advice if tenure is required in Mowbray River for bridge piers</p> <p>DNRME to provide further advice on government supported transport infrastructure</p> |

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|    | <p>undertaken under the accepted development code for clearing (ADCC)</p> <ul style="list-style-type: none"> <li>The proposed trail will be 1.5 to 1.8m wide and will avoid any clearing of vegetation (including mangroves) where possible; exact alignment will not be known until on the ground work commences.</li> </ul>   |  |
| 5. | <p><b>Department of Agriculture and Fisheries</b></p> <p><i>Interest: Removal, destruction or damage of marine plants</i></p> <ul style="list-style-type: none"> <li>Application will be assessed against State code 11: Removal, destruction or damage of marine plants.</li> <li>Provide plans showing: <ul style="list-style-type: none"> <li>the exact alignment of the structure where possible.</li> <li>the total amount of marine plants that will be disturbed, identifying portion of permanent and/or temporary disturbance (in square meters or hectares).</li> <li>the location of the marine plants to be disturbed in relation to the development works.</li> <li>the level of HAT, mean high water spring tide, and low water spring tide; and</li> <li>if applicable, a plan clearly showing the location of the marine plants to be disturbed that will result in a significant residual impact.</li> </ul> </li> <li>The design of the boardwalk should: <ul style="list-style-type: none"> <li>avoid disturbance where possible</li> <li>incorporate a 1m buffer on either side of the boardwalk to allow for future maintenance.</li> <li>minimise widths, this could be done by incorporating 'step aside' sections.</li> <li>Allow for sufficient light infiltration (40%) under structure, this could be achieved by considering height that allows light to enter from sides.</li> </ul> </li> <li>The application should consider how disturbance during construction can be minimised.</li> <li>A rehabilitation plan should be detailed in the application.</li> <li>Photos and/or drone footage may be useful for inclusion in application material.</li> </ul> <p><i>Interest: Waterway barrier works</i></p> <ul style="list-style-type: none"> <li>Application will be assessed against State code 18: Constructing or raising waterway barrier works (WWBW).</li> <li>Provide plans: <ul style="list-style-type: none"> <li>clearly showing the location of the proposed works in relation to existing mapped waterways;</li> <li>showing a cross section of the proposed waterway barrier works in relation to the existing bed and banks of each impacted waterway, and</li> <li>a longitudinal section of the proposed waterway barrier works in relation to the bed of the waterway upstream and downstream of the works.</li> </ul> </li> <li>If footings can be outside the bed and banks, the bridges would not be considered WWBW; it is recommended that this is reflected in the design of smaller crossings.</li> <li>Features that are below HAT (even where not mapped) are considered grey waterways.</li> <li>Important that the application demonstrates why the crossing is necessary.</li> <li>RPEQ certified design may not be required at application stage, may be conditioned.</li> <li>Bridge over Mowbray River should be designed to accommodate</li> </ul> |  |

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|    | <p>navigation of small vessels using the waterway.</p> <p>Matters of State environmental significance (MSES)</p> <ul style="list-style-type: none"> <li>• Marine plants and fish passage are MSES</li> <li>• If more than 25m<sup>2</sup> are impacted, an environmental offset may be required.</li> <li>• The Department of Environment and Science website has an offset calculator that can be used to estimate potential offset requirements.</li> <li>• Impacts must follow the avoid, minimise or mitigate hierarchy for offsets to meet the relevant performance outcome in the State Development Assessment Provisions.</li> </ul>   |   |
| 6. | <p><b>Department of Environment and Science</b></p> <p><i>Interest: Tidal works and work in the coastal management district</i></p> <ul style="list-style-type: none"> <li>• Application will be assessed against State code 8: Coastal development and tidal works.</li> <li>• Will be required to address the requirement of the proposed development to be located in the erosion prone area and how the risks associated with erosion will be avoided and/or mitigated, including during construction.</li> <li>• An acid sulphate soil management plan should be included in the application material.</li> <li>• RPEQ certified design plans are not required at application stage, it is likely the approval will be conditioned to provide this at construction stage.</li> </ul> <p><i>Wetland protection area</i></p> <ul style="list-style-type: none"> <li>• If the proposed development includes high impact earthworks (which is defined as operational work that changed the form of land or involves placing a structure on land, in a way that diverts water to or from a wetland in a wetland protection area and involves excavating or filling more than 100m<sup>3</sup>), referral will apply.</li> <li>• It is unclear if the proposed development involves high impact earthworks, it is recommended that the applicant determine this prior to applying for any development approval.</li> <li>• If referral is required, the application will trigger assessment against State Code 9: Great Barrier Reef wetland protection areas.</li> </ul> <p><i>Interfering with quarry material</i></p> <ul style="list-style-type: none"> <li>• Allocation of quarry material will only be required if removed from below MHWS and placed above MHWS.</li> <li>• Allocation may be required if a substantial volume of material is being removed for the new footings within Mowbray River.</li> <li>• Exemptions for allocation may apply, refer to guideline.</li> </ul> <p>MSES</p> <ul style="list-style-type: none"> <li>• The application will also need to demonstrate the avoid, minimise, mitigate hierarchy has been considered in design in relation to wetlands and regulated vegetation under State code 8.</li> <li>• Impacts on regulated vegetation is assessed under State code 8 even where exemptions apply for clearing for government supported transport infrastructure.</li> <li>•</li> </ul> | DES to provide further information about allocation exemptions. |
| 7. | <p><b>Department of Transport and Main Roads</b></p> <p><i>Interest: State-controlled road (SCR)</i></p> <ul style="list-style-type: none"> <li>• MCU application will require referral for impacts on SCR.</li> <li>• Application will be assessed against State code 1: Development in a</li> </ul>   |   |

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|    | <p>state-controlled road environment.</p> <ul style="list-style-type: none"> <li>The proposed carpark is located completely within the state-controlled road reserve and not within a registered allotment.</li> <li>Provide detailed design drawing(s) certified by a Registered Professional Engineer of Queensland.</li> <li>Will not require a s62 under the <i>Transport Infrastructure Act 1994</i> approval from the Department of Transport and Main Roads.</li> <li>Will require a s33 under the <i>Transport Infrastructure Act 1994</i> approval to undertake the Channelized right turn (CHR(S)) and Auxiliary left turn (AUL(S)) road works as shown by GHD concept drawing SK100.</li> <li>Will require a Road Corridor Permit under s50 under the <i>Transport Infrastructure Act 1994</i>.</li> <li>Road works/access permits can be applied for independent of development application.</li> <li>The car park concept plans have been reviewed and DTMR see no major issues.</li> <li>The underpass design is still being reviewed and negotiated.</li> </ul> |  |
| 8. | <p><b>Maritime Safety Queensland</b><br/><i>Interest: Tidal works</i></p> <ul style="list-style-type: none"> <li>If government supported transport infrastructure referral for tidal works assessable against State code 7: Maritime safety will not be required.</li> <li>It is recommended GHD/DITID liaise with the harbour master prior to construction.</li> </ul>  | DSDMIP to provide contact details for the Harbour Master |
| 9. | <p><b>Further discussion</b></p> <ul style="list-style-type: none"> <li>If further information is required from technical agencies, direct queries via SARA</li> <li>Draft application material can be reviewed prior to lodgement, request via MyDAS2</li> </ul>  |  |

It is considered that the above summary is an accurate record of the matters discussed at the pre-lodgement meeting.

The following information is provided as further advice prepared subsequent to the meeting and is valid for a period of nine months from the date of issue, unless a change in legislation or policy occurs that would affect the pre-lodgement advice.

| Item   | Advice  |
|--|---|
| <b>Combined material change of use and operational work application (approval package 1)</b> |   |
| 1.   | <p>The combined application for the Wangetti Trail Project covering project area SP1 Mowbray North is located on land between Nautilus Street, Port Douglas and Mowbray River/ Captain Cook Highway intersection and includes the trail, boardwalk and gully crossings.</p> <p>Potential referral requirements under the <a href="#">Planning Regulation 2017</a> and referral agency assessment fees are as follows:</p> <p><b><u>Material change of use triggers</u></b></p> <p><b>Native vegetation clearing</b></p> <ul style="list-style-type: none"> <li>Schedule 10, Part 3, Division 4, Table 3, Item 1 – Material change of use involving clearing native vegetation (if applicable).</li> </ul> |

| Item | Advice   |
|------|--|
|      | <ul style="list-style-type: none"> <li>• The potential assessment fee is \$6,479.00 for premises mapped as containing endangered and of concern regional ecosystems and essential habitat areas.</li> <li>• Refer to items 8-9 for application requirements.</li> </ul> <p><b>Removal, destruction or damage of marine plants</b></p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 6, Division 3, Subdivision 3, Table 2, Item 1 – Material change of use involving removal, destruction or damage of marine plants.</li> <li>• The potential assessment fee is scaled at \$3,240.00, \$6,479.00 or \$12,956.00 depending on the area of marine plants disturbance.</li> <li>• Refer to item 11 for application requirements.</li> </ul> <p><b>State transport corridor</b></p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 9, Division 4, Subdivision 2, Table 4, Item 1 – Material change of use of premises near a State transport corridor.</li> <li>• The potential assessment fee is \$3,240.00 if proposed development involves a new or changed access to the state-controlled road, otherwise the fee is \$1,619.00.</li> <li>• Refer to item 12 for application requirements.</li> </ul> <p><b>Coastal management district</b></p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 17, Division 3, Table 6, Item 1 – Material change of use involving work in a coastal management district (if applicable).</li> <li>• The potential assessment fee is \$3,240.00.</li> <li>• Refer to item 13 for application requirements.</li> </ul> <p><b>Wetland protection area</b></p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 20, Division 4, Table 3, Item 1 – Material change of use of premises in a wetland protection area (if applicable).</li> <li>• The potential assessment fee is \$3,240.00 if the proposed development involves high impact earthworks and is not considered government supported transport infrastructure.</li> <li>• Refer to item 15 for application requirements.</li> </ul> <p><b><u>Operational work triggers</u></b></p> <p><b>Constructing or raising waterway barrier works</b></p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 6, Division 4, Subdivision 3, Table 1, Item 1 –Operational work that is constructing or raising waterway barrier works (if applicable).</li> <li>• The potential assessment fee for each waterway barrier is \$12,956.00 (for works in unmapped (grey) and/or major (purple) waterway).</li> <li>• Under section 36 of the Planning Regulation, where there is one or more waterway barrier the assessment fee is capped at \$12,956.00.</li> <li>• Refer to item 10 for application requirements.</li> </ul> <p><b>State transport corridor</b></p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 9, Division 4, Subdivision 2, Table 5, Item 1 – Operational work on premises near a State transport corridor (if applicable).</li> </ul> |

| Item | Advice  |
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|      | <ul style="list-style-type: none"> <li>• The potential assessment fee is \$3,240.00.</li> <li>• Refer to item 12 for application requirements.</li> </ul> <p><b>Tidal works or work in a coastal management district</b></p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 17, Division 3, Table 1, Item 1 – Operational work that is tidal works or work in a coastal management district.</li> <li>• The potential assessment fee is \$3,240.00.</li> <li>• Refer to item 13 for application requirements.</li> </ul> <p><b>Tidal works (maritime safety)</b></p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 17, Division 3, Table 2, Item 1 –Operational work that is the tidal works or work in a coastal management district (if applicable).</li> <li>• The potential assessment fee is \$12,956.00.</li> <li>• Refer to item 14 for application requirements.</li> </ul> <p><b>Wetland protection area</b></p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 20, Division 4, Table 1, Item 1 –Operational work that in a wetland protection area (if applicable).</li> <li>• The potential assessment fee is \$3,240.00.</li> <li>• Refer to item 15 for application requirements.</li> </ul>  |
|      | <p><b>Operational work application (approval package 2)</b></p>   |
| 2.   | <p>The proposed operational work application is for the proposed multispan pedestrian bridge over Mowbray River parallel to the existing road bridge.</p> <p>Potential referral requirements under the <a href="#">Planning Regulation 2017</a> and referral agency assessment fees are as follows:</p> <p><b>Native vegetation clearing</b></p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 3, Division 4, Table 1, Item 1 – Operational work involving clearing native vegetation (if applicable).</li> <li>• The potential assessment fee is \$3,240.00 if the operational work is for a purpose other than reconfiguring a lot, a material change of use or necessary environmental clearing and the clearing is of an area less than 5ha and is establishing a necessary fence, firebreak, road or vehicular track or necessary built infrastructure, otherwise the fee is \$12,956.00.</li> <li>• Refer to items 8-9 for application requirements.</li> </ul> <p><b>Removal, destruction or damage of marine plants</b></p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 6, Division 3, Subdivision 3, Table 1, Item 1– Operational work that is the removal, destruction or damage of a marine plants.</li> <li>• The potential assessment fee is scaled at \$3,240.00, \$6,479.00 or \$12,956.00 depending on the area of marine plants disturbance.</li> <li>• Refer to item 11 for application requirements.</li> </ul> <p><b>Constructing or raising waterway barrier works</b></p> |

| Item   | Advice  |
|--|---|
|  | <ul style="list-style-type: none"> <li>• Schedule 10, Part 6, Division 4, Subdivision 3, Table 1, Item 1 –Operational work that is constructing or raising waterway barrier works (if applicable).</li> <li>• The potential assessment fee for each waterway barrier is \$12,956.00 (for works in unmapped (grey) and/or major (purple) waterway).</li> <li>• Under section 36 of the Planning Regulation and where there is one or more waterway barrier the assessment fee is capped at \$12,956.00</li> <li>• Refer to item 10 for application requirements.</li> </ul> <p><b>State transport corridor</b></p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 9, Division 4, Subdivision 2, Table 5, Item 1 – Operational work on premises near a State transport corridor (if applicable).</li> <li>• The potential assessment fee is \$3,240.00.</li> <li>• Refer to item 12 for application requirements.</li> </ul> <p><b>Tidal works or wok in a coastal management district</b></p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 17, Division 3, Table 1, Item 1 –Operational work that is tidal works or work in a coastal management district.</li> <li>• The potential assessment fee is \$3,240.00.</li> <li>• Refer to item 13 for application requirements.</li> </ul> <p><b>Tidal works (maritime safety)</b></p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 17, Division 3, Table 2, Item 1 –Operational work that is the tidal works or work in a coastal management district (if applicable).</li> <li>• The potential assessment fee is \$12,956.00.</li> <li>• Refer to item 14 for application requirements.</li> </ul> |
| <b>Operational work application (approval package 3)</b> |   |
| 3.   | <p>The proposed operational work application is for the pedestrian and cyclist underpass and crocodile viewing platform under and adjacent to the existing road bridge.</p> <p>Potential referral requirements under the <a href="#">Planning Regulation 2017</a> and referral agency assessment fees are as follows:</p> <p><b>Native vegetation clearing</b></p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 3, Division 4, Table 1, Item 1 – Operational work involving clearing native vegetation (if applicable).</li> <li>• The potential assessment fee is \$3,240.00 if the operational work is for a purpose other than reconfiguring a lot, a material change of use or necessary environmental clearing and the clearing is of an area less than 5ha and is establishing a necessary fence, firebreak, road or vehicular track or necessary built infrastructure, otherwise the fee is \$12,956.00.</li> <li>• Refer to items 8-9 for application requirements.</li> </ul> <p><b>Removal, destruction or damage of marine plants</b></p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 6, Division 3, Subdivision 3, Table 1, Item 1– Operational work that is the</li> </ul>  |

| Item  | Advice  |
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|   | <p>removal, destruction or damage of a marine plants.</p> <ul style="list-style-type: none"> <li>• The potential assessment fee is scaled at \$3,240.00, \$6,479.00 or \$12,956.00 depending on the area of marine plants disturbance.</li> <li>• Refer to item 11 for application requirements.</li> </ul> <p><b>Constructing or raising waterway barrier works</b></p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 6, Division 4, Subdivision 3, Table 1, Item 1 –Operational work that is constructing or raising waterway barrier works (if applicable).</li> <li>• The potential assessment fee for each waterway barrier is \$12,956.00 (for works in unmapped (grey) and/or major (purple) waterway).</li> <li>• Under section 36 of the Planning Regulation and where there is one or more waterway barrier the assessment fee is capped at \$12,956.00</li> <li>• Refer item 10 for application requirements.</li> </ul> <p><b>State transport corridor</b></p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 9, Division 4, Subdivision 2, Table 5, Item 1 – Operational work on premises near a State transport corridor (if applicable).</li> <li>• The potential assessment fee is \$3,240.00.</li> <li>• Refer to item 12 for application requirements.</li> </ul> <p><b>Tidal works or wok in a coastal management district</b></p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 17, Division 3, Table 1, Item 1 –Operational work that is tidal works or work in a coastal management district.</li> <li>• The potential assessment fee is \$3,240.00.</li> <li>• Refer to item 13 for application requirements.</li> </ul> <p><b>Tidal works (maritime safety)</b></p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 17, Division 3, Table 2, Item 1 –Operational work that is the tidal works or work in a coastal management district (if applicable).</li> <li>• The potential assessment fee is \$12,956.00 if the proposed development is not considered government supported transport infrastructure.</li> <li>• Refer to item 14 for application requirements.</li> </ul> |
| <b>Advice on assessment fees</b>                  |   |
| 4.  | <p>Please note assessment fees are subject to change and you should check the latest version of the Planning Regulation 2017 before lodging any application with the department.</p> <p>The department will consider refund requests on a case-by-case basis. For example, where the State government is the applicant and the proposed development is for the benefit of the community. Any request for a fee refund must be submitted to the department prior to a decision being issued.</p>   |
| <b>Prior to lodging a development application</b> |   |
| 5.  | <p>It is recommended you undertake ground truthing on the subject lots within the SP1 project area. Site-based survey or finer scale local data may identify that important state environmental</p>   |



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|  | <p>values are present on site as there is limitations of matters of state environmental matters (MSES) mapping.</p> <p>This matters of state environmental significance is a biophysical mapping product. The data used to create it is scale dependent and care needs to be exercised in using the mapping at very large scales and it should not be used as a 'point of truth'. It provides an indication of where the biodiversity values are expected to exist in the landscape.</p> <p>Site surveys will generally be required to determine if the depicted values are present or not.</p>  |
| <b>Owners consent</b>                                |  |
| 6.   | <p>Owner's consent from the Department of Natural Resources, Mines and Energy is required in order to lodge a properly made development application under the <i>Planning Act 2016</i> for the following:</p> <ul style="list-style-type: none"> <li>• A material change of use development application which includes: <ul style="list-style-type: none"> <li>o reserve land (i.e. Lot 131 on SR529 and Lots 161 and 164 on SR673)<br/>NB: Douglas Shire Council, as registered trustee, should also provide owner's consent to the development application; and,</li> <li>o dedicated local road corridor (including esplanade).</li> </ul> </li> <li>• An operational work development application which involves work below high water.</li> </ul> <p>There is no fee for an owner's consent application. The forms to apply for owner's consent can be found on the Department of Natural Resources, Mines and Energy's website:</p> <ul style="list-style-type: none"> <li>• <a href="#">Application form Contact and Land Details Part A</a></li> <li>• <a href="#">Application for owners consent to development applications Part B</a></li> </ul> <p>The application for owner's consent should also include:</p> <ul style="list-style-type: none"> <li>• Development application details — DA Form 1 with all other necessary forms or attachments including sketches/plans of existing and proposed improvements proposed to be lodged with the assessment manager.</li> <li>• If acting on a person's behalf, a letter from the person advising that you are acting on their behalf.</li> <li>• A letter from the leaseholder or trustee, if the development proposal relates to a secondary interest in the land (e.g. sublease, trustee lease), and</li> <li>• Any additional attachments, as requested.</li> </ul> <p>Further information on owner's consent is available on Queensland Government's <a href="#">website</a>.</p> <p>An application for owner's consent can be lodged by email to <a href="mailto:SLAMlodgement@dnrme.qld.gov.au">SLAMlodgement@dnrme.qld.gov.au</a> or posted to:</p> <p style="padding-left: 40px;">State Land Asset Management<br/>Department of Natural Resources, Mines and Energy<br/>PO Box 5318, Townsville QLD 4810</p> <p>The progress of a lodged application can be tracked <a href="#">online</a>.</p> |
| <b>Government supported transport infrastructure</b> |  |
| 7.   | <p>Government supported transport infrastructure is defined under Schedule 24 of the Planning Regulation as:</p>   |

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|      | <p>Infrastructure for transport that is for public use and is-</p> <ul style="list-style-type: none"> <li>(a) funded, wholly or partly, by the State or Commonwealth; or</li> <li>(b) provided by a person, other than under a development approval or infrastructure agreement, on conditions that – <ul style="list-style-type: none"> <li>(i) are agreed to by the Government; and,</li> <li>(ii) are intended to support the commercial viability of the infrastructure.</li> </ul> </li> </ul> <p>Under Schedule 5, Part 1 of the Planning Regulation, infrastructure for transport relates to:</p> <ul style="list-style-type: none"> <li>(i) Ancillary works and encroachments</li> <li>(ii) Transport infrastructure, including transport infrastructure stated in schedule 2 of the Act, definition <i>development infrastructure</i></li> <li>(iii) Wharves, public jetties, port facilities and navigational facilities</li> <li>(iv) Storage and works depots and similar facilities, including administrative facilities relating to the provision or maintenance of infrastructure stated in this part</li> <li>(v) Any other facility for transport not stated in this part that is intended mainly to accommodate government functions.</li> </ul> <p>Development infrastructure mentioned in Schedule 2 of the <a href="#">Planning Act 2016</a> means:</p> <ul style="list-style-type: none"> <li>(a) Land or works, or both land and works for – <ul style="list-style-type: none"> <li>(i) water cycle management infrastructure, including infrastructure for water supply, sewerage, collecting water, treating water, stream managing, disposing of waters and flood mitigation, but not water cycle management infrastructure that is State infrastructure; or</li> <li>(ii) transport infrastructure, including roads, vehicle lay-bys, traffic control devices, dedicated public transport corridors, public parking facilities predominantly serving a local area, cycle ways, pathways and ferry terminals; or</li> <li>(iii) public parks infrastructure, including playground equipment, playing fields, courts and picnic facilities; or</li> </ul> </li> <li>(b) Land, and works that ensure the land is suitable for development, for local community facilities, like: <ul style="list-style-type: none"> <li>(i) community halls or centres; or</li> <li>(ii) public recreation centres; or</li> <li>(iii) public libraries.</li> </ul> </li> </ul> <p>If the proposed development meets the definition of government supported transport infrastructure, referral agency assessment for the following matters of interest may not be applicable:</p> <ul style="list-style-type: none"> <li>• native vegetation clearing</li> <li>• tidal works (maritime safety)</li> <li>• operational work near a state transport corridor</li> <li>• wetland protection area.</li> </ul> |

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| <b>Native vegetation clearing</b> |   |
| 8.                                | <p>The proposed development traverses a variety of land tenures and mapped regulated vegetation of various categories under the <a href="#">Vegetation Management Act 1999</a>.</p> <p>Vegetation information on specific land parcels can be obtained through:</p> <ul style="list-style-type: none"> <li>• <a href="#">Queensland Globe</a></li> <li>• <a href="#">A vegetation management report</a> The report includes relevant property information and a series of maps and supporting information outlining the requirements for clearing vegetation on this land; and</li> <li>• <a href="#">The Regional Ecosystem Description Database</a>.</li> </ul>   |
| 9.                                | <p>Under Schedule 21, part 1, section 1, item 14(b) of the <a href="#">Planning Regulation 2017</a>, an exemption applies for the clearing of native vegetation for constructing or maintaining infrastructure stated in Schedule 5 of the Planning Regulation if the infrastructure is government supported transport infrastructure.</p> <p>If the proposed development is not considered government supported transport infrastructure, the material change of use application will require referral agency assessment under Schedule 10, Part 3, Division 4, Table 3, Item 1 – Material change of use involving clearing native vegetation of the <a href="#">Planning Regulation 2017</a>.</p> <p>If any of the operational work packages involve native vegetation clearing not associated with a material change of use application, referral agency assessment may be required under Schedule 10, Part 3, Division 4, Table 1, Item 1 – Operational work involving clearing native vegetation.</p> <p>Material change of use applications involving native vegetation clearing and/or operational work applications involving native vegetation clearing are made up of two stages:</p> <p><b>Stage 1</b></p> <p>A material change of use application involving native vegetation clearing and/or operational work application involving native vegetation clearing is prohibited development unless a relevant purpose determination has been given under Section 22A of the <i>Vegetation Management Act 1999</i> by the Department of Natural Resources, Mines and Energy.</p> <p>An application for the relevant purpose determination must be made directly to the Department of Natural Resources, Mines and Energy. The <a href="#">Relevant Purpose Determination Application Form</a> can be emailed to: <a href="mailto:northvegetation@dnrme.qld.gov.au">northvegetation@dnrme.qld.gov.au</a></p> <p>There is no fee for a relevant purpose determination.</p> <p>For more information or assistance in applying for a section 22A relevant purpose determination, please visit the <a href="#">Queensland Government website</a>, or contact the Department of Natural Resources, Mines and Energy on 4447 9153.</p> <p><b>Stage 2</b></p> <p>Once the Department of Natural Resources, Mines and Energy has determined that the section 22A of the <i>Vegetation Management Act 1999</i> requirements have been met, the development application can be lodged with the assessment manager. Evidence of the relevant purpose</p> |

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|  | <p>determination must be submitted with the development application.</p> <p><b>Assessment benchmarks</b></p> <p>The development application(s) will be assessed against the current State Development Assessment Provisions, State code 16: Native vegetation clearing.</p> <p>The development application(s) should provide a response against State code 16 identifying how the proposed development meets each performance outcome.</p> <p>The Department of Natural Resources, Mines and Energy has prepared a <a href="#">guideline</a> to assist applicants in responding to State code 16.</p>  |
| <p><b>Constructing or raising waterway barrier works</b></p> |  |
| 10.  | <p>The proposed works are located over waterways that are mapped as major (purple) and tidal (grey) waterways according to the <i>Queensland waterway for waterway barrier works</i> spatial data layer and may constitute waterway barrier works.</p> <p>Coastal sites that are located beyond the tidal (grey) zone but which, on ground, have tidal features, such as marine plants (mangroves, seagrass or salt marsh), marine fauna, salt or brackish water, or tidal ebb and flow, should be treated as tidal (grey) waterways. This will apply to all waterways throughout the proposed works locations.</p> <p>The following factsheets provide more information on waterway barrier works:</p> <ul style="list-style-type: none"> <li>• <a href="#">What is a waterway?</a></li> <li>• <a href="#">What is a waterway barrier work?</a></li> <li>• <a href="#">What is not a waterway barrier work?</a></li> </ul> <p>Under the Planning Regulation, works involving constructing or raising waterway barrier works must be undertaken in accordance with the Department of Agriculture and Fisheries <a href="#">Accepted development requirements for operational work that is constructing or raising waterway barrier works</a> or under a development approval (assessable development).</p> <p>The proposed works may not be able comply with the relevant accepted development requirements. The following options would remove the need for an approval for this component of the works:</p> <ul style="list-style-type: none"> <li>• avoiding waterways mapped under the Queensland waterways for waterway barrier works spatial data layer; and/or</li> <li>• constructing any works (e.g. bridges) in accordance with Fisheries Queensland's factsheet, 'What is not a waterway barrier work?'</li> </ul> <p>If the proposed works constitute waterway barrier works and are unable to comply with the Department of Agriculture and Fisheries relevant accepted development requirements, the development application will require referral agency assessment under Schedule 10, Part 6, Division 4, Subdivision 3, Table 1, Item 1 –Operational work that is constructing or raising waterway barrier works of the <a href="#">Planning Regulation 2017</a>.</p> <p><b>Temporary waterway barrier works</b></p> <p>The placement of temporary waterway barriers to facilitate construction of the gully crossings, mangrove boardwalk, Mowbray Bridge underpass and/or Mowbray River crossing may be conducted under the Department of Agriculture and Fisheries <a href="#">Accepted development requirements for operational work that is constructing or raising waterway barrier works</a>.</p> <p>If any proposed temporary waterway barrier works are unable to meet the accepted development requirements, this aspect of the works must be included in the development application and</p> |

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|      | <p>PO32 to PO35. Please be aware of additional requirements for temporary waterway barriers in tidal areas (refer to sections 4.3 (standards), and work type 7.1 of the accepted development requirements).</p> <p><b><u>Assessment benchmarks</u></b></p> <p>The development application(s) will be assessed against the current State Development Assessment Provisions, State code 18: Constructing or raising waterway barrier works in fish habitats.</p> <p>The development application(s) should provide a response against State code 18, addressing:</p> <ul style="list-style-type: none"> <li>• All development - PO1 to PO18 and PO36; and</li> <li>• Temporary waterway barrier works - PO32 to PO35.</li> </ul> <p>Particular attention should be paid to the following performance outcomes (PO):</p> <ul style="list-style-type: none"> <li>• <b>PO1</b> - there is a demonstrated need for the development and alternatives (locations and designs) which do not involve constructing or raising waterway barrier works are not viable. Alternatives and their feasibility shown be discussed in the development application.</li> <li>• <b>PO2</b> - only those aspects of a development that have a functional requirement to be located within a waterway are supported. Under the <a href="#">Fisheries Act 1994</a> a waterway includes a river, creek, stream, watercourse, drainage feature or inlet of the sea.</li> <li>• <b>PO5</b> - waterway barrier works must be designed, constructed, operated and maintained to provide lateral and longitudinal fish passage for all members of the fish community. The development application should include detail about how the proposed works will not exclude fish from areas of the waterway.</li> <li>• <b>PO9</b> - development should avoid non-essential hardening or unnatural modification of the main channel as well as avoiding channelisation and works during period of elevated flows.</li> <li>• <b>PO11</b> - sufficient water exchange and flow is maintained and provided to sustain and where necessary restore, water quality and the health and condition of fisheries resources, ecological functions and fish passage.</li> <li>• <b>PO12</b> - development likely to cause drainage or disturbance to acid sulfate soils, prevents the release of contaminants and impacts on fisheries resources and fish habitats. The development application should include information on the management of acid sulfate soils should they be encountered during the works.</li> <li>• <b>PO13 and PO14</b> - construction avoids direct and indirect disturbance to beds, banks and vegetation adjacent to the permanent development footprint. Where disturbance cannot be avoided, the bed and banks outside of the permanent development footprint must be returned to their original profile. The development application should include a thorough discussion on the works methodology of waterway barrier construction and how impacts to surrounding fish habitats will be minimised.</li> <li>• <b>PO15</b> - the natural substrate of the waterway is retained or reconstructed so that the</li> </ul> |

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|      | <p>post-construction substrate is comparable to the natural substrate, for example in terms of size and consistency. Any scour protection to be included in the development should be clearly marked on any plans and the nature of the material used described.</p> <ul style="list-style-type: none"> <li>• <b>PO36</b> - the department maintains an ‘avoid, mitigate, offset’ requirement that applies to those activities that will, or are likely to, have a significant residual impact on matters of state environmental significance.</li> </ul> <p>Depending on the type of works being proposed and impact to waterways providing for fish passage matters of state environmental significance, the works may have a Significant Residual Impact.</p> <p>The development application should include details on how the impacts to waterways providing for fish passage will be avoided or minimised and where this cannot be reasonably achieved, offset.</p> <p><b><u>Application material</u></b></p> <p>The development application should include relevant plans as per the department’s <a href="#">DA Forms guide: Relevant plans</a>, including:</p> <ul style="list-style-type: none"> <li>• detailed plans clearly showing the location of the proposed works in relation to existing mapped waterways;</li> <li>• detailed plans clearly showing a cross section of the proposed waterway barrier works in relation to the existing bed and banks of each impacted waterway;</li> <li>• a longitudinal section of the proposed waterway barrier works in relation to the bed of the waterway upstream and downstream of the works;</li> </ul> <p><i>Note – all plans should be able to be read to scale at A3 size</i></p> <p>Written documentation discussing the following:</p> <ul style="list-style-type: none"> <li>• details of the purpose of the proposed works (e.g. single/multi-span bridge for pedestrian and bicycle access etc.)</li> <li>• a description of the waterway proposed to be impacted (e.g. condition, size, connectivity, general hydrology) and nature of the impact;</li> <li>• a description of the work method (e.g. timing, equipment to be used);</li> <li>• a detailed description of the alternatives considered to reduce impacts on the waterway, as applicable (e.g. alternative designs, locations, setbacks/buffer distances, etc.);</li> <li>• details of on-site mitigation actions, during and after the development;</li> <li>• the extent of any future maintenance works required for the continued safe operation of the proposed structure or facility; and</li> <li>• impacts to fish passage. It must firstly be demonstrated that impacts to waterways providing for fish passage have been avoided. Where avoidance is not reasonably possible, impacts to waterways providing for fish passage must be mitigated. An environmental offset pursuant to the <a href="#">Environmental Offsets Act 2014</a> may need to be provided for any significant residual impact.</li> </ul> |

## Removal, destruction or damage of marine plants

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| 11. | <p>The proposed works are likely to involve the removal, destruction or damage of marine plants.</p> <p>Marine plants include:</p> <ul style="list-style-type: none"> <li>any plant (a tidal plant (including marine algae) that usually grows on or adjacent to tidal lands whether it is living, dead, standing or fallen; or</li> <li>any plant material on tidal land (up to the level of Highest Astronomical Tide (HAT)). Plants such as mangroves, mangrove fern, saltcouch or samphire species are considered marine plants regardless of whether or not they are above or below the level of HAT.</li> </ul> <p>Marine plants do not include:</p> <ul style="list-style-type: none"> <li>a plant that is prohibited matter or restricted matter under the Biosecurity Act 2014; or</li> <li>a plant that is controlled biosecurity matter or regulated biosecurity matter under the <i>Biosecurity Act 2014</i>.</li> </ul> <p>Marine plant protection applies irrespective of the tenure (e.g. unallocated state land and all state tenured lands, including private freehold and leasehold lands) of the land on which the plant occurs, the time the plant has been growing at the location, or the degree of or purpose of the disturbance.</p> <p>Under the Planning Regulation works involving the removal, destruction or damage of marine plants must be undertaken in accordance with the Department of Agriculture and Fisheries <a href="#">Accepted development requirements for operational work that is the removal, destruction or damage of marine plants</a> or under a development approval (assessable development).</p> <p>The proposed works are unlikely to comply with the accepted development requirements as the proposal is likely to exceed the area of marine plant disturbance permissible.</p> <p>Depending on how the application package is lodged referral agency assessment is required under:</p> <ul style="list-style-type: none"> <li>Schedule 10, Part 6, Division 3, Subdivision 3, Table 2, Item 1 – Material change of use involving removal, destruction or damage of marine plants and/or</li> <li>Schedule 10, Part 6, Division 3, Subdivision 3, Table 1, Item 1– Operational work that is the removal, destruction or damage of a marine plants.</li> </ul> <p><b>Assessment benchmarks</b></p> <p>The development application(s) will be assessed against the current State Development Assessment Provisions, State code 11: Removal, destruction or damage of marine plants.</p> <p>The development application(s) should provide a response against State code 11, addressing:</p> <ul style="list-style-type: none"> <li>All development – PO1 to PO15 and PO36; and</li> <li>Temporary works – PO26 to PO28</li> </ul> <p>Particular attention should be paid to the following performance outcomes (PO):</p> <ul style="list-style-type: none"> <li><b>PO1</b> - the development application must demonstrate the need for the development and justify why alternatives that avoid or minimise impacts to marine plants are not viable. The application should include a description of design constraints and alternatives that have been investigated for the project, and their feasibility.</li> <li><b>PO2</b> – only those aspects of a development that have a functional requirement to be located on tidal land create the requirement to remove, destroy or damage marine plants. <a href="#">Fish Habitat Management Operational Policy FHMOP001</a> may provide guidance</li> </ul> |
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on how the proposal can address this matter.

- **PO4** - the spatial extent of disturbance to marine plants is minimised. The development application should discuss options and the proposed steps to minimise disturbance to marine plants, such as path alignment and proposed on-ground mitigation measures.
- **PO5** - the timing of works avoids marine plant flowering, fish spawning and fish migration periods. The timing of mangrove flowering is of particular importance in this area. Mechanisms to avoid this period should be discussed in the development application.
- **PO6** - the works should avoid unnecessary loss, degradation or fragmentation of fish habitats and their values. The development application should describe how the works, particularly the boardwalk will avoid the fragmentation of fish habitat values.
- **PO7** - the development does not increase the risk of mortality, disease or injury, or compromise the health, productivity, marketability or suitability for human consumption of fisheries resources. The development application should discuss biotic and abiotic condition, such as impacts on water quality and if substances toxic to plants or fish will be used.
- **PO8** - the works are undertaken to encourage fish habitats and fisheries resource values to naturally regenerate. The development application should describe how the works, in particular the boardwalk, will be constructed to reduce impact and enable natural marine plant regeneration. This include height and light penetration.
- **PO9** - development likely to cause drainage or disturbance to acid sulfate soils, prevents the release of contaminants and impacts on fisheries resources and fish habitats. The application should provide information on the management of acid sulfate soils should they be encountered during the works.
- **PO10** - the tidal and freshwater inundation and drainage patterns, extent and timing are maintained or restored such that ecological processes continue, and associated fish habitat values and conditions are maintained. The application should describe how planning and the work method will minimise changes or disruption to drainage patterns.
- **PO12** - the development is designed, sited and constructed to ensure its long-term use and operability will not result in ongoing adverse impacts or new adverse impacts or additional development. The application should outline if the development will require ongoing, regular trimming of marine plants, and the extent and placement of warning signs and protective structures.
- **PO13 to PO15** - the development application does not restrict or impact access or use of the waterway. The applicant should discuss how the Mowbray River crossing will be managed to ensure user access to the waterway.
- **PO26 to PO28** - Temporary disturbance or temporary structures involving the removal, destruction or damage of marine plants can have both direct and indirect impacts and cause the loss of fisheries productivity.
- **PO31** – the department maintains an ‘avoid, mitigate, offset’ requirement that applies to those activities that will, or are likely to, have a significant residual impact on matters of state environmental significance.



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|                                 | <p>This framework requires that impacts to marine plants are firstly avoided. Where avoidance cannot be achieved, it must be demonstrated that impacts have been carefully managed and minimised. Notwithstanding any measures to avoid or mitigate impacts to marine plants, the works may still result in a significant residual impact, in which case an offset will be required.</p> <p>Any rehabilitation of marine plants on site may help to reduce the scale of the significant residual impact. Options to mitigate the significant residual impact to marine plants must be pursued before an offset can be considered.</p> <p><b><u>Application material</u></b></p> <p>The development application(s) should include relevant plans as per the department's <a href="#">DA Forms guide: Relevant plans</a>, including:</p> <ul style="list-style-type: none"> <li>• the total amount of marine plants that will be disturbed, identifying the areas of permanent and/or temporary disturbance (in square metres or hectares);</li> <li>• the location of the marine plants to be disturbed in relation to the development works;</li> <li>• the level of HAT, mean high water spring tide, and low water spring tide;</li> <li>• location and extent of fish habitat within the development area, including creeks, sand and/or yabby banks, drainage lines, lagoons and marshes; and</li> <li>• if applicable, a plan clearly showing the location of the marine plants to be disturbed that will result in a significant residual impact (SRI) as defined under the <i>Environmental Offsets Act 2014</i>.</li> </ul>   |
| <b>State transport corridor</b> |   |
| 12.                             | <p>As proposed development for the trail and boardwalk is located within 25m of a state-controlled road (Captain Cook Highway), the development application will trigger referral agency assessment under Schedule 10, Part 9, Division 4, Subdivision 2, Table 4, Item 1 - material change of use near a State transport corridor of the <a href="#">Planning Regulation 2017</a>.</p> <p>Referral agency assessment under Schedule 10, Part 9, Division 4, Subdivision 2, Table 5, Item 1 – operational work near a state transport corridor of the <a href="#">Planning Regulation 2017</a> is only required if the work:</p> <ul style="list-style-type: none"> <li>(i) relates to an access to the state transport corridor; or</li> <li>(ii) involves extracting, excavating or filling more than 50m<sup>3</sup>; or</li> <li>(iii) involves the redirection or intensification of site stormwater from the premises, through a pipe or culvert with a cross-sectional area of more than 625cm<sup>2</sup> to a state transport corridor;</li> </ul> <p>and the work does not relate to –</p> <ul style="list-style-type: none"> <li>(i) a material change of use within 25 metres of the state-controlled road; or</li> <li>(ii) reconfiguring a lot within 25 meters of the state-controlled road; or</li> <li>(iii) government supported transport infrastructure</li> </ul> <p><b><u>Assessment benchmarks</u></b></p> <p>The development application(s) will be assessed against the current State Development Assessment Provisions, State code 1: Development in a state-controlled road environment.</p> <p>The development application(s) should provide a response State code 1 in its entirety, identifying how the proposed development meets each performance outcome.</p> <p>The Department of Transport and Main Roads has prepared a <a href="#">guideline</a> to assist applicants in responding to State code 1.</p> |

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|   | <p><b><u>Application material</u></b></p> <p>The Department of Transport and Main Roads has reviewed the Intersection and Carpark Layout concept drawing (SK100) and has advised the concept design for a Channelized right turn and Auxiliary left turn is considered satisfactory. The development application should include detailed design drawing(s) which required to be certified by a Registered Professional Engineer of Queensland (RPEQ).</p>  |
| <p><b>Coastal management district and/or Tidal works or work in a coastal management district</b></p> |  |
| 13.   | <p>If the proposed material change of use development application involves operational work in the coastal management district that carried out completely or partly in an erosion prone area and:</p> <ul style="list-style-type: none"> <li>• is extracting, excavating or filling more than 1000m<sup>3</sup>, or</li> <li>• clearing more than 1000m<sup>2</sup> of native vegetation,</li> </ul> <p>referral agency assessment is required under Schedule 10, Part 17, Division 3, Table 6, Item 1 – Material change of use involving work in a coastal management district of the <a href="#">Planning Regulation 2017</a>.</p> <p>Referral agency assessment is required under Schedule 10, Part 17, Division 3, Table 1, Item 1 – Operational work that is tidal works or work in a coastal management district of the <a href="#">Planning Regulation 2017</a> if the proposal involves:</p> <ul style="list-style-type: none"> <li>(a) tidal works; or</li> <li>(b) any of the following carried out completely or partly in a coastal management district— <ul style="list-style-type: none"> <li>i. interfering with quarry material, as defined under the Coastal Act, on State coastal land above high-water mark;</li> <li>ii. disposing of dredge spoil, or other solid waste material, in tidal water;</li> <li>iii. constructing an artificial waterway;</li> <li>iv. removing or interfering with coastal dunes on land, other than State coastal land, that is in an erosion prone</li> </ul> </li> </ul> <p><b><u>Assessment benchmarks</u></b></p> <p>The development application(s) will be assessed against the current State Development Assessment Provisions, State code 8: Coastal development and tidal works.</p> <p>The development application(s) should provide a response State code 8 in its entirety, identifying how the proposed development meets each performance outcome.</p> <p>Mapping indicates the erosion prone area exists within the area of development. Development is not supported within the erosion prone area unless it can be justified that it is coastal-dependant development.</p> <p>Coastal-dependant development is defined in SDAP State code 8 as:</p> <ol style="list-style-type: none"> <li>1. means development that in order to function must be located in tidal waters or be able to access tidal water; and</li> <li>2. may include, but is not limited to: <ol style="list-style-type: none"> <li>a. industrial and commercial facilities such as ports, harbours and navigation channels and facilities, aquaculture involving marine species, desalination plants, tidal generators, coastal protection works, erosion control structures, public marine development and beach nourishment</li> <li>b. tourism facilities for marine (boating) purposes</li> <li>c. community facilities and sporting facilities which require access to tidal water in order to function, such as surf clubs, marine rescue, rowing and sailing clubs; or</li> <li>d. co-located residential and tourist uses that are part of an integrated development proposal (e.g. mixed use development) incorporating a marina, if these uses are located directly landward of the marina and appropriately</li> </ol> </li> </ol> |

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|  | <p>protected from natural hazards; but</p> <p>3. does not include:</p> <ol style="list-style-type: none"> <li>a. residential development, including canal development, as the primary use</li> <li>b. waste management facilities, such as landfills, sewerage treatment plants; or</li> <li>c. transport infrastructure, other than for access to the coast.</li> </ol> <p>Adequate justification for any permanent structure(s) proposed within the erosion prone area or information on how the hazards associated with the development will be avoided or mitigated should be included with the application.</p> <p>Particular attention should be paid to the following performance outcomes (PO):</p> <ul style="list-style-type: none"> <li>• <b>PO1, PO2, PO3, PO4 and PO5</b> - justify why the development cannot be relocated outside the high coastal hazard area.</li> </ul> <p>DES's <a href="#">Coastal Hazard Technical Guide</a> provides information on coastal hazards as well as information on recalculating the erosion prone area using a standard, approved formula in the event that the currently mapped erosion prone area is believed not to be a true indicator of the potential hazard.</p> <ul style="list-style-type: none"> <li>• <b>PO11</b> - issues regarding acid sulfate soils should be addressed, including consideration of the risk of disturbing acid sulfate soils, as well as providing a statement about how the risk is intended to be managed. The <a href="#">Queensland Acid Sulfate Soil Technical Manual</a> outlines relevant scientific information and guidelines for Acid Sulfate Soil Management.</li> <li>• <b>PO12</b> – Category C and R areas of vegetation. The definition of category C vegetation includes mapped category C areas located on freehold land, indigenous land or land which is the subject of an occupation licence under the <i>Land Act 1994</i>.</li> </ul> <p>The proposed development area is mapped as containing significant areas of regulated vegetation category C and category R. The development application should:</p> <ul style="list-style-type: none"> <li>o Provide a targeted assessment to ground truth any values identified;</li> <li>o Demonstrate how the development avoids adverse impacts on each value to the greatest extent practicable;</li> <li>o Where the above is not reasonably possible, demonstrate how impacts on values have or will be minimised and/or mitigated to the greatest extent practicable.</li> </ul> <ul style="list-style-type: none"> <li>• <b>PO16</b> - it will be required to determine if there are any matters of state environmental significance on or adjacent to the proposed development site.</li> </ul> <p><a href="#">Environmental Reports Online</a> can be used to conduct a desktop analysis to identify any mapped matters of state environmental significance that exists on (using the lot on plan option to search) and near the proposed site/s (using the central coordinates option to search).</p> <p>Where matters of state environmental significance are identified, the development application should:</p> <ul style="list-style-type: none"> <li>• provide a targeted assessment to ground truth any matters of state environmental significance identified;</li> <li>• demonstrate how the development avoids adverse impacts on each matters of state environmental significance to the greatest extent practicable;</li> <li>• where the above is not reasonably possible, demonstrate how impacts on matters of state environmental significance have or will be minimised and/or mitigated to the greatest extent practicable;</li> </ul> |
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- demonstrate whether the development will have a Significant Residual Impact on any identified matters of state environmental significance using the department's [Significant Residual Impact Guideline](#). An assessment will need to be undertaken for each matters of state environmental significance to determine whether the proposed development will result in a significant residual impact; and
- identify any potential offset obligation as per PO16 (3) of State Code 8.

For further advice on environmental offsets can be found on the Department of Environment and Science's [website](#). The following tools may be helpful for a desktop analysis and assessment:

- [Environmental Reports Online](#)
- [Property Reports and Regulated Vegetation Mapping](#)
- [Map of Referable Wetlands](#)
- [Wetland/Info](#)
- [Queensland Wetland Buffer Guideline](#)
- [Protected Plants Flora Survey Trigger Map](#)
- [Species List](#)
- [State Planning Policy Interactive Mapping](#)

### **Rehabilitation/Vegetation Management Plan**

To assist in mitigating impacts on matters of state environmental significance, it is recommended the development application include a rehabilitation/vegetation management plan prepared by an appropriately qualified person.

This rehabilitation plan should identify:

- the areas to be rehabilitated
- a list of species proposed to be used in revegetating the site (these should be native to the area)
- proposed rehabilitation methodology
- proposed maintenance
- proposed monitoring
- proposed weed management.

The Department of Environment and Science has also prepared a [guideline](#) to assist applicants in responding to State Code 8. The guideline provides background information and key concepts relevant for coastal processes and resources and coastal protection and management applicable to complying with the code.

### **Application material**

The development application should include a detailed description of the proposed development and a description of the existing site conditions of the proposed development location. In particular, the following documentation should be provided:

- description of the land intended to be developed, including the property address, tenure and real property description of the land; and
- description of the development, including:
  - o location of all built structures, or structures to be modified or demolished, as a result of the proposed development;
  - o description of any operational works occurring on site including expected timeframes;
  - o any machinery to be used or stored on the site;
  - o staging of the development if applicable; and
- detailed and appropriately scaled drawings and/or plans which clearly identify the location of proposed development, including:

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|                                      | <ul style="list-style-type: none"> <li>o adjacent real property boundaries;</li> <li>o adjacent riverbanks, walls, sandbanks, structures, the limit of vegetation, and/or other principal features of the immediate area;</li> <li>o relevant tidal planes (e.g. Highest Astronomical Tide, Mean High Water Springs);</li> <li>o the location and setting out details for cross-sections; and</li> <li>o any other information required to accurately define the area and to allow the site to be readily identified from the plan.</li> </ul> <p>All plans/drawings should include title, date and numbering suitable to identify the plan and should be mapped to GDA94 projection.</p>  |
| <b>Tidal work (navigable waters)</b> |  |
| 14.                                  | <p>If the proposed development is not considered government supported transport infrastructure the development application will trigger referral agency assessment under Schedule 10, Part 17, Division 3, Table 2, Item 1 – Operational work that is the tidal works or work in a coastal management district of the <a href="#">Planning Regulation 2017</a>.</p> <p><b><u>Assessment benchmarks</u></b></p> <p>The development application(s) will be assessed against the current State Development Assessment Provisions, State code 7: Maritime safety.</p> <p>The development application(s) should provide a response State code 7 in its entirety, identifying how the proposed development meets each performance outcome.</p> <p>The Department of Transport and Main Roads (Maritime Safety Queensland) has prepared <a href="#">guideline</a> to assist applicants in responding to State code 7.</p> <p>The Harbour Master at Maritime Safety Queensland can be contacted on phone 4052 7494.</p>  |
| <b>Wetland protection area</b>       |  |
| 15.                                  | <p>Under Schedule 7, Part 3, Section 9 of the Planning Regulation 2017, operational works in a wetland protection area that is high impact earthworks and is carried out for electricity operating works or government supported transport infrastructure is exempt if it complies with Schedule 14 of the <a href="#">Planning Regulation 2017</a>. Please note that if the criterion in Schedule 14 are not met the development is prohibited development.</p> <p>There are a number of criteria under Schedule 14 that must be met in order to be able to proceed with the proposed development including providing justification of the works and the person carrying out the work provides a counterbalancing environmental offset, and gives a notice stating the work to be carried out to the chief executive (environment) before the work starts.</p> <p>Counterbalancing environmental offset means an environmental offset that:</p> <ul style="list-style-type: none"> <li>• counterbalances any insignificant adverse impacts of the operational work; and</li> <li>• is calculated in accordance with any relevant environmental offsets policy under the <a href="#">Environmental Offsets Act 2014</a>.</li> </ul> <p>The notice to the chief executive (environment) should be submitted to the Department of Environment and Science:</p> <p>Permit and Licence Management<br/> Department of Environment Science<br/> GPO Box 2454<br/> Brisbane Queensland 4001</p> |

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|   | <p>OR<br/>email: <a href="mailto:palm@des.qld.gov.au">palm@des.qld.gov.au</a></p> <p>For further assistance, please contact the Department of Environment and Science on 3330 6037.</p> <p>If proposed development is not considered government supported transport infrastructure and the proposal involves high impact earthworks in a wetland protection area, referral agency assessment is required under:</p> <ul style="list-style-type: none"> <li>• Schedule 10, Part 20, Division 4, Table 3, Item 1– Material change of use of premises in a wetland protection area of the <a href="#">Planning Regulation 2017</a> and/or</li> <li>• Schedule 10, Part 20, Division 4, Table 1, Item 1 – Operational work in a wetland protection area of the <a href="#">Planning Regulation 2017</a>.</li> </ul> <p>Schedule 24 of the Planning Regulation defines high impact earthworks as meaning operational work in a wetland protection area that changes the form of the land in a way that diverts water to or from a wetland and involves excavating or filling of more than 100m<sup>3</sup> if in, or within 200m of, the wetland, or 1000m<sup>3</sup> otherwise. The definition also includes a number of exclusions which should be reviewed.</p> <p><b><u>Assessment benchmarks</u></b></p> <p>If referral agency assessment is required, the development application(s) will be assessed against the current State Development Assessment Provisions, State code 9: Great Barrier Reef wetland protection areas.</p> <p>The development application(s) should provide a response State code 9 in its entirety, identifying how the proposed development meets each performance outcome.</p> <p>The Department of Environment and Science has prepared a <a href="#">guideline</a> to assist applicants in responding to State code 9.</p> <p>Particular attention should be paid to performance outcome <b>PO9</b> – matters of state environmental significance.</p> <p>Where matters of state environmental significance are identified:</p> <ul style="list-style-type: none"> <li>• provide a targeted assessment to ground truth any matters of state environmental significance identified</li> <li>• demonstrate how the development avoids adverse impacts on each matters of state environmental significance to the greatest extent practicable;</li> <li>• where the above is not reasonably possible, demonstrate how impacts on matters of state environmental significance have or will be minimised and/or mitigated to the greatest extent practicable</li> <li>• demonstrate whether the development will have a significant residual impact on any identified matters of state environmental significance; and</li> <li>• identify any potential offset obligation as per PO9 (3) of State Code 9.</li> </ul> <p>An assessment will need to be undertaken for each matters of state environmental significance to determine whether the proposed development will result in a significant residual impact.</p> |
| <p><b>State Development Assessment Provisions</b></p> |   |
| 16.   | <p><a href="#">State Development Assessment Provisions</a> version 2.4 took effect on 16 November 2018. To assist applicants in preparing a development application the department has prepared <a href="#">SDAP version 2.4 response templates</a>.</p>  |

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|   | An application that complies with all applicable acceptable outcomes is considered to satisfy the corresponding performance outcome. If an application does not comply with one or more of the applicable acceptable outcomes, compliance with the performance outcome should be demonstrated.  |
| <b>Environmental offset</b>                       |   |
| 17.   | <p>Schedule 2 of the <a href="#">Environmental Offsets Regulation 2014</a> provides a definition for matters of state environmental significance.</p> <p>The department's <a href="#">Significant Residual Impact Guideline</a> provides guidance for which an environmental offset condition may be imposed for certain prescribed environmental matters (matters of state environmental significance) where the department has a role in assessing a development application against the State Development Assessment Provisions.</p> <p>Where a significant residual impact will occur on matters of state environmental significance, the offsets framework provides three offset delivery options:</p> <ul style="list-style-type: none"> <li>• proponent-driven offsets i.e. land-based offsets or a Direct Benefit Management Plan;</li> <li>• financial settlement offset; or</li> <li>• a combination of the two.</li> </ul> <p>For further information on environmental offsets visit Queensland Government's <a href="#">website</a>.</p>  |
| <b>Further pre-lodgement advice</b>               |   |
| 18.   | To request further pre-lodgement advice on the Wangetti Trail SP1 project area please use the 'related actions' tab in the 1905-10980 SPL MyDAS2 record and select 'Request more pre-lodgement advice from SARA'. You will be given an option to select either a meeting or written advice.   |
| <b>Further advice outside SARA's jurisdiction</b> |   |
| <b>Tenure</b>                                     |   |
| 19.   | <p><u>General advice</u></p> <p>The proposed development will traverse a variety of state land tenures, including reserves, unallocated state land, dedicated road corridors (including esplanade) and the Mowbray River. The proposed development will also traverse numerous freehold properties. Tenure options for state-owned and private land are provided in <b>Attachment 1</b>.</p> <p>It is recommended you continue liaising with the Department of Natural Resources, Mines and Energy via: <a href="mailto:Townsville.SLAMS@dnrme.qld.gov.au">Townsville.SLAMS@dnrme.qld.gov.au</a> with respect to tenure over state-owned land.</p> <p><u>Permanent structures on land below high water – crocodile viewing platform</u></p> <p>The preliminary plans of development identified a crocodile viewing platform (the platform) located partially within the Mowbray River, adjacent to Lot 121 on RP749352.</p> <p>During the pre-lodgement meeting, a revised plan was presented which located the platform wholly within a state-controlled road corridor, being the Captain Cook Highway. The Department of Natural Resources, Mines and Energy has no tenure requirements should the platform be located wholly within the state-controlled road corridor.</p> <p>If the platform is relocated outside of the state-controlled road corridor, tenure under the <i>Land Act 1994</i> may be required for any infrastructure located within the Mowbray River.</p> <p><u>Permanent structures on land below high water – bridge replacement</u></p> <p>The bridge piles within the Mowbray River are associated with the former Mowbray River</p> |

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|   | <p>crossing and a previous alignment of the Captain Cook Highway.</p> <p>The Department of Natural Resources, Mines and Energy has advised that tenure under the <i>Land Act 1994</i> is not required for the proposed removal/replacement of the bridge piles associated with the Wangetti trail.</p>   |
| <b>Category C and Category R vegetation</b>                         |  |
| 20.   | <p>If the proposed development includes clearing vegetation in any Category C areas or Category R areas you should ensure this clearing can be undertaken as exempt clearing work under Schedule 21 of the <a href="#">Planning Regulation 2017</a> or in accordance with its <a href="#">Accepted development vegetation clearing code</a>.</p> <p>Clearing vegetation in any Category C areas or Category R areas that is not exempt or in accordance with an accepted development vegetation clearing code is prohibited development. Locating the proposal solely within in the Category X area does not require any assessment for native vegetation clearing.</p>  |
| <b>Approvals under the <i>Transport Infrastructure Act 1994</i></b> |  |
| 21.   | <p><u>Road Access (s62) – State-controlled road</u></p> <p>The Department of Transport and Main Roads understands that the proposed carpark is located completely within the state-controlled road reserve and not within a registered allotment. A section 62 approval under the Transport Infrastructure Act for access purposes is not required.</p> <p><u>Road works approval (s33) – State-controlled road</u></p> <p>Under section 33 of the <i>Transport Infrastructure Act 1994</i>, written approval is required from the Department of Transport and Main Roads to carry out road works on a state-controlled road.</p> <p>Please contact the Cairns regional office of the Department of Transport and Main Roads on 4045 7144 to make an application for road works approval.</p> <p>This approval must be obtained prior to commencing any works on the state-controlled road reserve. The approval process will require the approval of engineering designs of the proposed works, certified by a Registered Professional Engineer of Queensland (RPEQ).</p> <p>The road works approval process takes time – please contact Transport and Main Roads as soon as possible to ensure that gaining approval does not delay construction.</p> <p><u>Road corridor permit (s50) – State-controlled road</u></p> <p>A Road Corridor Permit is required for any ancillary works and encroachments on the state-controlled road under section 50(2) and Schedule 6 of the <i>Transport Infrastructure Act 1994</i> and Part 5 and Schedule 1 of the Transport Infrastructure (State-Controlled Roads) Regulation 2006.</p> <p>To undertake works within the state-controlled road reserve, the proposed development will require a Road Corridor Permit under s50 under the Transport Infrastructure Act.</p> <p>Ancillary works and encroachments include but are not limited to advertising signs or other advertising devices, paths or bikeways, buildings/shelters, vegetation clearing, landscaping and planting.</p> <p>Please contact the Cairns regional office of the Department of Transport and Main Roads on 4045 7144 to make an application for a Road Corridor Permit.</p> |
| <b>Mowbray River Bridge underpass</b>                               |  |
| 22.   | The proposed operational works pertaining to the construction of an underpass adjacent to the  |



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|  | <p>Mowbray River Bridge must be assessed by the Structures Division of the Department of Transport and Main Roads.</p> <p>The Structures Division is currently undertaking a thorough assessment of the submitted geotechnical investigation report / information; further information will be provided to the applicant once the assessment is complete.</p> <p>For further information, contact the Cairns regional office via email <a href="mailto:Far.North.Queensland.IDAS@tmr.qld.gov.au">Far.North.Queensland.IDAS@tmr.qld.gov.au</a>.</p>  |
| <b>Environment Protection and Biodiversity Conservation Act 1999</b> |   |
| 23.  | <p>Matters of National Environmental Significance, or other matters protected by the <i>Environment Protection and Biodiversity Conservation Act 1999</i> are likely to occur in the area of development. Further information relating to matters protected by the <i>Environment Protection and Biodiversity Conservation Act 1999</i> can be obtained from the <a href="#">Department of the Environment and Energy website</a>.</p>  |
| <b>Nature Conservation Act 1992 – breeding places</b>                |   |
| 24.  | <p>Under the Nature Conservation (Wildlife Management) Regulation 2006, tampering with an animal breeding place of a protected species (identified in the <i>Nature Conservation Act 1992</i>) requires appropriate authorisation. Further guidance on protected animal breeding places can be found on the <a href="#">Species Management Program information page</a>.</p>  |
| <b>Nature Conservation Act 1992 – protected plants</b>               |   |
| 25.  | <p>In Queensland, all native plants are considered “protected plants” under the Nature Conservation Act 1992. Anyone proposing to clear protected plants ‘in the wild’ for any reason may require a permit from the Department of Environment and Science.</p> <p>Prior to any clearing of protected plants, a person must check the flora survey trigger map to determine if the clearing is within a high risk area. This trigger map is available as part of the Vegetation Management Report which can be accessed on Queensland Government’s <a href="#">website</a>.</p> <p>In a high risk area, a flora survey must be undertaken and a clearing permit may be required for clearing endangered, vulnerable and near threatened plants (‘EVNT plants’) and their supporting habitat.</p> <p>The Department of Environment and Science can be contacted via email at <a href="mailto:palm@des.qld.gov.au">palm@des.qld.gov.au</a> or by contacting 1300 130 372 for information regarding clearing requirements under the <i>Nature Conservation Act 1992</i> protected plant framework.</p> <p>Further information on protected plants can be found in the Department of Environment and Science’s <a href="#">Operational Policy</a>.</p> |
| <b>Allocation of Quarry Material</b>                                 |   |
| 26.  | <p>As the proposed development may involve removing quarry material from land under tidal water to above the high water mark (mean high water spring) on State coastal land, an allocation of quarry material under section 73 of the <i>Coastal Management and Protection Act 1995</i> may be required.</p> <p>Please note the following two circumstances are considered to constitute a reasonable excuse for removing quarry material without an allocation notice—</p> <ol style="list-style-type: none"> <li>1. The material is removed as a necessary part of the construction of an approved tidal work (e.g. excavation or boring of footings), and <ul style="list-style-type: none"> <li>• is of no commercial value or commercial benefit, and</li> <li>• is not required for maintaining coastal processes in adjacent areas and cannot</li> </ul> </li> </ol>   |

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|  | <p>be returned to tidal water.</p> <p>2. The material is removed as part of an investigative process (coring, sediment sampling, bulk sampling), and</p> <ul style="list-style-type: none"> <li>• the quantity of material removed is less than 10m<sup>3</sup> per site/project, and</li> <li>• will be analysed for its chemical, physical or stratigraphic properties, and</li> <li>• a <a href="#">Pre-work notification form (ESR/2018/4175)</a> is lodged with Permit and Licence Management (PALM) <a href="mailto:palm@des.qld.gov.au">palm@des.qld.gov.au</a> prior to commencement of the work.</li> </ul> <p>Please contact the Department of Environment and Science at <a href="mailto:palm@des.qld.gov.au">palm@des.qld.gov.au</a> if there is any doubt about whether an allocation of quarry material is required.</p> |
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This pre-lodgement advice does not constitute an approval or an endorsement that the department supports the development proposal. Additional information may be required to allow the department to properly assess the development proposal when a formal application has been lodged.

For further information please contact Joanne Manson, Principal Planning Officer, SARA Far North QLD on 40373228 or via email [CairnsSARA@dsgmip.qld.gov.au](mailto:CairnsSARA@dsgmip.qld.gov.au) who will be pleased to assist.

Yours sincerely



Brett Nancarrow  
Manager (Planning)

Enc: Attachment 1 – Tenure options

## **Attachment 1 – Tenure options**

Note: the following options do not include land allocated under the *Nature Conservation Act 1992* i.e. National Park.

### **Road**

#### *Road Licence*

- Road Licences are issued under the *Land Act 1994* (the Act) over a temporarily closed road and only to an adjoining land owner (Licensee).
- Cannot be sub-let and is for exclusive use by Licensee for the purpose the Road Licence was granted for.
- Would need to be cancelled/surrendered (either wholly or partially) to allow for the underlying road to be used for road purposes.
- A cancellation is initiated by either the State or the local government.
- A surrender is initiated by the licensee.
- If a road licence is cancelled or surrendered, the road will be reopened for public use.
- Any improvements in the road licence area will be required to be removed and the area left in a clean and tidy state.
- The Department of Natural Resources, Mines and Energy's application forms and payment of application fee of \$140.00 is required for surrender of a road licence.

#### *Road opening*

- Land (private and state owned), or part thereof, may be dedicated as road (including esplanade).
- Once dedicated, control of the road will fall under the relevant local government.
- Where only part of land is to become road, a plan of survey will need to be lodged identifying the area proposed to be dedicated, and the balance area of the parcel.
- Where the entirety of the land is to become road, a dedication notice can be lodged identifying the entirety of the area to be opened as road.

### **Freehold**

#### *Private commercial lease*

- A lease agreement between two parties being the land owner/s and potentially a State entity.
- A legally binding contract that gives a party certain rights to a property for a set term and details what the responsibilities are for each party for the lease area.
- Both parties are required to agree on the terms and conditions of the lease agreement.
- The lease agreement terms may include public liability and indemnity clauses, and provide for subletting and options for renewal of the lease.
- Will be subject to payment of rent/consideration to the landowner/s.
- Other requirements may include: drafting of lease document and Titles Registry Form 7, survey of the lease area, payment of lodgement fees (currently \$187.00 per lease) and registration in the Titles Registry Office of the Department of Natural Resources, Mines and Energy.

#### *Public thoroughfare easement*

- Provides access to the public (as opposed to a 'right of way (access)' easement, which is an agreement between landowners where the benefiting landowner can access a specific area of their neighbour's property).
- Use of this type of easement (public thoroughfare) is limited to: pedestrians, cyclists and vehicles reasonably needed for the building and maintenance of the easement.
- The easement is between the land owner/s and either the local government or the State (represented by the Department of Transport and Main Roads).

- Any proposed public thoroughfare easement over common property within a community titles scheme must be granted by the body corporate in a way provided for under its relevant regulation module (i.e. for Standard, Small Schemes, Accommodation and Commercial Modules a copy of the resolution certified under the body corporate seal to the granting or accepting of the easement must be deposited with the easement.)
- May be subject to payment of a consideration.
- Other requirements may include: drafting of easement document and Titles Registry Form 9, survey of the easement area, payment of lodgement fees (currently \$187.00) and registration in the Titles Registry Office of the Department of Natural Resources, Mines and Energy.

### **Reserve – Land Act**

- Reserve purpose should be complimentary to the proposed use (i.e. Recreation).
- A Reserve can be for more than one community purpose.
- Available community purposes for Reserves are set out in Schedule 1 of the Land Act.
- The Department of Natural Resources, Mines and Energy may require the Trustee to prepare a Land Management Plan, particularly where there are secondary uses of the Reserve.

### ***Trustee Lease***

- Secondary use of Reserve land is authorised by the issue of a Trustee Lease or Trustee Permit, if required.
- Before issuing a trustee lease to authorise the use and occupation of the reserve land by third parties, the trustee must obtain the approval by the Department of Natural Resources, Mines and Energy.
- However, State or local government trustees may not need to obtain approval from the Department of Natural Resources, Mines and Energy for a trustee lease provided:
  1. the trustee lease is consistent with the purpose of the reserve,
  2. the trustee lease complies with the requirements of section 15(2) of the *Land Regulation 2009*,
  3. the lease is shown as subject to the Mandatory Standard Terms Document No 711932933, and
  4. a copy of the Written Authority forms part of the trustee lease documents lodged for registration in the Titles Registry Office.
- Mandatory Standard Terms Document No 711932933 must form part of all trustee lease documents.
- The proposed secondary use must be complimentary to the Reserve purpose, and cannot be commercial or exclusive in nature.
- The maximum term for a trustee lease and trustee sublease is 30 years.
- Payment of appropriate rent is a matter between the trustee and the trustee lessee however, the rent charged shall be in consideration of management objectives for the reserve land and community benefit. Any proceeds are to be used for the development and maintenance of the reserve land.
- May also be sub-leased, provided it does not diminish the purpose of the Reserve.
- Access by the public to the reserve land, provided the community purpose does not restrict the rights of the public to be there, is to be maintained and protected.
- Other requirements may include: Department of Natural Resources, Mines and Energy application forms (no application fee applies), draft Trustee Lease document and draft Titles Registry Form 7, survey, payment of lodgement fees (currently \$187.00) and registration in the Titles Registry Office of the Department of Natural Resources, Mines and Energy.

### **Unallocated State land**

- Will need to be allocated to the most appropriate use and tenure.
- Allocation of land under the Land Act requires:

1. most appropriate use and tenure assessment based on the objects of the Act, as well as State, regional and local planning objectives;
2. consultation with relevant stakeholders and public utility providers;
3. assessment of the status of native title;
4. a formal decision being made by an appropriate delegate;
5. a written offer sent to the proposed tenure holder/applicant setting out various conditions and requirements;
6. acceptance of offer and compliance with all requirements (which may include native title to be addressed by the proposed tenure holder and survey, also to be undertaken by proposed tenure holder);
7. once all conditions have been complied with the Department of Natural Resources, Mines and Energy would attend to administrative processes to issue tenure.

# Appendix D State codes 1 and 7

## State Code 1: Development in a state-controlled road environment

### 19.1 Access to state-controlled roads state code

Table 19.1.1: All development

| Performance outcomes  | Acceptable outcomes   | Response | Comment   |
|---|---|----------|---|
| <b>Location of the direct vehicular access to the state-controlled road</b>   |   |          |   |
| <b>PO1</b> Any road access location to the state-controlled road from adjacent land does not compromise the safety and efficiency of the state-controlled road. | <b>AO1.1</b> Any road access location to the state-controlled road complies with a decision under section 62 of the TIA.<br>OR  | ☑        | <b>Complies with AO1.1.</b><br><br>Road access to the proposed carpark and access tracks will comply with section 62 of the TIA.  |
|   | <b>AO1.2</b> Development does not propose a new or temporary road access location, or a change to the use or operation of an existing permitted road access location to a state-controlled road.<br>OR                | ☑        | <b>Complies with AO1.2.</b><br><br>Access track for the observation-viewing platform does not change the use or operation of an existing permitted road access location to a state-controlled road. Access will be gained via existing entry to lot 121 RP749352 and then along the exiting road reserve to the proposed observation-viewing platform location. |
|   | <b>AO1.3</b> Any proposed road access location for the development is provided from a lower order road where an alternative to the state-controlled road exists.<br>OR all of the following acceptable outcomes apply | ☑        | <b>Complies with AO1.3.</b><br><br>Access track for B38 is proposed on a local government controlled road.  |
|   | <b>AO1.4</b> Any new or temporary road access location, or a change to the use or operation of an existing permitted road access location, demonstrates that the development:   | ☑        | <b>Complies with AO1.4.</b>   |

| Performance outcomes | Acceptable outcomes  | Response | Comment   |
|----------------------|--|----------|---|
|                      | <ol style="list-style-type: none"> <li>1. does not exceed the acceptable level of service of a state-controlled road</li> <li>2. meets the sight distance requirements outlined in Volume 3, parts 3, 4, 4A, 4B and 4C of the <i>Road planning and design manual</i>, 2nd edition, Department of Transport and Main Roads, 2013</li> <li>3. does not exceed the acceptable operation of an intersection with a state-controlled road, including the degree of saturation, delay, queuing lengths and intersection layout</li> <li>4. is not located within and/or adjacent to an existing or planned intersection in accordance with Volume 3, parts 4, 4A, 4B and 4C of the <i>Road planning and design manual</i>, 2nd edition, Department of Transport and Main Roads, 2013</li> <li>5. does not conflict with another property's road access location and operation.</li> </ol> <p>Editor's note: To demonstrate compliance with this acceptable outcome, it is recommended a traffic impact assessment be developed in accordance with Chapters 1, 4, 6, 7, 8 and 9 of the <i>Guidelines for assessment of road impacts of development (GARID)</i>, Department of Main Roads, 2006, and the</p> |          | <p>The road access to the proposed carpark will meet the acceptable outcomes of AO1.4. Refer to Design Drawings 42-21067-C001 to 42-21067-C010.</p> |



| Performance outcomes   | Acceptable outcomes   | Response | Comment   |
|--|---|----------|---|
|  | <p>requirements of Volume 3, parts 4, 4A, 4B and 4C of the <i>Road planning and design manual</i>, 2nd edition, Department of Transport and Main Roads, 2013, SIDRA analysis or traffic modelling.</p> <p>AND</p>   |          |   |
|  | <p><b>AO1.5</b> Development does not propose a new road access location to a limited access road.</p> <p>Editor's note: Limited access roads are declared by the chief executive under section 54 of the TIA. Details can be accessed by contacting the appropriate DTMR regional office.</p> | ☑        | <p><b>Not applicable.</b></p> <p>Development does not propose a new road access location to a limited access road.</p>  |
| <b>Number of road accesses to the state-controlled road</b>  |   |          |   |
| <p><b>PO2</b> The number of road accesses to the state-controlled road maintains the safety and efficiency of the state-controlled road.</p> | <p><b>AO2.1</b> Development does not increase the number of road accesses to the state-controlled road.</p> <p>AND</p>  | ☑        | <p><b>Complies with AO2.1.</b></p> <p>Development will not increase the number of road access to the state-controlled road, however, it will move the location of the existing access to the proposed carpark, from the existing location. The new access will be approximately 100 m west of the existing entry.</p> |
|  | <p><b>AO2.2</b> Where multiple road accesses to the premises exist, access is rationalised to reduce the overall number of road accesses to the state-controlled road.</p> <p>AND</p>   | ☑        | <p><b>Complies with AO2.2.</b></p> <p>Development will not increase the number of road access to the state-controlled road, however, it will move the location of the existing access to the proposed carpark, from the existing location. The new access will be approximately 100 m west of the existing entry.</p> |

| Performance outcomes  | Acceptable outcomes   | Response | Comment  |
|---|---|----------|--|
|   | <p><b>AO2.3</b> Shared or combined road accesses are provided for adjoining land having similar uses to rationalise the overall number of direct accesses to the state-controlled road.</p> <p>Editor's note: Shared road accesses may require easements to provide a legal point of access for adjacent lots. If this is required, then the applicant must register reciprocal access easements on the titles of any lots for the shared access.</p> | ☑        | <p><b>Complies with AO2.3.</b></p> <p>Development will not result in a shared or combined road access.</p>   |
| <b>Design vehicle and traffic volume</b>  |   |          |  |
| <p><b>PO3</b> The design of any road access maintains the safety and efficiency of the state-controlled road.</p> | <p><b>AO3.1</b> Any road access meets the minimum standards associated with the design vehicle.</p> <p>Editor's note: The design vehicle to be considered is the same as the design vehicle set under the relevant local government planning scheme.</p> <p>AND</p>   | ☑        | <p><b>Complies with AO3.1.</b></p> <p>Road access will meet the minimum standards associated with the design vehicle under the Douglas Shire Council Planning Scheme.</p>                  |
|   | <p><b>AO3.2</b> Any road access is designed to accommodate the forecast volume of vehicle movements in the peak periods of operation or conducting the proposed use of the premises.</p> <p>AND</p>   | ☑        | <p><b>Complies with AO3.2.</b></p> <p>Road access will accommodate with the forecasted volume of vehicle movements by providing a dedicated right turn lane into the proposed carpark.</p> |
|   | <p><b>AO3.3</b> Any road access is designed to accommodate 10 year traffic growth past completion of the final stage of development in accordance with GARID.</p> <p>AND</p>  | ☑        | <p><b>Complies with AO3.3.</b></p> <p>Road access has been designed to accommodate 10 year traffic growth in accordance with GARID.</p>  |

| Performance outcomes  | Acceptable outcomes   | Response | Comment  |
|---|---|----------|--|
|   | <p><b>AO3.4</b> Any road access in an urban location is designed in accordance with the relevant local government standards or <i>IPWEAQ R-050, R-051, R-052 and R-053 drawings</i>.</p> <p>AND</p>   | ☑        | <p><b>Complies with AO3.4.</b></p> <p>Access track for B38 will be designed in accordance with the relevant local government standards or <i>IPWEAQ R-050, R-051, R-052 and R-053 drawings</i>.</p>  |
|   | <p><b>AO3.5</b> Any road access not in an urban location is designed in accordance with Volume 3, parts 3, 4 and 4A of the <i>Road planning and design manual</i>, 2nd edition, Department of Transport and Main Roads, 2013.</p>   | ☑        | <p><b>Complies with AO3.5.</b></p> <p>Road access to the proposed carpark has been designed in accordance with Volume 3, parts 3, 4 and 4A of the <i>Road planning and design manual</i>, 2nd edition, Department of Transport and Main Roads, 2013.</p>   |
| <b>Internal and external manoeuvring associated with direct vehicular access to the state-controlled road</b>   |   |          |  |
| <p><b>PO4</b> Turning movements for vehicles entering and exiting the premises via the road access maintain the safety and efficiency of the state-controlled road.</p> | <p><b>AO4.1</b> The road access provides for left in and left out turning movements only.</p> <p>AND</p>  | ☑        | <p><b>Complies with AO4.1.</b></p> <p>Road access provides for left in and left out turning movements only. Refer to Design Drawings 42-21067-C001 to 42-21067-C010.</p>   |
|   | <p><b>AO4.2</b> Internal manoeuvring areas on the premises are designed so the design vehicle can enter and leave the premises in a forward gear at all times.</p> <p>Editor's note: The design vehicle to be considered is the same as the design vehicle set under the relevant local government planning scheme.</p> | ☑        | <p><b>Complies with AO4.2.</b></p> <p>Two turn around at the northern and southern ends have been designed based on turning path analysis. The northern turnaround is a cul-de-sac and allows a B99 vehicle to turn around in a forward gear without stopping. The southern turn around it an unsealed extension of the sealed section bus parking section of the car park. This will allow the 8.8 m service vehicle to undertake a three point turn. This manoeuver will allow the service vehicles to exit the carpark in a</p> |

| Performance outcomes  | Acceptable outcomes   | Response                            | Comment  |
|---|---|-------------------------------------|--|
|   |   |                                     | northbound direction. Due to the width of the car park a turnaround that allowed vehicle to turn around in a forward gear was not possible. As a result of this constraint a second left turn only egress only point has been added to allow vehicle movement through the site.  |
| <p><b>PO5</b> On-site circulation is suitably designed to accommodate the design vehicle associated with the proposed land use, in order to ensure that there is no impact on the safety and efficiency of the state-controlled road.</p> | <p><b>AO5.1</b> Provision of on-site vehicular manoeuvring space is provided to ensure the flow of traffic on the state-controlled road is not compromised by an overflow of traffic queuing to access the site in accordance with <i>AS2890 – Parking facilities</i>.</p> <p>AND</p> | <input checked="" type="checkbox"/> | <p><b>Complies with AO4.2.</b></p> <p>Two turn around at the northern and southern ends have been designed based on turning path analysis. The northern turnaround is a cul-de-sac and allows a B99 vehicle to turn around in a forward gear without stopping. The southern turn around it an unsealed extension of the sealed section bus parking section of the car park. This will allow the 8.8 m service vehicle to undertake a three point turn. This manoeuver will allow the service vehicles to exit the carpark in a northbound direction. Due to the width of the car park a turnaround that allowed vehicle to turn around in a forward gear was not possible. As a result of this constraint a second left turn only egress only point has been added to allow vehicle movement through the site.</p> |
|   | <p><b>AO5.2</b> Mitigation measures are provided to ensure that the flow of traffic on the state-controlled road is not disturbed by traffic queuing to access the site.</p>  | <input checked="" type="checkbox"/> | <p><b>Complies with AO4.2.</b></p> <p>Two turn around at the northern and southern ends have been designed based on turning path analysis. The northern turnaround is a cul-de-sac and allows a B99 vehicle to turn around in a forward gear without stopping. The southern turn around it an unsealed</p>   |

| Performance outcomes  | Acceptable outcomes   | Response                            | Comment   |
|---|---|-------------------------------------|---|
|   |   |                                     | extension of the sealed section bus parking section of the car park. This will allow the 8.8 m service vehicle to undertake a three point turn. This manoeuvre will allow the service vehicles to exit the carpark in a northbound direction. Due to the width of the car park a turnaround that allowed vehicle to turn around in a forward gear was not possible. As a result of this constraint a second left turn only egress only point has been added to allow vehicle movement through the site. |
| <b>Vehicular access to local roads within 100 metres of an intersection with a state-controlled road</b>  |   |                                     |   |
| <b>PO6</b> Development having road access to a local road within 100 metres of an intersection with a state-controlled road maintains the safety and efficiency of the state-controlled road. | <b>AO6.1</b> The road access location to the local road is located as far as possible from where the road intersects with the state-controlled road and accommodates existing operations and planned upgrades to the intersection or state-controlled road.<br><br>AND  | <input checked="" type="checkbox"/> | <b>Not applicable.</b><br><br>Access is not for a local road  |
|   | <b>AO6.2</b> The road access to the local road network is in accordance with Volume 3, parts 3, 4 and 4A of the <i>Road planning and design manual</i> , 2nd edition, Department of Transport and Main Roads, 2013, and is based on the volume of traffic and speed design of both the local road and intersecting state-controlled road for a period of 10 years past completion of the final stage of development.<br><br>AND | <input checked="" type="checkbox"/> | <b>Not applicable.</b><br><br>Access is not for a local road  |

| Performance outcomes | Acceptable outcomes  | Response                            | Comment  |
|----------------------|--|-------------------------------------|--|
|                      | <b>AO6.3</b> Vehicular access to the local road and internal vehicle circulation is designed to remove or minimise the potential for vehicles entering the site to queue in the intersection with the state-controlled road or along the state-controlled road itself. | <input checked="" type="checkbox"/> | <b>Not applicable.</b><br>Access is not for a local road |

## State Code 7: Maritime Safety

Table 7.2.1: Operational work

| Performance outcomes  | Acceptable outcomes   | Response  |
|---|---|---|
| <b>Lighting</b>   |   |   |
| <b>PO1</b> Development avoids lighting that has the potential to interfere with <u>aids to navigation</u> . | <b>AO1.1</b> Development ensures that at all times, all lights on or above the development site do not interfere with safe navigation in surrounding waterways by:<br><br>shielding lights to prevent glare or reflection<br><br>avoiding flood lighting which may reduce the visibility of aids to navigation<br><br>avoiding flashing or flickering lights which may be confused with aids to navigation<br><br>avoiding coloured lights such as green, blue or red lights, which may be confused with aids to navigation.<br><br>AND | <b>Complies with AO1.1</b><br><br>Development and operation of the Project will not occur at night and therefore will not require lighting. The development will therefore not interfere with safe navigation in surrounding waterways. |
|   | <b>AO1.2</b> Lighting complies with section 3 of AS 4282–1997 Control of the obtrusive effects of outdoor lighting.   | <b>Not applicable.</b><br><br>The development will not require lighting as it will occur during daytime only.   |
| <b>Aids to navigation</b>   |   |   |
| <b>PO2</b> Development does not interfere with <u>aids to navigation</u> .                                  | <b>AO2.1</b> Development does not remove any material that may destabilise an aid to navigation, including ground tackle.<br><br>AND  | <b>Complies with AO2.1.</b><br><br>Development does not interfere with aids to navigation. .  |
|   | <b>AO2.2</b> Development does not create any temporary or permanent obstruction of <u>aids to navigation</u> .  | <b>Complies with AO2.2.</b>   |

| Performance outcomes   | Acceptable outcomes   | Response  |
|--|---|---|
|  | <p>Note: Where development has the potential to obstruct the line of sight to aids to navigation or interfere with the functioning of aids to navigation, an aid to navigation management plan is required.</p> <p>AND</p>  | <p>Development does not create any temporary or permanent obstructions of aids to navigation.</p>   |
|  | <p><b>AO2.3</b> Development keeps sight lines of any <u>aids to navigation</u> which cross the land clear of obstructions.</p> <p>Note: Where development has the potential to obstruct the line of sight to aids to navigation or interfere with the functioning of aids to navigation, an aid to navigation management plan is required.</p> <p>AND</p> | <p><b>Complies with AO2.3.</b></p> <p>Development will not result in an obstruction to the line of sight to aids to navigation. .</p>   |
|  | <p><b>AO2.4</b> Development ensures ongoing access to <u>aids to navigation</u> for maintenance purposes.</p> <p>AND</p>  | <p><b>Complies with AO2.4.</b></p> <p>Development will not interfere with ongoing access to aids to navigation for maintenance purposes.</p>  |
|  | <p><b>AO2.5</b> Development does not result in electrical or electro-magnetic emissions which may impede the operation of <u>aids to navigation</u>.</p>  | <p><b>Complies with AO2.5.</b></p> <p>Development will not involve the use of electrical or electro-magnetic emissions.</p>   |
| <b>Protection of navigable waterways</b>   |   |   |
| <p><b>PO3</b> Development does not impede the safe movement of vessels in a <u>navigable waterway</u>.</p> | <p><b>AO3.1</b> Development ensures <u>navigable waterways</u> are open to vessel traffic at all times.</p> <p>AND</p>  | <p><b>Complies with AO3.1.</b></p> <p>Development will not result in the closure of navigable waterways.</p>  |
|  | <p><b>AO3.2</b> Development, including structures and any vessel berthed at the structures: does not encroach into, pass over or under a navigation corridor; or</p>  | <p><b>Complies with AO3.2.</b></p> <p>Development will not encroach into, a navigable corridor and is not located in a high risk maritime development zone. Construction of the Mowbray</p> |



| Performance outcomes | Acceptable outcomes  | Response   |
|----------------------|--|--|
|                      | <p>is not located in a high risk maritime development zone.</p> <p>Note: Navigation corridor and high risk maritime development zone layers are currently unavailable for Gold Coast waters.</p> <p>AND</p>  | <p>River Bridge will be at the approximate height of the existing road bridge, with piers located approximately in the same location.</p>  |
|                      | <p><b>AO3.3</b> Development does not limit either the depth of a <u>navigable waterway</u> or the size of vessels which can safely navigate the waterway.</p> <p>Note: Where development proposes to temporarily or permanently limit the depth of a navigable waterway or the size of vessels which can navigate a waterway, it is recommended that a vessel traffic management plan be provided. It is also recommended a marine execution plan be submitted to the regional harbour master 30 days prior to the commencement of works.</p> <p>AND</p> | <p><b>Complies with AO3.3.</b></p> <p>Development will not result in a change to depth of a navigable waterway or the size of vessels which can safely navigate the waterway. Construction of the Mowbray River Bridge will be at the approximate height of the existing road bridge, with piers located approximately in the same location.</p> |
|                      | <p><b>AO3.4</b> Development involving the demolition of structures in a <u>navigable waterway</u>, including piling, ensures the entire structure is removed.</p> <p>AND</p>   | <p><b>Complies with AO3.4.</b></p> <p>Demolition of the existing piers will be to bed level, ensure safe navigability of the waterway.</p>   |
|                      | <p><b>AO3.5</b> Structures, including all freestanding piles, must be appropriately lit and clearly visible to approaching vessels, and reflective tape must be fitted to all structures to enhance visibility during the hours of darkness.</p> <p>Note: Where necessary, the regional harbour master may require the installation of <u>aids to navigation</u> on structures.</p>  | <p><b>Complies with AO3.5.</b></p> <p>All piers within the water will be appropriate lit and clearly visible to approaching vessels.</p>   |

# Appendix E Local code - Assessment of development and overlay codes

# 1. Rural zone code

| Performance outcomes  | Acceptable outcomes   | Response  |
|---|---|---|
| <b>For self-assessable and assessable development</b>   |   |   |
| <b>PO1</b><br>The height of buildings is compatible with the rural character of the area and must not detrimentally impact on visual landscape amenity.   | <b>AO1.1</b><br>Dwelling houses are not more than 8.5 metres in height.<br>Note – Height is inclusive of roof height.<br><b>AO1.2</b><br>Rural farm sheds and other rural structures are not more than 10 metres in height.   | <b>Complies with PO1.</b><br>Development does not involve the construction of dwelling houses or farm sheds.  |
| <b>Setbacks</b>   |   |   |
| <b>PO2</b><br>Buildings and structures are setback to maintain the rural character of the area and achieve separation from buildings on adjoining properties.   | <b>AO2</b><br>Buildings are setback not less than: <ul style="list-style-type: none"> <li>• 40 metres from the property boundary and a State-controlled road;</li> <li>• 25 metres from the property boundary adjoining Cape Tribulation Road;</li> <li>• 20 metres from the boundary with any other road;</li> <li>• 6 metres from side and rear property boundaries.</li> </ul> | <b>Complies with PO2.</b><br>Development does not include the construction of buildings. Any trail structures developed will be set back from adjoining properties.<br>The proposed development will be visually integrated (particularly through vegetation retention) within the rural character and will not impact on visual landscape amenity.<br>This is most relevant to the observation-viewing platform where minimisation of clearing of marine plants is of most importance. The car park will be developed over an existing carpark lot, thus retaining previous landscape amenity. |
| <b>PO3</b><br>Buildings/structures are designed to maintain the rural character of the area.  | <b>AO3</b><br>White and shining metallic finishes are avoided on external surfaces of buildings.  | <b>Complies with PO3.</b><br>Development does not involve the construction of buildings. Structures that are proposed as part of the development, including bridges, boardwalks and viewing platform, will not have white or shining metallic finishes.   |
| <b>For assessable development</b>   |   |   |
| <b>PO4</b><br>The establishment of uses is consistent with the outcomes sought for the Rural zone and protects the zone from the intrusion of inconsistent uses.  | <b>AO4</b><br>Uses identified in Table 6.2.10.3b are not established in the Rural zone.   | <b>Complies with PO4.</b><br>The proposed development is consistent with the uses identified in Table 6.2.10.3b of the planning scheme. The car park at Mowbray Bridge has public access and is located in a State controlled road reserve governed by the <i>Transport Infrastructure Act 1994</i> .   |
| <b>PO5</b><br>Uses and other development include those that:<br>promote rural activities such as agriculture, rural enterprises and small scale industries that serve rural activities; or<br>promote low impact tourist activities based on the appreciation of the rural character, landscape and rural activities; or<br>are compatible with rural activities. | <b>AO5</b><br>No acceptable outcomes are prescribed.  | <b>Complies with PO5.</b><br>The SP1 Project area promotes low impact eco-tourism activities based on the natural amenity of the area. Tourists will be able to experience the rural character of the area from the proposed trail.   |
| <b>PO6</b><br>Existing native vegetation along watercourses and in, or adjacent to areas of environmental value, or areas of remnant vegetation of value is protected.  | <b>AO6</b><br>No acceptable outcomes are prescribed.  | <b>Complies with PO6.</b><br>The SP1 alignment avoids areas containing matters of environmental significance as much as possible. The trail and boardwalk width has been minimised to 1.5 m to reduce the impact of vegetation clearing, and reduced again to 1 m through areas of Threatened Ecological Communities. Laydown areas will be located outside of areas of Threatened Ecological Communities (TEC).  |
| <b>PO7</b><br>The minimum lot size is 40 hectares, unless the lot reconfiguration results in no additional lots (e.g. amalgamation, boundary realignments to resolve encroachments); or   | <b>AO7</b><br>No acceptable outcomes are prescribed.  | <b>Complies with PO7.</b><br>The works do not involve reconfiguration of a lot.   |

the reconfiguration is limited to one additional lot to accommodate:  
Telecommunications facility;  
Utility installation.

## 2. Conservation zone code

| Performance outcomes   | Acceptable outcomes   | Response  |
|--|---|---|
| <b>For assessable development</b>  |   |   |
| <p><b>PO1</b><br/>The establishment of uses is consistent with the outcomes sought for the Conservation zone and protects the zone from the intrusion of inconsistent uses.</p>  | <p><b>A01</b><br/>Uses identified in Table 6.2.3.3.b are not established in the Conservation zone.</p>  | <p><b>Complies with PO1.</b><br/>The development is consistent with the listed uses in Table 6.2.3.3.b for the conservation zone. Due to the nature and locality of the SP1 Project area, the development will not encourage future inconsistent uses.</p>  |
| <p><b>PO2</b><br/>The height of buildings is compatible with the character of the area and does not adversely affect the amenity of the area.</p>  | <p><b>A02</b><br/>Buildings and structures are not more than 8.5 metres in height and two storeys.<br/>Note - Height is inclusive of roof height.</p>   | <p><b>Complies with PO2.</b><br/>Development does not involve the construction of buildings.</p>  |
| <p><b>PO3</b><br/>Development is setback from site boundaries so they are screened from view from the boundaries of adjoining properties and adjoining roads to maintain the scenic values of the area.</p>  | <p><b>A03</b><br/>Buildings and structures are setback not less than:<br/>40 metres from the frontage of a State-controlled road, existing or proposed arterial road, existing or proposed sub-arterial road, as identified on the Transport network overlay maps contained in Schedule 2;<br/>25 metres from Cape Tribulation Road frontage;<br/>20 metres from any other road frontage<br/>10 metres from side and rear boundaries.</p> | <p><b>Complies with PO3.</b><br/>Structures are setback from site boundaries, with the exception of the observation platform is less than 40 m from the frontage of Captain Cook Highway, within the State Controlled road corridor.<br/>During the pre-lodgement meeting with SARA, DNRME determined that the location of the observation viewing platform within the road corridor is acceptable (refer to Appendix C).</p> |
| <p><b>PO4</b><br/>The site coverage of all buildings and structures does not have an adverse effect on the conservation or scenic amenity values of the site and surrounding area and buildings are subservient to the natural environment.</p>  | <p><b>A04</b><br/>Development is sited in an existing cleared area or an area approved for clearing, but which is not yet cleared until a development permit to carry out Building Works is issued. Any clearing is limited to a maximum area of 700m2 and is sited clear of the high bank of any watercourse.<br/><br/>Note – The 700m2 area of clearing does not include an access driveway.</p>  | <p><b>Complies with PO4.</b><br/>Structures will not require significant vegetation clearing. These structures have been designed to retain as much vegetation as possible, whilst developing a natural design that maintains the scenic amenity values of the area. Proposed structures are detailed in Table 1.2.</p>   |
| <p><b>PO5</b><br/>Development is consistent with the overall outcomes sought for the Conservation zone.</p>  | <p><b>A05</b><br/>No acceptable outcomes are prescribed.</p>  | <p><b>Complies with A05.</b><br/>Development is consistent with the overall outcomes sought for the Conservation zone.</p>  |
| <p><b>PO6</b><br/>Development compliments, and is subservient to the surrounding environment and is in keeping with the ecological, landscape and scenic values of the area.</p>   | <p><b>A06</b><br/>The exterior finishes and colours of all development are non-reflective and consist of colours that blend easily with surrounding native vegetation and view-shed.</p>  | <p><b>Complies with A06.</b><br/>Structures will be built to compliment the ecological, landscape and scenic values of the area.</p>  |
| <p><b>PO7</b><br/>Development is screened from view from adjoining roads and properties with a dense screen of endemic/native landscape which:<br/>is informal in character and complementary to the existing natural environment;<br/>provides screening;<br/>enhances the visual appearance of the development.<br/><br/>Note – Planning scheme policy – Landscaping provides further guidance on meeting the performance outcome.</p> | <p><b>A07.1</b><br/>For any development, the balance area of the site not built upon, including all setback areas must be landscaped/revegetated with dense three tier, endemic planting which is maintained to ensure successful screening is achieved.<br/><br/><b>A07.2</b><br/>Endemic palm species, where used, are planted as informal accent features and not as avenues and not in a regular pattern.</p>                         | <p><b>Complies with A07.1.</b><br/>Landscaping/revegetation will not be required as the construction footprint is relatively small and the trail design is integrated into the surrounding environment. It is expected that vegetation will naturally regenerate any temporary disturbance areas.<br/><b>Not Applicable with A07.2.</b><br/>Landscaping is not being undertaken for the development.</p>                      |

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| <p><b>PO8</b><br/>Development is complementary to the surrounding environment.</p>  | <p><b>AO8.1</b><br/>Development harmonises with the surrounding environment, for example, through suspended, light-weight construction on sloping sites, which requires minimal excavation or fill.</p> <p><b>AO8.2</b><br/>A driveway or parking areas are constructed and maintained to:<br/>minimise erosion, particularly in the wet season;<br/>minimise cut and fill;<br/>follow the natural contours of the site;<br/>Minimise vegetation clearing.</p> <p><b>AO8.3</b><br/>Buildings and structures are erected on land not exceeding a maximum gradient of 1 in 6 (16.6%)<br/>or<br/>On land steeper than 1 in 6 (16.6%) gradient:<br/>A split level building form is utilised;<br/>A single plane concrete slab is not utilised;<br/>Any voids between building and ground level, or between outdoor decks and ground level are screened from view using lattice/battens and/or landscaping.<br/>and<br/>is accompanied by a Geotechnical Report prepared by a qualified engineer at development application stage which includes certification that the site can be stabilised, followed by a certificate upon completion of works.</p> <p><b>AO8.4</b><br/>Buildings and structures are sited below any ridgelines and are sited to avoid protrusion above the surrounding tree-level canopy.</p> | <p><b>Complies with PO8.</b><br/>The average gradient is approximately 10% for the entire trail to reduce erosion and minimise maintenance of the trail.<br/>Structures are not proposed to be erected on land that will exceeding a maximum gradient of 16.6%.<br/>Structures are integrated into natural ground levels running below ridgelines and are sited to avoid protrusion above the surrounding tree-level canopy.</p>   |
| <p><b>PO9</b><br/>Development is located to:<br/>protect the ecological values of the site and surrounding land;<br/>maintain the scenic values of the area;<br/>maintain appropriate setbacks to waterways, watercourses, wetlands, tidal areas and overland flow paths;<br/>avoid areas that are vulnerable to natural hazards;<br/>minimise to the greatest extent possible on site excavation and filling;<br/>provide buffers to cultural, historical or ecological features;<br/>minimise visibility from external sites or public viewing points;<br/>minimises to the greatest extent possible the loss of native vegetation and fauna habitat.</p> | <p><b>AO9</b><br/>No acceptable outcomes are prescribed.</p>  | <p><b>Complies with PO9.</b><br/>The development is an eco-tourism recreational facility and therefore compliments the factors stated in PO9.<br/>The proposed alignment will be constructed in a way to avoid high ecological values where possible, such as MSES and MNES. Through field investigations, the alignment has been changed in order to avoid areas of significant ecological value, such as areas of TEC.</p>   |
| <p><b>PO10</b><br/>Development does not result in adverse impacts on:<br/>ecological function or features;<br/>on-site or surrounding waterways and wetlands.</p>   | <p><b>AO10</b><br/>No acceptable outcomes are prescribed.</p>   | <p><b>Complies with PO10.</b><br/>The potential impact of the SP1 Project area is considered low due to it integration into the surrounding landscape and the limited use of artificial materials or physical infrastructure. By keeping most of the infrastructure as natural as possible, the likelihood of the development resulting in adverse impacts on ecological functions, i.e. overland flow affecting surrounding waterways and wetlands natural flows, is minimal.</p> |
| <p><b>PO11</b><br/>Rehabilitation of natural processes on disturbed sites is undertaken to improve the environmental integrity of the area.</p>   | <p><b>AO11</b><br/>No acceptable outcomes are prescribed</p>  | <p><b>Complies with PO11.</b><br/>It is expected that sections of temporary impact will naturally regenerate.</p>  |

### 3. Port Douglas/Craigie local plan code

| Performance outcomes  | Acceptable outcomes   | Response   |
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| <b>For self-assessable and assessable development</b>   |   |  |
| <b>Development in the Port Douglas / Craigie local plan area generally</b>  |   |  |
| <p><b>PO1</b><br/>Pedestrians, cyclists, motorists and public transport users can easily move into and through the precinct along planned connectivity routes, identified on the Port Douglas / Craigie local plan maps contained in Schedule 2.</p>  | <p><b>AO1</b><br/>A pedestrian and cycle movement network is integrated and delivered through development.</p>  | <p><b>Complies with AO1.</b><br/>The SP1 alignment supports an enhanced pedestrian / cycling movement network that is integrated into the current network in Port Douglas. Pedestrians and cyclists can now bypass travelling along Captain Cook Highway through the trail ending in Four mile where pre-existing bicycle and pedestrian infrastructure exists or alternatively, travel along Four Mile Beach to the Esplanade in the CBD. This development ultimately connects Mowbray/Craigie to Port Douglas through a safe and scenic transport network.</p> |
| <p><b>PO2</b><br/>Development retains and enhances key landscape elements including character trees and areas of significant vegetation contributing to the character and quality of the local plan area and significant views and vistas and other landmarks important to the context of Port Douglas / Craigie (as identified on the Port Douglas/ Craigie Townscape Plan map contained in Schedule 2).</p> | <p><b>AO2.1</b><br/>Development provides for the retention and enhancement of existing mature trees and character vegetation that contribute to the lush tropical character of the town, including:<br/>the tree covered backdrop of Flagstaff Hill;<br/>natural vegetation along watercourses, in particular the Mowbray River, Beor Creek and Dickson Inlet;<br/>the tidal vegetation along the foreshore;<br/>beachfront vegetation along Four Mile Beach, including the fringe of Coconut Palms;<br/>the oil palm avenues along the major roads;<br/>the lush landscaping within major roundabouts at key nodes; Macrossan Street and Warner Street;<br/>Port Douglas waterfront.</p> <p><b>AO2.2</b><br/>Development protects and does not intrude into important views and vistas as identified on the Port Douglas Townscape Plan map contained in Schedule 2, in particular:<br/>Flagstaff Hill;<br/>Four Mile Beach;<br/>Across to the ranges over Dickson Inlet;<br/>Mowbray Valley.</p> <p><b>AO2.3</b><br/>Important landmarks, memorials and monuments are retained.</p> | <p><b>Complies with PO2.</b><br/>The development does not impact on tree coverage on flagstaff Hill, Beor Creek, Dickson's Inlet, oil palms along the major roads, the lush landscaping within major roundabouts at key nodes, Macrossan Street, Warner Street and Port Douglas waterfront. The development will impact on the tidal vegetation along the foreshore and beachfront vegetation along Four Mile Beach (not including the fringe of Coconut Palms, which will be avoided).</p>  |
| <p><b>PO3</b><br/>Development contributes to the protection, reinforcement and where necessary enhancement of gateways and key intersections identified on the Port Douglas / Craigie local plan maps contained in Schedule 2.</p>  | <p><b>AO3</b><br/>Development adjacent to the gateways and nodes as identified on the Port Douglas / Craigie local plan maps contained in Schedule 2 incorporates architectural features and landscaping treatments and design elements that enhance the sense of arrival and way finding within the town.</p>  | <p><b>Complies with A03.</b><br/>The development is not located adjacent to gateways or nodes identified on the Port Douglas / Craigie local plan map.</p>   |
| <p><b>PO4</b><br/>Landscaping of development sites complements the existing tropical character of Port Douglas and Craigie.</p>   | <p><b>AO4</b><br/>Landscaping incorporates the requirements of Planning scheme policy SC6.7 – Landscaping, in particular landscaping should be capable of achieving a 60% screening of development within 5 years and predominantly consists of endemic vegetation.</p>   | <p><b>Not Applicable.</b><br/>No landscaping is proposed for the development, as existing vegetation will be retained.</p>   |

| Performance outcomes  | Acceptable outcomes   | Response   |
|---|---|--|
| <p><b>PO5</b><br/>Development does not compromise the safety and efficiency of the State-controlled road network.</p>   | <p><b>AO5</b><br/>Direct access is not provided to a State-controlled road where legal and practical access from another road is available.</p>   | <p><b>Complies with PO5.</b><br/>The development will have a positive impact on the safety and efficiency of users on the Captain Cook Highway. Pedestrians and cyclists can bypass the highway by using the trail that links up to existing transport networks in a safe and efficient way, instead of using the highway that has limited bicycle/pedestrian paths.</p> |
| <b>For assessable development</b>   |   |  |
| <b>Additional requirements in Precinct 1 – Port Douglas precinct</b>  |   |  |
| <p><b>PO6</b><br/>The views and vistas identified on the Port Douglas / Craiglie local plan maps contained in Schedule 2 are maintained.</p>  | <p><b>AO6.1</b><br/>Development does not impede continued views to scenic vistas and key streetscapes within the local plan area.</p> <p><b>AO6.2</b><br/>Unless otherwise specified within this Local Plan, buildings are set back not less than 6 metres from the primary street frontage.</p>  | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the Port Douglas precinct.</p>  |
| <p><b>PO7</b><br/>Vehicle access, parking and service areas:<br/>do not undermine the relationship between buildings and street or dominate the streetscape;<br/>are designed to minimise pedestrian vehicle conflict;<br/>are clearly identified and maintain ease of access at all times.</p>   | <p><b>AO7.1</b><br/>For all buildings, parking is:<br/>to the side of buildings and recessed behind the main building line; or<br/>behind buildings; or<br/>wrapped by the building façade, and not visible from the street.</p> <p><b>AO7.2</b><br/>Ground level parking incorporates clearly defined pedestrian routes.</p> <p><b>AO7.3</b><br/>Any porte-cocheres, disabled and pedestrian accesses are accommodated within the boundary of new or refurbished development.</p> <p><b>AO7.4</b><br/>Where the development is an integrated mixed-use development incorporating short term accommodation or multiple dwellings and either food and drink outlet or hotel or shop or shopping centre or office, on-site parking spaces are provided as per the number prescribed in the Parking and access code with a relaxation of 30% of spaces required for the non-residential uses.</p> <p><b>AO7.5</b><br/>On-site car parking available for public use is clearly signed at the site frontage.</p> <p><b>AO7.6</b><br/>Boom gates, pay machines or other regulatory devices to control access to a publicly available car parking area are not constructed or installed.</p> | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the Port Douglas precinct.</p>  |
| <p><b>PO8</b><br/>Precinct 1 – Port Douglas precinct is not characterised by a proliferation of advertising signs.</p>  | <p><b>AO8</b><br/>No acceptable outcomes are prescribed.</p>  | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the Port Douglas precinct.</p>  |
| <b>Additional requirements for Sub-precinct 1a – Town Centre sub-precinct</b>   |   |  |
| <p><b>PO9</b><br/>Building heights:<br/>do not overwhelm or dominate the town centre;<br/>respect the desired streetscape;<br/>ensure a high quality appearance when viewed from both within the town centre sub-precinct and external to the town centre sub-precinct;<br/>remain subservient to the natural environment and the backdrop of Flagstaff Hill.</p> | <p><b>AO9</b><br/>Buildings and structures are not more than 3 storeys and 13.5 metres in height, with a roof height of not less than 3 metres.</p> <p>Note – Height is inclusive of the roof height.</p>   | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the town centre sub-precinct.</p>   |

| Performance outcomes  | Acceptable outcomes   | Response  |
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| do not exceed 3 storeys.  |   |   |
| <b>PO10</b><br>Building design, the streetscape, pedestrian paths and street front spaces promote integration with the surrounding area and the rest of Precinct 1 – Port Douglas Precinct.   | <b>AO10</b><br>No acceptable outcomes are prescribed.   | <b>Not applicable.</b><br>The SP1 Project area is not within the town centre sub-precinct.  |
| <b>PO11</b><br>Buildings:<br>address street frontages;<br>ensure main entrances front the street or public spaces;<br>do not focus principally on internal spaces or parking areas.   | <b>AO11</b><br>No acceptable outcomes are prescribed.   | <b>Not applicable.</b><br>The SP1 Project area is not within the town centre sub-precinct.. |
| <b>PO12</b><br>Setbacks at ground level provide for:<br>connection between pedestrian paths and public places;<br>areas for convenient movement of pedestrians;<br>changes in gradient of the street.   | <b>AO12</b><br>Setbacks at ground level:<br>are clear of columns and other obstructions;<br>have pavement matching the gradient of adjoining footpaths and connecting pedestrian areas on adjoining sites;<br>connect without any lip or step to adjoining footpaths.   | <b>Not applicable.</b><br>The SP1 Project area is not within the town centre sub-precinct.  |
| <b>AO13</b><br>Buildings do not result in a reduction of views and vistas from public places to:<br>Flagstaff Hill;<br>Dickson Inlet;<br>public open space;<br>places of significance.  | <b>AO13</b><br>No acceptable outcomes are prescribed.   | <b>Not applicable.</b><br>The SP1 Project area is not within the town centre sub-precinct.. |
| <b>PO14</b><br>Development enhances the distinctive tropical resort town and identity of Port Douglas and encourages pedestrian activity at street level including shade protection across the footpath for the length of the building.   | <b>AO14</b><br>Development is built up to the street frontage/s at the street level and incorporates a light frame awning, a minimum of 3 metres in width for the length of the street frontage/s;<br>or<br>If a development includes an outdoor dining area at ground/footpath level, the dining area has a maximum setback of 3 metres and the required awning is still maintained along the length of the street frontage/s.<br>Note – PO24 provides more detail on awning design. | <b>Not applicable.</b><br>The SP1 Project area is not within the town centre sub-precinct.  |
| <b>PO15</b><br>Development is predominantly commercial in nature with any tourist accommodation having a secondary focus and not located on the street-level frontage where active frontages are encouraged as identified the Port Douglas local plan maps contained in Schedule 2.   | <b>AO15.1</b><br>Centre activities establish:<br>at street level on active street frontages;<br>a maximum of one level above street level.<br><b>AO15.2</b><br>Any residential development activities or short term accommodation is located above street level of the active frontage, but not on or up to the street frontage in any development, including mixed use development.  | <b>Not applicable.</b><br>The SP1 Project area is not within the town centre sub-precinct.  |
| <b>PO16</b><br>Detailed building design:<br>enhances the visual amenity of the streetscape;<br>has a legible and attractive built form that is visually enhanced by architectural elements;<br>contributes to a distinctive tropical north Queensland, seaside tourist town character;<br>integrates major landscaping elements to maximise their aesthetic value to ensure that the lush, vegetated character of the Town Centre sub-precinct is maintained. | <b>AO16</b><br>No acceptable outcomes are prescribed.   | <b>Not applicable.</b><br>The SP1 Project area is not within the town centre sub-precinct.  |
| <b>PO17</b><br>Buildings exhibit variations to their external appearance and the shape of the built form to provide visual interest through:<br>surface decoration;   | <b>AO17</b><br>No acceptable outcomes are prescribed.   | <b>Not applicable.</b><br>The SP1 Project area is not within the town centre sub-precinct.  |



| Performance outcomes   | Acceptable outcomes  | Response   |
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| <p>wall recesses and projections;<br/> a variation in wall finishes; windows, balconies, awnings and other visible structural elements.<br/> differentiating between the lower, middle and upper parts of the building by varying the façade and/or the shape of the built form, where comprised of more than two storeys.</p>   |  |  |
| <p><b>PO18</b><br/> Roofs are not characterised by a cluttered display of plant and equipment, in particular: building caps and rooftops contribute to the architectural distinction of the building and create a coherent roofscape for the Town Centre sub-precinct;<br/> service structures, lift motor rooms and mechanical plant and equipment are designed as an architectural feature of the building or are screened from public view;<br/> rooftops are not used for advertising.</p> | <p><b>AO18</b><br/> No acceptable outcomes are prescribed.</p>   | <p><b>Not applicable.</b><br/> The SP1 Project area is not within the town centre sub-precinct.</p>  |
| <p><b>PO19</b><br/> Windows and sun/rain control devices are used in the building form, in particular, sun shading devices are provided to:<br/> shade windows;<br/> reduce glare;<br/> assist in maintaining comfortable indoor temperatures;<br/> minimising heat loads;<br/> enrich the North Queensland tropical character of the Town Centre sub-precinct;<br/> provide architectural interest to building façades.</p>   | <p><b>AO19</b><br/> No acceptable outcomes are prescribed.</p>   | <p><b>Not applicable.</b><br/> The SP1 Project area is not within the town centre sub-precinct.</p>  |
| <p><b>PO20</b><br/> Buildings are finished with high quality materials, selected for:<br/> their ability to contribute the character of Town Centre sub-precinct;<br/> easy maintenance, durability and an ability not to readily stain, discolour or deteriorate.</p>   | <p><b>AO20</b><br/> No acceptable outcomes are prescribed.</p>   | <p><b>Not applicable.</b><br/> The SP1 Project area is not within the town centre sub-precinct.</p>  |
| <p><b>PO21</b><br/> Buildings do not incorporate any type of glass or other materials that are likely to reflect the sun's rays in a manner that may create a nuisance, discomfort or a hazard.</p>  | <p><b>AO21</b><br/> No acceptable outcomes are prescribed.</p>   | <p><b>Not applicable.</b><br/> The SP1 Project area is not within the town centre sub-precinct.</p>  |
| <p><b>PO22</b><br/> Façades and elevations do not include large blank walls. Openings and setbacks are used to articulate vertical building surfaces.</p>  | <p><b>AO22.1</b><br/> Development has a maximum length of unbroken building facade of 20 metres and a maximum extent of overall development in the same style/design along the street frontage/s of 40 metres.</p> <p><b>AO22.2</b><br/> Any break in the building façade varies the alignment by a 1 metre minimum deviation.</p> <p><b>AO22.3</b><br/> A minimum of three of the following building design features and architectural elements detailed below are incorporated to break the extended facade of a development:<br/> a change in roof profile;<br/> a change in parapet coping;<br/> a change in awning design;<br/> a horizontal or vertical change in the wall plane; or<br/> a change in the exterior finishes and exterior colours of the development.</p> | <p><b>Not applicable.</b><br/> The SP1 Project area is not within the town centre sub-precinct..</p> |
| <p><b>PO23</b><br/> Building facades that face public spaces at ground level:<br/> complement the appearance of the development and surrounding streetscape;<br/> enhance the visual amenity of the public place;<br/> include a variety of human scale architectural elements and details;</p>  | <p><b>AO23</b><br/> Building facades at the ground floor of development that face public space are designed to ensure:</p>   | <p><b>Not applicable.</b><br/> The SP1 Project area is not within the town centre sub-precinct.</p>  |

| Performance outcomes   | Acceptable outcomes   | Response  |
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| provide an opportunity for the casual and convenient surveillance of public space from within the development.   | a minimum of 70% of the façade area is comprised of windows, wall openings or shop fronts that permit the casual surveillance of the public space from the development;<br>a visually prominent main entrance that faces the principal public place;<br>vertical architectural elements and features are incorporated at 3 metre or less intervals along the length of the façade.  |   |
| <p><b>PO24</b><br/>Awnings for pedestrian shelter are consistent with the character setting of the Town Centre sub-precinct and:<br/>extend and cover the footpath to provide protection from the sun and rain;<br/>include lighting under the awning;<br/>are continuous across the frontage of the site;<br/>align to provide continuity with existing or future awnings on adjoining sites;<br/>are a minimum of 3.0 metres in width and generally not more than 3.5 metres above pavement height;<br/>do not extend past a vertical plane, 1.2 metres inside the kerb-line to enable street trees to be planted and grow;<br/>are cantilevered from the main building with any posts within the footpath being non load-bearing.</p> | <p><b>AO24</b><br/>No acceptable outcomes are prescribed.</p>   | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the town centre sub-precinct.</p>  |
| <p><b>PO25</b><br/>Development integrates with the streetscape and landscaping improvements for Port Douglas.</p>  | <p><b>AO25</b><br/>Development fronting Davidson Street, Macrossan Street, Wharf Street, Mowbray Street and Warner Street is designed to integrate with the on-street landscaping and design improvements as outlined within the Port Douglas landscape master plan contained within Planning scheme policy SC6.7 – Landscaping.</p> <p>Note - Planning scheme policy SC6.7 - Landscaping provides guidance on meeting the Performance Outcome.</p> | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the town centre sub-precinct.</p>  |
| <b>Additional requirements for Sub-precinct 1b – Waterfront North sub-precinct</b>   |   |   |
| <p><b>PO26</b><br/>The establishment of uses is consistent with the outcomes sought for sub-precinct 1b – Waterfront North.</p>  | <p><b>AO26</b><br/>Uses identified as inconsistent uses in Table 7.2.4.4.b — Inconsistent uses in sub-precinct 1b - Waterfront North sub-precinct are not established in sub-precinct 1b - Waterfront North.</p>  | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO27</b><br/>The bulk and scale of buildings is consistent with surrounding development and steps down to complement the open space areas in the adjoining limited development sub-precinct.</p>   | <p><b>AO27</b><br/>Buildings and structures are not more than:<br/>3 storeys and 13.5 metres in height , with a roof height of not less than 3 metres, in those parts of the precinct south of Inlet Street;<br/>2 storeys and 8.5 metres in height, with a roof height of not less than 3 metres, in those parts of the precinct north of Inlet Street.<br/>Note – Height is inclusive of roof height.</p>   | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO28</b><br/>Building design, streetscape, pedestrian paths and street front spaces promote integration with the surrounding area and the rest of Precinct 1 – Port Douglas Precinct.</p>  | <p><b>AO28</b><br/>No acceptable outcomes are prescribed.</p>   | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO29</b><br/>Public pedestrian access along the water's edge is maximised.</p>   | <p><b>AO29.1</b><br/>Public pedestrian access is provided along the frontage of the water's edge consisting of a boardwalk of a minimum width of 4 metres that is available of 24-hour use.</p> <p><b>AO29.2</b><br/>A public plaza is incorporated into the design generally reflecting the requirements of the Port Douglas Waterfront Master Plan, focussing in the vicinity of the 'Duck Pond'.</p>   | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |

| Performance outcomes   | Acceptable outcomes   | Response  |
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|  | <p><b>AO29.3</b><br/>Built envelopes are setback a minimum of 3.0 metres from the board walk, with a shelter/shade zone between the building envelopes and the boardwalk consisting of shade structure, canopies, verandahs and the like.</p>   |   |
| <p><b>PO30</b><br/>Buildings:<br/>address street frontages;<br/>ensure main entrances front the street or public spaces.</p>   | <p><b>AO30</b><br/>No acceptable outcomes are prescribed.</p>   | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO31</b><br/>Setbacks at ground level provide for:<br/>connection between pedestrian paths and public places;<br/>areas for convenient movement of pedestrians;<br/>changes in gradient.</p>   | <p><b>AO31</b><br/>Setbacks at ground level:<br/>are clear of columns and other obstructions;<br/>have pavement matching the gradient of adjoining footpaths and connecting pedestrian areas on adjoining sites;<br/>connect without any lip or step to adjoining footpaths.</p>  | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO32</b><br/>Buildings do not result in a reduction of views and vistas from public places to:<br/>Dickson Inlet;<br/>public open space;<br/>places of significance.</p>   | <p><b>AO32</b><br/>No acceptable outcomes are prescribed.</p>   | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO33</b><br/>Development enhances the distinctive tropical resort town and identity of Port Douglas and encourages pedestrian activity at ground level including shade protection across the footpath and open space areas.</p>  | <p><b>AO33</b><br/>No acceptable outcomes are prescribed.</p>   | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO34</b><br/>Development is predominantly commercial in nature with any tourist accommodation having a secondary focus and not located on the street-level frontage where active frontages are encouraged as identified the Port Douglas local plan maps contained in Schedule 2.</p>  | <p><b>AO34.1</b><br/>Centre activities establish:<br/>at street level on active street frontages;<br/>a maximum of one level above street level.<br/><b>AO34.2</b><br/>Residential development activities or short term accommodation is located above street /ground floor level of the active frontage, but not on or up to the street / public frontage in any development, including mixed use development.</p> | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO35</b><br/>Detailed building design:<br/>enhances the visual amenity of the streetscape;<br/>has a legible and attractive built form that is visually enhanced by architectural elements;<br/>contributes to a distinctive tropical north Queensland, seaside tourist town character;<br/>integrates major landscaping elements to maximise their aesthetic value to ensure that the lush, vegetated character of the Waterfront North sub-precinct is maintained.</p>                         | <p><b>AO35</b><br/>No acceptable outcomes are prescribed.</p>   | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO36</b><br/>Buildings exhibit variations to their external appearance and the shape of the built form to provide visual interest through:<br/>surface decoration;<br/>wall recesses and projections;<br/>a variation in wall finishes; windows, balconies, awnings and other visible structural elements.<br/>differentiating between the lower, middle and upper parts of the building by varying the façade and/or the shape of the built form, where comprised of more than two storeys.</p> | <p><b>AO36</b><br/>No acceptable outcomes are prescribed.</p>   | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |

| Performance outcomes   | Acceptable outcomes  | Response  |
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| <p><b>PO37</b><br/>Roofs are not characterised by a cluttered display of plant and equipment, in particular: building caps and rooftops contribute to the architectural distinction of the building and create a coherent roofscape for the Waterfront North sub-precinct; service structures, lift motor rooms and mechanical plant and equipment are designed as an architectural feature of the building or are screened from public view; rooftops are not used for advertising.</p> | <p><b>AO37</b><br/>No acceptable outcomes are prescribed.</p>  | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO38</b><br/>Windows and sun/rain control devices are used in the building form, in particular, sun shading devices are provided to:<br/>shade windows;<br/>reduce glare;<br/>assist in maintaining comfortable indoor temperatures;<br/>minimising heat loads;<br/>enriching the North Queensland tropical character of the Waterfront North sub-precinct; architectural interest to building façades.</p>  | <p><b>AO38</b><br/>No acceptable outcomes are prescribed.</p>  | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO39</b><br/>Buildings are finished with high quality materials, selected for:<br/>their ability to contribute the character of Waterfront North sub-precinct;<br/>easy maintenance, durability and an ability not to readily stain, discolour or deteriorate.</p>   | <p><b>AO39</b><br/>No acceptable outcomes are prescribed.</p>  | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO40</b><br/>Buildings do not incorporate any type of glass or other materials that are likely to reflect the sun's rays in a manner that may create a nuisance, discomfort or a hazard.</p>   | <p><b>AO40</b><br/>No acceptable outcomes are prescribed.</p>  | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO41</b><br/>Façades and elevations do not include large blank walls and openings and setbacks are used to articulate vertical building surfaces.</p>  | <p><b>AO41.1</b><br/>Development has a maximum length of unbroken building facade of 20 metres and a maximum extent of overall development in the same style/design along the street frontage/s of 40 metres.<br/><b>AO41.2</b><br/>Any break in the building façade varies the alignment by a 1 metre minimum deviation.<br/><b>AO41.3</b><br/>A minimum of three of the following building design features and architectural elements detailed below are incorporated to break the extended facade of a development:<br/>a change in roof profile;<br/>a change in parapet coping;<br/>a change in awning design;<br/>a horizontal or vertical change in the wall plane; or<br/>a change in the exterior finishes and exterior colours of the development.</p> | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO42</b><br/>Building facades that face public spaces at ground level:<br/>complement the appearance of the development and surrounding streetscape;<br/>enhance the visual amenity of the public place;<br/>include a variety of human scale architectural elements and details;<br/>provide an opportunity for the casual and convenient surveillance of public space from within the development.</p>   | <p><b>AO42</b><br/>Building facades at the ground floor of development that face public space are designed to ensure:<br/>a minimum of 70% of the façade area is comprised of windows, wall openings or shop fronts that permit the casual surveillance of the public space from the development;<br/>a visually prominent main entrance that faces the principal public place;<br/>vertical architectural elements and features are incorporated at 3 metre or less intervals along the length of the façade.</p>   | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO43</b><br/>Awnings for pedestrian shelter are consistent with the character setting of the Waterfront North sub-precinct and:</p>  | <p><b>AO43</b><br/>No acceptable outcomes are prescribed.</p>  | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |

| Performance outcomes   | Acceptable outcomes  | Response  |
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| <p>extend and cover the footpath to provide protection from the sun and rain;<br/>include lighting under the awning;<br/>are continuous across pedestrian circulation areas;<br/>align to provide continuity with existing or future awnings on adjoining sites;<br/>are a minimum of 3 metres in width and generally not more than 3.5 metres above pavement height;<br/>do not extend past a vertical plane 1.2 metres inside the street kerb-line to enable street trees to be planted and grow;<br/>are cantilevered from the main building with any posts within the footpath being non load-bearing.</p> |  |   |
| <p><b>PO44</b><br/>The Balley Hooley rail line and turn-table is retained and incorporated into development and maintains its functionality.</p>   | <p><b>AO44.1</b><br/>Bally Hooley rail line and turn-table is retained and incorporated into development to maintain its functionality.<br/><b>AO44.2</b><br/>Where development provides floor area for the Bally Hooley rail station, the gross floor area of the rail line and station does not generate a requirement for additional vehicle parking.</p> | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO45</b><br/>Development recognises the importance of and relationship between the marina, commercial and residential development in the Waterfront North sub-precinct, and includes measures to mitigate the impact of:<br/>noise;<br/>odour;<br/>hazardous materials;<br/>waste and recyclable material storage.</p>   | <p><b>AO45</b><br/>No acceptable outcomes are prescribed.</p>  | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO46</b><br/>Formalised public spaces and pedestrian paths/areas on freehold land are made accessible to the public.</p>   | <p><b>AO46</b><br/>No acceptable outcomes are prescribed.</p>  | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO47</b><br/>Buildings, civic spaces, roads and pedestrian links are enhanced by:<br/>appropriate landscape design and planting;<br/>themed planting that defines entry points, and creates strong 'entry corridors' into the waterfront;<br/>lighting and well-considered discrete signage that complements building and landscape design;<br/>public artwork and other similar features that reflect the heritage and character of the Port Douglas Waterfront.</p>  | <p><b>AO47</b><br/>No acceptable outcomes are prescribed.</p>  | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO48</b><br/>Buildings are designed and sited to provide vistas along shared pedestrian/open space and movement areas in suitable locations.</p>   | <p><b>AO48</b><br/>No acceptable outcomes are prescribed.</p>  | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO49</b><br/>Development does not diminish the viability of marine-based industrial uses that directly serve the Port Douglas tourist and fishing operators and private boat owners, particularly with respect to the slipway operation.</p>   | <p><b>AO49</b><br/>No acceptable outcomes are prescribed.</p>  | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO50</b><br/>Marine infrastructure to service the tourism, fishing and private boating community is provided.</p>  | <p><b>AO50</b><br/>No acceptable outcomes are prescribed.</p>  | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |
| <p><b>PO51</b><br/>Changes to the Port Douglas Waterfront quay-line do not cause adverse impacts to the environmentally sensitive Dickson Inlet.</p>   | <p><b>AO51</b><br/>Development that results in changes to the Port Douglas Waterfront quay-line is only established where an Ecological assessment report provides support to the changes.</p>   | <p><b>Not applicable.</b><br/>The SP1 Project area is not within the waterfront north precinct.</p> |

| Performance outcomes   | Acceptable outcomes  | Response  |
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|  | Note - Planning scheme policy SC6.8 – Natural environment provides guidance on preparing an ecological assessment report.  |   |
| <b>Additional requirements for Sub-precinct 1c – Waterfront South sub-precinct</b>   |  |   |
| <b>PO52</b><br>The establishment of uses is consistent with the outcomes sought for Precinct 1c – Waterfront South.  | <b>AO52</b><br>Uses identified as inconsistent uses <b>Error! Reference source not found.</b> are not established in Precinct 1c – Waterfront South.   | <b>Not applicable.</b><br>The SP1 Project area is not within the waterfront north precinct. |
| <b>PO53</b><br>Development does not adversely impact on the natural environment, natural vegetation or watercourses.   | <b>AO53.1</b><br>An Ecological assessment report is prepared identifying the environmental qualities of the surrounding natural and built features which are to be managed.<br><br>Note - Planning scheme policy SC6.8 – Natural environment provides guidance on preparing an ecological assessment report.<br><br><b>AO53.2</b><br>An Environmental Management Plan is prepared to manage potential impacts of the operation of the development on surrounding natural areas.<br><br>Note - Planning scheme policy SC6.4 – Environmental management plans contains information to demonstrate compliance and guidance on preparing an Environmental Management Plan. | <b>Not applicable.</b><br>The SP1 Project area is not within the waterfront north precinct. |
| <b>PO54</b><br>Development of land at the end of Port Street adjacent to Dickson Inlet incorporates a slipway, or an alternative functioning facility, with capacity to service the Port Douglas marine and tourism industry.  | <b>AO54</b><br>A master plan for the development is provided and implemented to demonstrate the integration of the slipway, or an alternative functioning facility, with other supporting service industry activities that service the marine and tourism industry of Port Douglas.  | <b>Not applicable.</b><br>The SP1 Project area is not within the waterfront north precinct. |
| <b>PO55</b><br>Buildings and structures are of a height, and are set back from side boundaries and other sensitive areas to ensure the scenic amenity and environmental qualities of the adjacent area are not adversely affected.   | <b>AO55.1</b><br>Development has a height of not more than 10 metres.<br><b>AO55.2</b><br>Development is setback from all property boundaries not less than 3 metres.  | <b>Not applicable.</b><br>The SP1 Project area is not within the waterfront north precinct. |
| <b>PO56</b><br>The site coverage of all buildings and structures ensures development: is sited in an existing cleared area or in an area approved for clearing; has sufficient area for the provision of services; development does not have an adverse effect on the environmental, habitat, conservation or landscape values of the on-site and surrounding sensitive areas.   | <b>AO56</b><br>No acceptable outcomes are prescribed.  | <b>Not applicable.</b><br>The SP1 Project area is not within the waterfront north precinct. |
| <b>PO57</b><br>Premises include adequate provision for service vehicles, to cater for generated demand. Loading areas for service vehicles are designed to: be accommodated on-site; maximise safety and efficiency of loading; protect the visual and acoustic amenity of sensitive land use activities; minimise adverse impacts on natural characteristics of adjacent areas. | <b>AO57.1</b><br>Sufficient manoeuvring area is provided on-site to allow a Medium Rigid Vehicle to enter and leave the site in a forward gear.<br><b>AO57.2</b><br>Development is designed to ensure all service vehicles are contained within the site when being loaded/unloaded.<br><b>AO57.3</b><br>Driveways, parking and manoeuvring areas are constructed and maintained to: minimise erosion from storm water runoff; retain all existing vegetation.   | <b>Not applicable.</b><br>The SP1 Project area is not within the waterfront north precinct. |

| Performance outcomes  | Acceptable outcomes   | Response  |
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| <b>PO58</b><br>Development ensures adverse impacts from service vehicles on the road network, external to the site, are minimised.  | <b>AO58</b><br>No acceptable outcomes are prescribed.   | <b>Not applicable.</b><br>The SP1 Project area is not within the waterfront north precinct.                       |
| <b>PO59</b><br>Entry to the site is landscaped to enhance the amenity of the area and provide a pleasant working environment.   | <b>AO59</b><br>Areas used for loading and unloading, storage, utilities and car parking are screened from public view:<br>by a combination of landscaping and screen fencing;<br>dense planting along any road frontage is a minimum width of 3 metres. | <b>Not applicable.</b><br>The SP1 Project area is not within the waterfront north precinct.                       |
| <b>PO60</b><br>Landscaping is informal in character and complementary to the existing natural environment, provides screening and enhances the visual appearance of the development.  | <b>AO60</b><br>For any development landscaping is in accordance with the Plant species schedule in Planning scheme policy SC6.7– Landscaping.   | <b>Not applicable.</b><br>The SP1 Project area is not within the waterfront north precinct.                       |
| <b>Additional requirements for Sub-precinct 1d – Limited Development sub-precinct</b>   |   |   |
| <b>PO61</b><br>The height of buildings and structures contributes to the desired form and outcomes for the sub-precinct and are limited to a single storey.   | <b>AO61</b><br>Buildings and structures are not more than one storey and 4 metres in height.<br><br>Note - Height is inclusive of the roof height.  | <b>Not applicable.</b><br>The SP1 Project area is not within the limited development sub-precinct.                |
| <b>Additional requirements for Sub-precinct 1e – Community and recreation sub-precinct</b>  |   |   |
| <b>PO62</b><br>The precinct is developed for organised sporting activities and other community uses.  | <b>AO62</b><br>No acceptable outcomes are prescribed.   | <b>Not applicable.</b><br>The SP1 Project area is not within the community and recreation sub-precinct.           |
| <b>Additional requirements for Sub-precinct 1f – Flagstaff Hill sub-precinct</b>  |   |   |
| <b>PO63</b><br>Flagstaff Hill is protected from inappropriate development to protect the hill as an important natural landmark feature of Port Douglas and as a vegetated backdrop to the Town centre.  | <b>AO63</b><br>No acceptable outcomes are prescribed.   | <b>Not applicable.</b><br>The SP1 Project area is not within the flag-staff hill sub-precinct                     |
| <b>PO64</b><br>All development on Flagstaff Hill is designed to minimise the visibility of the development and to ensure development is subservient to the natural landscape and topography of the site, including through:<br>building design which minimises excavation and filling;<br>buildings being designed to step down the site and incorporate foundations and footings on piers or poles;<br>buildings being visually unobtrusive and incorporating exterior finishes and muted colours which are non-reflective and complement the colours of the surrounding vegetation and view-shed;<br>protection of the views from public viewing points in the Port Douglas precinct. | <b>AO64</b><br>No acceptable outcomes are prescribed.   | <b>Not applicable.</b><br>The SP1 Project area is not within the flag-staff hill sub-precinct                     |
| <b>Additional requirements for Precinct 3 – Craiglie Commercial and Light Industry precinct</b>   |   |   |
| <b>PO65</b><br>Development supports the tourism and marine industries in Port Douglas, along with the small-scale commercial and light industry land uses that support the local economy that would otherwise be better suited to a location outside the Port Douglas Town Centre Precinct.   | <b>AO65</b><br>Development consists of service and light industries and associated small scale commercial activities.   | <b>Not applicable.</b><br>The SP1 Project area is not within the Craiglie and commercial light industry precinct. |
| <b>PO66</b><br>Development on lots adjacent to the Captain Cook Highway is sited, designed and landscaped to provide an attractive visual approach to Port Douglas with all buildings,  | <b>AO66.1</b><br>Buildings and structures are setback 8 metres from the Captain Cook Highway frontage, or no closer to the Captain Cook Highway frontage  | <b>Not applicable.</b><br>The SP1 Project area is not within the Craiglie and commercial light industry precinct. |

| Performance outcomes   | Acceptable outcomes   | Response   |
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| <p>structures and car parking areas setback a sufficient distance from the frontage to enable landscaping to soften or screen the appearance of the development.</p>   | <p>than buildings and structures on adjoining sites (averaged), whichever is the greater.</p> <p><b>AO66.2</b><br/>The setback area to the Captain Cook Highway frontage is landscaped with advanced dense planting including tree species (100 litre bag stock), which will, at maturity, exceed the height of the building(s) on the site.</p> <p><b>AO66.3</b><br/>Advertising signs are discreet in appearance with no large advertising signs, including tenancy signs, located on or near the Captain Cook Highway frontage, or within any landscaped setback area.</p> <p><b>AO66.4</b><br/>Car parking areas, loading and other service areas are designed to be screened from the Captain Cook Highway and are located so as to not be visually prominent from the Captain Cook Highway.</p> |  |
| <p><b>Additional requirements for Precinct 6 – Very Low Residential Density / Low Scale Recreation / Low Scale Educational / Low Scale Entertainment Uses precinct</b></p>   |   |  |
| <p><b>PO67</b><br/>No additional lots are created within the precinct.</p>   | <p>AO67<br/>No acceptable outcomes are prescribed.</p>  | <p><b>Not applicable.</b><br/>The SP1 Project area does not consist of redeveloping a lot.</p> |
| <p><b>PO68</b><br/>Reconfigured lots have a minimum lot size of 2 hectares, unless the lot reconfiguration transfers lots to the higher parts of the land, to avoid the need to fill existing lots to accommodate dwelling houses.</p> | <p>AO68<br/>No acceptable outcomes are prescribed.</p>  | <p><b>Not applicable.</b><br/>The SP1 Project area does not consist of redeveloping a lot.</p> |



## 4. Acid sulfate soils overlay code

| Performance outcomes  | Acceptable outcomes  | Response   |
|---|--|--|
| <b>For assessable development</b>   |  |  |
| <p><b>PO1</b><br/>The extent and location of potential or actual acid sulfate soils is accurately identified.</p>   | <p><b>AO1.1</b><br/>No excavation or filling occurs on the site.<br/>or<br/><b>AO1.2</b><br/>An acid sulfate soils investigation is undertaken.<br/>Note - Planning scheme policy SC 6.12– Potential and actual acid sulfate soils provides guidance on preparing an acid sulfate soils investigation.</p>   | <p><b>Complies with PO1.</b><br/>The proposed tidal works will involve limited excavation or displacement of soils associated with piling. The proposed tidal works will be undertaken in accordance with an acid sulfate soil management plan as part of the Construction Environmental Management Plan (CEMP), in line with the <i>Queensland acid sulfate soils technical manual: soil management guidelines</i>.</p> |
| <p><b>PO2</b><br/>Development avoids disturbing potential acid sulfate soils or actual acid sulfate soils, or is managed to avoid or minimise the release of acid and metal contaminants.</p> | <p><b>AO2.1</b><br/>The disturbance of potential acid sulfate soils or actual acid sulfate soils is avoided by:<br/>not excavating, or otherwise removing, soil or sediment identified as containing potential or actual acid sulfate soils;<br/>not permanently or temporarily extracting groundwater that results in the aeration of previously saturated acid sulfate soils;<br/>not undertaking filling that results in:<br/>actual acid sulfate soils being moved below the water table;<br/>previously saturated acid sulfate soils being aerated.<br/>or<br/><b>AO2.2</b><br/>The disturbance of potential acid sulfate soils or actual acid sulfate soils is undertaken in accordance with an acid sulfate soils management plan and avoids the release of metal contaminants by:<br/>neutralising existing acidity and preventing the generation of acid and metal contaminants;<br/>preventing the release of surface or groundwater flows containing acid and metal contaminants into the environment;<br/>preventing the in situ oxidisation of potential acid sulfate soils and actual acid sulfate soils through ground water level management;<br/>appropriately treating acid sulfate soils before disposal occurs on or off site;<br/>documenting strategies and reporting requirements in an acid sulfate soils environmental management plan.<br/><br/>Note - Planning scheme policy SC 6.12 – Acid sulfate soils provides guidance on preparing an acid sulfate soils management plan.</p> | <p><b>Complies with PO2.</b><br/>The proposed tidal works will involve limited excavation or displacement of soils associated with piling. The proposed tidal works will be undertaken in accordance with an acid sulfate soil management plan as part of the Construction Environmental Management Plan (CEMP), in line with the <i>Queensland acid sulfate soils technical manual: soil management guidelines</i>.</p> |
| <p><b>PO3</b><br/>No environmental harm is caused as a result of exposure to potential acid sulfate soils or actual acid sulfate soils.</p>   | <p><b>AO3</b><br/>No acceptable outcomes are prescribed.</p>   | <p><b>Complies with PO3.</b><br/>The proposed tidal works will involve limited excavation or displacement of soils associated with piling. The proposed tidal works will be undertaken in accordance with an acid sulfate soil management plan as part of the Construction Environmental Management Plan (CEMP), in line with the <i>Queensland acid sulfate soils technical manual: soil management guidelines</i>.</p> |

## 5. Bushfire hazard overlay code

| Performance outcomes  | Acceptable outcomes  | Response   |
|---|--|--|
| <b>For self-assessable and assessable development</b>   |  |  |
| <b>Compatible development</b>   |  |  |
| <p><b>PO1</b><br/>A vulnerable use is not established or materially intensified within a bushfire hazard area (bushfire prone area) unless there is an overriding need or other exceptional circumstances.<br/>Note - See the end of this code for examples of vulnerable uses.</p>   | <p><b>AO1</b><br/>Vulnerable uses are not established or expanded.<br/><br/>Note – Where, following site inspection and consultation with Council, it is clear that the mapping is in error in identifying a premises as being subject to a medium, high, very high bushfire hazard or potential impact buffer sub-category, Council may supply a letter exempting the need for a Bushfire Management Plan.<br/><br/>Note – Where the assessment manager has not previously approved a Bushfire Management Plan (either by condition of a previous development approval), the development proponent will be expected to prepare such a plan.<br/><br/>Note – Planning scheme policy SC6.9 - Natural hazards, provides a guide to the preparation of a Bushfire Management Plan.</p>  | <p><b>Complies with PO1.</b><br/>The development is primarily clear from the Bushfire Hazard Overlay Map Sheet mapped under the Douglas Shire Council. There is a small section along Four Mile Beach adjacent to Reef Street where sections of the alignment traverses the bushfire hazard overlay.<br/>The eco-tourist recreational trail is not a vulnerable use.</p> |
| <p><b>PO2</b><br/>Emergency services and uses providing community support services are able to function effectively during and immediately after a bushfire hazard event.</p>   | <p><b>AO2</b><br/>Emergency Services and uses providing community support services are not located in a bushfire hazard sub-category and have direct access to low hazard evacuation routes.</p>   | <p><b>Not applicable.</b><br/>Development does not involve emergency services and uses providing community support services.</p>   |
| <p><b>PO3</b><br/>Development involving hazardous materials manufactured or stored in bulk is not located in bushfire hazard sub-category.</p>  | <p><b>AO3</b><br/>The manufacture or storage of hazardous material in bulk does not occur within bushfire hazard sub-category.</p>   | <p><b>Not applicable.</b><br/>Development does not include storage of hazardous material in bulk.</p>  |
| <b>Development design and separation from bushfire hazard – reconfiguration of lots</b>   |  |  |
| <p><b>PO4.1</b><br/>Where reconfiguration is undertaken in an urban area or is for urban purposes or smaller scale rural residential purposes, a separation distance from hazardous vegetation is provided to achieve a radiant heat flux level of 29kW/m<sup>2</sup> at the edge of the proposed lot(s).<br/><br/>Note - “Urban purposes” and “urban area” are defined in the Sustainable Planning Regulations 2009. Reconfiguration will be taken to be for rural residential purposes where proposed lots are between 2000m<sup>2</sup> and 2ha in area. “Smaller scale” rural residential purposes will be taken to be where the average proposed lot size is 6000m<sup>2</sup> or less.<br/><br/>Note - The radiant heat levels and separation distances are to be established in accordance with method 2 set out in AS3959-2009.</p> <p><b>PO4.2</b><br/>Where reconfiguration is undertaken for other purposes, a building envelope of reasonable dimensions is provided on each lot which achieves radiant heat flux level of 29kW/m<sup>2</sup> at any point.</p> | <p><b>AO4.1</b><br/>No new lots are created within a bushfire hazard sub-category.<br/>or<br/><b>AO4.2</b><br/>Lots are separated from hazardous vegetation by a distance that:<br/>(a) achieves radiant heat flux level of 29kW/m<sup>2</sup> at all boundaries; and<br/>(b) is contained wholly within the development site.<br/><br/>Note - Where a separation distance is proposed to be achieved by utilising existing cleared developed areas external to the site, certainty must be established (through tenure or other means) that the land will remain cleared of hazardous vegetation.<br/>For staged developments, temporary separation distances, perimeter roads or fire trails may be absorbed as part of subsequent stages.<br/>Note - The achievement of a cleared separation distance may not be achievable where other provisions within the planning scheme require protection of certain ecological, slope, visual or character features or functions.</p> | <p><b>Not applicable.</b><br/>Development does not include Reconfiguring a Lot.</p>  |

| Performance outcomes   | Acceptable outcomes   | Response  |
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| <p><b>PO5</b><br/>Where reconfiguration is undertaken in an urban area or is for urban purposes, a constructed perimeter road with reticulated water supply is established between the lots and the hazardous vegetation and is readily accessible at all times for urban fire fighting vehicles.</p> <p>The access is available for both fire fighting and maintenance/defensive works.</p>   | <p><b>AO5.1</b><br/>Lot boundaries are separated from hazardous vegetation by a public road which:<br/>has a two lane sealed carriageway;<br/>contains a reticulated water supply;<br/>is connected to other public roads at both ends and at intervals of no more than 500m;<br/>accommodates geometry and turning radii in accordance with Queensland Fire and Emergency Services' Fire Hydrant and Vehicle Access Guidelines;<br/>has a minimum of 4.8m vertical clearance above the road;<br/>is designed to ensure hydrants and water access points are not located within parking bay allocations; and<br/>incorporates roll-over kerbing.</p> <p><b>AO5.2</b><br/>Fire hydrants are designed and installed in accordance with AS2419.1 2005, unless otherwise specified by the relevant water entity.<br/>Note - Applicants should have regard to the relevant standards set out in the reconfiguration of a lot code and works codes in this planning scheme.</p>   | <p><b>Not applicable.</b><br/>Development does not include Reconfiguring a Lot.</p> |
| <p><b>PO6</b><br/>Where reconfiguration is undertaken for smaller scale rural residential purposes, either a constructed perimeter road or a formed, all weather fire trail is established between the lots and the hazardous vegetation and is readily accessible at all times for the type of fire fighting vehicles servicing the area.</p> <p>The access is available for both fire fighting and maintenance/hazard reduction works.</p> | <p><b>AO6</b><br/>Lot boundaries are separated from hazardous vegetation by a public road or fire trail which has:<br/>a reserve or easement width of at least 20m;<br/>a minimum trafficable (cleared and formed) width of 4m capable of accommodating a 15 tonne vehicle and which is at least 6m clear of vegetation;<br/>no cut or fill embankments or retaining walls adjacent to the 4m wide trafficable path;<br/>a minimum of 4.8m vertical clearance;<br/>turning areas for fire-fighting appliances in accordance with Queensland Fire and Emergency Services' Fire Hydrant and Vehicle Access Guidelines;<br/>a maximum gradient of 12.5%;<br/>a cross fall of no greater than 10 degrees;<br/>drainage and erosion control devices in accordance with the standards prescribed in a planning scheme policy;<br/>vehicular access at each end which is connected to the public road network at intervals of no more than 500m;<br/>designated fire trail signage;<br/>if used, has gates locked with a system authorised by Queensland Fire and Emergency Services; and<br/>if a fire trail, has an access easement that is granted in favour of Council and Queensland Fire and Emergency Services.</p> | <p><b>Not applicable.</b><br/>Development does not include Reconfiguring a Lot.</p> |
| <p><b>PO7</b><br/>Where reconfiguration is undertaken for other purposes, a formed, all weather fire trail is provided between the hazardous vegetation and either the lot boundary or building envelope, and is readily accessible at all times for the type of fire fighting vehicles servicing the area.</p> <p>However, a fire trail will not be required where it would not serve a practical fire management purpose.</p>              | <p><b>AO7</b><br/>Lot boundaries are separated from hazardous vegetation by a public road or fire trail which has:<br/>a reserve or easement width of at least 20m;<br/>a minimum trafficable (cleared and formed) width of 4m capable of accommodating a 15 tonne vehicle and which is at least 6m clear of vegetation;<br/>no cut or fill embankments or retaining walls adjacent to the 4m wide trafficable path;<br/>a minimum of 4.8m vertical clearance;</p>  | <p><b>Not applicable.</b><br/>Development does not include Reconfiguring a Lot.</p> |

| Performance outcomes   | Acceptable outcomes  | Response   |
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|  | <p>turning areas for fire-fighting appliances in accordance with Queensland Fire and Emergency Services' Fire Hydrant and Vehicle Access Guidelines;</p> <p>a maximum gradient of 12.5%;</p> <p>a cross fall of no greater than 10 degrees;</p> <p>drainage and erosion control devices in accordance with the standards prescribed in a planning scheme policy;</p> <p>vehicular access at each end which is connected to the public road network;</p> <p>designated fire trail signage;</p> <p>if used, has gates locked with a system authorised by Queensland Fire and Emergency Services; and</p> <p>if a fire trail, has an access easement that is granted in favour of Council and Queensland Fire and Emergency Services.</p>   |  |
| <p><b>PO8</b></p> <p>The development design responds to the potential threat of bushfire and establishes clear evacuation routes which demonstrate an acceptable or tolerable risk to people.</p>  | <p><b>AO8</b></p> <p>The lot layout:</p> <p>minimises the length of the development perimeter exposed to, or adjoining hazardous vegetation;</p> <p>avoids the creation of potential bottle-neck points in the movement network;</p> <p>establishes direct access to a safe assembly /evacuation area in the event of an approaching bushfire; and</p> <p>ensures roads likely to be used in the event of a fire are designed to minimise traffic congestion.</p> <p>Note - For example, developments should avoid finger-like or hour-glass subdivision patterns or substantive vegetated corridors between lots.</p> <p>In order to demonstrate compliance with the performance outcome, a bushfire management plan prepared by a suitably qualified person may be required. The bushfire management plan should be developed in accordance with the Public Safety Business Agency (PSBA) guideline entitled "Undertaking a Bushfire Protection Plan.</p> <p>Advice from the Queensland Fire and Emergency Services (QFES) should be sought as appropriate</p> | <p><b>Not applicable.</b></p> <p>Development does not include Reconfiguring a Lot.</p>           |
| <p><b>PO9</b></p> <p>Critical infrastructure does not increase the potential bushfire hazard.</p>  | <p><b>AO9</b></p> <p>Critical or potentially hazardous infrastructure such as water supply, electricity, gas and telecommunications are placed underground.</p>  | <p><b>Not applicable.</b></p> <p>Development does not include Reconfiguring a Lot.</p>           |
| <b>Development design and separation from bushfire hazard – material change of use</b>   |  |  |
| <p><b>PO10</b></p> <p>Development is located and designed to ensure proposed buildings or building envelopes achieve a radiant heat flux level at any point on the building or envelope respectively, of:</p> <p>10kW/m2 where involving a vulnerable use; or</p> <p>29kW/m2 otherwise.</p> <p>The radiant heat flux level is achieved by separation unless this is not practically achievable.</p> <p>Note - The radiant heat levels and separation distances are to be established in accordance with method 2 set out in AS3959-2009.</p> | <p><b>AO10</b></p> <p>Buildings or building envelopes are separated from hazardous vegetation by a distance that:</p> <p>achieves a radiant heat flux level of at any point on the building or envelope respectively, of 10kW/m2 for a vulnerable use or 29kW/m2 otherwise; and</p> <p>is contained wholly within the development site.</p> <p>Note - Where a separation distance is proposed to be achieved by utilising existing cleared developed areas external to the site, certainty must be established (through tenure or other means) that the land will remain cleared of hazardous vegetation.</p> <p>For staged developments, temporary separation distances, perimeter roads or fire trails may be absorbed as part of subsequent stages.</p>   | <p><b>Not Applicable.</b></p> <p>Development does not include the construction of buildings.</p> |

| Performance outcomes   | Acceptable outcomes  | Response  |
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| <p><b>PO11</b><br/>A formed, all weather fire trail is provided between the hazardous vegetation and the site boundary or building envelope, and is readily accessible at all times for the type of fire fighting vehicles servicing the area.</p> <p>However, a fire trail will not be required where it would not serve a practical fire management purpose.</p> <p>Note - Fire trails are unlikely to be required where a development site involves less than 2.5ha</p> | <p>Note - The achievement of a cleared separation distance may not be achievable where other provisions within the planning scheme require protection of certain ecological, slope, visual or character features or functions.</p> <p><b>AO11</b><br/>Development sites are separated from hazardous vegetation by a public road or fire trail which has:<br/>a reserve or easement width of at least 20m;<br/>a minimum trafficable (cleared and formed) width of 4m capable of accommodating a 15 tonne vehicle and which is at least 6m clear of vegetation;<br/>no cut or fill embankments or retaining walls adjacent to the 4m wide trafficable path;<br/>a minimum of 4.8m vertical clearance;<br/>turning areas for fire-fighting appliances in accordance with Queensland Fire and Emergency Services' Fire Hydrant and Vehicle Access Guidelines;<br/>a maximum gradient of 12.5%;<br/>a cross fall of no greater than 10 degrees;<br/>drainage and erosion control devices in accordance with the standards prescribed in a planning scheme policy;<br/>vehicular access at each end which is connected to the public road network which is connected to the public road network at intervals of no more than 500m;<br/>designated fire trail signage;<br/>if used, has gates locked with a system authorised by Queensland Fire and Emergency Services; and<br/>if a fire trail, has an access easement that is granted in favour of Council and Queensland Fire and Emergency Services.</p> | <p><b>Not Applicable.</b><br/>Development does not include the construction of buildings or uses that would trigger the requirement for a fire trail.</p> |
| <b>All development</b>   |  |   |
| <p><b>PO12</b><br/>All premises are provided with vehicular access that enables safe evacuation for occupants and easy access by firefighting appliances.</p>  | <p><b>AO12</b><br/>Private driveways:<br/>do not exceed a length of 60m from the street to the building;<br/>do not exceed a gradient of 12.5%;<br/>have a minimum width of 3.5m;<br/>have a minimum of 4.8m vertical clearance;<br/>accommodate turning areas for fire-fighting appliances in accordance with Queensland Fire and Emergency Services' Fire Hydrant and Vehicle Access Guidelines; and<br/>serve no more than 3 dwellings or buildings.</p>  | <p><b>Complies with AO12.</b><br/>Development does not involve the construction of private driveways or buildings.</p>                                    |
| <p><b>PO13</b><br/>Development outside reticulated water supply areas includes a dedicated static supply that is available solely for fire fighting purposes and can be accessed by fire fighting appliances.</p>  | <p><b>AO13</b><br/>A water tank is provided within 10m of each building (other than a class 10 building) which:<br/>is either below ground level or of non-flammable construction;<br/>has a take off connection at a level that allows the following dedicated, static water supply to be left available for access by fire fighters:<br/>10,000l for residential buildings<br/>Note – A minimum of 7,500l is required in a tank and the extra 2,500l may be in the form of accessible swimming pools or dams.<br/>45,000l for industrial buildings; and<br/>20,000l for other buildings;</p>   | <p><b>Complies with AO13.</b><br/>Development does not involve the construction of any buildings and therefore there are no proposed water tanks.</p>     |

| Performance outcomes   | Acceptable outcomes   | Response  |
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|  | <p>includes shielding of tanks and pumps in accordance with the relevant standards;</p> <p>includes a hardstand area allowing medium rigid vehicle (15 tonne fire appliance) access within 6m of the tank;</p> <p>is provided with fire brigade tank fittings – 50mm ball valve and male camlock coupling and, if underground, an access hole of 200mm (minimum) to accommodate suction lines; and</p> <p>is clearly identified by directional signage provided at the street frontage.</p> |   |
| <p><b>PO14</b><br/>Landscaping does not increase the potential bushfire risk.</p>  | <p><b>AO14</b><br/>Landscaping uses species that are less likely to exacerbate a bushfire event, and does not increase fuel loads within separation areas.</p>  | <p><b>Not Applicable PO14.</b><br/>There is no landscaping proposed for the development.</p>  |
| <p><b>PO15</b><br/>The risk of bushfire and the need to mitigate that risk is balanced against other factors (such as but not limited to, biodiversity or scenic amenity).</p> | <p><b>AO15</b><br/>Bushfire risk mitigation treatments do not have a significant impact on the natural environment or landscape character of the locality where this has value.</p>   | <p><b>Not Applicable AO15.</b><br/>The development does not involve the construction of any buildings and therefore there bushfire risk mitigation treatments are not required.</p> |

## 6. Coastal environment overlay code

| Performance outcomes   | Acceptable outcomes  | Response  |
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| <b>For self-assessable and assessable development</b>  |  |   |
| <p><b>PO1</b><br/>No works other than coastal protection works extend seaward of the coastal building line.</p>  | <p><b>AO1.1</b><br/>Development (including all buildings and other permanent structures such as swimming pools and retaining walls) does not extend seaward of a coastal building line.<br/>Note – Coastal building lines are declared under the Coastal Protection and Management Act 1995 and are administered by the State Department of Environment and Heritage Protection.</p> <p><b>AO1.2</b><br/>Coastal protection works are only undertaken as a last resort where coastal erosion presents an immediate threat to public safety or existing buildings or structures and the property cannot be relocated or abandoned.</p> <p><b>AO1.3</b><br/>Coastal protection works are as far landward as practicable on the lot containing the property to the maximum extent reasonable.</p> <p><b>AO1.4</b><br/>Coastal protection work mitigates any increase in the coastal hazard.</p> | <p><b>Complies with PO1.</b><br/>The development does not include any buildings or permanent structures located seaward of a coastal building line.</p>   |
| <p><b>PO2</b><br/>Where a coastal building line does not exist on a lot fronting the coast or a reserve adjoining the coast, development is setback to maintain the amenity and use of the coastal resource.</p> | <p><b>AO2</b><br/>Where a coastal building line does not exist on a lot fronting the coast or a reserve adjoining the coast, development (including all buildings and structures such as swimming pools) and retaining walls are set back not less than 6 metres from the seaward boundary of the lot.</p>   | <p><b>Complies with PO2.</b><br/>The development does not include any buildings or permanent structures located less than 6 metres from the seaward boundary of the lot.</p>  |
| <b>For assessable development</b>  |  |   |
| <b>Erosion prone areas</b>   |  |   |
| <p><b>PO3</b><br/>Development identifies erosion prone areas (coastal hazards).</p>  | <p><b>AO3</b><br/>No acceptable outcomes are prescribed.</p>   | <p><b>Complies with PO3</b><br/>Douglas Shire Council mapping shows that the whole development is mapped as an erosion prone area. The trail and all proposed structures have been designed to integrate with the natural topography and will not result in adverse impacts to coastal processes or erosion prone areas.</p>  |
| <p><b>PO4</b><br/>Erosion prone areas are free from development to allow for natural coastal processes.</p>  | <p><b>AO4.1</b><br/>Development is not located within the Erosion prone area, unless it can be demonstrated that the development is for:<br/>community infrastructure where no suitable alternative location or site exists for this infrastructure; or<br/>development that reflects the preferred development outcomes in accordance with the zoning of the site (i.e. in the Low density residential zone, a dwelling house is a preferred development outcome in accordance with the zoning of the site)</p> <p><b>AO4.2</b><br/>Development involving existing permanent buildings and structures within an erosion prone area does not increase in intensity of its use by:<br/>adding additional buildings or structures; or<br/>incorporating a land use that will result in an increase in the number of people or employees occupying the site.</p>                                | <p><b>Complies with PO4.</b><br/>The eco-tourism environmental facility land use is considered community infrastructure. Therefore, construction works proposed within the erosion prone area are for community infrastructure where no suitable alternative location is applicable.<br/><br/>Development does not involve existing permanent buildings or structures within an erosion prone area.</p> |

| Performance outcomes  | Acceptable outcomes  | Response  |
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| <b>Coastal management districts</b>   |  |   |
| <p><b>PO5</b><br/>Natural processes and protective functions of landforms and vegetation are maintained.</p>                                  | <p><b>AO5.1</b><br/>Development within the coastal management district: maintains vegetation on coastal land forms where its removal or damage may: destabilise the area and increase the potential for coastal erosion, or interrupt the natural sediment trapping processes or dune or land building processes; maintains sediment volumes of dunes and near-shore coastal landforms, or where a reduction in sediment volumes cannot be avoided, increased risks to development from coastal erosion are mitigated by location, design and construction and operating standards; minimises the need for erosion control structures or riverine hardening through location, design and construction standards; maintains physical coastal processes outside the development footprint for the development, including longshore transport of sediment along the coast; reduces the risk of shoreline erosion for areas adjacent to the development footprint to the maximum extent feasible in the case of erosion control structures.</p> <p><b>AO5.2</b><br/>Where development proposes the construction of an erosion control structure: it is demonstrated that it is the only feasible option for protecting permanent structures from coastal erosion; and those permanent structures cannot be abandoned or relocated in the event of coastal erosion occurring.</p> <p><b>PO5.3</b><br/>Development involving reclamation: does not alter, or otherwise minimises impacts on, the physical characteristics of a waterway or the seabed near the reclamation, including flow regimes, hydrodynamic forces, tidal water and riverbank stability; is located outside active sediment transport area, or otherwise maintains sediment transport processes as close as possible to their natural state; ensures activities associated with the operation of the development maintain the structure and condition of vegetation communities and avoid wind and water run-off erosion.</p> | <p><b>Complies with PO5.</b><br/>The purpose of the development is to promote eco-tourism and ensure that the trail results in minimal biodiversity loss. This includes retaining the surrounding vegetation.<br/>Development within the coastal management district will maintain vegetation on coastal landforms with the development obtaining an operational works for works in a CMD.<br/>An erosion and sediment control plan is to be developed by the construction contractor to manage erosion and sediment during the construction and operation of the development.<br/>Development does not involve land reclamation or development of structures which will alter or impact natural coastal processes.</p> |
| <p><b>PO6</b><br/>Development avoids or minimises adverse impacts on coastal resources and their values to the maximum extent reasonable.</p> | <p><b>AO6.1</b><br/>Coastal protection work that is in the form of beach nourishment uses methods of placement suitable for the location that do not interfere with the long-term use of the locality, or natural values within or neighbouring the proposed placement site.<br/>and</p> <p><b>AO6.2</b><br/>Marine development is located and designed to expand on or redevelop existing marine infrastructure unless it is demonstrated that it is not practicable to co-locate the development with existing marine infrastructure; and</p> <p><b>AO6.3</b><br/>Measures are incorporated as part of siting and design of the development to maintain or enhance water quality to achieve the environmental values and water quality objectives outlined in the Environmental Protection (Water) Policy 2009.</p>  | <p><b>Complies with PO6.</b><br/>The development does not involve beach nourishment or marine development.<br/>The development will implement the appropriate erosion and sediment control measures to maintain water quality along the trail/boardwalk and infrastructure.<br/>Development will avoid disturbance of acid sulfate soils where possible, however, where acid sulfate soils are likely to be disturbed, an Acid Sulfate Soils Management Plan (ASSMP) is to be prepared and implemented by the construction contractor.<br/>Design and siting of the development protects ecological values where possible, with the alignment avoiding areas of high ecological value.</p>                              |



| Performance outcomes   | Acceptable outcomes   | Response   |
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|  | <p>and</p> <p><b>AO6.4</b><br/>Development avoids the disturbance of acid sulfate soils, or where it is demonstrated that this is not possible, the disturbance of acid sulfate soils is carefully managed to minimise and mitigate the adverse effects of disturbance on coastal resources.</p> <p>and</p> <p><b>AO6.4</b><br/>Design and siting of development protects and retains identified ecological values and underlying ecosystem processes within the development site to the greatest extent practicable.</p>   |  |
| <p><b>PO7</b><br/>Development is to maintain access to and along the foreshore for general public access.</p>  | <p><b>AO7.1</b><br/>Development provides for regular access points for pedestrians including approved walking tracks, boardwalks and viewing platforms.</p> <p>and</p> <p><b>AO7.2</b><br/>Development provides for regular access points for vehicles including approved roads and tracks.</p> <p>or</p> <p><b>AO7.3</b><br/>Development demonstrates an alternative solution to achieve an equivalent standard of performance.</p>  | <p><b>Complies with PO7.</b><br/>Development will enhance access to and along the foreshore for general public access.</p>   |
| <p><b>PO8</b><br/>Public access to the coast is appropriately located, designed and operated.</p>  | <p><b>AO8.1</b><br/>Development maintains or enhances public access to the coast.</p> <p>or</p> <p><b>AO8.2</b><br/>Development is located adjacent to state coastal land or tidal water and minimises and offsets any loss of access to and along the foreshore within 500 metres.</p> <p>or</p> <p><b>AO8.3</b><br/>Development adjacent to state coastal land or tidal water demonstrates an alternative solution to achieve an equivalent standard and quality of access.</p>   | <p><b>Complies with AO8.1</b><br/>Development enhances public access to the coast through the SP1 alignment.</p>   |
| <p><b>PO9</b><br/>Development adjacent to state coastal land or tidal water is located, designed and operated to:<br/>maintain existing access to and along the foreshore;<br/>minimise any loss of access to and along the foreshore, or<br/>offset any loss of access to and along the foreshore by providing for enhanced alternative access in the general location.</p> | <p><b>AO9.1</b><br/>Development adjacent to state coastal land or tidal water:<br/>demonstrates that restrictions to public access are necessary for:<br/>the safe and secure operation of development;<br/>the maintenance of coastal landforms and coastal habitat; or<br/>maintains public access (including public access infrastructure that has been approved by the local government or relevant authority) through the site to the foreshore for:<br/>pedestrians via access points including approved walking tracks, boardwalks and viewing platforms;<br/>vehicles via access points including approved roads or tracks.</p> <p><b>AO9.2</b><br/>Development adjacent to state coastal land or tidal water:<br/>is located and designed to:<br/>allow safe unimpeded access to, over, under or around built infrastructure located on, over or along the foreshore, for example through the provision of esplanades or easement corridors to preserve future access;<br/>ensure emergency vehicles can access the area near the development.</p> | <p><b>Complies with PO9.</b><br/>The development will increase access to Port Douglas and Four Mile Beach for pedestrians and mountain bike riders and does not result in any loss of access to and along the foreshore.</p> |

| Performance outcomes  | Acceptable outcomes   | Response   |
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|   | or<br>minimises and offsets any loss of access to and along the foreshore within 500m of existing access points and development is located and designed to:<br>allow safe unimpeded access to, over, under or around built infrastructure located on, over or along the foreshore, and<br>ensure emergency vehicles can access the area near the development. |  |
| <b>AO10</b><br>Development that involves reconfiguring a lot for urban purposes adjacent to the coast is designed to ensure public access to the coast in consideration of public access demand from a whole-of-community basis and the maintenance of coastal landforms and coastal habitat. | <b>AO10.1</b><br>Development complies if consideration of public access demand from a whole-of-community basis and the maintenance of coastal landforms and coastal habitat is undertaken.<br>or<br><b>AO10.2</b><br>Development demonstrates an alternative solution to achieve an equivalent standard and quality of access.                                | <b>Complies with AO10.1.</b><br>Development does not involve reconfiguration of a lot for urban purposes.  |
| <b>PO11</b><br>Development maintains public access to State coastal land by avoiding private marine development attaching to, or extending across, non-tidal State coastal land.  | <b>AO11</b><br>Private marine access structures and other structures such as decks or boardwalks for private use do not attach to or extend across State coastal land that is situated above high water mark  | <b>Complies with AO11.</b><br>There are no areas of private marine development within proximity to the proposed development or involve the development of private marine development.                    |
| <b>PO12</b><br>Development in connection with an artificial waterway enhances public access to coastal waters.  | <b>AO12</b><br>The artificial waterway avoids intersecting with or connection to inundated land or leased land where the passage, use or movement of vessels in water on the land could be restricted or prohibited by the registered proprietor of the inundated land or leased land.  | <b>Not Applicable PO12.</b><br>The development does not include artificial waterways.  |
| <b>Coastal landscapes, views and vistas</b>   |   |  |
| <b>PO13</b><br>Development maintains and / or enhances natural coastal landscapes, views and vistas.  | <b>AO13</b><br>No acceptable outcomes are prescribed.   | <b>Complies with PO13.</b><br>The trail will utilise natural materials and will maintain and sit within the surrounding natural coastal landscape without altering or imposing on local views or vistas. |
| <b>PO14</b><br>Coastal settlements are consolidated through the concentration of development within the existing urban areas through infill and conserving the natural state of the coastal area outside existing urban areas.  | <b>AO14</b><br>No acceptable outcomes are prescribed.   | <b>Complies PO15.</b><br>There are no coastal settlements proposed for the development.  |
| <b>Private marine development</b>   |   |  |
| <b>PO15</b><br>Private marine development is to avoid attaching to, or extending across, non-tidal State coastal land.  | <b>AO15</b><br>Private marine development and other structures such as decks or boardwalks for private use do not attach to, or extend across, State coastal land that is situated above high water mark.<br><br>Note – For occupation permits or allocations of State land, refer to the Land Act 1994.  | <b>Not applicable PO15.</b><br>Development does not consist of private marine development.   |
| <b>PO16</b><br>The location and design of private marine development does not adversely affect the safety of members of the public access to the foreshore.   | <b>AO16</b><br>Private marine development does not involve the erection or placement of any physical barrier preventing existing access, along a public access way to the foreshores.   | <b>Not applicable PO16.</b><br>Development does not consist of private marine development.   |
| <b>PO17</b><br>Private marine development is of a height and scale and size compatible with the character and amenity of the location.  | <b>AO17</b><br>Private marine development has regard to:<br>the height, scale and size of the natural features of the immediate surroundings and locality;<br>the height, scale and size of existing buildings or other structures in the immediate surroundings and the locality;  | <b>Not applicable with PO17.</b><br>Development does not consist of private marine development.  |

| Performance outcomes  | Acceptable outcomes  | Response   |
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|   | <p>if the relevant planning scheme states that desired height, scale or size of buildings or other structures in the immediate surroundings or locality – the stated desired height, scale or size.</p> <p>Note – The prescribed tidal works code in the Coastal Protection and Management Regulation 2003 outlines design and construction requirements that must be complied with.</p> |  |
| <p><b>PO18</b><br/>Private marine development avoids adverse impacts on coastal landforms and coastal processes.</p>  | <p><b>AO18</b><br/>Private marine development does not require the construction of coastal protection works, shoreline or riverbank hardening or dredging for marine access.</p>   | <p><b>Not applicable PO18.</b><br/>Development does not consist of private marine development.</p>                 |
| <b>For dry land marinas and artificial waterways</b>  |  |  |
| <p><b>PO19</b><br/>Dry land marinas and artificial waterways:<br/>avoid impacts on coastal resources;<br/>do not contribute to the degradation of water quality;<br/>do not increase the risk of flooding;<br/>do not result in the degradation or loss of MSES;<br/>do not result in an adverse change to the tidal prism of the natural waterway to which development is connected.<br/>does not involve reclamation of tidal land other than for the purpose of:<br/>coastal dependent development, public marine development; or<br/>community infrastructure, where there is no feasible alternative; or<br/>strategic ports, boat harbours or strategic airports and aviation facilities in accordance with a statutory land use plan; or<br/>coastal protection works or works necessary to protect coastal resources and processes.</p> | <p><b>AO19</b><br/>No acceptable solutions are prescribed.</p>   | <p><b>Not applicable with PO19.</b><br/>Development does not consist of land marinas and artificial waterways.</p> |

## 7. Flood and storm tide hazard overlay code

| Performance outcomes  | Acceptable outcomes  | Response   |
|---|--|--|
| <b>For assessable and self-assessable development</b>   |  |  |
| <p><b>PO1</b><br/>Development is located and designed to:<br/>ensure the safety of all persons;<br/>minimise damage to the development and contents of buildings;<br/>provide suitable amenity;<br/>minimise disruption to residents, recovery time, and rebuilding or restoration costs after inundation events.</p> <p>Note – For assessable development within the flood plain assessment sub-category, a flood study by a suitably qualified professional is required to identify compliance with the intent of the acceptable outcome.</p> | <p><b>AO1.1</b><br/>Development is sited on parts of the land that is not within the Flood and Storm tide hazards overlay maps contained in Schedule 2;<br/>or<br/>For dwelling houses,</p> <p><b>AO1.2</b><br/>Development within the Flood and Storm Tide hazards overlay maps (excluding the Flood plain assessment sub-category) is designed to provide immunity to the Defined Inundation Event as outlined within Table 8.2.4.3.b plus a freeboard of 300mm.</p> <p><b>AO1.3</b><br/>New buildings are:<br/>not located within the overlay area;<br/>located on the highest part of the site to minimise entrance of flood waters;<br/>provided with clear and direct pedestrian and vehicle evacuation routes off the site.</p> <p><b>AO1.4</b><br/>In non urban areas, buildings and infrastructure are set back 50 metres from natural riparian corridors to maintain their natural function of reducing velocity of floodwaters.</p> | <p><b>Complies with PO1.</b><br/>Most of the alignment is mapped within a floodplain assessment overlay as mapped on the Douglas Shire Council Planning Scheme, and falls under a high storm tide hazard. Development does not involve construction of any buildings. The development design will comply with Table 8.2.4.3.b where the trail will follow a 1% AEP immunity and the Mowbray River car park area will achieve a 5% AEP. The proposed alignment will not have any disruptions to any infrastructure or residents in relation to flood and storm hazards.</p>   |
| <b>For assessable development</b>   |  |  |
| <p><b>PO2</b><br/>The development is compatible with the level of risk associated with the natural hazard.</p>  | <p><b>AO2</b><br/>The following uses are not located in land inundated by the Defined Flood Event (DFE) / Storm tide:<br/>Retirement facility;<br/>Community care facility;<br/>Child care centre.</p>   | <p><b>Complies with AO2</b><br/>The proposed development is for a recreational eco trail and does not involve the construction of a retirement facility, community care facility or child care centre.</p>   |
| <p><b>PO3</b><br/>Development siting and layout responds to flooding potential and maintains personal safety</p>  | <p>For Material change of use</p> <p><b>AO3.1</b><br/>New buildings are:<br/>not located within the overlay area;<br/>located on the highest part of the site to minimise entrance of flood waters;<br/>provided with clear and direct pedestrian and vehicle evacuation routes off the site.<br/>or</p> <p><b>AO3.2</b><br/>The development incorporates an area on site that is at least 300mm above the highest known flood inundation level with sufficient space to accommodate the likely population of the development safely for a relatively short time until flash flooding subsides or people can be evacuated.<br/>or</p>  | <p><b>Complies with PO3.</b><br/>The development has been designed to withstand the potential for flooding. Ballast rock and rock mats will be used in low lying sandy sections of the trail to increase the foundation of the trail. Culverts and pipes are not generally used in construction of the trail to keep the natural flow regime of the flood hazard. The design will not result in changes to hydrology for waterway cross sectional area. Permanent scour protection and erosion control measures to be included in the later design stages of the development. The design of the bridge and observation-viewing platform have been raised higher than the HAT, as identified in the design drawings. Appropriate signage will be present along the trail to ensure user safety, outlining emergency procedures to be undertaken for such instances.</p> |

| Performance outcomes  | Acceptable outcomes   | Response  |
|---|---|---|
|   | <p><b>AO3.3</b><br/>Where involving an extension to an existing dwelling house that is situated below DFE /Storm tide, the maximum size of the extension does not exceed 70m<sup>2</sup> gross floor area.<br/>Note – If part of the site is outside the Hazard Overlay area, this is the preferred location of all buildings.<br/>For Reconfiguring a lot</p> <p><b>AO3.4</b><br/>Additional lots:<br/>are not located in the hazard overlay area;<br/>or<br/>are demonstrated to be above the flood level identified for the site.<br/>Note - If part of the site is outside the Hazard Overlay area, this is the preferred location for all lots (excluding park or other open space and recreation lots).<br/>Note – Buildings subsequently developed on the lots will need to comply with the relevant building assessment provisions under the Building Act 1975.</p> <p><b>AO3.5</b><br/>Road and/or pathway layout ensures residents are not physically isolated from adjacent flood free urban areas and provides a safe and clear evacuation route path:<br/>by locating entry points into the reconfiguration above the flood level and avoiding culs-de-sac or other non-permeable layouts; and<br/>by direct and simple routes to main carriageways.</p> <p><b>AO3.6</b><br/>Signage is provided on site (regardless of whether the land is in public or private ownership) indicating the position and path of all safe evacuation routes off the site and if the site contains, or is within 100m of a floodable waterway, hazard warning signage and depth indicators are also provided at key hazard points, such as at floodway crossings or entrances to low-lying reserves.<br/>or</p> <p><b>AO3.7</b><br/>There is no intensification of residential uses within the flood affected areas on land situated below the DFE/Storm tide.</p> |   |
|   | <p>For Material change of use (Residential uses)</p> <p><b>AO3.1</b><br/>The design and layout of buildings used for residential purposes minimise risk from flooding by providing:<br/>parking and other low intensive, non-habitable uses at ground level;<br/>Note - The high-set 'Queenslander' style house is a resilient low-density housing solution in floodplain areas. Higher density residential development should ensure only non-habitable rooms (e.g. garages, laundries) are located on the ground floor.</p>   | <p><b>Not applicable with AO3.1</b><br/>There are no residential uses for the proposed development.</p>   |
| <p><b>PO4</b><br/>Development is resilient to flood events by ensuring design and built form account for the potential risks of flooding.</p> | <p>For Material change of use (Non-residential uses)</p> <p><b>AO4.2</b><br/>Non residential buildings and structures allow for the flow through of flood waters on the ground floor.<br/>Note - Businesses should ensure that they have the necessary contingency plans in place to account for the potential need to relocate property prior to a flood event (e.g. allow enough time to transfer stock to the upstairs level of a building or off site).</p>   | <p><b>Complies with PO4.</b><br/>The trail has been designed to support natural flow regimes. The alignment traverses flat topography and will not impede or displace coastal floodwaters.<br/>During construction, temporary working, laydown and material storage areas will be established to enable easy removal in a flood event or contained in order to minimise movement in times of flood.</p> |

| Performance outcomes   | Acceptable outcomes   | Response   |
|--|---|--|
|  | <p>Note - The relevant building assessment provisions under the Building Act 1975 apply to all building work within the Hazard Area and need to take into account the flood potential within the area.</p> <p><b>AO4.3</b><br/>Materials are stored on-site:<br/>are those that are readily able to be moved in a flood event;<br/>where capable of creating a safety hazard by being shifted by flood waters,<br/>are contained in order to minimise movement in times of flood.</p> <p>Notes -<br/>Businesses should ensure that they have the necessary contingency plans in place to account for the potential need to relocate property prior to a flood event (e.g. allow enough time to transfer stock to the upstairs level of a building or off site).<br/>Queensland Government Fact Sheet 'Repairing your House after a Flood' provides information about water resilient products and building techniques.</p>  |  |
| <p><b>PO5</b><br/>Development directly, indirectly and cumulatively avoids any increase in water flow velocity or flood level and does not increase the potential flood damage either on site or on other properties.</p> <p>Note – Berms and mounds are considered to be an undesirable built form outcome and are not supported.</p> | <p>For Operational works</p> <p><b>AO5.1</b><br/>Works in urban areas associated with the proposed development do not involve:<br/>any physical alteration to a watercourse or floodway including vegetation clearing; or<br/>a net increase in filling (including berms and mounds).</p> <p><b>AO5.2</b><br/>Works (including buildings and earthworks) in non urban areas either:<br/>do not involve a net increase in filling greater than 50m<sup>3</sup>; or<br/>do not result in any reductions of on-site flood storage capacity and contain within the subject site any changes to depth/duration/velocity of flood waters;<br/>or<br/>do not change flood characteristics outside the subject site in ways that result in:<br/>loss of flood storage;<br/>loss of/changes to flow paths;<br/>acceleration or retardation of flows or any reduction in flood warning times elsewhere on the flood plain.</p> <p>For Material change of use</p> <p><b>AO5.3</b><br/>Where development is located in an area affected by DFE/Storm tide, a hydraulic and hydrology report, prepared by a suitably qualified professional, demonstrates that the development<br/>maintains the flood storage capacity on the subject site; and<br/>does not increase the volume, velocity, concentration of flow path alignment of stormwater flow across sites upstream, downstream or in the general vicinity of the subject site; and<br/>does not increase ponding on sites upstream, downstream or in the general vicinity of the subject site.</p> <p>For Material change of use and Reconfiguring a lot</p> <p><b>AO5.4</b><br/>In non urban areas, buildings and infrastructure are set back 50 metres from natural riparian corridors to maintain their natural function of reducing velocity of floodwaters.</p> | <p><b>Complies with PO5.</b><br/>Development will comply with all development approvals and permits. This includes clearing vegetation and the erosion and scour protection along the trail. Approvals supporting reports will contain appropriate mitigation measures as well as developing an erosion and sediment control management plan. As previously discussed, the design of the development avoids disruption to natural flow regimes such as limited uses of culverts (only as Mowbray Bridge), cut and fill techniques used for the trail and absence of constructing mounds and berms that can increase water flow velocity.</p> |

| Performance outcomes   | Acceptable outcomes  | Response  |
|--|--|---|
|  | <p>Note – Fences and irrigation infrastructure (e.g. irrigation tape) in rural areas should be managed to minimise adverse impacts that they may have on downstream properties in the event of a flood.</p>  |   |
| <p><b>PO6</b><br/>Development avoids the release of hazardous materials into floodwaters.</p>  | <p>For Material change of use</p> <p><b>AO6.1</b><br/>Materials manufactured or stored on site are not hazardous or noxious, or comprise materials that may cause a detrimental effect on the environment if discharged in a flood event;<br/>or</p> <p><b>AO6.2</b><br/>If a DFE level is adopted, structures used for the manufacture or storage of hazardous materials are:<br/>located above the DFE level;<br/>or<br/>designed to prevent the intrusion of floodwaters.</p> <p><b>AO6.3</b><br/>Infrastructure is designed and constructed to resist hydrostatic and hydrodynamic forces as a result of inundation by the DFE.</p> <p><b>AO6.4</b><br/>If a flood level is not adopted, hazardous materials and their manufacturing equipment are located on the highest part of the site to enhance flood immunity and designed to prevent the intrusion of floodwaters.<br/>Note – Refer to Work Health and Safety Act 2011 and associated Regulation and Guidelines, the Environmental Protection Act 1994 and the relevant building assessment provisions under the Building Act 1975 for requirements related to the manufacture and storage of hazardous materials.</p> | <p><b>Complies with PO6.</b></p> <p>Any construction related storage or use of hazardous materials will be planned to prevent interaction with floodwaters. There will be no hazardous materials incorporated within the trail or kept on site during the operational phase.</p> <p>The development is designed to have limited disruption to hydrostatic and hydrodynamic forces because of inundation by the DFE.</p> <p>A flood level has been adopted for the development that will be utilised in construction planning.</p> |
| <p><b>PO7</b><br/>The development supports, and does not unduly burden, disaster management response or recovery capacity and capabilities.</p>  | <p><b>AO7</b><br/>Development does not:<br/>increase the number of people calculated to be at risk of flooding;<br/>increase the number of people likely to need evacuation;<br/>shorten flood warning times; and<br/>impact on the ability of traffic to use evacuation routes, or unreasonably increase traffic volumes on evacuation routes.</p>  | <p><b>Complies with AO7.</b></p> <p>The development supports disaster management responses such as appropriate signage of the trail and any evacuation routes along the trail. It is assumed that on occasions of severe weather resulting in flooding or storm tide inundation, the trail will be closed until deemed safe for users. Trail closure is the best option to ensuring safety of users due to the isolated location of the trail and the limited accessibility for emergency response.</p>                           |
| <p><b>PO8</b><br/>Development involving community infrastructure:<br/>remains functional to serve community need during and immediately after a flood event;<br/>is designed, sited and operated to avoid adverse impacts on the community or environment due to impacts of flooding on infrastructure, facilities or access and egress routes;<br/>retains essential site access during a flood event;<br/>is able to remain functional even when other infrastructure or services may be compromised in a flood event.</p> | <p><b>AO8.1</b><br/>The following uses are not located on land inundated during a DFE/Storm tide:<br/>community residence; and<br/>emergency services; and<br/>residential care facility; and<br/>utility installations involving water and sewerage treatment plants; and<br/>storage of valuable records or items of historic or cultural significance (e.g. archives, museums, galleries, libraries).<br/>or</p> <p><b>AO8.2</b><br/>The following uses are not located on land inundated during a 1% AEP flood event:<br/>community and cultural facilities, including facilities where an education and care service under the Education and Care Services National Law (Queensland) is operated or child care service under the Child Care Act 2002 is conducted,<br/>community centres;</p>   | <p><b>Complies with AO8.5.</b></p> <p>Infrastructure is designed and constructed to resist hydrostatic and hydrodynamic forces as a result of inundation by a flood.</p>  |

| Performance outcomes | Acceptable outcomes  | Response |
|----------------------|--|----------|
|                      | <p>meeting halls;<br/>galleries;<br/>libraries.</p> <p>The following uses are not located on land inundated during a 0.5% AEP flood event.<br/>emergency shelters;<br/>police facilities;<br/>sub stations;<br/>water treatment plant</p> <p>The following uses are not located on land inundated during a 0.2% AEP flood event:<br/>correctional facilities;<br/>emergency services;<br/>power stations;<br/>major switch yards.<br/>and/or</p> <p><b>AO8.3</b><br/>The following uses have direct access to low hazard evacuation routes as defined in <b>Error! Reference source not found.</b>:<br/>community residence; and<br/>emergency services; and<br/>hospitals; and<br/>residential care facility; and<br/>sub stations; and<br/>utility installations involving water and sewerage treatment plants.</p> <p><b>AO8.4</b><br/>Any components of infrastructure that are likely to fail to function or may result in contamination when inundated by flood, such as electrical switch gear and motors, telecommunications connections, or water supply pipeline air valves are:<br/>located above DFE/Storm tide or the highest known flood level for the site;<br/>designed and constructed to exclude floodwater intrusion / infiltration.</p> <p><b>AO8.5</b><br/>Infrastructure is designed and constructed to resist hydrostatic and hydrodynamic forces as a result of inundation by a flood.</p> |          |



## 8. Natural areas overlay code

| Performance outcomes  | Acceptable outcomes   | Response   |
|---|---|--|
| <b>For self-assessable and assessable development</b>   |   |  |
| <b>Protection of matters of environmental significance</b>  |   |  |
| <b>PO1</b><br>Development protects matters of environmental significance.   | <b>AO1.1</b><br>Development avoids significant impact on the relevant environmental values.<br>or<br><b>AO1.2</b><br>A report is prepared by an appropriately qualified person demonstrating to the satisfaction of the assessment manager, that the development site does not contain any matters of state and local environmental significance.<br>or<br><b>AO1.3</b><br>Development is located, designed and operated to mitigate significant impacts on environmental values. For example, a report certified by an appropriately qualified person demonstrating to the satisfaction of the assessment manager, how the proposed development mitigates impacts, including on water quality, hydrology and biological processes. | <b>Complies with AO1.3.</b><br>The design and placement of the SP1 alignment has been heavily influenced by the surrounding natural environment, protecting matters of environmental significance, where possible. The design clearing widths have been reduced within sensitive ecological communities. Where there is no other alternative, environmental offsets will be undertaken under the <i>Environmental Offsets Act 2014</i> .   |
| <b>Management of impacts on matters of environmental significance</b>   |   |  |
| <b>PO2</b><br>Development is located, designed and constructed to avoid significant impacts on matters of environmental significance. | <b>AO2</b><br>The design and layout of development minimises adverse impacts on ecologically important areas by:<br>focusing development in cleared areas to protect existing habitat;<br>utilising design to consolidate density and preserve existing habitat and native vegetation;<br>aligning new property boundaries to maintain ecologically important areas;<br>ensuring that alterations to natural landforms, hydrology and drainage patterns on the development site do not negatively affect ecologically important areas;<br>ensuring that significant fauna habitats are protected in their environmental context; and<br>incorporating measures that allow for the safe movement of fauna through the site.          | <b>Complies with PO2</b><br>The trail has been designed to avoid significant impact on the relevant environmental values of the surrounding environment. Although the alignment aims to avoid environmentally sensitive areas, there are still sections of the trail that traverse these areas. Where this occurs, the trail width has been narrowed to support lower impact. A realignment of the trail was also undertaken following ecological surveys that identified high value ecological areas present along the existing alignment. Impacts on matters of environmental significance has been assessed in the MNES Baseline Report (GHD, 2019a). |
| <b>PO3</b><br>An adequate buffer to areas of state environmental significance is provided and maintained.                             | <b>AO3.1</b><br>A buffer for an area of state environmental significance (Wetland protection area) has a minimum width of:<br>100 metres where the area is located outside Urban areas; or<br>50 metres where the area is located within a Urban areas.<br>or<br><b>AO3.2</b><br>A buffer for an area of state environmental significance is applied and maintained, the width of which is supported by an evaluation of environmental values, including the function and threats to matters of environmental significance.   | <b>Complies with AO3.2.</b><br>Works avoid MSES where possible. Where works could not avoid MSES, the construction footprint, being the proposed footprint of the alignment, was reduced to minimise impacts to MSES. This included the trail being a maximum permanent width of 1.5 m.  |

| Performance outcomes  | Acceptable outcomes  | Response   |
|---|--|--|
| <p><b>PO4</b><br/>Wetland and wetland buffer areas are maintained, protected and restored.<br/>Note – Wetland buffer areas are identified in AO3.1.</p>   | <p><b>AO4.1</b><br/>Native vegetation within wetlands and wetland buffer areas is retained.<br/><b>AO4.2</b><br/>Degraded sections of wetlands and wetland buffer areas are revegetated with endemic native plants in patterns and densities which emulate the relevant regional ecosystem.</p>  | <p><b>Complies with PO4.</b><br/>The tSP1 alignment has been designed to retain as much vegetation as possible, particularly within wetlands and wetland buffer areas.</p>   |
| <p><b>PO5</b><br/>Development avoids the introduction of non-native pest species (plant or animal), that pose a risk to ecological integrity.</p>   | <p><b>AO5.1</b><br/>Development avoids the introduction of non-native pest species.<br/><b>AO5.2</b><br/>The threat of existing pest species is controlled by adopting pest management practices for long-term ecological integrity.</p>   | <p><b>Complies with PO5.</b><br/>No landscaping will be undertaken for the development as remnant vegetation will be retained. A construction environmental management plan will be prepared and implemented by the construction contractor and will include mitigation measures around managing non-native pest species, including vehicle wash downs. The SP1 alignment will include feet washing areas at the start and finish of the trail to limit seed dispersal of pest species. During construction, a vehicle wash down point will be created. All waste will be disposed of appropriately during construction, with bins provided at the start and finish of the trail during the operational phase.</p>   |
| <b>Ecological connectivity</b>  |  |  |
| <p><b>PO6</b><br/>Development protects and enhances ecological connectivity and/or habitat extent.</p>  | <p><b>AO6.1</b><br/>Development retains native vegetation in areas large enough to maintain ecological values, functions and processes.<br/>and<br/><b>AO6.2</b><br/>Development within an ecological corridor rehabilitates native vegetation.<br/>and<br/><b>AO6.3</b><br/>Development within a conservation corridor mitigates adverse impacts on native fauna, feeding, nesting, breeding and roosting sites and native fauna movements.</p> | <p><b>Complies with AO6.1.</b><br/>Development will not influence the surrounding ecological values, functions and processes as the trail is narrow and still provides ecological connectivity.</p>  |
| <p><b>PO7</b><br/>Development minimises disturbance to matters of state environmental significance (including existing ecological corridors).</p>   | <p><b>AO7.1</b><br/>Development avoids shading of vegetation by setting back buildings by a distance equivalent to the height of the native vegetation.<br/>and<br/><b>AO7.2</b><br/>Development does not encroach within 10 metres of existing riparian vegetation and watercourses.</p>  | <p><b>Alternative Solution PO7.</b><br/>The purpose of the development is to promote eco-tourism and ensure that the SP1 alignment results in minimal biodiversity loss. This includes a design which is sympathetic and responsive to the surrounding landscape features while also enhancing public access to and along the riparian / foreshore areas.<br/><br/>While the trail does not involve construction of permanent buildings or structures which will impose on surrounding vegetation; it will establish boardwalks, bridge crossings and an observation-viewing platform within the riparian zone of the Mowbray River and other small waterways.<br/><br/>Where the works are within 10 m of existing riparian vegetation, disturbance and clearing will be avoided where possible, with the exact alignment location being chosen on site based on the vegetation present. This will include placing the trail/boardwalk around large trees or areas of vegetation.</p> |
| <b>Waterways in an urban area</b>   |  |  |
| <p><b>PO8</b><br/>Development is set back from waterways to protect and maintain:<br/>water quality;<br/>hydrological functions;<br/>ecological processes;<br/>biodiversity values;<br/>riparian and in-stream habitat values and connectivity;</p> | <p><b>AO8.1</b><br/>Where a waterway is contained within an easement or a reserve required for that purpose, development does not occur within the easement or reserve;<br/>or<br/><b>AO8.2</b><br/>Development does not occur on the part of the site affected by the waterway corridor.</p>  | <p><b>Not Applicable.</b><br/>Development is not located within an urban area.</p>   |

| Performance outcomes  | Acceptable outcomes   | Response  |
|---|---|---|
| in-stream migration.  | Note – Waterway corridors are identified within <b>Error! Reference source not found..</b>  |   |
| <b>Waterways in a non-urban area</b>  |   |   |
| <p><b>PO9</b><br/> Development is set back from waterways to protect and maintain:<br/> water quality;<br/> hydrological functions;<br/> ecological processes;<br/> biodiversity values;<br/> riparian and in-stream habitat values and connectivity;<br/> in-stream migration.</p> | <p><b>AO9</b><br/> Development does not occur on that part of the site affected by a waterway corridor.</p> <p>Note – Waterway corridors are identified within <b>Error! Reference source not found..</b></p> | <p><b>Complies with AO9</b><br/> The proposed trail/boardwalk alignment, bridge crossings and observation-viewing platform are located in close proximity to the banks of Mowbray and other small waterways.<br/> Development will comply with the relevant approvals and permits, including approvals for Operational Works for Waterway Barrier Works (WWBW).<br/> Development will protect and maintain water quality, hydrological functions, ecological processes, biodiversity values, riparian and in-stream habitat values and connectivity and in-stream migration through appropriate implementation of mitigation measures outlined in the relevant approvals (refer to the Supporting documentation for marine plants and prescribed tidal works and works within a CMD).</p> |

## 9. Places of significance overlay code

| Performance outcomes  | Acceptable outcomes   | Response  |
|---|---|---|
| <b>For assessable development</b>   |   |   |
| <b>Demolition or removal of a place of local significance</b>   |   |   |
| <p><b>PO1</b><br/>Development does not result in the demolition or removal of a place of local significance.<br/>Note - Guidance on meeting the performance outcome is provided within Planning scheme policy SC6.11 – Places of significance.</p>  | <p><b>AO1</b><br/>No acceptable outcomes are prescribed.</p>  | <p><b>Complies with PO1.</b><br/>Works will not result in the demolition or removal of a place of local significance.</p> |
| <p><b>PO2</b><br/>Development is compatible with the conservation and management of the cultural significance of the place.<br/>Note – Guidance on meeting the performance outcome is provided within Planning scheme policy – SC6.11 – Places of Significance</p>                        | <p><b>AO2</b><br/>No acceptable outcomes are prescribed.</p>  | <p><b>Complies with PO2.</b><br/>Works will not impact on places of local significance.</p>                               |
| <p><b>PO3</b><br/>Development conserves the features and values of a place of local significance that contribute to its cultural significance.<br/><br/>Note - Guidance on meeting the performance outcome is provided within Planning scheme policy SC6.11 – Places of significance.</p> | <p><b>AO3</b><br/>Development does not alter, remove or conceal significant features of a place of local significance.</p>  | <p><b>Complies with PO3.</b><br/>Works will not impact on any places of local significance.</p>                           |
| <p><b>PO4</b><br/>Changes to a place of local significance are appropriately managed, documented and interpreted.<br/><br/>Note - Guidance on meeting the performance outcome is provided within Planning scheme policy SC6.11 – Places of significance.</p>                              | <p><b>AO4.1</b><br/>Development is compatible with a conservation management plan prepared in accordance with the Australia ICOMOS Charter for Places of Cultural Heritage Significance.<br/><b>AO4.2</b><br/>An archival record is prepared to document the changes.<br/><b>AO4.3</b><br/>Development includes interpretation that explains the cultural significance of the place and the changes.</p>  | <p><b>Complies with PO4.</b><br/>Works will not impact on any places of local significance.</p>                           |
| <p><b>PO5</b><br/>Development does not adversely affect the character, setting or appearance of the place of local significance, including removal of vegetation that contributes to the cultural heritage significance of the place.</p>   | <p><b>AO5.1</b><br/>The scale, location and design of the development are compatible with the character, setting and appearance of the place of local significance.<br/><b>AO5.2</b><br/>The development is unobtrusive and cannot readily be seen from surrounding streets or other public places.<br/><b>AO5.3</b><br/>Existing vegetation that forms part of the place is retained and incorporated into the design and layout of development.</p> | <p><b>Complies with PO5.</b><br/>Works will not impact on any places of local significance.</p>                           |
| <p><b>PO6</b><br/>Excavation or other earthworks do not have a detrimental impact on archaeological values.<br/><br/>Note - Guidance on meeting the performance criteria is provided within Planning scheme policy SC6.11 – Places of significance.</p>                                   | <p><b>AO6.1</b><br/>The impact of excavation is minor and limited to parts of the place of local significance that have been disturbed by previous excavation.<br/><b>AO6.2</b><br/>An archaeological management plan is prepared for development involving subsurface disturbance.</p>   | <p><b>Complies with PO6.</b><br/>Works will not impact on any places of local significance.</p>                           |

| Performance outcomes   | Acceptable outcomes  | Response  |
|--|--|---|
| <b>Advertising devices</b>   |  |   |
| <p><b>PO7</b><br/>Advertising devices located on, or on premises adjoining a state heritage place are sited and designed so as to:<br/>be compatible with the cultural significance of the state heritage place or place of local significance;<br/>not obscure the appearance or prominence of the state heritage place or place of local significance when viewed from the street or other public places;<br/>not alter or conceal significant features of the state heritage place, or place of local significance.</p>   | <p><b>A07</b><br/>No acceptable outcomes are prescribed.</p> | <p><b>Not Applicable.</b><br/>There are no stage heritage places mapped present on the State Heritage Register.</p> |
| <b>Development on premises adjoining a state heritage place</b>  |  |   |
| <p><b>PO8</b><br/>Where on a premises adjoining a state heritage place or place of local significance, development is designed and constructed so as to:<br/>not to obscure the appearance or prominence of the state heritage place from surrounding streets or public places;<br/>not to intrude into important vistas of the state heritage place;<br/>not to place buildings and structures between a state heritage place and its primary or secondary street frontage;<br/>to ensure new buildings or structures are setback from the street frontage and are of a height, bulk and scale which retains the visual prominence and values of the state heritage place;<br/>to minimise disturbance to the original fabric of the state heritage place;<br/>to retain, where intact, the significant or original siting and context of the state heritage place.</p> <p>Note - Guidance on meeting the performance criteria is provided within Planning scheme policy SC6.11 – Places of significance.</p> | <p><b>A08</b><br/>No acceptable outcomes are prescribed.</p> | <p><b>Not Applicable.</b><br/>There are no stage heritage places mapped present on the State Heritage Register.</p> |

## 10. Potential landslide hazard overlay code

| Performance outcomes  | Acceptable outcomes   | Response   |
|---|---|--|
| <b>For self-assessable and assessable development</b>   |   |  |
| <p><b>PO1</b></p> <p>The siting and design of development does not involve complex engineering solutions and does not create or increase the potential landslide hazard risk to the site or adjoining premises through:</p> <ul style="list-style-type: none"> <li>building design;</li> <li>increased slope;</li> <li>removal of vegetation;</li> <li>stability of soil;</li> <li>earthworks;</li> <li>alteration of existing ground water or surface water paths;</li> <li>waste disposal areas.</li> </ul> | <p><b>AO1.1</b></p> <p>Development is located on that part of the site not affected by the Potential landslide hazard overlay.</p> <p>or</p> <p><b>AO1.2</b></p> <p>Development is on an existing stable, benched site and requires no further earthworks</p> <p>or</p> <p><b>AO1.3</b></p> <p>A competent person certifies that:</p> <ul style="list-style-type: none"> <li>the stability of the site, including associated buildings and infrastructure, will be maintained during the course of the development and will remain stable for the life of the development;</li> <li>development of the site will not increase the risk of landslide hazard activity on other land, including land above the site;</li> <li>the site is not subject to the risk of landslide activity on other land;</li> <li>any measures identified in a site-specific geotechnical report for stabilising the site or development have been fully implemented;</li> <li>development does not concentrate existing ground water and surface water paths;</li> <li>development does not incorporate on-site waste water disposal.</li> </ul> <p>Note – Planning scheme policy SC6.9 – Natural hazards provides guidance on preparing a site specific geo-technical assessment.</p> <p>Note – Development may alter the conditions of ground water and surface water paths in accordance with a site-specific geotechnical report, but should ensure that its final disbursement is as-per pre-developed conditions. Consideration for location, velocity, volume and quality should be given.</p> | <p><b>Complies with AO1.1.</b></p> <p>The site is not mapped within a potential landslide hazard overlay in the Douglas Shire Planning Scheme.</p> |
| <p><b>PO2</b></p> <p>The siting and design of necessary retaining structures does not cause an adverse visual impact on landscape character or scenic amenity quality of the area.</p>  | <p><b>AO2</b></p> <p>Excavation or fill:</p> <ul style="list-style-type: none"> <li>is not more than 1.2 metres in height for each batter or retaining wall;</li> <li>is setback a minimum of 2 metres from property boundaries;</li> <li>is stepped with a minimum 2 metre wide berm to incorporate landscaping in accordance with Planning scheme policy SC6.7 – Landscaping;</li> <li>does not exceed a maximum of 3 batters and 3 berms (i.e. Not greater than 3.6 metres in height) on any one lot.</li> </ul>   | <p><b>Complies with PO2.</b></p> <p>The site is not mapped within a potential landslide hazard overlay in the Douglas Shire Planning Scheme.</p>   |
| <b>Additional requirements for Community infrastructure</b>   |   |  |
| <p><b>PO3</b></p> <p>Development for community infrastructure:</p> <ul style="list-style-type: none"> <li>is not at risk from the potential landslide hazard areas;</li> <li>will function without impediment from a landslide;</li> <li>provides access to the infrastructure without impediment from the effects of a landslide;</li> <li>does not contribute to an elevated risk of a landslide to adjoining properties.</li> </ul>  | <p><b>AO3</b></p> <p>Development is designed in accordance with the recommendations of a site-specific geotechnical assessment which makes reference to the community infrastructure and its needs and function.</p> <p>Note - A site specific geotechnical assessment will detail requirements that will address the Acceptable Outcomes of this Performance Outcome.</p> <p>Planning scheme policy SC6.9 – Natural hazards provides guidance on preparing a site specific geotechnical assessment.</p>  | <p><b>Complies PO3.</b></p> <p>The site is not mapped within a potential landslide hazard overlay in the Douglas Shire Planning Scheme.</p>        |

## 11. Transport network overlay code

| Performance outcomes   | Acceptable outcomes   | Response   |
|--|---|--|
| <b>For assessable development</b>  |   |  |
| <p><b>PO1</b><br/>Development supports the road hierarchy for the region.</p> <p>Note -A Traffic impact assessment report prepared in accordance with Planning scheme policy SC6.10 - Parking and access is one way to demonstrate achievement of the Performance Outcomes.</p>  | <p><b>AO1.1</b><br/>Development is compatible with the intended role and function of the transport network as identified on the Transport network overlay maps contained in Schedule 2.</p> <p><b>AO1.2</b><br/>Development does not compromise the safety and efficiency of the transport network.</p> <p><b>AO1.3</b><br/>Development is designed to provide access via the lowest order road, where legal and practicable access can be provided to that road.</p>   | <p><b>Complies with PO1</b><br/>Development is compatible with the intended role and function of the transport network and development does not compromise the safety and efficiency of the transport network.<br/>Refer to Design Drawings 42-21067-C001 to 42-21067-C010.</p>                                  |
| <p><b>PO2</b><br/>Transport infrastructure is provided in an integrated and timely manner.</p> <p>Note - A Traffic impact assessment report prepared in accordance with Planning scheme policy SC6.10 - Parking and access is one way to demonstrate achievement of the Performance Outcomes.</p>  | <p><b>AO2</b><br/>Development provides infrastructure (including improvements to existing infrastructure) in accordance with:<br/>the Transport network overlay maps contained in Schedule 2;<br/>any relevant Local Plan.<br/>Note – The Translink Public Transport Infrastructure Manual provides guidance on the design of public transport facilities.</p>  | <p><b>Complies with AO2.</b><br/>Upgrades to the Captain Cook Highway are proposed to allow for safe movement of vehicles into and out of the proposed carpark. The road access to the proposed carpark will meet the acceptable outcomes of AO1.4. Refer to Design Drawings 42-21067-C001 to 42-21067-C010.</p> |
| <p><b>PO3</b><br/>Development involving sensitive land uses within a major transport corridor buffer area is located, designed and maintained to avoid or mitigate adverse impacts on amenity for the sensitive land use.</p>  | <p><b>AO3</b><br/>No acceptable outcomes are prescribed.</p> <p>Note – Part 4.4 of the Queensland Development Code provides requirements for residential building design in a designated transport noise corridor.</p>  | <p><b>Not Applicable.</b><br/>The environmental facility is not considered a sensitive land use within a major transport corridor buffer.</p>  |
| <p><b>PO4</b><br/>Development does not compromise the intended role and function or safety and efficiency of major transport corridors.</p> <p>Note - A Traffic impact assessment report prepared in accordance with Planning scheme policy SC6.10 - Parking and access is one way to demonstrate achievement of the Performance Outcomes.</p> | <p><b>AO4.1</b><br/>Development is compatible with the role and function (including the future role and function) of major transport corridors.</p> <p><b>AO4.2</b><br/>Direct access is not provided to a major transport corridor where legal and practical access from another road is available.</p> <p><b>AO4.3</b><br/>Intersection and access points associated with major transport corridors are located in accordance with:<br/>the Transport network overlay maps contained in Schedule 2; and<br/>any relevant Local Plan.</p> <p><b>AO4.4</b><br/>The layout of development and the design of the associated access is compatible with existing and future boundaries of the major transport corridor or major transport facility.</p> | <p><b>Complies with PO4.</b><br/>Upgrades to the Captain Cook Highway are proposed to allow for safe movement of vehicles into and out of the proposed carpark. The road access to the proposed carpark will meet the acceptable outcomes of AO1.4. Refer to Design Drawings 42-21067-C001 to 42-21067-C010.</p> |
| <p><b>PO5</b><br/>Development retains and enhances existing vegetation between a development and a major transport corridor, so as to provide screening to potential noise, dust, odour and visual impacts emanating from the corridor.</p>  | <p><b>AO5</b><br/>No acceptable outcomes are prescribed.</p>  | <p><b>Complies with PO5.</b><br/>The development will retain as much existing vegetation as possible and will not require landscaping activities.</p>  |

| Performance outcomes   | Acceptable outcomes   | Response  |
|--|---|---|
| <b>Pedestrian and cycle network</b>  |   |   |
| <p><b>PO6</b><br/>           Lot reconfiguration assists in the implementation of the pedestrian and cycle movement network to achieve safe, attractive and efficient pedestrian and cycle networks.</p> | <p><b>AO6.1</b><br/>           Where a lot is subject to, or adjacent to an element of the pedestrian and cycle Movement network (identified on the Transport network overlay maps contained in Schedule 2) the specific location of this element of the pedestrian and cycle network is incorporated in the design of the lot layout.</p> <p><b>AO6.2</b><br/>           The element of the pedestrian and cycle network is constructed in accordance with the Design Guidelines set out in Sections D4 and D5 of the Planning scheme policy SC6.5 – FNQROC Regional Development Manual.</p> | <p><b>Not Applicable.</b><br/>           Development will not include Reconfiguration of a Lot.</p> |



## 12. Access, parking and servicing code

| Performance outcomes  | Acceptable outcomes  | Response   |
|---|--|--|
| <b>For self-assessable and assessable development</b>   |  |  |
| <p><b>PO1</b><br/>Sufficient on-site car parking is provided to cater for the amount and type of vehicle traffic expected to be generated by the use or uses of the site, having particular regard to:</p> <ul style="list-style-type: none"> <li>the desired character of the area;</li> <li>the nature of the particular use and its specific characteristics and scale;</li> <li>the number of employees and the likely number of visitors to the site;</li> <li>the level of local accessibility;</li> <li>the nature and frequency of any public transport serving the area;</li> <li>whether or not the use involves the retention of an existing building and the previous requirements for car parking for the building</li> <li>whether or not the use involves a heritage building or place of local significance;</li> <li>whether or not the proposed use involves the retention of significant vegetation.</li> </ul>                      | <p><b>AO1.1</b><br/>The minimum number of on-site vehicle parking spaces is not less than the number prescribed in Table 9.4.1.3.b for that particular use or uses.<br/>Note - Where the number of spaces calculated from the table is not a whole number, the number of spaces provided is the next highest whole number.</p> <p><b>AO1.2</b><br/>Car parking spaces are freely available for the parking of vehicles at all times and are not used for external storage purposes, the display of products or rented/sub-leased.</p> <p><b>AO1.3</b><br/>Parking for motorcycles is substituted for ordinary vehicle parking to a maximum level of 2% of total ordinary vehicle parking.</p> <p><b>AO1.4</b><br/>For parking areas exceeding 50 spaces parking, is provided for recreational vehicles as a substitute for ordinary vehicle parking to a maximum of 5% of total ordinary vehicle parking rate.</p> | <p><b>Complies with PO1.</b><br/>The visitors' carpark within Captain Cook Highway road reserve near Mowbray River will have 25 informal car-parking spaces and 4 informal 18-seater bus spaces, therefore, it will meet the number prescribed in Table 9.4.1.3.b. The carpark will have sufficient spaces to accommodate the number of vehicles that are likely to be parked at any one time.</p> |
| <p><b>PO2</b><br/>Vehicle parking areas are designed and constructed in accordance with relevant standards.</p>   | <p><b>AO2</b><br/>Vehicle parking areas are designed and constructed in accordance with Australian Standard:<br/>AS2890.1;<br/>AS2890.3;<br/>AS2890.6.</p>   | <p><b>Complies with PO2.</b><br/>Vehicle parking areas are designed and constructed in accordance with Australian Standards listed in AO2.</p>   |
| <p><b>PO3</b><br/>Access points are designed and constructed:</p> <ul style="list-style-type: none"> <li>to operate safely and efficiently;</li> <li>to accommodate the anticipated type and volume of vehicles</li> <li>to provide for shared vehicle (including cyclists) and pedestrian use, where appropriate;</li> <li>so that they do not impede traffic or pedestrian movement on the adjacent road area;</li> <li>so that they do not adversely impact upon existing intersections or future road or intersection improvements;</li> <li>so that they do not adversely impact current and future on-street parking arrangements;</li> <li>so that they do not adversely impact on existing services within the road reserve adjacent to the site;</li> <li>so that they do not involve ramping, cutting of the adjoining road reserve or any built structures (other than what may be necessary to cross over a stormwater channel).</li> </ul> | <p><b>AO3.1</b><br/>Access is limited to one access cross over per site and is an access point located, designed and constructed in accordance with:<br/>Australian Standard AS2890.1;<br/>Planning scheme policy SC6.5 – FNQROC Regional Development Manual - access crossovers.</p> <p><b>AO3.2</b><br/>Access, including driveways or access crossovers:<br/>are not placed over an existing:<br/>telecommunications pit;<br/>stormwater kerb inlet;<br/>sewer utility hole;<br/>water valve or hydrant.<br/>are designed to accommodate any adjacent footpath;<br/>adhere to minimum sight distance requirements in accordance with AS2980.1.</p> <p><b>AO3.3</b><br/>Driveways are:<br/>designed to follow as closely as possible to the existing contours, but are no steeper than the gradients outlined in Planning scheme policy SC6.5 – FNQROC Regional Development Manual;</p>                          | <p><b>Complies with PO3.</b><br/>Access to the proposed carpark will be limited to one access cross over and will be designed and constructed in accordance with the applicable standards listed in AO3.1. The proposed carpark and access will not be placed over existing infrastructure.</p>  |

| Performance outcomes  | Acceptable outcomes  | Response   |
|---|--|--|
|   | <p>constructed such that where there is a grade shift to 1 in 4 (25%), there is an area with a grade of no more than 1 in 6 (16.6%) prior to this area, for a distance of at least 5 metres;</p> <p>on gradients greater than 1 in 6 (16.6%) driveways are constructed to ensure the cross-fall of the driveway is one way and directed into the hill, for vehicle safety and drainage purposes;</p> <p>constructed such that the transitional change in grade from the road to the lot is fully contained within the lot and not within the road reserve;</p> <p>designed to include all necessary associated drainage that intercepts and directs storm water runoff to the storm water drainage system.</p> <p><b>AO3.4</b><br/>Surface construction materials are consistent with the current or intended future streetscape or character of the area and contrast with the surface construction materials of any adjacent footpath.</p> |  |
| <p><b>PO4</b><br/>Sufficient on-site wheel chair accessible car parking spaces are provided and are identified and reserved for such purposes.</p>  | <p><b>AO4</b><br/>The number of on-site wheel chair accessible car parking spaces complies with the rates specified in AS2890 Parking Facilities.</p>  | <p><b>Complies with PO4.</b><br/>Mowbray Bridge car park will have wheelchair access and will comply with the rates as outlined in AS2890 Parking Facilities.</p>  |
| <p><b>PO5</b><br/>Access for people with disabilities is provided to the building from the parking area and from the street.</p>  | <p><b>AO5</b><br/>Access for people with disabilities is provided in accordance with the relevant Australian Standard.</p>   | <p><b>Complies with PO5.</b><br/>Access for people with disabilities will be provided in accordance with the relevant Australian Standard. The SP1 alignment itself may limit wheelchair access as the trail is not a concealed road.</p>  |
| <p><b>PO6</b><br/>Sufficient on-site bicycle parking is provided to cater for the anticipated demand generated by the development.</p>  | <p><b>AO6</b><br/>The number of on-site bicycle parking spaces complies with the rates specified in Table 9.4.1.3b.</p>  | <p><b>Complies with AO6.</b><br/>Development falls under 'Any use not otherwise specified in this table', which states that the minimum sufficient spaces to accommodate number of vehicles likely to be parked at any one time. Number of bicycle parks includes a 'Sufficient spaces to accommodate number of vehicles likely to be parked at any one time'.<br/>It is expected that users will utilise their bikes whilst on the SP1 trail.</p>   |
| <p><b>PO7</b><br/>Development provides secure and convenient bicycle parking which:<br/>for visitors is obvious and located close to the building's main entrance;<br/>for employees is conveniently located to provide secure and convenient access between the bicycle storage area, end-of-trip facilities and the main area of the building;<br/>is easily and safely accessible from outside the site.</p>   | <p><b>AO7.1</b><br/>Development provides bicycle parking spaces for employees which are co-located with end-of-trip facilities (shower cubicles and lockers);</p> <p><b>AO7.2</b><br/>Development ensures that the location of visitor bicycle parking is discernible either by direct view or using signs from the street.</p> <p><b>AO7.3</b><br/>Development provides visitor bicycle parking which does not impede pedestrian movement.</p>  | <p><b>Complies with PO7.</b><br/>Development will provide sufficient bicycle parking spaces. The parking spaces will be allocated in a place that is convenient and secure for users, whilst maintaining public safety of cars and pedestrians sharing the area.<br/>Development is for an eco-tourism trail and therefore does not have shower cubicles or lockers.</p>   |
| <p><b>PO8</b><br/>Development provides walking and cycle routes through the site which:<br/>link to the external network and pedestrian and cyclist destinations such as schools, shopping centres, open space, public transport stations, shops and local activity centres along the safest, most direct and convenient routes;<br/>encourage walking and cycling;<br/>ensure pedestrian and cyclist safety.</p> | <p><b>AO8</b><br/>Development provides walking and cycle routes which are constructed on the carriageway or through the site to:<br/>create a walking or cycle route along the full frontage of the site;<br/>connect to public transport and existing cycle and walking routes at the frontage or boundary of the site.</p>   | <p><b>Complies with PO8.</b><br/>Mowbray River pedestrian bridge has been designed specifically for walkers and cyclists. Therefore, it has been designed to accommodate for walkers and cyclists alike. Refer to design drawings 42-21067-S001 to 42-21067-S013.</p>  |
| <p><b>PO9</b><br/>Access, internal circulation and on-site parking for service vehicles are designed and constructed:<br/>in accordance with relevant standards;<br/>so that they do not interfere with the amenity of the surrounding area;<br/>so that they allow for the safe and convenient movement of pedestrians, cyclists and other vehicles.</p>   | <p><b>AO9.1</b><br/>Access driveways, vehicle manoeuvring and on-site parking for service vehicles are designed and constructed in accordance with AS2890.1 and AS2890.2.</p> <p><b>AO9.2</b><br/>Service and loading areas are contained fully within the site.</p> <p><b>AO9.3</b></p>   | <p><b>Complies with PO9.</b><br/>A Southbound Auxiliary Left Turn Lane (AUL) has been provided on the Captain Cook Highway, whilst a Northbound Channelised Right Turn lane (CHR) has been provided for northbound right turning traffic into the carpark from the Captain Cook Highway.<br/>Two manoeuvring areas at the northern and southern ends have been designed based on the following turning path analysis. The northern turnaround is a cul-de-sac and allows a B99 vehicle to turn around in a forward gear without stopping. The southern turnaround area is an</p> |

| Performance outcomes  | Acceptable outcomes  | Response   |
|---|--|--|
|   | <p>The movement of service vehicles and service operations are designed so they:</p> <ul style="list-style-type: none"> <li>do not impede access to parking spaces;</li> <li>do not impede vehicle or pedestrian traffic movement.</li> </ul>  | <p>extension of the bus parking section of the car park. This will allow the 8.8 m service vehicle (or approx. 20 seater bus) to undertake a three point turn. This manoeuvre will allow the buses to exit the main access point of the carpark in a northbound direction. Due to the limited space between the Captain Cook Highway and the existing property boundary it was not possible to provide a turnaround facility that allowed buses to turn around in a forward gear. An additional left turn only/southbound exit has been provided to allow buses travelling south to towards Cairns to move through the site without having to turn around.</p> <p>Refer to Design Drawings 42-21067-C001 to 42-21067-C010.</p> |
| <p><b>PO10</b><br/>Sufficient queuing and set down areas are provided to accommodate the demand generated by the development.</p> | <p><b>AO10.1</b><br/>Development provides adequate area on-site for vehicle queuing to accommodate the demand generated by the development where drive through facilities or drop-off/pick-up services are proposed as part of the use, including, but not limited to, the following land uses:</p> <ul style="list-style-type: none"> <li>car wash;</li> <li>child care centre;</li> <li>educational establishment where for a school;</li> <li>food and drink outlet, where including a drive-through facility;</li> <li>hardware and trade supplies, where including a drive-through facility;</li> <li>hotel, where including a drive-through facility;</li> <li>service station.</li> </ul> <p><b>AO10.2</b><br/>Queuing and set-down areas are designed and constructed in accordance with AS2890.1.</p> | <p><b>Complies with PO10.</b><br/>A Southbound Auxiliary Left Turn Lane (AUL) has been provided on the Captain Cook Highway, whilst a Northbound Channelised Right Turn lane (CHR) has been provided for northbound right turning traffic into the carpark from the Captain Cook Highway.</p> <p>Approximately 25 unmarked gravel carparks have been provided for cars and 4 unmarked bus parking bays have been allowed for on the asphalt bus parking area.</p> <p>Refer to Design Drawings 42-21067-C001 to 42-21067-C010.</p>  |

## 13. Environmental performance code

| Performance outcomes   | Acceptable outcomes  | Response  |
|--|--|---|
| <b>Lighting</b>  |  |   |
| <p><b>PO1</b><br/>Lighting incorporated within development does not cause an adverse impact on the amenity of adjacent uses and nearby sensitive land uses.</p>  | <p><b>AO1.1</b><br/>Technical parameters, design, installation, operation and maintenance of outdoor lighting comply with the requirements of Australian standard AS4282-1997 Control of the obtrusive effects of outdoor lighting.</p> <p><b>AO1.2</b><br/>Development that involves flood lighting is restricted to a type that gives no upward component of light where mounted horizontally.</p> <p><b>AO1.3</b><br/>Access, car parking and manoeuvring areas are designed to shield nearby residential premises from impacts of vehicle headlights.</p>  | <p><b>Not applicable.</b><br/>The recreational bicycle / pedestrian bushland trails are predominantly utilised during daylight hours and therefore, lighting has not been incorporated into the design.</p>   |
| <b>Noise</b>   |  |   |
| <p><b>PO2</b><br/>Potential noise generated from the development is avoided through design, location and operation of the activity.<br/>Note – Planning Scheme Policy SC6.4 – Environmental management plans provides guidance on preparing a report to demonstrate compliance with the purpose and outcomes of the code.</p>                                  | <p><b>AO2.1</b><br/>Development does not involve activities that would cause noise related environmental harm or nuisance;<br/>or<br/><b>AO2.2</b><br/>Development ensures noise does not emanate from the site through the use of materials, structures and architectural features to not cause an adverse noise impact on adjacent uses.</p> <p><b>AO2.3</b><br/>The design and layout of development ensures car parking areas avoid noise impacting directly on adjacent sensitive land uses through one or more of the following:<br/>car parking is located away from adjacent sensitive land uses;<br/>car parking is enclosed within a building;<br/>a noise ameliorating fence or structure is established adjacent to car parking areas where the fence or structure will not have a visual amenity impact on the adjoining premises;<br/>buffered with dense landscaping.<br/>Editor’s note - The Environmental Protection (Noise) Policy 2008, Schedule 1 provides guidance on acoustic quality objectives to ensure environmental harm (including nuisance) is avoided.</p> | <p><b>Complies with PO2.</b><br/>Temporary noise related emissions will be occur throughout the construction phase of the development which will be limited to daytime operations. Construction working areas that will generate significant emissions (piling and compaction) are not located within close proximity to sensitive land uses. Construction noise emissions are not expected to generate noise related nuisances and will comply with relevant noise criteria. The Construction EMP will incorporate actions in response to any complaints and may incorporate the use of equipment that reduce noise emissions if required. Noticeable operational noise emission are not expected.</p> |
| <b>Airborne particles and other emissions</b>  |  |   |
| <p><b>PO3</b><br/>Potential airborne particles and emissions generated from the development are avoided through design, location and operation of the activity.<br/><br/>Note – Planning Scheme Policy SC6.4 – Environmental management plans provides guidance on preparing a report to demonstrate compliance with the purpose and outcomes of the code.</p> | <p><b>AO3.1</b><br/>Development does not involve activities that will result in airborne particles or emissions being generated;<br/>or<br/><b>AO3.2</b><br/>The design, layout and operation of the development activity ensures that no airborne particles or emissions cause environmental harm or nuisance.<br/>Note - examples of activities which generally cause airborne particles include spray painting, abrasive blasting, manufacturing activities and car wash facilities.</p>  | <p><b>Complies with PO3.</b><br/>The development will generate airborne particles primarily through the construction phase via dust generation. The construction contractor is to develop and implement a construction environmental management plan, which will outline mitigation measures for managing dust. Once the works are established, the operational phase of the development is unlikely to result in any dust emissions.</p>   |

| Performance outcomes  | Acceptable outcomes   | Response  |
|---|---|---|
|   | <p>Examples of emissions include exhaust ventilation from basement or enclosed parking structures, air conditioning/refrigeration ventilation and exhaustion.</p> <p>The Environmental Protection (Air) Policy 2008, Schedule 1 provides guidance on air quality objectives to ensure environmental harm (including nuisance) is avoided.</p>   |   |
| <b>Odours</b>   |   |   |
| <p><b>PO4</b><br/>Potential odour causing activities associated with the development are avoided through design, location and operation of the activity.</p> <p>Note – Planning Scheme Policy SC6.4 – Environmental management plans provides guidance on preparing a report to demonstrate compliance with the purpose and outcomes of the code.</p> | <p><b>AO4.1</b><br/>The development does not involve activities that create odorous emissions;<br/>or<br/><b>AO4.2</b><br/>The use does not result in odour that causes environmental harm or nuisance with respect to surrounding land uses.</p>   | <p><b>Complies with AO4.1.</b><br/>The development does not involve activities that create odorous emissions.</p>   |
| <b>Waste and recyclable material storage</b>  |   |   |
| <p><b>PO5</b><br/>Waste and recyclable material storage facilities are located and maintained to not cause adverse impacts on adjacent uses.</p> <p>Note – Planning Scheme Policy SC6.4 – Environmental management plans provides guidance on preparing a report to demonstrate compliance with the purpose and outcomes of the code.</p>             | <p><b>AO5.1</b><br/>The use ensures that all putrescent waste is stored in a manner that prevents odour nuisance and is disposed of at regular intervals.</p> <p><b>AO5.2</b><br/>Waste and recyclable material storage facilities are located, designed and maintained to not cause an adverse impact on users of the premises and adjacent uses through consideration of:<br/>the location of the waste and recyclable material storage areas in relation to the noise and odour generated;<br/>the number of receptacles provided in relation to the collection, maintenance and use of the receptacles;<br/>the durability of the receptacles, sheltering and potential impacts of local climatic conditions;<br/>the ability to mitigate spillage, seepage or leakage from receptacles into adjacent areas and sensitive receiving waters and environments.</p> <p>Editor’s note - the Environmental Protection (Waste Management) Policy 2008 provides guidance on the design of waste containers (receptacles) to ensure environmental harm (including nuisance) is avoided.</p> | <p><b>Complies with PO5.</b><br/>A waste management plan will be developed for the construction phase of the project. Other domestic waste from trail users will be managed through the servicing of limited public access bins at either end of the trail.</p> |
| <b>Sensitive land use activities</b>  |   |   |
| <p><b>PO6</b><br/>Sensitive land use activities are not established in areas which will receive potentially incompatible impacts on amenity from surrounding, existing development activities and land uses.</p>  | <p><b>AO6.1</b><br/>Sensitive land use activities are not established in areas that will be adversely impacted upon by existing land uses, activities and potential development possible in an area;<br/>or<br/><b>AO6.2</b><br/>Sensitive land activities are located in areas where potential adverse amenity impacts mitigate all potential impacts through layout, design, operation and maintenance.</p>   | <p><b>Complies with AO6.1.</b><br/>The development is considered an Environmental Facility on the Douglas Shire Planning Scheme and is not considered a sensitive land use. There are no existing or future land use conflicts with the trail development.</p>  |

| Performance outcomes  | Acceptable outcomes  | Response   |
|---|--|--|
| <b>Stormwater quality</b>   |  |  |
| <p><b>PO7</b><br/>The quality of stormwater flowing over, through or being discharged from development activities into watercourses and drainage lines is of adequate quality for downstream environments, with respect to:<br/>the amount and type of pollutants borne from the activity;<br/>maintaining natural stream flows;<br/>the amount and type of site disturbance;<br/>site management and control measures.</p> | <p><b>AO7.1</b><br/>Development activities are designed to ensure stormwater over roofed and hard stand areas is directed to a lawful point of discharge.<br/><b>AO7.2</b><br/>Development ensures movement of stormwater over the site is not impeded or directed through potentially polluting activities.<br/><b>AO7.3</b><br/>Soil and water control measures are incorporated into the activity's design and operation to control sediment and erosion potentially entering watercourses, drainage lines and downstream receiving waters.<br/>Note - Planning scheme policy - FNQROC Regional Development Manual provides guidance on soil and water control measures to meet the requirements of the Environmental Protection Act 1994.<br/>During construction phases of development, contractors and builders are to have consideration in their work methods and site preparation for their environmental duty to protect stormwater quality.</p> | <p><b>Complies with PO7.</b><br/>Development will implement appropriate stormwater management devices at the Mowbray River carpark.<br/>Development will allow free movement of stormwater over the trail/boardwalk and other infrastructure.<br/>Development will incorporate appropriate erosion and sediment control measures through implementation of an erosion and sediment control plan (ESCP). The construction contractor is to design and implement the ESCP.</p> |
| <b>Pest plants (for material change of use on vacant land over 1,000m2)</b>   |  |  |
| <p><b>PO8</b><br/>Development activities and sites provide for the removal of all pest plants and implement ongoing measures to ensure that pest plants do not reinfest the site or nearby sites.<br/><br/>Editor's note - This does not remove or replace all land owner's obligations or responsibilities under the Land Protection (Pest and Stock Route Management) Act 2002.</p>                                       | <p><b>AO8.1</b><br/>The land is free of declared pest plants before development establishes new buildings, structures and practices;<br/>or<br/><b>AO8.2</b><br/>Pest plants detected on a development site are removed in accordance with a management plan prepared by an appropriately qualified person prior to construction of buildings and structures or earthworks.<br/>Note - A declaration from an appropriately qualified person validates the land being free from pest plants.<br/>Declared pest plants include locally declared and State declared pest plants.</p>  | <p><b>Complies with AO8.2.</b><br/>Construction contractor is to develop a construction environmental management plan that is to incorporate mitigation measures around managing pest plants. This will involve developing vehicle washdown points for construction, and disposing appropriately of any pest plant material that is removed from site (i.e ensuring pest plant material is not mulched and reused on site).</p>  |

## 14. Filling and excavation code

| Performance outcomes   | Acceptable outcomes  | Response   |
|--|--|--|
| <b>For self-assessable and assessable development</b>  |  |  |
| <b>Filling and excavation - General</b>  |  |  |
| <p><b>PO1</b><br/>All filling and excavation work does not create a detrimental impact on the slope stability, erosion potential or visual amenity of the site or the surrounding area.</p>                  | <p><b>AO1.1</b><br/>The height of cut and/or fill, whether retained or not, does not exceed 2 metres in height.<br/>and<br/>Cuts in excess of those stated in A1.1 above are separated by benches/terraces with a minimum width of 1.2 metres that incorporate drainage provisions and screen planting.</p> <p><b>AO1.2</b><br/>Cuts are supported by batters, retaining or rock walls and associated benches/terraces are capable of supporting mature vegetation.</p> <p><b>AO1.3</b><br/>Cuts are screened from view by the siting of the building/structure, wherever possible.</p> <p><b>AO1.4</b><br/>Topsoil from the site is retained from cuttings and reused on benches/terraces.</p> <p><b>AO1.5</b><br/>No crest of any cut or toe of any fill, or any part of any retaining wall or structure is closer than 600mm to any boundary of the property, unless the prior written approval of the adjoining landowner has been obtained.</p> <p><b>AO1.6</b><br/>Non-retained cut and/or fill on slopes are stabilised and protected against scour and erosion by suitable measures, such as grassing, landscaping or other protective/aesthetic measures.</p> | <p><b>Complies with PO1.</b><br/>Due to the nature of this recreational trail development which is integrated into the natural landscape, it does not require the need large amounts for cut and/or fill. Where cut and/or fill is undertaken, cuts will be supported by batters, retaining or rock walls.<br/>Cuts will be incorporated into the design of the trail.<br/>Topsoil will be retained and reused on site, particularly in areas of cut and fill.<br/>No crest of any cut or toe of any fill will be within 600 mm to any boundary of the property.<br/>Non-retained cut and/or fill on slopes are stabilised and protected against scour and erosion by suitable natural materials consistent with the local environment, which will enable nature encroachment / regeneration of such disturbances by the surrounding vegetation.</p> |
| <b>Visual Impact and Site Stability</b>  |  |  |
| <p><b>PO2</b><br/>Filling and excavation are carried out in such a manner that the visual/scenic amenity of the area and the privacy and stability of adjoining properties is not compromised.</p>           | <p><b>AO2.1</b><br/>The extent of filling and excavation does not exceed 40% of the site area, or 500m<sup>2</sup> whichever is the lesser, except that AO2.1 does not apply to reconfiguration of 5 lots or more.</p> <p><b>AO2.2</b><br/>Filling and excavation does not occur within 2 metres of the site boundary.</p>   | <p><b>Complies with PO2.</b><br/>The development does not require significant filling and excavation exceeding 40% of the total site area or 500m<sup>2</sup>.</p> <p><b>Complies with A02.2.</b><br/>The development will not undertake filling and excavation within 2 m of the site boundary.</p>   |
| <b>Flooding and drainage</b>   |  |  |
| <p><b>PO3</b><br/>Filling and excavation does not result in a change to the run off characteristics of a site which then have a detrimental impact on the site or nearby land or adjacent road reserves.</p> | <p><b>AO3.1</b><br/>Filling and excavation does not result in the ponding of water on a site or adjacent land or road reserves.</p> <p><b>AO3.2</b><br/>Filling and excavation does not result in an increase in the flow of water across a site or any other land or road reserves.</p> <p><b>AO3.3</b><br/>Filling and excavation does not result in an increase in the volume of water or concentration of water in a watercourse and overland flow paths.</p>  | <p><b>Complies with PO3.</b><br/>The cut and fill method will ensure that filling and excavation works do not result in ponding of water on site or adjacent land or road reserves.<br/>Filling and excavation will not result in the increase or concentration of surface water flow across the site or any other land or road reserve. It will be the construction contractor's responsibility to ensure storm and flood mitigation measures limit any increase in flow from works.</p>  |

| Performance outcomes  | Acceptable outcomes   | Response   |
|---|---|--|
|   | <p>AO3.4<br/>Filling and excavation complies with the specifications set out in Planning Scheme Policy No SC5 – FNQROC Development Manual.</p>            | <p>Filling and excavation will not result in an increase in the volume of water or concentration of water into nearby watercourses or overland flow paths.<br/>Filling and excavation will comply with the specifications set out in Planning Scheme Policy No SC5 – FNQROC Development Manual.</p>        |
| <b>Water quality</b>  |   |  |
| <p><b>PO4</b><br/>Filling and excavation does not result in a reduction of the water quality of receiving waters.</p> | <p><b>AO4</b><br/>Water quality is maintained to comply with the specifications set out in Planning Scheme Policy No SC5 – FNQROC Development Manual.</p> | <p><b>Complies with PO4.</b><br/>It will be construction contractor's responsibility to manage and control all discharges from works to ensure they do not reduce water quality and comply with the necessary specifications set out in the Planning Scheme Policy No SC5 – FNQROC Development Manual.</p> |
| <b>Infrastructure</b>   |   |  |
| <p><b>PO5</b><br/>Excavation and filling does not impact on Public Utilities.</p>                                     | <p><b>AO5</b><br/>Excavation and filling is clear of the zone of influence of public utilities.</p>   | <p><b>Complies with PO5.</b><br/>Excavation and filling is clear of the zone of influence of public utilities.</p>   |



## 15. Infrastructure works code

| Performance outcomes  | Acceptable outcomes   | Response  |
|---|---|---|
| <b>For self-assessable and assessable development</b>   |   |   |
| <b>Works on a local government road</b>   |   |   |
| <p>PO1<br/>Works on a local government road do not adversely impact on footpaths or existing infrastructure within the road verge and maintain the flow, safety and efficiency of pedestrians, cyclists and vehicles.</p>   | <p>AO1.1<br/>Footpaths/pathways are located in the road verge and are provided for the hierarchy of the road and located and designed and constructed in accordance with Planning scheme policy SC5 – FNQROC Regional Development Manual.</p> <p>AO1.2<br/>Kerb ramp crossovers are constructed in accordance with Planning scheme policy SC 5 – FNQROC Regional Development Manual.</p> <p>AO1.3<br/>New pipes, cables, conduits or other similar infrastructure required to cross existing footpaths:<br/>are installed via trenchless methods; or<br/>where footpath infrastructure is removed to install infrastructure, the new section of footpath is installed to the standard detailed in the Planning scheme policy SC5 – FNQROC Regional Development Manual, and is not less than a 1.2 metre section.</p> <p>AO1.4<br/>Where existing footpaths are damaged as a result of development, footpaths are reinstated ensuring:<br/>(a) similar surface finishes are used;<br/>(b) there is no change in level at joins of new and existing sections;<br/>(c) new sections are matched to existing in terms of dimension and reinforcement.</p> <p>Note – <b>Error! Reference source not found.</b> provides guidance on meeting the outcomes.</p> <p>AO1.5<br/>Decks, verandahs, stairs, posts and other structures located in the road reserve do not restrict or impede pedestrian movement on footpaths or change the level of the road verges.</p> | <p><b>Complies with PO1.</b><br/>Where works are proposed along Andreassen Road, the trail will be in the road reserve (outside of the vehicle pavement) and designed and constructed in accordance with Planning scheme policy SC5 – FNQROC Regional Development Manual.</p> <p>Kerb ramp crossovers will be constructed in accordance with Planning scheme policy SC 5 – FNQROC Regional Development Manual.</p> <p>If existing footpaths are damaged, they will be reinstated.</p> |
| <b>Accessibility structures</b>   |   |   |
| <p>PO2<br/>Development is designed to ensure it is accessible for people of all abilities and accessibility features do not impact on the efficient and safe use of footpaths.</p> <p>Note – Accessibility features are those features required to ensure access to premises is provided for people of all abilities and include ramps and lifts.</p> | <p>AO2.1<br/>Accessibility structures are not located within the road reserve.</p> <p>AO2.2<br/>Accessibility structures are designed in accordance with AS1428.3.</p> <p>AO2.3<br/>When retrofitting accessibility features in existing buildings, all structures and changes in grade are contained within the boundaries of the lot and not within the road reserve.</p>   | <p><b>Complies with AO2.1.</b><br/>Accessibility structures are not located within the road reserve.</p> <p><b>Complies with AO2.2.</b><br/>Accessibility structures are designed in accordance with AS1428.3.</p> <p><b>Complies with AO2.3.</b><br/>When retrofitting accessibility features in existing buildings, all structures and changes in grade are contained within the boundaries of the lot and not within the road reserve.</p>   |

| Performance outcomes  | Acceptable outcomes  | Response  |
|---|--|---|
| <b>Water supply</b>   |  |   |
| <p><b>PO3</b><br/>An adequate, safe and reliable supply of potable, fire fighting and general use water is provided.</p>  | <p><b>AO3.1</b><br/>The premises is connected to Council's reticulated water supply system in accordance with the Design Guidelines set out in Section D6 of the Planning scheme policy SC5 – FNQROC Regional Development Manual;<br/>or<br/><b>AO3.2</b><br/>Where a reticulated water supply system is not available to the premises, on site water storage tank/s with a minimum capacity of 10,000 litres of stored water, with a minimum 7,500 litre tank, with the balance from other sources (e.g. accessible swimming pool, dam etc.) and access to the tank/s for fire trucks is provided for each new house or other development. Tank/s are to be fitted with a 50mm ball valve with a camlock fitting and installed and connected prior to occupation of the house and sited to be visually unobtrusive.</p>   | <p><b>Not applicable.</b><br/>Given the nature of the proposed activity, a connection to reticulated water supply is not required.</p>  |
| <b>Treatment and disposal of effluent</b>   |  |   |
| <p><b>PO4</b><br/>Provision is made for the treatment and disposal of effluent to ensure that there are no adverse impacts on water quality and no adverse ecological impacts as a result of the system or as a result of increasing the cumulative effect of systems in the locality.</p>                      | <p><b>AO4.1</b><br/>The site is connected to Council's sewerage system and the extension of or connection to the sewerage system is designed and constructed in accordance with the Design Guidelines set out in Section D7 of the Planning scheme policy SC5 – FNQROC Regional Development Manual;<br/><br/>or<br/><b>AO4.2</b><br/>Where not in a sewerage scheme area, the proposed disposal system meets the requirements of Section 33 of the Environmental Protection Policy (Water) 1997 and the proposed on site effluent disposal system is designed in accordance with the Plumbing and Drainage Act (2002).</p>   | <p><b>Complies with AO4.2.</b><br/>The site will not have a sewerage system.</p>  |
| <b>Stormwater quality</b>   |  |   |
| <p><b>PO5</b><br/>Development is planned, designed, constructed and operated to avoid or minimise adverse impacts on stormwater quality in natural and developed catchments by:<br/>achieving stormwater quality objectives;<br/>protecting water environmental values;<br/>maintaining waterway hydrology.</p> | <p><b>AO5.1</b><br/>A connection is provided from the premises to Council's drainage system;<br/>or<br/><b>AO5.2</b><br/>An underground drainage system is constructed to convey stormwater from the premises to Council's drainage system in accordance with the Design Guidelines set out in Sections D4 and D5 of the Planning scheme policy SC5 – FNQROC Regional Development Manual.<br/><b>AO5.3</b><br/>A stormwater quality management plan is prepared, and provides for achievable stormwater quality treatment measures meeting design objectives listed in <b>Error! Reference source not found.</b> and <b>Error! Reference source not found.</b>, reflecting land use constraints, such as:<br/>erosive, dispersive and/or saline soil types;<br/>landscape features (including landform);<br/>acid sulfate soil and management of nutrients of concern;<br/>rainfall erosivity.<br/><b>AO5.4</b><br/>Erosion and sediment control practices are designed, installed, constructed, monitored, maintained, and carried out in accordance with an erosion and sediment control plan.</p> | <p><b>Complies with AO5.2.</b><br/>Development that consist of drainage works will only be required at Mowbray River bridge and carpark area. The design will be in accordance the Design Guidelines set out in Sections D4 and D5 of the Planning scheme policy SC5 – FNQROC Regional Development Manual.<br/><b>Complies with AO5.3.</b><br/>The construction contractor will prepare and implement a stormwater quality management plan in accordance with the requirements set out in Table 9.4.5.3b and Table 9.4.5.3c of the Douglas Shire Planning Scheme.<br/><b>Complies with AO5.4.</b><br/>The construction contractor will prepare and implement an erosion and sediment control plan.<br/><b>Complies with AO5.5.</b><br/>Design of the trail/boardwalk, Mowbray River bridge, carpark and observation viewing platform will incorporate appropriate stormwater flow control measures,</p> |

| Performance outcomes  | Acceptable outcomes  | Response   |
|---|--|--|
|   | <p><b>AO5.5</b><br/>Development incorporates stormwater flow control measures to achieve the design objectives set out in <b>Error! Reference source not found.</b> and <b>Error! Reference source not found.</b>, including management of frequent flows, peak flows, and construction phase hydrological impacts.</p> <p>Note – Planning scheme policy SC5 – FNQROC Regional Development Manual provides guidance on soil and water control measures to meet the requirements of the Environmental Protection Act 1994.</p> <p>Note – During construction phases of development, contractors and builders are to have consideration in their work methods and site preparation for their environmental duty to protect stormwater quality.</p>   |  |
| <b>Non-tidal artificial waterways</b>   |  |  |
| <p><b>PO6</b><br/>Development involving non-tidal artificial waterways is planned, designed, constructed and operated to:<br/>protect water environmental values;<br/>be compatible with the land use constraints for the site for protecting water environmental values;<br/>be compatible with existing tidal and non-tidal waterways;<br/>perform a function in addition to stormwater management;<br/>achieve water quality objectives.</p> | <p><b>AO6.1</b><br/>Development involving non-tidal artificial waterways ensures:<br/>environmental values in downstream waterways are protected;<br/>any ground water recharge areas are not affected;<br/>the location of the waterway incorporates low lying areas of the catchment connected to an existing waterway;<br/>existing areas of ponded water are included.</p> <p><b>AO6.2</b><br/>Non-tidal artificial waterways are located:<br/>outside natural wetlands and any associated buffer areas;<br/>to minimise disturbing soils or sediments;<br/>to avoid altering the natural hydrologic regime in acid sulfate soil and nutrient hazardous areas.</p> <p><b>AO6.3</b><br/>Non-tidal artificial waterways located adjacent to, or connected to a tidal waterway by means of a weir, lock, pumping system or similar ensures:<br/>there is sufficient flushing or a tidal range of &gt;0.3 m; or<br/>any tidal flow alteration does not adversely impact on the tidal waterway; or<br/>there is no introduction of salt water into freshwater environments.</p> <p><b>AO6.4</b><br/>Non-tidal artificial waterways are designed and managed for any of the following end-use purposes:<br/>amenity (including aesthetics), landscaping or recreation; or<br/>flood management, in accordance with a drainage catchment management plan; or<br/>stormwater harvesting plan as part of an integrated water cycle management plan; or<br/>aquatic habitat.</p> <p><b>AO6.5</b><br/>The end-use purpose of the non-tidal artificial waterway is designed and operated in a way that protects water environmental values.</p> <p><b>AO6.6</b><br/>Monitoring and maintenance programs adaptively manage water quality to achieve relevant water quality objectives downstream of the waterway.</p> <p><b>AO6.7</b></p> | <p><b>Not Applicable.</b><br/>The development does not intersect any non-tidal artificial waterways.</p> |

| Performance outcomes  | Acceptable outcomes   | Response  |
|---|---|---|
|   | Aquatic weeds are managed to achieve a low percentage of coverage of the water surface area, and pests and vectors are managed through design and maintenance.  |   |
| <b>Wastewater discharge</b>   |   |   |
| <p><b>PO7</b><br/>Discharge of wastewater to waterways, or off site:<br/>meets best practice environmental management;<br/>is treated to:<br/>meet water quality objectives for its receiving waters;<br/>avoid adverse impact on ecosystem health or waterway health;<br/>maintain ecological processes, riparian vegetation and waterway integrity;<br/>offset impacts on high ecological value waters.</p> | <p><b>AO7.1</b><br/>A wastewater management plan is prepared and addresses:<br/>wastewater type;<br/>climatic conditions;<br/>water quality objectives;<br/>best practice environmental management.</p> <p><b>AO7.2</b><br/>The waste water management plan is managed in accordance with a waste management hierarchy that:<br/>avoids wastewater discharge to waterways; or<br/>if wastewater discharge cannot practicably be avoided, minimises wastewater discharge to waterways by re-use, recycling, recovery and treatment for disposal to sewer, surface water and ground water.</p> <p><b>AO7.3</b><br/>Wastewater discharge is managed to avoid or minimise the release of nutrients of concern so as to minimise the occurrence, frequency and intensity of algal blooms.</p> <p><b>AO7.4</b><br/>Development in coastal catchments avoids or minimises and appropriately manages soil disturbance or altering natural hydrology and:<br/>avoids lowering ground water levels where potential or actual acid sulfate soils are present;<br/>manages wastewater so that:<br/>the pH of any wastewater discharges is maintained between 6.5 and 8.5 to avoid mobilisation of acid, iron, aluminium and other metals;<br/>holding times of neutralised wastewater ensures the flocculation and removal of any dissolved iron prior to release;<br/>visible iron floc is not present in any discharge;<br/>precipitated iron floc is contained and disposed of;<br/>wastewater and precipitates that cannot be contained and treated for discharge on site are removed and disposed of through trade waste or another lawful method.</p> | <p><b>Complies with PO7.</b><br/>Wastewater will be appropriately managed during the construction phase of the development, with no wastewater discharges are proposed to occur during the operational phase of the development.<br/>The construction contractor will prepare and implement a wastewater management plan for the construction phase of the development.</p> |
| <b>Electricity supply</b>   |   |   |
| <p><b>PO8</b><br/>Development is provided with a source of power that will meet its energy needs.</p>   | <p><b>AO8.1</b><br/>A connection is provided from the premises to the electricity distribution network;<br/>or<br/><b>AO8.2</b><br/>The premises is connected to the electricity distribution network in accordance with the Design Guidelines set out in Section D8 of the Planning scheme policy SC5 – FNQROC Regional Development Manual.<br/>Note - Areas north of the Daintree River have a different standard.</p>  | <p><b>Not Applicable.</b><br/>The development will not have an electricity supply.</p>  |
| <p><b>PO9</b><br/>Development incorporating pad-mount electricity infrastructure does not cause an adverse impact on amenity.</p>   | <p><b>AO9.1</b><br/>Pad-mount electricity infrastructure is:<br/>not located in land for open space or sport and recreation purposes;<br/>screened from view by landscaping or fencing;</p>   | <p><b>Not Applicable.</b><br/>No pad-mount electricity is proposed for the site.</p>  |

| Performance outcomes  | Acceptable outcomes  | Response  |
|---|--|---|
|   | <p>accessible for maintenance.</p> <p>AO9.2<br/>Pad-mount electricity infrastructure within a building, in a Town Centre is designed and located to enable an active street frontage.</p> <p>Note – Pad-mounts in buildings in activity centres should not be located on the street frontage.</p>  |   |
| <b>Telecommunications</b>   |  |   |
| <p><b>PO10</b><br/>Development is connected to a telecommunications service approved by the relevant telecommunication regulatory authority.</p>  | <p><b>AO10</b><br/>The development is connected to telecommunications infrastructure in accordance with the standards of the relevant regulatory authority.</p>  | <p><b>Not Applicable.</b><br/>No telecommunication infrastructure is proposed for the development however, there is phone reception along the trail for SP1.</p>  |
| <p><b>PO11</b><br/>Provision is made for future telecommunications services (e.g. fibre optic cable).</p>   | <p><b>AO11</b><br/>Conduits are provided in accordance with Planning scheme policy SC5 – FNQROC Regional Development Manual.</p>   | <p><b>Not Applicable.</b><br/>No future telecommunications are predicted for the site.</p>  |
| <b>Road construction</b>  |  |   |
| <p><b>PO12</b><br/>The road to the frontage of the premises is constructed to provide for the safe and efficient movement of:<br/>pedestrians and cyclists to and from the site;<br/>pedestrians and cyclists adjacent to the site;<br/>vehicles on the road adjacent to the site;<br/>vehicles to and from the site;<br/>emergency vehicles.</p> | <p><b>AO12.1</b><br/>The road to the frontage of the site is constructed in accordance with the Design Guidelines set out in Sections D1 and D3 of the Planning scheme policy SC5 – FNQROC Regional Development Manual, for the particular class of road, as identified in the road hierarchy.</p> <p><b>AO12.2</b><br/>There is existing road, kerb and channel for the full road frontage of the site.</p> <p><b>AO12.3</b><br/>Road access minimum clearances of 3.5 metres wide and 4.8 metres high are provided for the safe passage of emergency vehicles.</p> | <p><b>Complies with PO12.</b><br/>Upgrades to the Captain Cook Highway are proposed to allow for safe movement of vehicles into and out of the proposed carpark. The road access to the proposed carpark will meet the acceptable outcomes of AO1.4. Refer to Design Drawings 42-21067-C001 to 42-21067-C010.</p> |
| <b>Alterations and repairs to public utility services</b>   |  |   |
| <p><b>PO13</b><br/>Infrastructure is integrated with, and efficiently extends, existing networks.</p>   | <p><b>AO13</b><br/>Development is designed to allow for efficient connection to existing infrastructure networks.</p>  | <p><b>Complies with PO13.</b><br/>Development will be designed to allow for efficient connection to existing infrastructure networks. There is limited infrastructure networks that connect to the site.</p>  |
| <p><b>PO14</b><br/>Development and works do not affect the efficient functioning of public utility mains, services or installations.</p>  | <p><b>AO14.1</b><br/>Public utility mains, services and installations are not required to be altered or repaired as a result of the development;<br/>or<br/><b>AO14.2</b><br/>Public utility mains, services and installations are altered or repaired in association with the works so that they continue to function and satisfy the relevant Design Guidelines set out in Section D8 of the Planning scheme policy SC5 – FNQROC Regional Development Manual.</p>  | <p><b>Complies with AO14.1.</b><br/>Relocation of a fibre optic cable may be required for the development of the carpark. If relocation is required, the contractor will liaise with the service authorities to accurately locate and determine if relocation is required.</p>                                    |
| <b>Construction management</b>  |  |   |
| <p><b>PO15</b><br/>Work is undertaken in a manner which minimises adverse impacts on vegetation that is to be retained.</p>   | <p><b>AO15</b><br/>Works include, at a minimum:<br/>installation of protective fencing around retained vegetation during construction;<br/>erection of advisory signage;</p>   | <p><b>Complies with PO15.</b><br/>Construction contractor is to develop and implement a construction environmental management plan that will include mitigation measures around minimising impacts on vegetation that is to be retained. This will include setting up no-go zones.</p>                            |

| Performance outcomes   | Acceptable outcomes  | Response   |
|--|--|--|
|  | no disturbance, due to earthworks or storage of plant, materials and equipment, of ground level and soils below the canopy of any retained vegetation;<br>removal from the site of all declared noxious weeds.   |  |
| <b>PO16</b><br>Existing infrastructure is not damaged by construction activities.  | <b>AO16</b><br>Construction, alterations and any repairs to infrastructure is undertaken in accordance with the Planning scheme policy SC5 – FNQROC Regional Development Manual.<br><br>Note - Construction, alterations and any repairs to State-controlled roads and rail corridors are undertaken in accordance with the Transport Infrastructure Act 1994.   | <b>Complies with PO16.</b><br>Construction, alterations and any repairs to infrastructure will be undertaken in accordance with the Planning scheme policy SC5 – FNQROC Regional Development Manual. |
| <b>For assessable development</b>  |  |  |
| <b>High speed telecommunication infrastructure</b>   |  |  |
| <b>PO17</b><br>Development provides infrastructure to facilitate the roll out of high speed telecommunications infrastructure.   | <b>AO17</b><br>No acceptable outcomes are prescribed.  | <b>Complies with PO17.</b><br>No telecommunications infrastructure is proposed for the site.   |
| <b>Trade waste</b>   |  |  |
| <b>PO18</b><br>Where relevant, the development is capable of providing for the storage, collection treatment and disposal of trade waste such that:<br>off-site releases of contaminants do not occur;<br>the health and safety of people and the environment are protected;<br>the performance of the wastewater system is not put at risk. | <b>AO18</b><br>No acceptable outcomes are prescribed.  | <b>Complies with PO18.</b><br>Trade waste will not be produced from the site.  |
| <b>Fire services in developments accessed by common private title</b>  |  |  |
| <b>PO19</b><br>Hydrants are located in positions that will enable fire services to access water safely, effectively and efficiently.   | <b>AO19.1</b><br>Residential streets and common access ways within a common private title places hydrants at intervals of no more than 120 metres and at each intersection. Hydrants may have a single outlet and be situated above or below ground.<br><br><b>AO19.2</b><br>Commercial and industrial streets and access ways within a common private title serving commercial properties such as factories and warehouses and offices are provided with above or below ground fire hydrants located at not more than 90 metre intervals and at each intersection. Above ground fire hydrants have dual-valved outlets. | <b>Not applicable.</b><br>Development is not for common private title.   |
| <b>PO20</b><br>Hydrants are suitable identified so that fire services can locate them at all hours.<br><br>Note – Hydrants are identified as specified in the Department of Transport and Main Roads Technical Note: 'Identification of street hydrants for fire fighting purposes' available under 'Publications'.                          | <b>AO20</b><br>No acceptable outcomes are prescribed.  | <b>Not applicable.</b><br>Development is not for common private title.   |

## 16. Landscaping code

| Performance outcomes   | Acceptable outcomes  | Response   |
|--|--|--|
| <b>For self-assessable and assessable development</b>  |  |  |
| <b>Landscape design</b>  |  |  |
| <p><b>PO1</b><br/>Development provides landscaping that contributes to and creates a high quality landscape character for the site, street and local areas of the Shire by:</p> <ul style="list-style-type: none"> <li>promoting the Shire’s character as a tropical environment;</li> <li>softening the built form of development;</li> <li>enhancing the appearance of the development from within and outside the development and makes a positive contribution to the streetscape;</li> <li>screening the view of buildings, structures, open storage areas, service equipment, machinery plant and the like from public places, residences and other sensitive development;</li> <li>where necessary, ensuring the privacy of habitable rooms and private outdoor recreation areas;</li> <li>contributing to a comfortable living environment and improved energy efficiency, by providing shade to reduce glare and heat absorption and re-radiation from buildings, parking areas and other hard surfaces;</li> <li>ensuring private outdoor recreation space is useable;</li> <li>providing long term soil erosion protection;</li> <li>providing a safe environment;</li> <li>integrating existing vegetation and other natural features of the premises into the development;</li> <li>not adversely affecting vehicular and pedestrian sightlines and road safety.</li> </ul> | <p><b>AO1</b><br/>Development provides landscaping:<br/>in accordance with the minimum area, dimensions and other requirements of applicable development codes;<br/>that is designed and planned in a way that meets the guidelines for landscaping outlined in Planning Scheme Policy SC6.7 – Landscaping;<br/>that is carried out and maintained in accordance with a landscaping plan that meets the guidelines for landscaping outlined in Planning Scheme Policy SC6.7 – Landscaping.</p> <p>Note - Planning scheme policy SC6.7 – Landscaping provides guidance on meeting the outcomes of this code. A landscape plan submitted for approval in accordance with the Planning policy is one way to achieve this outcome.</p> | <p><b>Not Applicable.</b><br/>No landscaping will be undertaken for the development. Vegetation is to be retained as much as possible on site.</p> |
| <b>For assessable development</b>  |  |  |
| <p><b>PO2</b><br/>Landscaping contributes to a sense of place, is functional to the surroundings and enhances the streetscape and visual appearance of the development.</p>  | <p><b>AO2.1</b><br/>No acceptable outcomes are specified.<br/>Note - Landscaping is in accordance with the requirements specified in Planning scheme policy SC6.7 – Landscaping.</p> <p><b>AO2.2</b><br/>Tropical urbanism is incorporated into building design.<br/>Note – ‘Tropical urbanism’ includes many things such as green walls, green roofs, podium planting and vegetation incorporated into the design of a building.</p>  | <p><b>Not Applicable.</b><br/>No landscaping will be undertaken for the development. Vegetation is to be retained as much as possible on site.</p> |
| <p><b>PO3</b><br/>Development provides landscaping that is, as far as practical, consistent with the existing desirable landscape character of the area and protects trees, vegetation and other features of ecological, recreational, aesthetic and cultural value.</p>   | <p><b>AO3.1</b><br/>Existing vegetation on site is retained and incorporated into the site design, wherever possible, utilising the methodologies and principles outline in AS4970-2009 Protection of Trees on Development Sites.</p> <p><b>AO3.2</b><br/>Mature vegetation on the site that is removed or damaged during development is replaced with advanced species.</p> <p><b>AO3.3</b><br/>Where there is an existing landscape character in a street or locality which results from existing vegetation, similar species are incorporated into new development.</p>   | <p><b>Not Applicable.</b><br/>No landscaping will be undertaken for the development. Vegetation is to be retained as much as possible on site.</p> |

| Performance outcomes  | Acceptable outcomes  | Response   |
|---|--|--|
|   | <b>AO3.4</b><br>Street trees are species which enhance the landscape character of the streetscape, with species chosen from the Planning scheme policy SC6.7 – Landscaping.  |  |
| <b>PO4</b><br>Plant species are selected with consideration to the scale and form of development, screening, buffering, streetscape, shading and the locality of the area.                                  | <b>AO4</b><br>Species are selected in accordance with Planning scheme policy SC6.7 – Landscaping.  | <b>Not Applicable.</b><br>No landscaping will be undertaken for the development. Vegetation is to be retained as much as possible on site. |
| <b>PO5</b><br>Shade planting is provided in car parking areas where uncovered or open, and adjacent to driveways and internal roadways.   | <b>AO5</b><br>Species are selected in accordance with Planning scheme policy SC6.7 – Landscaping.  | <b>Not Applicable.</b><br>No landscaping will be undertaken for the development. Vegetation is to be retained as much as possible on site. |
| <b>PO6</b><br>Landscaped areas are designed in order to allow for efficient maintenance.  | <b>AO6.1</b><br>A maintenance program is undertaken in accordance with Planning scheme policy SC6.7 – Landscaping.<br><b>AO6.2</b><br>Tree maintenance is to have regard to the ‘Safe Useful Life Expectancy of Trees (SULE).<br>Note – It may be more appropriate to replace trees with a SULE of less than 20 years (as an example), and replant with younger healthy species. | <b>Not Applicable.</b><br>No landscaping will be undertaken for the development. Vegetation is to be retained as much as possible on site. |
| <b>PO7</b><br>Podium planting is provided with appropriate species for long term survival and ease of maintenance, with beds capable of proper drainage.  | <b>AO7.1</b><br>Podium planting beds are provided with irrigation and are connected to stormwater infrastructure to permit flush out.<br><b>AO7.2</b><br>Species of plants are selected for long term performance designed to suit the degree of access to podiums and roof tops for maintenance.  | <b>Not Applicable.</b><br>No landscaping will be undertaken for the development. Vegetation is to be retained as much as possible on site. |
| <b>PO8</b><br>Development provides for the removal of all weed and invasive species and implement on-going measures to ensure that weeds and invasive species do not reinfest the site and nearby premises. | <b>AO8</b><br>Weed and invasive species detected on a development site are removed in accordance with a management plan prepared by an appropriately qualified person.   | <b>Not Applicable.</b><br>No landscaping will be undertaken for the development. Vegetation is to be retained as much as possible on site. |
| <b>PO9</b><br>The landscape design enhances personal safety and reduces the potential for crime and vandalism.  | <b>AO9</b><br>No acceptable outcomes are specified.<br>Note - Planning scheme policy SC6.3 – Crime prevention through environmental design (CPTED) provides guidance on meeting this outcome.  | <b>Not Applicable.</b><br>No landscaping will be undertaken for the development. Vegetation is to be retained as much as possible on site. |
| <b>PO10</b><br>The location and type of plant species does not adversely affect the function and accessibility of services and facilities and service areas.  | <b>AO10</b><br>Species are selected in accordance with Planning scheme policy SC6.7 – Landscaping.   | <b>Not Applicable.</b><br>No landscaping will be undertaken for the development. Vegetation is to be retained as much as possible on site. |



## 17. Vegetation management code

| Performance outcomes   | Acceptable outcomes   | Response  |
|--|---|---|
| <b>For self-assessable and assessable development</b>  |   |   |
| <p><b>PO1</b><br/>Vegetation is protected to ensure that:<br/>the character and amenity of the local area is maintained;<br/>vegetation damage does not result in fragmentation of habitats;<br/>vegetation damage is undertaken in a sustainable manner;<br/>the Shire's biodiversity and ecological values are maintained and protected;<br/>vegetation of historical, cultural and / or visual significance is retained;<br/>vegetation is retained for erosion prevention and slope stabilisation.</p> | <p><b>AO1.1</b><br/>Vegetation damage is undertaken by a statutory authority on land other than freehold land that the statutory authority has control over;<br/>or<br/><b>AO1.2</b><br/>Vegetation damage is undertaken by or on behalf of the local government on land controlled, owned or operated by the local government;<br/>or<br/><b>AO1.3</b><br/>Vegetation damage, other than referenced in AO1.1 or AO1.2 is the damage of:<br/>vegetation declared as a pest pursuant to the Land Protection (Pest and Stock Route Management) Act 2002; or<br/>vegetation identified within the local government's register of declared plants pursuant to the local government's local laws; or<br/>vegetation is located within a Rural zone and the trunk is located within ten metres of an existing building; or<br/>vegetation is located within the Conservation zone or Environmental management zone and the trunk is located within three metres of an existing or approved structure, not including a boundary fence;<br/>or<br/><b>AO1.4</b><br/>Vegetation damage that is reasonably necessary for carrying out work that is:<br/>authorised or required under legislation or a local law;<br/>specified in a notice served by the local government or another regulatory authority;<br/>or<br/><b>AO1.5</b><br/>Vegetation damage for development where the damage is on land the subject of a valid development approval and is necessary to give effect to the development approval;<br/>or<br/><b>AO1.6</b><br/>Vegetation damage is in accordance with an approved Property Map of Assessable Vegetation issued under the Vegetation Management Act 1999;<br/>or<br/><b>AO1.7</b><br/>Vegetation damage is essential to the maintenance of an existing fire break;<br/>or<br/><b>AO1.8</b><br/>Vegetation damage is essential to prevent interference to overhead service cabling;<br/>or<br/><b>AO1.9</b></p> | <p><b>Complies with AO5.1.</b><br/>Any vegetation damage will be on land subject to a valid development approval and is necessary to give effect to the development approval.</p> |

| Performance outcomes   | Acceptable outcomes  | Response   |
|--|--|--|
|  | <p>Vegetation damage is for an approved Forest practice, where the lot is subject to a scheme approved under the Vegetation Management Act 1999;</p> <p>or</p> <p><b>AO1.10</b><br/>Vegetation damage is undertaken in accordance with section 584 of the Sustainable Planning Act 2009.</p> <p><b>AO1.11</b><br/>Vegetation damage where it is necessary to remove one tree in order to protect an adjacent more significant tree (where they are growing close to one another).</p> <p><b>AO1.12</b><br/>Private property owners may only remove dead, dying, structurally unsound vegetation following receipt of written advice from, at minimum, a fully qualified Certificate V Arborist. A copy of the written advice is to be submitted to Council for its records, a minimum of seven business days prior to the vegetation damage work commencing.</p> |  |
| <p><b>PO2</b><br/>Vegetation damaged on a lot does not result in a nuisance</p>  | <p><b>AO2.1</b><br/>Damaged vegetation is removed and disposed of at an approved site;</p> <p>or</p> <p><b>AO2.2</b><br/>Damaged vegetation is mulched or chipped if used onsite.</p>  | <p><b>Complies with AO2.1.</b><br/>Damaged vegetation will be mulched or chipped and used on site.</p>                           |
| <b>For assessable development</b>  |  |  |
| <p><b>PO3</b><br/>Vegetation damage identified on the Places of significance overlay lot does not result in a negative impact on the site's heritage values.</p> | <p><b>AO3</b><br/>No acceptable outcomes are prescribed.</p>   | <p><b>Not Applicable.</b><br/>There are no places of local significance on, or in the immediate vicinity of the development.</p> |



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Department of Innovation, Tourism Industry  
**Development and the Commonwealth Games**

Environment Assessment Stage 2 Wangetti Trail EPBC Act  
Planning Report for Operational Work Application -  
Prescribed Tidal Works and Works within a CMD

July 2019

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# 1. Introduction

## 1.1 Project context

The Department of Innovation, Tourism Industry Development and the Commonwealth Games (DITID) is proposing to establish the Wangetti Trail, a 94 kilometre (km) dual use trail from Port Douglas in the north to Palm Cove in the south (the project) (refer to **Figure 1-1**). The project will also include accommodation nodes and supporting ancillary facilities. The project is named after the township of Wangetti, which is located approximately halfway between Port Douglas and Palm Cove.

In 2018, DITID completed Stage 1, an Initial application, to the Department of Infrastructure, Regional Development and Cities' (DIRDC) Regional Growth Fund (RGF) for the purpose of gaining funding for the construction of the Wangetti Trail. Following on from this, a Business Case was developed to assist the funding applications and to inform the Commonwealth and Queensland Governments on the costs and benefits of constructing the Wangetti Trail.

Following on from Stage 1, Stage 2 is now being progressed to continue developing the planning and environmental assessment of the trail, and to gain the appropriate approvals required.

The dual use trail will provide walkers and mountain bike riders with a unique experience to traverse through natural areas of north Queensland covering bushland and coastal areas, including the Wet Tropics of Queensland (Wet Tropics), national parks and Great Barrier Reef World Heritage areas. The portion of the project between Port Douglas and Wangetti will be dual use accommodating both walkers and mountain bike riders, while the section between Wangetti and Palm Cove limited to mountain bike riders.

The whole project comprises two separable portions (SPs):

- SP1 – Mowbray North
- SP2 – Balance of Wangetti

SP1 Mowbray North, the subject of this Development Application, is a length of 5.61 km, encompassing an area from Four Mile Beach in the north to near the Mowbray River in the south. This section will include the following:

- New pedestrian multi-span bridge constructed over the Mowbray River and removal of the existing damaged piers associated with Old Mowbray River Bridge
- New pedestrian single-span bridge 18 m in length at the northern section of Lot 5 AP13754 referred to as B38
- New pedestrian single-span bridge located on unnamed road reserve (Four Mile Beach) referred to as B39
- New pedestrian single-span crossing located south-east of Andreassen Road, on an unnamed tributary of the Mowbray River (details of the design are still being determined, however we have allowed 100 m<sup>2</sup> disturbance footprint for the development of the crossing)
- Visitors' carpark within Captain Cook Highway road reserve near Mowbray River that will have 25 informal car-parking spaces and 4 informal bus spaces.
- Mowbray River Road Bridge underpass

- Observation viewing platform comprising an elevated and piled structure on the banks of the Mowbray River to provide a functional viewing platform overlooking Mowbray River and that maintains public safety
- 1.36 km of mangrove experience boardwalk
- 3.95 km of dual-use trail
- Mowbray River Road Bridge underpass.

SP1 Mowbray North is referred to as the ‘SP1 Project area’ and encompasses the above components. SP2 comprises the balance of the trail and is being investigated separately.

## 1.2 Purpose of this report

This report provides supporting information for a development application to undertake operational works for prescribed tidal works and within a Coastal Management District (CMD) for the SP1 alignment.

The proposed works listed above that trigger operational works for prescribed tidal works and within a CMD are listed in Table 1-1 and Figure 2-1.

Table 1-1 Description of the SP1 proposed works triggering prescribed tidal works and works within a CMD

| Proposed works  | Details   |
|---|---|
| <p>New pedestrian multi-span bridge constructed over the Mowbray River</p> <p>The removal of the existing damaged piers</p>           | <p>The proposed bridge and the existing damaged piers are located within the Mowbray River to the north of the existing bridge crossing. The Mowbray River is mapped as major (purple) and tidal (grey) waterways according to the Queensland waterway for waterway barrier works spatial data and is within a CMD.</p> <p>The bridge will consist of 6 piers within Mowbray River. The abutments will be located outside the bed and banks of Mowbray River. Erosion rock protection will be protected on base and sides of the abutment.</p> <p>The bridge will be public infrastructure and will provide safe passage for pedestrians and mountain bike rides across Mowbray River and provide access to and along state coastal land.</p> <p>The demolition of existing bridge piers is required to allow for construction of new bridge piers. Six of the existing bridge piers will be removed.</p> |
| <p>New pedestrian single-span 18 m bridge at the northern section of Lot 5 AP13754 referred to as B38 and associated access track</p> | <p>The waterway is mapped as tidal waterways according to the Queensland waterway for waterway barrier works spatial data and is within a CMD.</p> <p>The abutments will be located outside the bed and banks of waterway.</p> <p>Design drawings for B38 bridge is in the process of being developed.</p>  |

| Proposed works   | Details  |
|--|--|
| <p>New pedestrian single-span 8 m bridge referred to as B39 located on unnamed road reserve (Four Mile Beach)</p>  | <p>The waterway is mapped as tidal waterways according to the Queensland waterway for waterway barrier works spatial data and is within a CMD.</p> <p>The abutments will be located outside the bed and banks of waterway.</p> <p>Design drawings for B39 bridge is in the process of being developed.</p>   |
| <p>New pedestrian single-span crossing located south-east of Andreassen Road, on an unnamed tributary of the Mowbray River (details of the design are still being determined, however we have allowed 100 m<sup>2</sup> disturbance footprint for the development of the crossing)</p> | <p>The waterway is mapped as a purple (high risk) waterways according to the Queensland waterway for waterway barrier works spatial data and is within a CMD.</p> <p>Whilst the details of the design are still being determined, the abutments will be located outside of the bed and banks of the waterway.</p>  |
| <p>Mowbray River Road Bridge underpass</p>   | <p>The underpass will be located on the eastern side of Mowbray River underneath Captain Cook Highway. It will be constructed along the existing bridge abutment using reinforced concrete retaining wall. The underpass will accommodate both pedestrian and cyclist to pass under the Captain Cook Highway.</p> <p>Construction of the underpass will involve work above and below the high water mark in tidal waters in Mowbray River and will be partly undertaken within state controlled road reserve and unallocated State land.</p> |
| <p>Mangrove experience boardwalk</p>   | <p>Construction of the boardwalk will involve work below the high water mark in tidal waters on road reserve, state land and reserve land.</p>   |
| <p>Dual-use trail</p>  | <p>Construction of the trail will involve work below the high water mark in tidal waters on road reserve, state land, unallocated state land and reserve land. Although this is not a structure, it may involve minor earthworks which may trigger an assessment.</p>  |
| <p>5 m x 5 m Observation-viewing platform</p>  | <p>The observation-viewing platform is considered to trigger prescribed tidal works as the following elements associated the structure will be above and below tidal water and HAT and they include:</p> <ul style="list-style-type: none"> <li>• Grouted road pitching protection proposed along the banks of Mowbray River below the observation viewing platform.</li> <li>• Reinforced concrete viewing platform.</li> </ul>   |

### 1.3 Objectives

The objectives of this report are as follows:

- To provide information on the existing environment and the impacts that are likely to occur as a result of prescribed tidal works and works within a CMD (Section 2)
- To set out a description of the purpose of the works, methods of construction and onsite mitigation actions to limit the impacts as a result of works within tidal waters and within the ebb and flow of the tide at spring tides (Section 3)
- To assess compliance of the proposal with the relevant assessment matters detailed in State Code 8: Coastal Development and Tidal works (Section 4)
- To identify measures proposed to offset residual impacts from any permanent loss of tidal land (Section 3).

### 1.4 Summary of key application details

A summary of the details of the development application for SP1 is outlined in Table 1-2

Table 1-2 Key application details

| Application details  |   |
|----------------------|---|
| Applicant            | The State of Queensland acting through the Department of Innovation, Tourism Industry Development and the Commonwealth Games (DITID)  |
| Current land use     | The SP1 project area that falls below MHWS currently consists of undeveloped reserve land and unallocated state land.<br><br>Tenure and land ownership details are provided in section 2.1.   |
| Development proposal | SP1 will incorporate: <ul style="list-style-type: none"><li>• New pedestrian multi-span bridge constructed over the Mowbray River and removal of the existing damaged piers associated with Old Mowbray River Bridge</li><li>• New pedestrian single-span bridge 18 m in length at the northern section of Lot 5 AP13754 referred to as B38</li><li>• New pedestrian 8 m single-span bridge located on unnamed road reserve (Four Mile Beach) referred to as B39</li><li>• Visitors' carpark within Captain Cook Highway road reserve near Mowbray River that will have 25 informal car-parking spaces and 4 informal bus spaces.</li><li>• Mowbray River Road Bridge underpass</li><li>• Observation viewing platform comprising an elevated and piled structure on the banks of the Mowbray River to provide a functional viewing platform overlooking Mowbray River and that maintains public safety</li><li>• 1.36 km of mangrove experience boardwalk</li><li>• 3.95 km of dual-use trail</li><li>• Mowbray River Road Bridge underpass.</li></ul> |

|                                 |  |
|---------------------------------|--|
| Development components          | Material change use (MCU) development application assessable against the local government planning scheme (code assessable) covering the works proposed between Nautilus Street Port Douglas to the Captain Cook Highway and Mowbray River intersection. The MCU application will include the following operational works approvals: <ul style="list-style-type: none"> <li>• Operational works for interfering / disturbing marine plants</li> <li>• Operational works for prescribed tidal works or work in a CMD</li> </ul> |
| Assessment manager              | The assessment manager is Douglas Shire Council.   |
| Referral agencies               | The referral agency is State Assessment Referral Agency (SARA.) with the Department of Environment and Science (DES) being an advice agency for the operational works for prescribed tidal works or work in a CMD component.   |
| Contact details for application | Department of Innovation, Tourism Industry Development and the Commonwealth Games (DITID), c/- of Sarah Wilson (GHD)<br>Address: Level 13 – The Rocket, 203 Robina Town Centre Drive, Robina, QLD 4226<br>Phone number: 07 5413 8133 and 0459 813 589<br>Email: sarah.wilson@ghd.com   |

## 1.5 Legal framework

SP1 includes operational work defined under Schedule 10, Part 17, of the *Planning Regulation 2017* as assessable development for works that is tidal works or work in a coastal management district.

### **Work that is tidal works**

The definition of ‘tidal work’ under the Coastal Act is as follows:

1. *Tidal works means any of the following –*
  - (a) *Works in, on or above –*
    - (i) **Land under tidal water**; or
    - (ii) *Land that will or may be under tidal water because of development on or near the land;*
  - (b) *Works that are –*
    - (i) *An integral part of works mentioned in paragraph (a) (the principal works); and*
    - (ii) *Carried out in, on or above land directly adjacent to the land in, on or above which the principal works are carrier out;*
  - (c) *Works designed to be exposed to tidal water because of shoreline fluctuations*
  - (d) *Works designed to prevent the erosion of land by the sea (whether or not within the ebb and flow of the tide at spring tides);*
  - (e) *Works within the boundaries of a canal, whether above or below high water mark*

The definition of 'tidal waters' under the Coastal Act is as follows:

*Tidal water means –*

- (a) The sea and any part of a harbour or watercourse ordinarily within the ebb and flow of the tide at spring tides; or**
- (b) The water downstream from a downstream limit as defined under the Water Act 2000.*

As the trail development involves works located below the mean high water spring (MHWS), the works are below tidal water and therefore trigger the requirements for operational works that is prescribed tidal works.

#### **Work in a coastal management district**

Operational work that is assessable development if the work is interfering with quarry material as defined under the Coastal Act, on state coastal land above high-water mark as defined under Schedule 10, Part 17, Division 1, Section 28, item 1, b, i of the *Planning Regulation 2017*.

The definition of 'quarry material' under the Coastal Act is as follows:

*Quarry material –*

- 1. Quarry material means material on state coastal land, other than a mineral within the meaning of any Act relating to mining*
- 2. For item 1, material includes, for example, stone, gravel, sand, rock, clay, mud, silt and soil, unless it is removed from a culvert, stormwater drain or other drainage infrastructure as waste material.*

The definition of 'state coastal land' under Chapter 1, Section 17 the Coastal Act is as follows:

- (1) State Coastal land means land in a coastal management district other than land that is –*
  - (a) Freehold land, or land contracted to be granted in fee simple by the State; or*
  - (b) A State forest or timber reserve under the Forest Act 1959; or*
  - (c) In a watercourse or lake as defined under the Water Act 2000; or*
  - (d) Subject to a lease or licence issued by the State.*

Where the works are proposed on land other than on freehold land and requires the interference of quarry material, such as stone, gravel, sand, rock, clay, mud, silt and soil, the works will require an operational works for works in a CMD.

The operational works relating to prescribed tidal work and works within a CMD will be assessed by the State Assessment Referral Agency (SARA) against the State Development Assessment Provisions (SDAP), being State Code 8: Coastal Development and Tidal Works and against schedule 3 of the Coastal Act code for assessable development that is prescribed tidal works.

## 1.6 Project timing

Construction of SP1 is expected to commence in November 2019 with the construction of the viewing platform, underpass and bridge infrastructure. The trail, boardwalk and carpark areas will initiate construction in April 2020, with the entirety of SP1 expected to be in operation by September 2020. Timing of construction and operation for each aspect of SP1 is listed in Table 1-3.

Table 1-3 SP1 timing of construction and operation

|                                   | Construction  | Operation      |
|-----------------------------------|---------------|----------------|
| Trail (including gully crossings) | April 2020    | September 2020 |
| Boardwalk                         | April 2020    | September 2020 |
| Carpark                           | April 2020    | September 2020 |
| Observation viewing platform      | November 2019 | April 2020     |
| Underpass                         | November 2019 | April 2020     |
| Bridge                            | November 2019 | April 2020     |

## 1.1 Pre-lodgement meeting outcomes

A pre-lodgement meeting was carried on the 15<sup>th</sup> May 2019 between:

- Department of Innovation, Tourism Industry Development and the Commonwealth Games (DITID)
- Department of State Development, Manufacturing, Infrastructure and Planning (DSDMIP),
- Department of Agriculture and Fisheries (DAF)
- Department of Environment and Science (DES)
- Department of Natural Resources, Mines and Energy (DNRME)
- Department of Transport and Main Roads (TMR)
- Douglas Shire Council (DSC)
- Environment and planning consultant (GHD)

The purpose of the meeting was to discuss the proposed material change of use and operational work triggered by the SP1 proposed works. Outcomes of the meeting related to Tidal works and work in the coastal management district are summarised in Table 1-4 below.

Table 1-4 Pre-lodgement meeting outcomes

| DES requirement  | Response   |
|--|--|
| Application will be assessed against State code 8: Coastal development and tidal works   | This has been addressed in Section 4 of this document.   |
| <ul style="list-style-type: none"> <li>• Application will be required to address the requirement of the proposed developed to be located in an erosion prone area and how the risks associated with erosion will be avoided and/or mitigated, including during construction</li> </ul> | Construction contractor is to prepare an Erosion and Sediment Control Plan in accordance with the International Erosion Control Association (IECA) |

| DES requirement  | Response   |
|--|--|
|  | <i>Best Practice Erosion &amp; Sediment Control.</i>   |
| <ul style="list-style-type: none"> <li>An acid sulfate soil management plan should be included in the application material.</li> </ul> | <p>The proposed tidal works will involve limited excavation or displacement of soils associated with the removal of old and new piles and works below the existing road bridge, as well as construction of the boardwalk and observation-viewing platform. The proposed tidal works will be undertaken in accordance with an acid sulfate soil management plan as part of the Construction Environmental Management Plan (CEMP), in line with the <i>Queensland acid sulfate soils technical manual: soil management guidelines</i>.</p> |

## 1.2 Scope and limitations

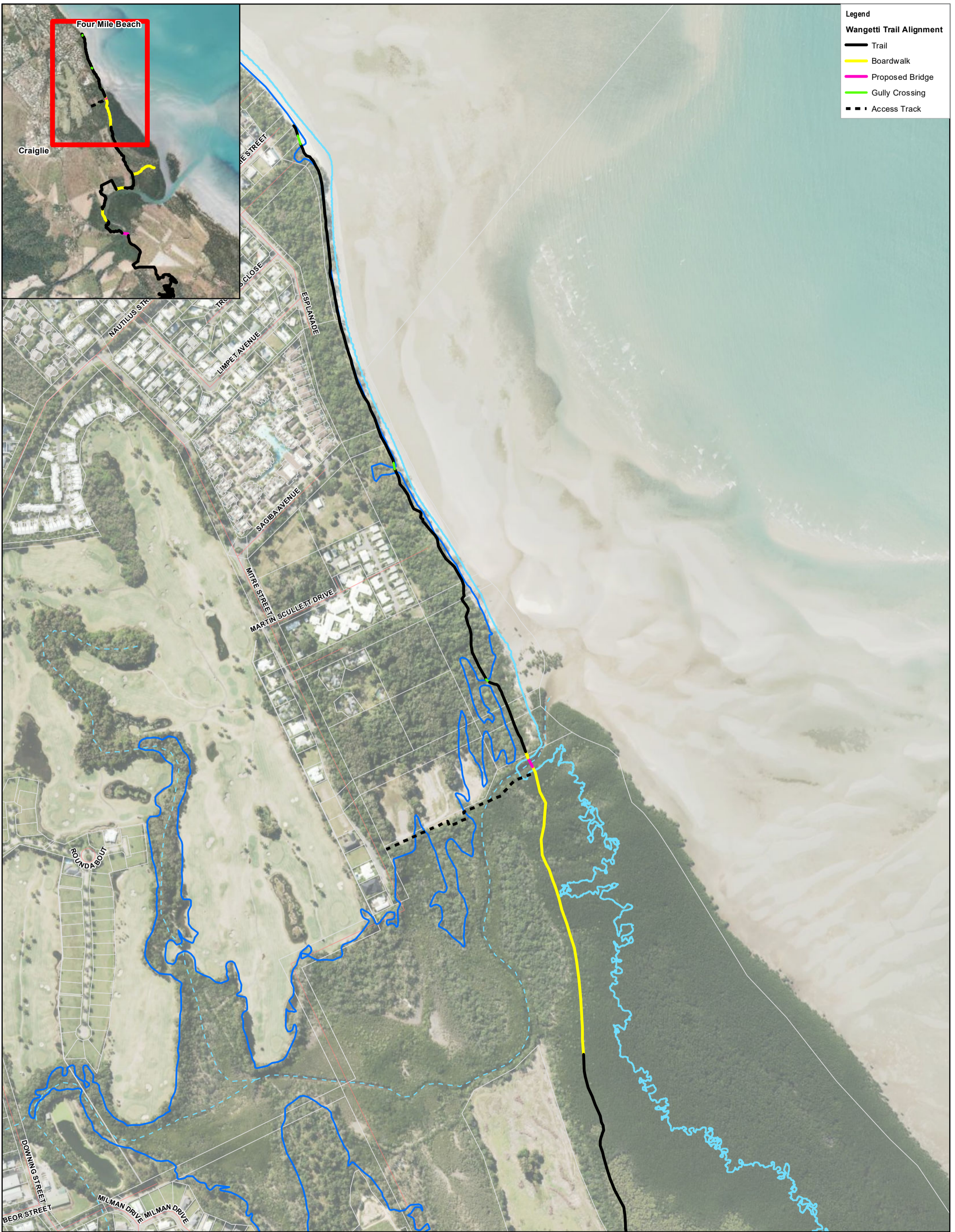
This report has been prepared by GHD for DITID and may only be used and relied on by DITID for the purpose agreed between GHD and the DITID as set out in Section 1.1 of this report. GHD otherwise disclaims responsibility to any person other than DITID arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible. The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared. The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by DITID and others who provided information to GHD (including government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

The opinions, conclusions and any recommendations in this report are based on information obtained from, and testing undertaken at or in connection with specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points. Investigations undertaken in respect of this report are constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in this report. Site conditions (including the presence of additional marine plants) may change after the date of this report. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change.





**Legend**

**Wangetti Trail Alignment**

- Trail
- Boardwalk
- Proposed Bridge
- Gully Crossing
- Access Track

**Legend**

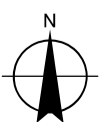
- Highest Astronomical Tide (HAT)
- Mean High Water Springs (MHWS)
- Minor Watercourse
- Street/Local Road
- Cadastre

Paper Size ISO A3

0 50 100 150 200

Metres

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 55



DITID  
Environment Assessment Stage 2 Wangetti Trail

Project No. 41-32458  
Revision No. 0  
Date 18/07/2019

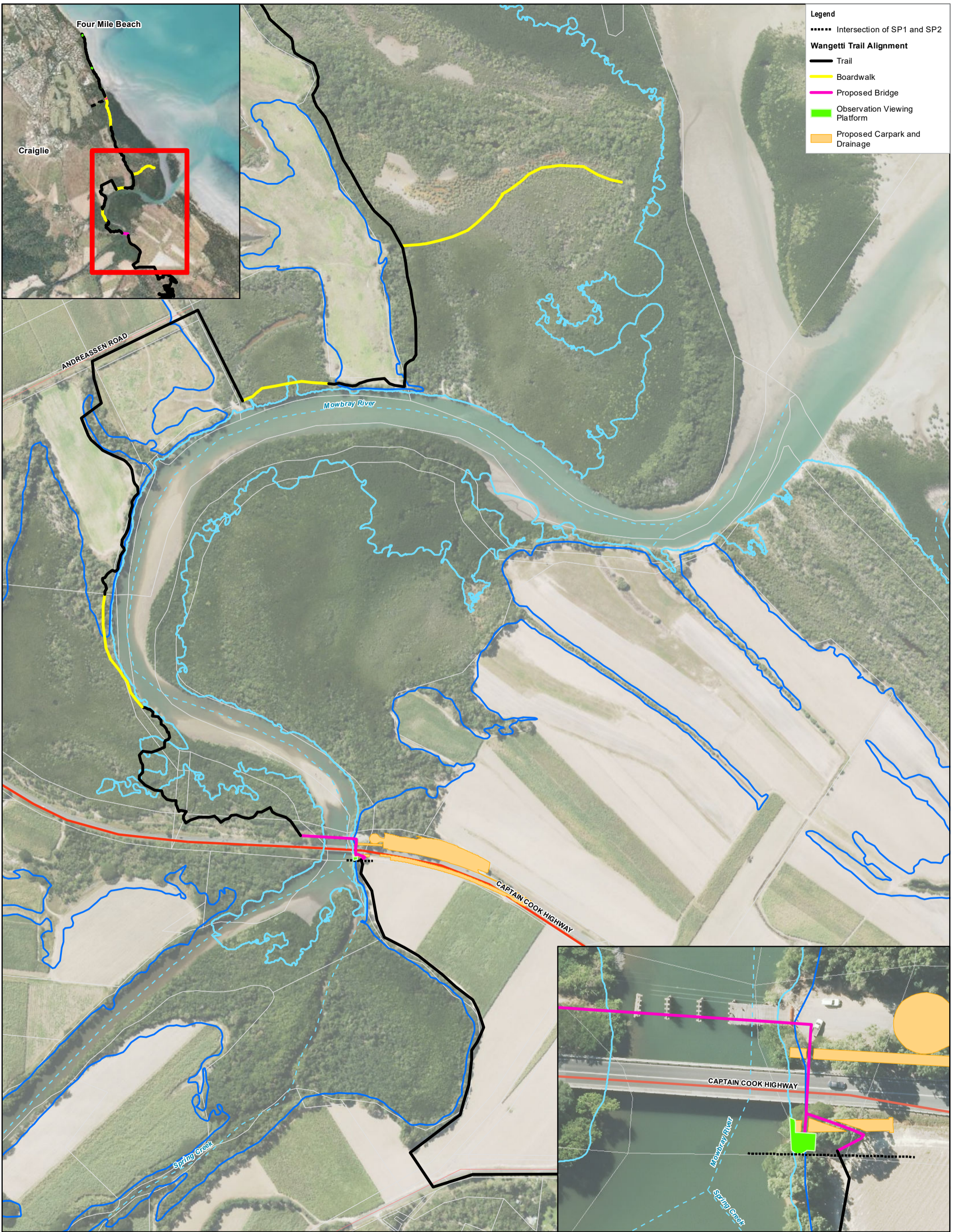
Locality SP1 - North

**FIGURE 1-1**  
(sheet 1 of 2)

Based on or contains data provided by the State of QLD (DNRME) 2019. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for marketing or be used in breach of the privacy laws.

G:\4132458\GIS\Map\MDX\4132458\_037\_WT\_SP1\_OW\_TidalWorks\_Locality\_Rev1.mxd  
Print date: 18 Jul 2019 - 13:12

Data source: DITID and GHD: Wangetti Trail Alignment (07/2019); DNRME: Place Names Gazetteer (2019); Cadastre (Jan 2019); Roads (2016); Watercourse (2014); Imagery (2015); Highest Astronomical Tide (2013); Old Government/GHD: Mean High Water Springs (2019); GHD: Proposed Carpark (2019); Proposed observation viewing platform (2019). . . Created by: xle



| Legend   |                                 |
|--|---------------------------------|
| <span style="color: blue;">—</span>  | Highest Astronomical Tide (HAT) |
| <span style="color: cyan;">—</span>  | Mean High Water Springs (MHWS)  |
| <span style="color: lightblue;">- - -</span>   | Minor Watercourse               |
| <span style="color: red;">—</span>   | Highway                         |
| <span style="color: red;">—</span>   | Street/Local Road               |
| <span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> | Cadastre                        |

Paper Size ISO A3

0 50 100 150 200  
Metres

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 55



DITID  
Environment Assessment Stage 2 Wangetti Trail

Project No. 41-32458  
Revision No. 0  
Date 18/07/2019

Locality SP1 - South

FIGURE 1-1  
(sheet 2 of 2)

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Data source: DITID and GHD: Wangetti Trail Alignment (07/2019); DNRME: Place Names Gazetteer (2019), Cadastre (Jan 2019), Roads (2016), Watercourse (2014), Imagery (2015), Highest Astronomical Tide (2013); Old Government/GHD: Mean High Water Springs (2019); GHD: Proposed Carpark (2019), Proposed observation viewing platform (2019). . Created by: xie

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Print date: 18 Jul 2019 - 13:14

## 2. Existing environment

### 2.1 Location of SP1 Project area

The SP1 Project area is located within the Douglas Shire Council and is situated approximately 55 kilometers north of Cairns. The SP1 Project area is located between Nautilus Street Port Douglas and the Captain Cook Highway and Mowbray River intersection. The SP1 Project area alignment runs approximately from Mowbray Bridge, along the Mowbray River through mangrove riparian vegetation before cutting inland at the mouth of the river. The alignment traverses through marsh/wetland vegetation before running parallel to Mitre Street along Four Mile Beach with the alignment ending adjacent to the end of Gowrie Street in Four Mile. The SP1 Project area incorporates the proposed bridge crossing the Mowbray River, a proposed carpark and observation-viewing platform. The SP1 Project area is illustrated in Figure 1-1.

Property details and land ownership details for the properties that the proposed alignment intersects are identified in Table 2-1. The proposed SP1 does not intersect any easements or lease areas.

The properties that are impacted by the proposed operational works work that is tidal works or work in a CMD are outlined in the last column in Table 2-1. Information related to certificate of title is shown in Appendix C.

Table 2-1 Property with SP1 project area and associated with the operational works that is tidal works or work in a coastal management district

| Lot Plan                     | Property description                   | Ownership details                   | Tenure details         | Properties impacted by proposed operational works that is tidal works                             | Properties impacted by proposed works interfering of quarry material above the high-water mark on State coastal land in a CMD |
|------------------------------|--|-------------------------------------|------------------------|---|---|
| Nautilus Street road reserve | Nautilus Street                        | Douglas Shire Council               | Local road reserve     | <b>Not affected</b>   | <b>Not affected</b>   |
| Four Mile Beach              | Four Mile Beach                        | State of QLD (represented by DNRME) | Unallocated state land | <b>Not affected</b>   | <b>Not affected</b>   |
| Unnamed road reserve         | Unnamed road reserve - Four Mile Beach | Douglas Shire Council               | Local road reserve     | <b>This property will be impacted.</b>  | <b>Not applicable.</b>  |
| Esplanade                    | Esplanade - Four Mile Beach            | Douglas Shire Council               | Local road reserve     | <b>The property will be impacted. However no ground disturbance is proposed on this property.</b> | <b>Not applicable.</b>  |
| Esplanade                    | Esplanade – Sagiba Avenue              | Douglas Shire Council               | Local road reserve     | <b>The property will be impacted. However no ground disturbance is proposed on this property.</b> | <b>Not applicable.</b>  |

|                              |   |   |                       |  |   |
|------------------------------|---|---|-----------------------|--|---|
| Lot 5 AP13754                | Mitre Street                            | State of QLD (represented by the former Department of Natural Resources and Water, now DNRME) | State land            | <b>This property will be impacted. Works are proposed below the highest astronomical tide.</b> | <b>Not applicable.</b>  |
| Esplanade                    | Esplanade - Adjoining the Mowbray River | DNRME<br>Managed by Douglas Shire Council   | Local road reserve    | <b>This property will be impacted. Works are proposed below the highest astronomical tide.</b> | <b>Not applicable.</b>  |
| Andreassen Road road reserve | Andreassen Road                         | Douglas Shire Council   | Local road reserve    | <b>Not affected</b>  | <b>Not affected</b>   |
| Lot 24 SR423                 | 24 Andreassen Road, Craiglie            | Private Property  | Freehold              | <b>This property will be impacted.</b>   | <b>Not applicable. Property is not state coastal land.</b>  |
| Captain Cook Highway         | Captain Cook Highway                    | Department of Transport and Main Roads (TMR)  | State controlled road | <b>This property will be impacted.</b>   | <b>Not applicable. The Captain Cook Highway on the eastern side of Mowbray River is not mapped as a CMD.<br/><br/>The works proposed on the western side of the Captain Cook Highway will be below the high-water mark.</b> |
| Lot 161 SR673                | Captain Cook Highway                    | State of QLD (represented by DNRME)   | Reserve               | <b>This property will be impacted. Works are</b>   | <b>Not applicable.</b>  |

|               |                      |   |                        |  |  |
|---------------|----------------------|---|------------------------|--|--|
|               |                      | Douglas Shire Council is trustee.                                       |                        | <b>proposed below the highest astronomical tide and the mean high water springs.</b>   |  |
| Lot 164 SR673 | Captain Cook Highway | State of QLD (represented by DNRME)<br>Douglas Shire Council is trustee | Reserve                | <b>This property will be impacted. Works are proposed below the highest astronomical tide and the mean high water springs.</b> | <b>Not applicable.</b>   |
| Mowbray River | Mowbray River        | State of QLD (represented by DNRME)                                     | Unallocated state land | <b>This property will be impacted.</b>   | <b>Not applicable as works are below the high water mark within Mowbray River.</b> |

## 2.2 Environmental characteristics of SP1

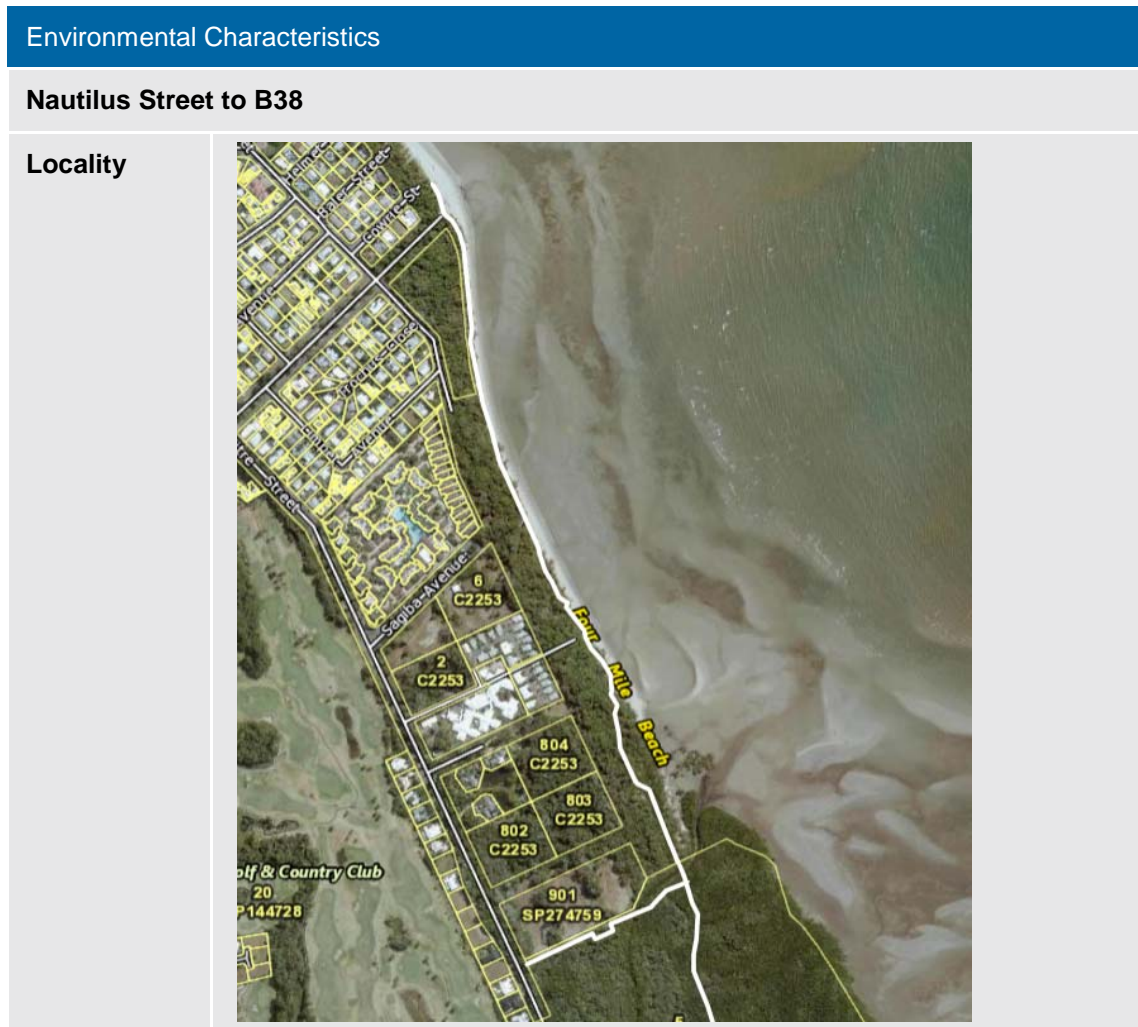
A desktop review was undertaken to identify and collate existing information on the known ecological values of the environments within the SP1 Project area and the surrounding landscape.

An ecological field survey was undertaken by ecologists from GHD on 25 and 26 February 2019. The survey involved traversing the study area whilst recording information relevant to vegetation communities and flora and fauna species, including mapping marine plants. A habitat suitability assessment and targeted searches were undertaken for MNES flora species. Where MNES flora species were encountered during the field survey, the precise location was recorded together with supplementary information including the number of individuals and the characteristics of the population and habitat. It is noted that the SP1 trail alignment was altered following this field survey, in order to avoid impacts to areas of TECs observed during the survey.

Subsequently, a second ecological field survey was undertaken on 30 and 31 May 2019. The broad objective of the survey was to identify key ecological values present within the amended SP1 trail alignment. The raw data collected in the field was captured on the collector app, including locational and supplementary information such as characteristics of the population and habitat.

Table 2-2 to Table 2-5 identify the environmental characteristics of the SP1 alignment.

Table 2-2 Environmental characteristics of SP1 trail between Nautilus Street and B38



|   |  |
|---|--|
| <p><b>Environment and ecological values</b></p>     | <p>The northern most extent of SP1, from Nautilus Street to B38, is located along the foreshore and within the disturbed beach scrub of Four Mile Beach. Soil characteristics are typical of a coastal environment, with soft, friable sandy soils and dense leaf litter within the beach scrub. Vegetation is absent within the foreshore area with the beach scrub containing canopy vegetation dominated by palms and she oaks and dense shrub dominated by juvenile palms and ferns.</p> <p>The ecological values of the area, recorded during field surveys undertaken in February and May 2019, identified the foreshore area as a nesting and foraging habitat for shorebirds and a foraging habitat for raptors. There was also an abundance of crabs and marine worms within the open beach area. Two conservation significant species were recorded during the field surveys, including the Eastern curlew and the Whimbrel, both listed under the EPBC Act.</p> <p>During these field surveys the beach scrub area was recorded as having nesting and foraging habitat for doves, honeyeaters, friarbirds, figbirds and parrots. The area also contained refuge and foraging habitat for skinks, snakes and rodents and foraging habitat for bats. An abundance of fruit, berries and nuts was identified within the beach scrub, representing an abundant food supply for frugivorous birds and mammals. No conservation significant species were recorded within the beach scrub and no marine plants were recorded within this location.</p> <p>No specific clearing or construction is required for the trail along the foreshore area, as the beach will provide open trail access. An on-ground trail will be created within the beach scrub and, while moderate disturbance currently exists, some additional disturbance will be generated as a result of SP1. No marine plant disturbance or waterway barrier works will occur as a result of the trail, as no marine plants are present within the area.</p> <p>Two single span bridges are proposed as B39 and B38 to allow visitor access over low-lying gullies. The proposed bridges are not within the high banks of the waterway.</p> |
| <p><b>CMD, HAT, MHWS and erosion prone area</b></p> | <p>This area is located entirely within a coastal management district (CMD) and erosion prone area and is located partially below Highest Astronomical Tide (HAT), however it is located above MHWS.</p>   |



**Photographs**


Beach foreshore



Disturbed beach scrub



Table 2-3 Environmental characteristics of SP1 trail between B38 and Lot 5 AP13754

| Environmental Characteristics |  |
|-------------------------------|--|
| <b>B38 to Lot 5 AP13754</b>   |  |
| <b>Locality</b>               |   |
| <b>Environment</b>            | <p>The SP1 trail extent, between B38 and the southern boundary of Lot 5 AP13754, is the initial area whereby the trail transitions from an open beach to an inland coastal environment. Soil characteristics in the area are consistent with soft, friable sandy soils and, as the trail is within vegetated areas, leaf litter is also present. Two distinct habitat types are present within the area; Littoral vine forest and mangroves.</p> <p>The Littoral vine forest is characterised by a closed canopy dominated by rainforest species, a dense viney understorey and a dense shrub layer dominated by palms, ferns and vines. This environment also has occasional large, hollow bearing trees and an abundance of fruit and berries for frugivorous birds and mammals. Similarly to the beach scrub, the environment provides nesting and foraging habitat for doves, honeyeaters, friarbirds, figbirds and parrots; with refuge and foraging habitats for rodents</p> |

and foraging habitat for bats and pigs. While no conservation significant species were identified within the area during the field surveys in February and May 2019, the southern cassowary is likely to occur, based on a Likelihood of Occurrence assessment undertaken in June 2019.

The mangrove environment is characterised by a closed canopy layer dominated by mangrove tree species with a dense shrub and understorey layer dominated by juvenile mangrove trees. Patches of salt couch are also present within the environment. Unlike the Littoral vine forest, the mangrove environment is subject to tidal cycles and as such, contains highly productive muddy marine sediments. The habitat is also highly abundance with marine invertebrates, fish and shellfish and represents foraging, roosting and nesting habitat for mangrove specialist honeyeaters, gerygones, kingfishers and doves. The environment is roosting habitat for some species of herons, shorebirds and water rats. During the February field survey one osprey, a conservation significant species under the EPBC Act, was also observed in flight above the mangrove habitat.

The SP1 trail is predominantly natural soils to avoid unnecessary environmental disturbance and emphasise a nature experience, however, boardwalks will be constructed in the low-lying, mangrove areas to enable greater visitor access and minimise long-term disturbance to marine plants. Two areas of boardwalks will be constructed within the B38 to Lot 5 AP13754 area, as shown in Figure 1-1 with a boardwalk proposed in the northern extent of the mangrove environment and a boardwalk trail to a coastal viewing area near the Mowbray River.

The most commonly recorded mangrove species were *Ceriops tagal*, *Rhizophora stylosa* and *Avicennia marina*. The mangrove communities ranged in height from 4 to 10 m with an average height of 8 m. Given the dense canopy cover recorded within these communities and the extent of pneumatophores/root material observed, it is reasonable to assume that marine plants cover 100% of the construction footprint within the mapped extent of these communities. The extent of salt couch and samphire vegetation observed along the alignment was negligible.

A bridge crossing will also need to be constructed over the waterway present within the B38 site. A temporary access track will also adjoin the southern entrance of the bridge crossing. This track will allow for the temporary access of construction machinery and vehicles, with a laydown area also proposed at the site. Construction of the bridge crossing, temporary access path and laydown area will all impact marine plants, although the locations of these elements have strategically been designed to maximise construction efficiency and minimise impact to the overall site.

The ecological field surveys undertaken during February and May 2019 also confirmed the TEC listed as 'Littoral rainforests and coastal vine thickets of eastern Australia' within the area. Although the SP1 trail has been designed to predominantly avoid areas of TEC, the trail intersects with a small area of TEC, located approximately 600 m north of the Mowbray River.

**CMD, HAT,  
MHWS and**

This area is located entirely within a coastal management district (CMD) and erosion prone area and is almost entirely below Highest Astronomical

**erosion  
prone area**

Tide (HAT). This area is mapped above MHWS with the exception of the areas identified in Figure 1-1.

**Photographs**

B38 tributary creek crossing




Mangrove habitat



Waterway at B38 location looking south



Table 2-4 Environmental characteristics of SP1 trail between Lot 5 AP13754 and Captain Cook Highway

| Environmental Characteristics                |   |
|--|---|
| <b>Lot 5 AP13754 to Captain Cook Highway</b> |   |
| <b>Locality</b>                              |    |
| <b>Environment</b>                           | <p>The SP1 trail, between the southern boundary of Lot 5 AP13754 and the Captain Cook Highway, is the initial area whereby the trail transitions from a densely vegetated inland coastal environment to a tidal estuary. Soil characteristics in the area are consistent with sandy, friable soils and tidal mudflats. Vegetation in the area is consistent with two main habitat types; tidal estuary and disturbed farmland.</p> <p>As recorded by the February and May ecological field surveys, the tidal estuary environment, located along the banks of the Mowbray River, has an abundance of marine invertebrates, fish and shellfish, with foraging habitat for shorebirds, estuarine specialist forest birds and fish-eating raptors. This environment is also fringed by mature mangrove vegetation. During the February ecological field survey a bar-tailed godwit, listed as a conservation significant species under the EPBC Act, was recorded foraging the mudflats around the mouth of the Mowbray River. The February survey also recorded a resident 3 m male estuarine crocodile on two occasions in close proximity to the highway bridge crossing the Mowbray River. Two crocodiles were also observed on the bank on the southern side of the Mowbray River bridge during the May survey.</p> <p>Disturbed farmland is also present within the area, with this environment characterised by intensive historical disturbance and a ground layer subject to agriculture or dense grassy weeds with an absence of canopy and shrub layers. The marine plant communities in this area are the same as identified in Table 2-3. This environment represents foraging and nesting habitat for finches, grassbirds and other grass-dwelling birds as well as foraging habitat</p> |


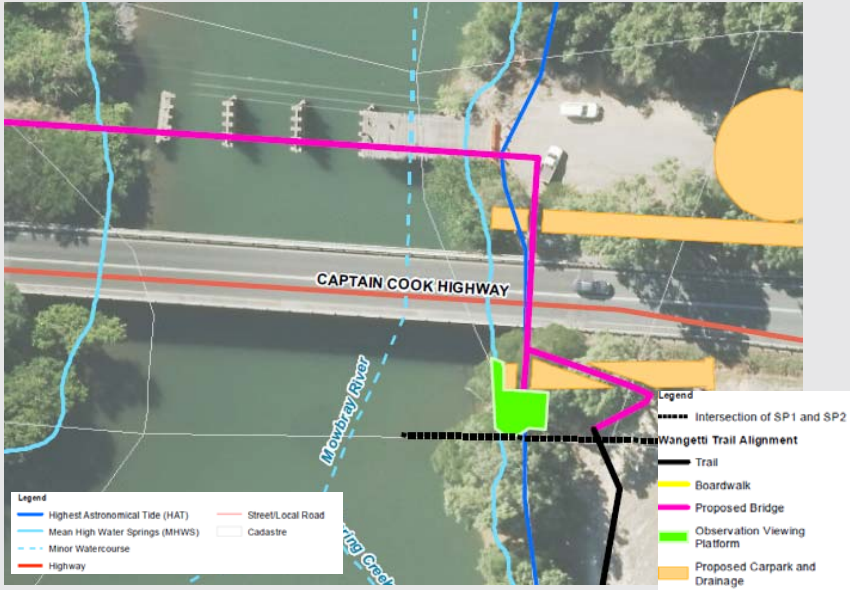
|   |   |
|---|---|
|   | <p>for raptors and pigs. Rodents and snakes also utilised this environment for refuge and foraging.</p> <p>The SP1 trail predominantly parallels the northern bank of the Mowbray River, with the majority of the trail consisting of an on-ground pathway. However, two main areas of low-lying mangroves intersect with SP1 and boardwalks will need to be constructed in these locations.</p> <p>.</p> |
| <p><b>CMD, HAT, MHWS and erosion prone area</b></p> | <p>This area is located entirely within a coastal management district (CMD) and erosion prone area and is located partially below Highest Astronomical Tide (HAT). This area is mapped above MHWS with the exception of the areas identified in Figure 1-1.</p>   |
| <p><b>Photographs</b></p>                           | <p>Mowbray River</p>   |

Table 2-5 Environmental characteristics of SP1 trail around Mowbray River

| Environmental Characteristics                |   |
|--|---|
| <b>Mowbray River</b>                         |   |
| Locality                                     |  <p>The map shows an aerial view of the Mowbray River and surrounding area. Key features include Captain Cook Highway, a proposed bridge, a viewing platform, and a carpark. The trail alignment is shown in black, and the intersection of SP1 and SP2 is marked with a dashed line. The legend identifies various elements: Highest Astronomical Tide (HAT) in blue, Mean High Water Springs (MHWS) in light blue, Minor Watercourse in dashed blue, Street/Local Road in red, Cadastre in white, Highway in orange, Intersection of SP1 and SP2 in dashed black, Wangetti Trail Alignment in solid black, Trail in solid black, Boardwalk in yellow, Proposed Bridge in pink, Observation Viewing Platform in green, and Proposed Carpark and Drainage in orange.</p>  |
| Environment                                  | <p>The area surrounding the Mowbray River has been subject to previous clearing and is a modified site with road infrastructure. Soil characteristics within the area are similar to that described in <b>Section 2.3.</b> with primarily sandy, friable soils and tidal mudflats. Similarly to the habitat types described in Section 2, vegetation in the area is consistent with two main habitat types; tidal estuary and disturbed farmland. The marine plant communities in this area are the same as identified in Table 2-3.</p> <p>This area of SP1 contains an on-ground trail along with a carpark, located on the northern side of the east bank of the Mowbray River. An observation viewing platform is also proposed for the area, located on the southern side of the east bank of the Mowbray River, to take advantage of potential crocodile and other animal sightings.</p> <p>Vegetation clearing is required for all three aspects of SP1, with marine plant disturbance occurring along the bank of the Mowbray River. A screenshot of the Mowbray River assessment location is provided in the photograph section below. It is noted that the patch of <i>Lantana camara</i>* at the bridge site does not constitute a marine plant as the taxon is listed as a restricted invasive plant under the <i>Biosecurity Act 2014</i>. Furthermore, the <i>R. stylosa</i> seedlings present were less than 1 m high and the disturbance may only be temporary if mangroves can re-establish below the observation viewing platform once constructed.</p> |
| <b>CMD, HAT, MHWS and erosion prone area</b> | <p>This area is located entirely within a coastal management district (CMD) and erosion prone area and is below Highest Astronomical Tide (HAT). This area is mapped below MHWS as identified in Figure 1-1.</p>  |

Photographs

Areas of the alignment near/within MHWS



### 2.3 Soil and Geology

SP1 project area is mapped on the Australian Soil Resource Information System as containing hydrosols and tenosols. Hydrosols are mapped around the Mowbray River and are soils that are wet for prolonged periods of time, with drainage in these areas being generally poor. Tenosols are mapped on higher areas along the alignment and are soils that are known to have weakly developed soil profiles that are typically sandy and have low water-holding capacity.



The section of SP1 project area from Nautilus Street to Mitre Street is mapped as moderately well-sorted, fine to coarse-grained quartzose to shelly sand and some gravel: beach ridges and cheniers (Queensland Globe, QLD 2019). The dominant rock is sand and the rock type is stratified unit (including volcanic and metamorphic).

The section of SP1 project south of Mitre Street and along Mowbray River is mapped as silt, mud, sand and minor salt; coastal tidal flats, mangrove flats, supratidal flats, saltpans and grasslands. The dominant rock is miscellaneous unconsolidated sediments and stratified unit (including volcanic and metamorphic).

The section of SP1 project south of Mowbray River is mapped as locally red-brown mottled, poorly consolidated sand, silt, clay, minor gravel; high-level alluvial deposits (generally related to present stream valleys but commonly dissected). The dominant rock is alluvium and is stratified unit (including volcanic and metamorphic).

SP1 project area is mapped as occurring below 5 m AHD and as potentially containing acid sulfate soils (ASS) according to the Douglas Shire Planning Scheme overlay maps. No detailed acid sulfate soils investigations have been undertaken to date for the project as this will be the responsibility of the nominated design and construct contractor. The proposed works associated with SP1 is predominately located below 5 m AHD.

## 2.4 Wetlands

High ecologically significant wetlands and trigger areas exist over the proposed alignment for SP1. These include:

- *Vegetation Management Act 1992* wetlands
- MSES high ecological significance wetlands
- Wetlands of high ecological significance.

Wetlands under the *Vegetation Management Act 1992* occur along unallocated state land along Four Mile Beach, intersecting the access route to B38 (refer to figure 1) within lot 5 of AP13754 and along the esplanade adjoining Mowbray River. Wetlands on unallocated state land along Four Mile Beach, intersecting the access route to B38 within lot 5 of AP13754 and along unnamed road reserve along Four Mile Beach are mapped as Matters of State Environmental Significance (MSES) high ecological significance wetlands. All wetlands identified, except the wetland along the esplanade adjoining Mowbray River, are also classified as wetlands of high ecological significance.

## 2.5 Protected Areas

The SP1 Project area is located partially within the Great Barrier Reef Marine Park. The section of SP1 along Four Mile Beach intersects the 'conservation park' zoning area of the Great Barrier Reef Marine Park and a small portion of 'estuarine conservation' zoning near the proposed location of B38.

The proposed boardwalk section within lot 5 AP13754 and the remainder of the trail up to the Mowbray River Bridge is located within an 'estuarine conservation' zoned area of the Great Barrier Reef Marine Park, with the exception of where the alignment traverses Andreassen Road and lot 24 SR423.

The Mowbray National Park is located approximately 1.5 km west and the Macalister National Park is located approximately 1.8 km south of the SP1 Project area.



Figure 2-1 Coastal management district mapped over SP1

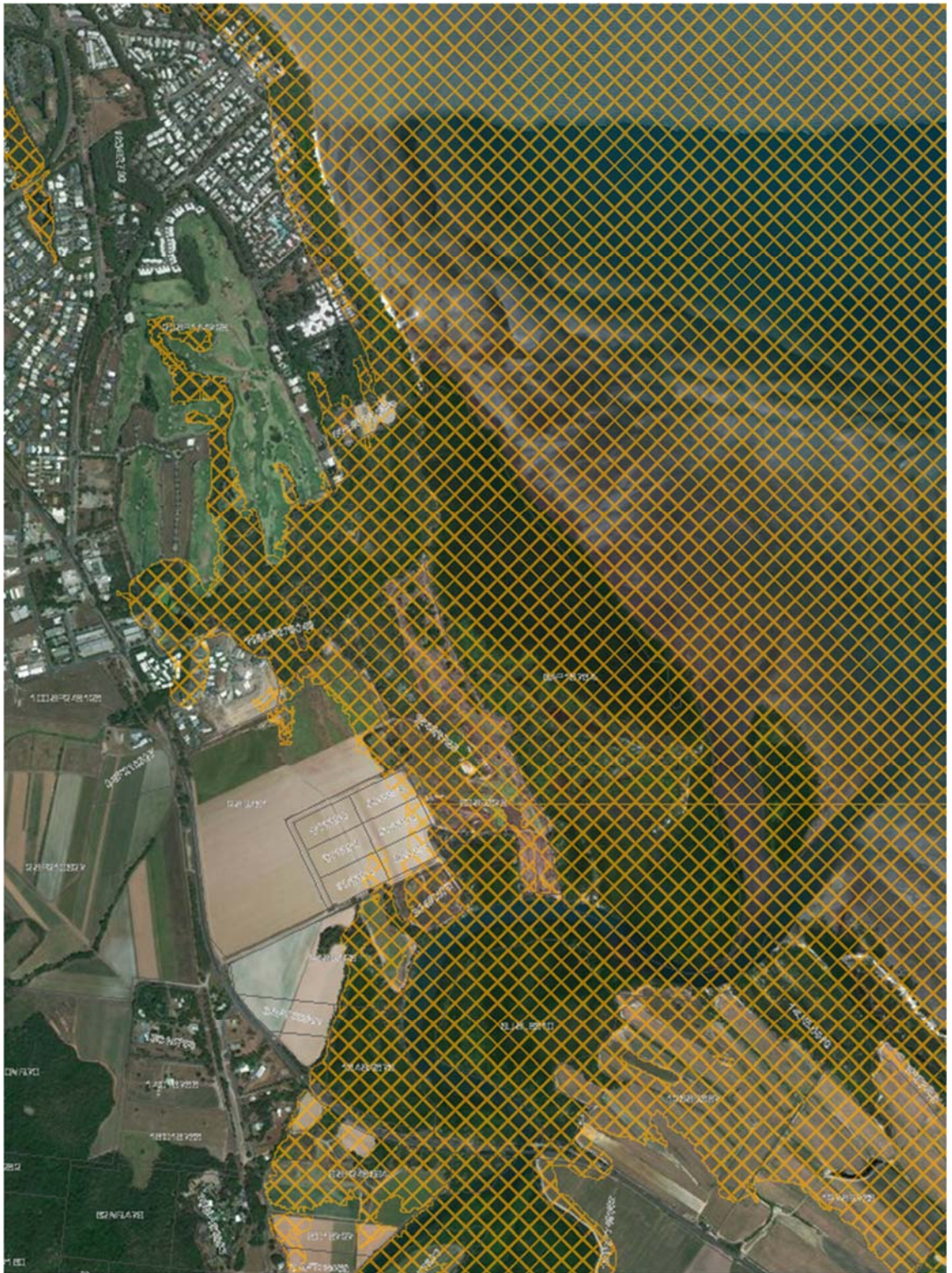


Figure 2-2 Erosion prone areas within the SP1 Project area

## 3. Proposed works

### 3.1 Summary of proposed design

As described in Section 1, the DITID is proposing to establish the Wangetti Trail, dual use trail (mountain bikers and hikers) from Palm Cove in the south to Port Douglas in the north. SP1 is the first project stage to be completed, which includes a 1.43 km mangrove experience boardwalk.

Details of the works associated with SP1 that trigger an operational work for prescribed tidal works and/or works within a CMD are discussed in section 1.2.

The list of design drawings that have been prepared for the prescribed tidal works are outlined Table 3-1 below and are included in Appendix B. The design drawings have been developed for SP1 for the purpose of securing the development approval for the project and DITID will appoint a suitability qualified design and construction contractor to finalise and verify the drawings with an RPEQ number.

Table 3-1 Design drawings associated with SP1

| Design drawing reference                                 | Date       | Creator     | Design Title  |
|--|------------|-------------|---|
| <b>Mowbray River Bridge and Old Mowbray Bridge Piers</b> |            |             |   |
| 42-21067-S001  | 08/07/2019 | GHD         | Bridge work general arrangement                     |
| 42-21067-S002  | 08/07/2019 | GHD         | Bridge work abutment details                        |
| 42-21067-S003  | 08/07/2019 | GHD         | Bridge work piers 1 and 4 details                   |
| 42-21067-S004  | 08/07/2019 | GHD         | Bridge work piers 2 and 3 details                   |
| 42-21067-S005  | 08/07/2019 | GHD         | Bridge work grinder and deck slab details – sheet 1 |
| 42-21067-S006  | 08/07/2019 | GHD         | Bridge work grinder and deck slab details – sheet 2 |
| 42-21067-S007  | 08/07/2019 | GHD         | Bridge work balustrade details                      |
| 42-21067-S008  | 08/07/2019 | GHD         | Bridge work pile details                            |
| 42-21067-S009  | 08/07/2019 | GHD         | Structural notes sheet 1                            |
| 42-21067-S010  | 20/6/2019  | GHD         | Structural notes sheet 2                            |
| 42-21067-S011  | 20/6/2019  | GHD         | Structural notes sheet 3                            |
| <b>Trail</b>   |            |             |   |
| WTSTD-001  | 12/10/2018 | World Trail | Trail Sections – Class 3, placement and dimensions  |
| WTSTD-003  | 25/10/2018 | World Trail | Precast Concrete steps, placement and dimensions    |

|   |            |             |   |
|---|------------|-------------|---|
| WTSTD-004   | 25/10/2018 | World Trail | Rock retaining wall up to 1000 mm, placement and dimensions |
| WTSTD-005   | 25/10/2018 | World Trail | Natural rock seat, placement and dimensions                 |
| WTSTD-006   | 12/10/2018 | World Trail | Boulder rock crossing – placement and dimensions            |
| WTSTD-007   | 11/10/2018 | World Trail | Rock armouring – placement and dimensions                   |
| WTSTD-011   | 11/10/2018 | World Trail | Adjustable rock matting 900 mm – placement and dimensions   |
| <b>Boardwalk</b>                                  |            |             |   |
| SK010   | May 2019   | GHD         | Composite boardwalk   |
| <b>B38 and B39 Bridge</b>                         |            |             |   |
| SK017   | May 2019   | GHD         | Gully crossings   |
| <b>Underpass and observation viewing platform</b> |            |             |   |
| SK003   | April 2019 | GHD         | Sheet piled underpass                                       |
| 42-21067-S012                                     | 28/06/2019 | GHD         | Trail underpass general arrangement                         |
| 42-21067-S013                                     | 28/06/2019 | GHD         | Trail underpass set out and reinforcement details           |

### 3.2 Alternative considerations

Multiple alternatives were considered for the SP1 stage of the Wangetti Trail project. This included two main alternatives as summarised in Table 3-2.

Within the alternatives considered, multiple infrastructure designs were also considered for boardwalk and bridge crossings including multiple options for the use and extent of boardwalks and bridges over watercourses. While other options were considered, with regard to boardwalks and bridges, the limited use of this infrastructure was chosen to reduce the impact associated with construction. This approach also lends to the minimalistic approach and earthy experience of the Wangetti Trail (World Trail Pty Ltd, 2018).

Multiple alternatives were considered for the bridge crossing over the Mowbray River, within the southern extent of SP1. Initially the crossing was proposed at the mouth of the Mowbray River, considered to be a hero experience highlighting crocodile spotting, tidal movement, and ending in a mangrove board walk. However, the river estuary is not well suited to development due to an unstable, eroding sand embankment on the south side of the river with apparent shifting of the river course (PwC, 2018). The northern side of the river also consists of a low river silt bank supporting mangroves; this environment poses difficulty for the construction of suitable foundations. This alternative would increase disturbance to marine plants, both through the clearing of vegetation at the river mouth and the increased trail length to allow access to the area. The decision to inset the trail to retain primary coastal buffer plants and subsequently reduce trail length was made to avoid unnecessary impacts to marine plants.

An alternative upstream crossing location was identified adjacent to the Captain Cook highway bridge. While this is also the location of the chosen crossing design, two alternative options were identified for the area. One alternative option was a pedestrian bridge constructed as an attachment to the existing highway bridge infrastructure. However, this alternative was not considered viable based on the cost and level of upgrades required for the existing bridge to support the additional structure.

Decommissioned concrete pylons, remnant of the old highway bridge and located adjacent to the current highway bridge, were also assessed for use as foundational pylons for a new pedestrian bridge construction. This location was considered suitable for the bridge infrastructure, however the existing pylons require removal and replacement as structural integrity has been compromised over time. While pylon replacement will cause additional disturbance to marine plants in the short-term, comparative to the use of the original pylons, the upgrade of the bridge will have long-term benefits to marine plants as infrastructure life span will be far greater.

Table 3-2 Summary rationale of main project alternatives for SP1

| Alternatives considered | Description of Alternative  |
|-------------------------|---|
| Alternative A           | The trail alignment and infrastructure associated with Alternative A was considered as an initial alternative based on desktop assessment design of SP1. However, this alternative was not chosen as the marine plant disturbance area and impacts to TEC and areas below MHWS were much greater, in comparison to the chosen design      |
| Alternative B           | The trail alignment and infrastructure associated with Alternative B was considered as an adaptation of alternative A, based on alignment changes informed by field study assessments. However, this alternative was not chosen as the marine plant disturbance area and areas below MHWS was greater, in comparison to the chosen design |

### 3.3 Justification for the work

The Wangetti Trail project aims to deliver an iconic international ecotourism experience with direct economic benefits to regional Queensland and local Traditional Owners, potentially attracting up to 28,000 local and international visitors annually. It is estimated that thousands of walkers and mountain bike riders will visit the Wangetti Trail and offer thousands of new overnight stays every year.

The Wangetti Trail will enhance conservation and protection of a cherished part of Tropical North Queensland and deliver environmental, social and economic benefits to local communities and to Queensland, including:

- New funding sources to preserve, protect and present national parks and their cultural heritage
- Better controls to limit damaging and uncontrolled activities within parks including feral animal management
- Long term job and business opportunities for Traditional Owners and their future generations
- Enhanced connection to country whilst ensuring the protection and preservation of Land and Country

- Stronger appreciation and understanding of Indigenous culture
- Underpinning long-term growth and liveability in the Tropical North and builds community resilience for their respective regional communities
- Supporting Traditional Owner businesses, existing local businesses and new business opportunities
- 150 new local jobs created including opportunities to develop local skills and increase diversity of regional jobs
- Potential to host domestic and international competitive sporting events, such as mountain-biking competitions.

### 3.4 Built form and design specifics for SP1

Development proposal details for the proposed SP1 Project area are provided in Table 3-3.

Table 3-3 Overview of the built form and design specifics

| Item  | Details   |
|---|-----------|
| <b>Permanent Infrastructure</b>   |           |
| Total SP1 length for the alignment  | 5.6111 km |
| Total trail length  | 4.0425 km |
| Total boardwalk length  | 1.3585 km |
| Total length of proposed bridges and underpass (Mowbray River Bridge and B38) | 0.1750 km |
| Carpark area  | 1.0225 ha |
| Observation viewing platform  | 0.0044 ha |
| <b>Temporary Infrastructure</b>   |           |
| Total length of access track to B38   | 0.0798 ha |
| Temporary B38 laydown area  | 0.0400 ha |

#### 3.4.1 Setbacks and separation distances

The SP1 Project area consists of minimal infrastructure, and given the located of the SP1 Project area, it is expected that there will be minimal impacts to visual amenity. The SP1 alignment will be setback from surrounding freehold private properties, however, given the isolated location of the SP1 alignment, and the limited number of dwellings, visual amenity is unlikely to be significantly impacted.

### 3.5 Infrastructure requirements

#### 3.5.1 Water, sewage and electrical supply

The SP1 Project area will not have toilets and therefore will not require treatment, storage and movement of sewage. The Project area will also not have a water or electrical supply.

### 3.5.2 Stormwater management

It is proposed that stormwater will be effectively captured within the carpark before channelling into typical water sensitive urban design drainage lines that will treat and transport the water to the Mowbray River, whilst fresh water from the trail, boardwalk, gully crossings, bridge and observation-viewing platform will run off naturally in small volumes. Given the low impact nature of the infrastructure, it is unlikely that stormwater will become contaminated as a result of trail use.

### 3.5.3 General waste management

Operational waste will be managed by providing bins at the start and finish of the trail, with signs to make trail users aware of where rubbish should be placed in order to avoid waste being discarded of within sensitive areas. Douglas Shire Council will undertake waste collection during the operational phase of the project.

## 3.6 Construction methodology and materials

This section provides a description of the construction methodology and material associated with the following works within the SP1 project area:

- New pedestrian multi-span bridge constructed over the Mowbray River
- The removal of the existing damaged piers
- New pedestrian single-span 18 m bridge at the northern section of Lot 5 AP13754 referred to as B38
- Mowbray River Road Bridge underpass
- Mangrove experience boardwalk
- Dual-use trail
- 8 m single span bridge referred to as B39 located on unnamed road reserve (Four Mile Beach)
- Observation viewing platform.

### 3.6.1 Bridge crossings

#### *Description of bridge crossings*

Three bridge structures are proposed over tidal areas within SP1 project area and they include:

- New pedestrian 52 m multi-span bridge constructed over the Mowbray River:
  - 5 span bridge
  - Six piers general aligning to the location of the existing bridge piers
  - Erosion rock protection will be provide on the base and sides of the abutments
  - A viewing platform will be provide on the new bridge
  - The bridge will be limited to pedestrians and cyclists only
  - The bridge would comprise of refabricated and assembled on site mainly from steel and timber components.Refer to Drawing 42-21067-S001 in Appendix B.
- New pedestrian 18 m single-span bridge at the northern section of Lot 5 AP13754 referred to as B38:
  - The width of the bridge would be 1.5 m and limited to pedestrians and cyclists.



- Construction access could be via a temporary access track to the southern side of the private property with a temporary rock filled culvert crossing during construction works line. The northern abutment and section of the crossing would need to be constructed by hand from via the northern trail access.
- The proposed bridge is in a tidal zone and had water in the crossing at a low tide.
- The northern bank side would require a boardwalk to be constructed up to the bridge section of approximately 11 m. A boardwalk is required for the southern side as well.
- New pedestrian 8 m single-span bridge referred to as B39 located on unnamed road reserve (Four Mile Beach):
  - The width of the bridge would be 1.5 m and limited to pedestrians and cyclists.
  - The bridge could be constructed by hand with sections of the crossing walked in via the northern trail section.
  - Either banks appeared gentle in slopes and not steep, even in height levels either side of the crossing.

The materials used for the built structures will be durable enough to withstand the harsh tropical climate and natural environment.

#### ***Method of construction***

While some adaptations to construction methodology exist between the two bridge crossing infrastructure types, works associated with all bridge crossings are similar. The built structures will be designed and engineered to be fit-for-purpose, to have minimal impact on the surrounding environment, to have minimal maintenance requirements and will need to take a minimalistic approach to materials given the remote nature of the trail and difficulties getting materials into the locations where they are required. Refer to Plate 3-1 below as an example.

The anticipated method of construction to be adopted by the construction contractor for the bridge at B38 and B39 are outlined below:

- Site Preparation works including the clearing and grubbing. Setting up the works area.
- The top soil would be striped and the ground cut to abutment base level.
- Crane would move the bridge into place.
- Secure the structure to the abutment.
- Remove all construction material from the site and all accesses to be completed and the surrounding area made good prior to works completion.



Plate 3-1 Example of single span bridges for B38 and B39



Plate 3-2 Site photos of B38 location looking south (left) and north (right)



Plate 3-3 Site photos of B38 location looking south



Plate 3-4 Site photo of B39 looking west

The anticipated method of construction to be adopted by the construction contractor for the new Mowbray River Bridge is outlined below:

- Install silt fencing and all other environmental controls as per the Environmental Management plan.
- Access tracks and work platforms will be installed on both sides of the river to access abutment locations.
- Initial survey point will be set out for abutments assembly areas.
- The top soil would be striped and the ground cut to abutment base level.
- The piling rig/crane platforms constructed and rig set up commencing at the pile and pier locations respectively. The pile locations will be set out with centres pegged.
- Once the pile is in place the hammer is placed over top of the pile and driving is commenced with the pile held in place with an excavator-mounted guide. Alternatively, the pile is placed into the hammer in the horizontal position with a locating pin installed through a hole in the pile. The pile is then pitched to the vertical position and placed over the pile location with the piling crane.
- The piles will be driven to the required design depth and set, with sections joined at lengths and welded in accordance with the specification if splicing is required.
- Once piles have reached the design depth and capacity is confirmed by the design engineer, casings will be cut to height and the tubes filled with concrete up to the development cage level.
- The piling rig would then be established on the bank and the above process repeated.
- Superstructure would be lifted and placed using a 200T Crane setup behind the abutments.
- The span would be placed in the laydown area on the approach end of the bridge
- Once the pier and abutments are constructed the bridge spans are removed the new steel beams will be installed in position and bracing installed in accordance with the specifications.

- Once in the beams are in place and fixing down the precast deck slab units will be installed and grouted onto the nelson shear studs.
- The hand railing and kerbing would be installed and the approach earthworks completed.
- All equipment and plant would be disestablished from site.

### 3.6.2 The removal of the existing damaged piers of Old Mowbray River Bridge

The demolition of existing bridge piers associated with Old Mowbray River Bridge will allow for construction of new bridge piers. A site inspection of the Old Mowbray River Bridge substructure was undertaken by GHD's structural engineer on the 13th of March 2019 to determine the condition of the existing piers and abutments. During the inspection the following was noted:

- The existing bridge piers varied in height, gradually decreasing from east to west (towards Port Douglas) with Abutment B being very close to the Highest Astronomical Tide (HAT).
- Existing piers are constructed from concrete, with 5 corbel supports extending out from the pier wall either side to support corbels of the old road bridge.
- Piers are supported by 6 piles underneath (confirmed on site for some piers only)
- Significant defects observed in blade walls for most piers, typically on the downstream side of the pier.
- Figures 3-1, 3-2 and 3-3 show the condition of the existing bridge piers associated with Old Mowbray River Bridge.
- It was determined that the existing piers to be removed to allow for a new bridge to be constructed. The following figures (Plate 3-5, 3-6 and 3-7) show the layout and structure of the Old Mowbray River Bridge concrete piers.

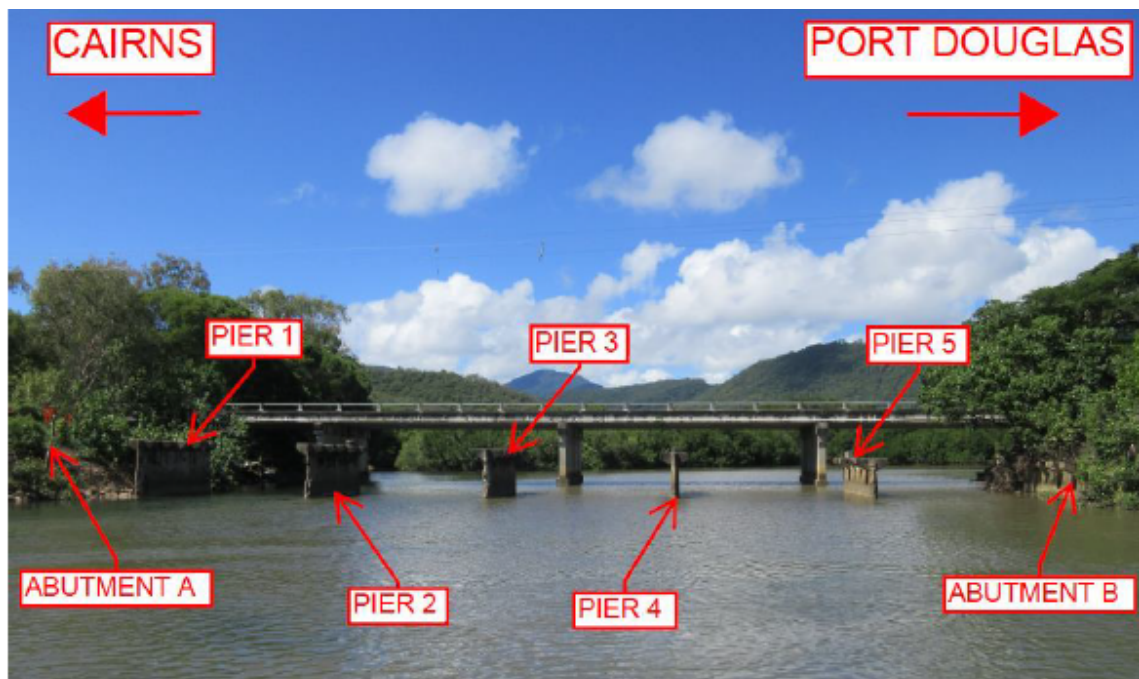


Plate 3-5 Plan layout of Old Mowbray River Bridge

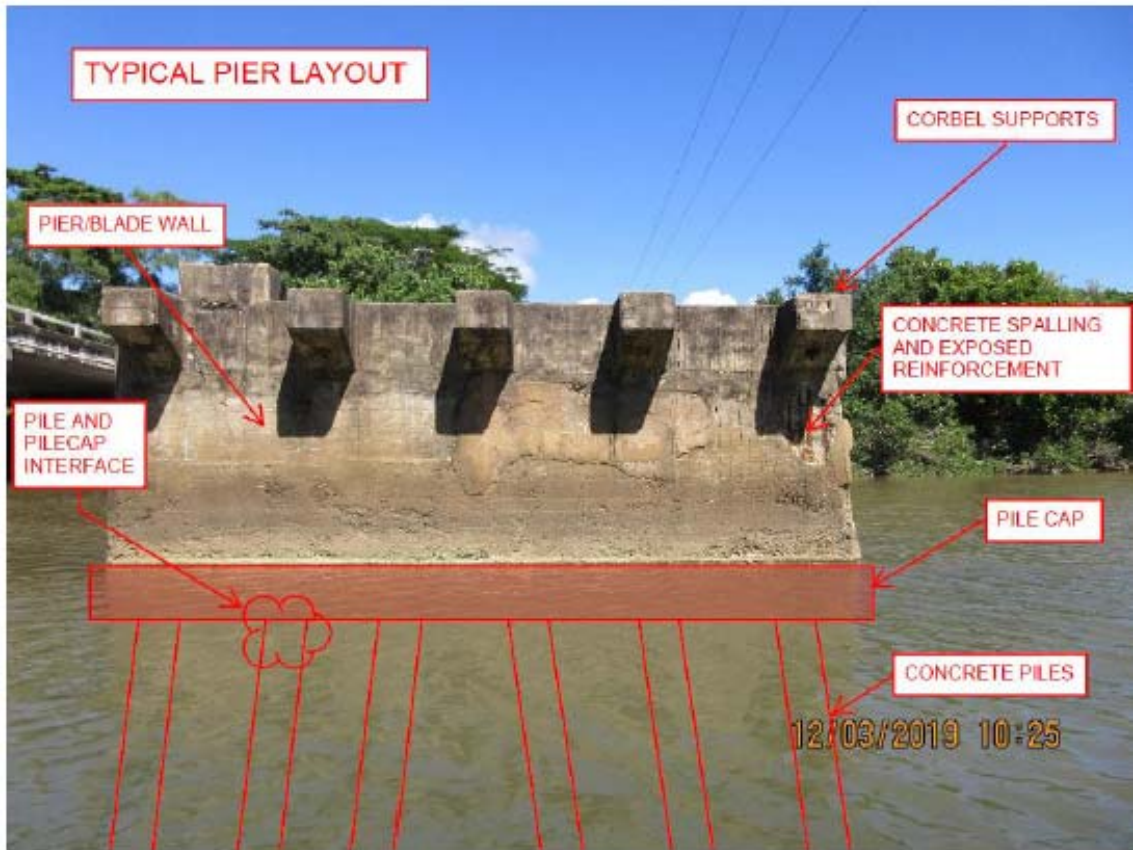


Plate 3-6 Old Mowbray River Bridge Pier Structure



Plate 3-7 Photos showing defects of the existing piers

The removal of the existing piers will be undertaken by the nominated contractor and is to be undertaken in accordance with the Australian Standard AS2601. It is anticipated that a barge will be used to assist with the dismantling of the piers. Scaffolding will be erected around the piers during the demolition process. The existing piles will be cut off at the bed level. During the demolition process removed material will be carefully removed from the waterway to prevent materials impacting on water quality. Dust proof screens, bulkheads and covers will be used where required to protect the surrounding environment from dust and debris. Temporary

weatherproof screens will be fixed securely to the existing structure, and install to ensure appropriate shedding of water to avoid any material of debris from entering the waterway.

### 3.6.3 Mowbray River Bridge underpass, observation viewing platform, stairs, ramps and carpark

#### *Description of bridge underpass*

The SP1 trail has been designed to pass under the Captain Cook Highway at the bridge crossing approximately 4 km south of Craiglie, QLD (refer to Plate 3-8). The underpass has been designed to be above flood level and as such would require a retaining structure. The underpass will be constructed on the eastern side of the Mowbray River underneath the Captain Cook Highway. The design and finish of the underpass will be in keeping with the natural design and will prioritise the use of local timbers and other materials that will age well over time.

The width of the underpass will be 2 m and will have a height of 2.2 m to accommodate trail users. It will have a handrail to protect trail users from Mowbray River. It will be connected to the new pedestrian bridge over the Mowbray River via a ramp and reinforced concrete stairs. It will also connect to the observation viewing platform via a ramp. Refer to Drawing Reference: 42-21067-S012 in Appendix B for design of the underpass.

GHD obtained assistance from Construction Contractor Civform to determine a suitable construction material and methodology for the retaining structure. It was determined that reinforced concrete retaining wall would be suitable for the underpass. This would ensure that working below tide levels and pouring concrete retaining structures within tidal zones is avoided.

Material anticipated to be used by the nominated contractor include:

- Reinforced concrete
- The proposed pile driving equipment (including floating plant, land based plant, pile frame, gates and leaders)



Plate 3-8 Proposed Mowbray River Bridge Underpass looking south

#### *Description of the built structures*

An observation viewing platform, stairs, ramps and carpark area will be constructed on the eastern side of the Mowbray River, adjacent to the proposed pedestrian bridge. A key objective of the Wangetti Trail is to have a consistent aesthetic and 'feel' whereby the trail showcases the beauty of the terrain with minimalistic design. Subsequently, the design and finish of the observation viewing platform, underpass and carpark areas are in keeping with the natural design and will prioritise the use of local timbers and other materials that will age well over time.

The proposed ramps, stairs, drainage culverts and carpark are located within state controlled road reserve, above HAT level and are partly within the coastal management districts and are not considered to trigger prescribed tidal works or interfering with quarry material on state

coastal land. However, the observation viewing platform is considered to trigger prescribed tidal works as the following elements associated the structure will be above and below tidal water and HAT and they include:

- Grouted road pitching protection proposed along the banks of Mowbray River below the observation viewing platform as shown in Figure 3-4 below.
- The cantilever part of the observation viewing platform as shown in Figure 3-4 and Figure 2-1.

The observation viewing platform is a 5 m x 5 m platform overlooking the river; designed to take advantage of natural wildlife sightings. The platform will be designed and engineered to be fit-for-purpose, to have minimal impact on the surrounding environment, to have minimal maintenance requirements and will need to take a minimalistic approach to materials given the remote nature of the trail and difficulties getting materials into the locations where they are required.

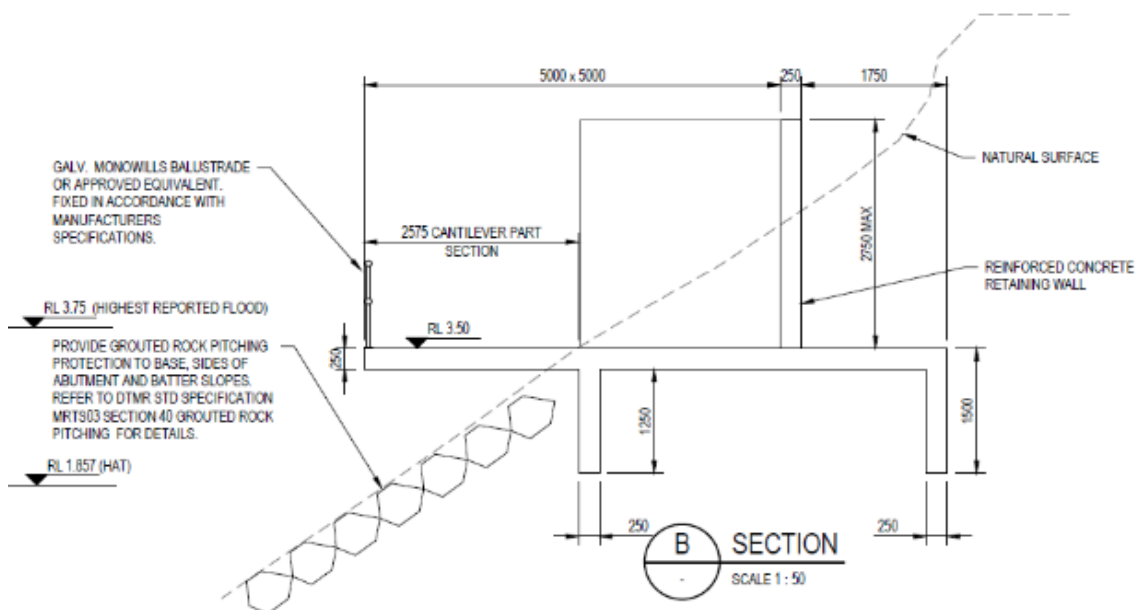


Figure 3-1 Section Drawing of the observation viewing platform



Plate 3-11: Location of the proposed observation-viewing platform

### Method of construction

The anticipated construction methodology for the above works is outlined below:

- Install all safety fences / barriers and site signage

- Install silt fencing and all other environmental controls as per the Environmental Management plan.
- Access tracks and work platforms will be installed.
- Site Preparation works including the clearing and grubbing. Setting up the works area
- The top soil would be striped and the ground cut to level.
- Excavation, Installation and backfilling of RCP culverts.
- Install Reinforced concrete inlet pit construction complete.
- Install Reinforced concrete retaining wall underpass construction complete.
- Install Reinforced concrete viewing platform complete
- Backfilling and grading and levelling for approaching reinforced concrete ramps and pathway.
- Install Reinforced concrete ramps and pathways complete.
- Install Reinforced concrete stairs complete.
- Remove all construction material from the site
- Reinstall grouted rock protection to embankment slopes.

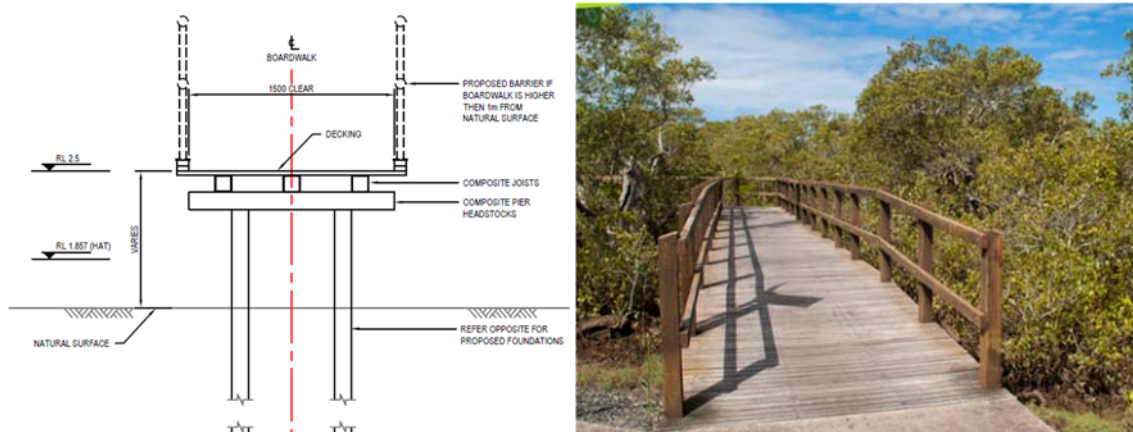
All accesses to be completed and the surrounding area made good prior to works completion.

Works will be subject to environmental controls relating to erosion and sediment control, stormwater and water quality management and vegetation management. No clearing of native vegetation is anticipated to be required for works to occur.

### 3.6.4 Mangrove boardwalk

#### *Description of the boardwalk*

In low-lying areas, a boardwalk will be constructed rather than an on-ground trail (refer to Plate 3-9). Four areas of boardwalks are proposed with the SP1 footprint. The boardwalks will provide passage for users on the trail to safely travel through the muddy terrain and locations where crocodiles may be encountered. The boardwalk will be constructed with timber or composite decking and supported by timber or steel piles. The boardwalk will be founded above HAT and storm surge level to allow for access during wet weather and to provide protection from debris.



Source: GHD (2019) and BCC (2017)

Plate 3-9: Proposed boardwalk design (left) and example boardwalk from Bayside Parklands (right)



### ***Method of construction***

The boardwalk will sit on piles and will be an elevated structure. Innovative and best practice construction methodologies will be selected for the construction of the boardwalk to minimise potential environmental impacts.

The anticipated method of construction to be adopted by the construction contractor for the boardwalk is outlined below. Construction of the boardwalk will commence once the SP1 trail path has been established.

- Site preparation works including clearing and grubbing and setting up works areas
- Material sourced for the boardwalk stockpiled on site
- Inspection and approval of material for use by the superintendent's representative
- Foundation and soil testing to correctly identify foundation conditions - provide and/or confirm design parameters for footing systems
- Foundation of boardwalk to be installed by driven piles
- Proposed boardwalk to be constructed with piles, timber subfloor, and wooden deck, with utilisation of durable materials and/or corrosion protection systems to achieve the design life (piles to comply with AS 2159 and are pre cast concrete or cast-in-situ concrete or timber)
- The boardwalk is to be assembled in situ by hand
- Protective treatments applied to boardwalk structure
- Removal of all construction materials from site and implementation of appropriate site rehabilitation prior to work completion.

The design and finish of the boardwalk areas will prioritise the use of local timbers and other materials that will age well over time i.e. rusted steel and silvery grey hardwood timbers. Built structures will be designed and fit-for purpose; to have minimal impact on the surrounding environment, minimal maintenance requirements and a minimalistic approach to materials given the remote nature of the SP1 Project. The boardwalk is designed with a width of 1.5 m, with a permanent construction and maintenance buffer of 0.5 m on either side (1 m total buffer area). Micro adjustments may be required to the proposed boardwalk alignment to avoid obstacles and to minimise vegetation clearing. This would be confirmed by the trail construction contractor and would be undertaken as a Design and Construction component. The buffer area will allow access for general maintenance and hand trimming of marine plants.

### 3.6.5 Trail

#### ***Description of the Trail***

The trail in SP1 is proposed to be single track to accommodate both mountain bike users and hikers (refer to Plate 3-10 for the proposed trail design and example trail). The benefits of a single track trail includes the ability to wind around obstacles such as trees, large rocks, and bushes, blend into the surrounding environment, disturb much less ground, and relatively simple maintenance. The SP1 trail will be a linear alignment directing users to the Mowbray River.

The surface of the SP1 trail will predominantly be natural soil, with the tread of the trail constructed from natural soil and rock found along the trail. The use of natural materials will emphasise the minimalistic approach and earthy experience of the Wangetti Trail. Imported surfacing materials such as fine crushed rock may be used in high traffic areas or where other requirements dictate use of the material, although imported materials will be avoided where

possible (World Trail Pty Ltd, 2018). Larger 'ballast' rock may also be imported for usage in wet soakage areas or low lying sandy areas.

Culverts and pipes are not generally used in trail construction, but may be required from time to time for drainage purposes.



Source: Wordtrail (2018) and World Trail (2017)

Plate 3-10: Proposed trail design (left) and example trail from the Munda Biddi Trail in Western Australia (right)

### Materials

Material anticipated to be used by the nominated contractor to construct the trail include:

- Stone - stone will be one of the main construction materials, used for rock armouring, rock retaining walls, rock gabions etc. All stone will be sourced locally during construction. Much of the stone will be sourced from the actual benching of the trail. Any suitable stone will be removed by excavator and placed beside the trail for collection and use later.
- Boulders - large boulders will be used for a number of purposes during the construction phase. For some of the larger and more significant creek crossings, large boulders positioned within the creek bed will be moved into place to provide a natural rock causeway that will resist movement caused by high water flow.
- Ballast rock – ballast rock will be used as a base course in low-lying wet areas or flat sandy areas, to build up the trail surface and provide a firm foundation. Ballast rock can vary, but is generally a durable crushed stone with sharp corners and edges, free of impurities, weathering and organic materials. Igneous and metamorphic rocks such as granite, gneiss, and basalt make excellent ballast.
- Fine crushed rock - crushed rock will be used from time to time as a wearing course. Generally the wearing course of the trail will be the natural soil, but crushed rock may be required in situations where ballast rock has been specified as a base course.
- Adjustable Rock Matting - which is essentially a modular, flexible sheet of concrete rock armouring which looks like natural stone. While natural stone rock armouring is preferable for its durability, look and feel, in locations where there is not suitable rock available.

### Method of construction

The majority of the trail will be built using mini-excavators, which require a minimum tread width of 1 m to operate safely. Where it is not safe, practical or desirable to use a mini-excavator, the trail will be hand constructed.

The natural environment poses many unique challenges that will often dictate a change in SP1 trail alignment that could never have been anticipated during the design process. Additionally, the 'flow' of a trail that is critical to user enjoyment, and the trail drainage measures that are critical to sustainability typically require adjustments during construction. For these reasons, highly experienced, specialist construction companies, with significant experience building mountain bike trails will be contracted to construct the trail. The final character and style of the SP1 trail is entirely dictated by the construction team and particularly the machine operator involved in the construction process, with due consideration for constraints and no-go areas as marked and defined within plans and as part of the Construction Environmental Management Plan (CEMP).

The work week during the construction phase would be limited to 5 days per week to manage fatigue related injuries. The rate of construction expected to be 50 m/crew/day with crew sizes ranging from 3-6 people. The nominated contractor would require 1-2 months to complete a pre-scope and detail design plus mobilisation and the works would be undertaken during drier and cooler months.

### 3.7 Estimated costs

Cost estimates have been developed for the proposed prescribed tidal works associated with SP1 and they are outline in Table 3-2 below.

Table 3-4 Proposed Works in Tidal Area for SP1 Cost Estimate

| Proposed works  | Estimate Cost |
|---|---------------|
| Dual-use trail and mangrove experience boardwalk  | \$15,543,552  |
| New pedestrian single-span 18 m bridge at the northern section of Lot 5 AP13754 referred to as B38<br>8 m single span bridge referred to as B39 located on unnamed road reserve (Four Mile Beach) | \$100,000     |
| Mowbray River Road Bridge underpass   | \$110,000     |
| Observation viewing platform  | \$125,000     |
| New pedestrian multi-span bridge constructed over the Mowbray River<br>The removal of the existing damaged piers  | \$365,000     |

### 3.8 Onsite impact mitigation

An Environmental Management Plan (EMP) will be prepared for the construction and operational phases of SP1. Key onsite mitigation measures will be implemented within each of the relevant infrastructure aspects of SP1 including; trail, boardwalks, bridge crossings underpass and observation viewing platform refer to Table 3-5 below.

Table 3-5 Summary of impacts and mitigation measures related to each aspect of SP1, including relevant infrastructure aspect/s

| Aspect  | Impact  | Mitigation Measure   | Trail | Boardwalk | Bridges | Ancillary works |
|---|---|--|-------|-----------|---------|-----------------|
| <b>Landscape character and visual amenity</b> | <p><b>Construction</b><br/>Works proposed within rural and conservation zoning that does not currently contain any development may result in decreased landscape character</p> <p><b>Operation</b><br/>No landscape and visual amenity impacts associated with operation of the SP1 Project</p> | <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Materials and machinery will be stored in previously cleared areas, wherever possible</li> <li>• Clearing of mature landscape trees and marine plants will be avoided, wherever possible, within temporary construction laydown areas not required for operation</li> <li>• Where appropriate, trail will be designed around mature landscape trees</li> <li>• Temporary barriers and traffic management signage will be removed as soon as practical after construction</li> </ul> <p><b>Operation</b><br/>NA</p> | ✓     | ✓         | ✓       | ✓               |
| <b>Surface hydrology</b>                      | <p><b>Construction</b><br/>Changes in water quality resulting from overland flow and stormwater run-off from exposed surfaces<br/>Pollution resulting from chemical or fuel sources</p>   | <ul style="list-style-type: none"> <li>• Water quality during construction will be managed through a Water Quality Management Plan, which will include the following management measures: <ul style="list-style-type: none"> <li>– Storing fuels, chemicals, wastes and other potentially environmentally hazardous substances in contained areas away from watercourses and managed through a Hazardous Substances Management Plan</li> <li>– Regular checks of vehicles and equipment for oil leaks</li> </ul> </li> </ul>   | x     | ✓         | ✓       | ✓               |

| Aspect | Impact   | Mitigation Measure   | Trail | Boardwalk | Bridges | Ancillary works |
|--------|--|--|-------|-----------|---------|-----------------|
|        |  | <ul style="list-style-type: none"> <li>– Development of a Waste Management Plan</li> <li>– Waterway profiles at temporary construction access roads and temporary construction facility areas will be reinstated and disturbed areas promptly stabilised following completion of construction works</li> <li>– Emergency spill response</li> </ul>   |       |           |         |                 |
|        | Erosion and sedimentation from construction activities and vegetation clearing                                   | <ul style="list-style-type: none"> <li>• Erosion and sediment controls relevant to construction activities will be implemented and managed through the implementation of an ESCP</li> <li>• The extent and duration of soil exposure will be minimised as far as reasonably practicable</li> <li>• Water quality during construction will be managed through a Water Quality Management Plan</li> </ul>                                      | ✓     | ✓         | ✓       | ✓               |
|        | Demolition of existing Old Mowbray Bridge piers and potential contamination of waterway with construction debris | <ul style="list-style-type: none"> <li>• Contractor to undertake demolition works in accordance with environmental permits and approvals.</li> <li>• Contractor to create demolition methodology for removal of existing supports. Debris to be removed in manageable sizes for crane lifts</li> <li>• Erosion and sediment controls relevant to construction activities, particularly the Mowbray River bridge crossing, will be</li> </ul> | x     | x         | ✓       | x               |

| Aspect | Impact  | Mitigation Measure   | Trail | Boardwalk | Bridges | Ancillary works |
|--------|---|--|-------|-----------|---------|-----------------|
|        |   | managed through the implementation of an ESCP  |       |           |         |                 |
|        | Impacts to local hydrology, drainage patterns and water quality of creeks and water bodies  | <ul style="list-style-type: none"> <li>• Maintain water quality and hydrological regime of the Project area</li> <li>• Comply with the requirements of Environment Protection (Water) Policy 2009 and catchment management plans prepared for local waterways</li> </ul>   |       |           |         |                 |
|        | <p><b>Operation</b></p> <p>Ongoing trail use may result in erosion and sedimentation to surrounding surface water and the introduction of waste material which may negatively impact water quality.</p> | <ul style="list-style-type: none"> <li>• Placement of signage at entrances and exits of the trail informing trail-users of the appropriate use of bins for waste material</li> <li>• Providing bins at the entrances and exits of the trail for trail-users to dispose of any waste material before entering and leaving the trail</li> <li>• Active and passive discouragement – no promotion of areas that should be avoided or signage warning of restricted areas</li> </ul> | ✓     | ✓         | ✓       | ✓               |

| Aspect                               | Impact  | Mitigation Measure  | Trail | Boardwalk | Bridges | Ancillary works |
|--------------------------------------|---|---|-------|-----------|---------|-----------------|
| <b>Coastal processes</b>             | <p><b>Construction</b><br/>Development within the Coastal Management District including tidal areas.</p> <p><b>Operation</b><br/>No impacts to coastal processes associated with operation of the SP1 Project</p> | <ul style="list-style-type: none"> <li>• Maintaining coastal processes such as tidal flow and the flow of waterways through the inclusion of appropriately sized crossings</li> <li>• Avoiding reclamation in tidal areas.</li> <li>• Managing acid sulfate soils and coastal erosion through the development and implementation of an acid sulfate soils management plan</li> <li>• Developing and implementing sediment and erosion control plans for all cuts, fill and culverts in close proximity to or directly in a watercourse</li> <li>• Limiting the amount of temporary and permanent fill to be used in coastal management areas</li> </ul> | ✓     | ✓         | ✓       | ✓               |
| <b>Groundwater</b>                   | <p><b>Construction</b><br/>Impacts to water quality may occur as a result of piling for bridge construction</p> <p><b>Operation</b><br/>No groundwater impacts associated with operation of the SP1 Project</p>   | <ul style="list-style-type: none"> <li>• Contaminated groundwater will be captured and treated before release</li> <li>• Water quality during construction will be managed through a Water Quality Management Plan</li> </ul>   | x     | x         | ✓       | x               |
| <b>Topography, geology and soils</b> | <p><b>Construction</b><br/>It is likely that the construction of the trail will result in some changes to the landscape that will potentially</p>   | The nominated design and construction contractor will responsible for developing an Erosion and Sediment Control Plan (ESCP) during the construction phase of SP1 in  | ✓     | ✓         | ✓       | ✓               |



| Aspect | Impact   | Mitigation Measure   | Trail | Boardwalk | Bridges | Ancillary works |
|--------|--|--|-------|-----------|---------|-----------------|
|        | <p>increase the risk of erosion, these include:</p> <ul style="list-style-type: none"> <li>• Clearing of vegetation</li> <li>• Construction of all SP1 infrastructure</li> <li>• Construction during high rainfall events</li> </ul> | <p>accordance with the Best Practice Erosion and Sediment Control Manual (IECA, 2008).</p> <p>The ESCP will include mitigation measures such as:</p> <ul style="list-style-type: none"> <li>• No go areas to be marked with flagging tape to ensure that all work activities remain within the designated work site and areas of vegetation to be retained to be clearly marker to mitigate the risk of accidental clearing</li> <li>• Installation of sediment fencing along the downslope extent of works, particularly at bridge crossings and around the Mowbray River</li> <li>• Minimisation of construction footprint through staged clearing activities and utilisation of cleared or modified areas where possible</li> </ul> <p>Stockpiling is to be located above tidal extents</p> |       |           |         |                 |
|        | <p>Construction activities below 5 m AHD in areas that are likely to contain Potential Acid Sulfate Soils (PASS) or Actual Acid Sulfate Soils (AASS) that could result in the acidification of the surrounding environment.</p>      | <p>The Construction Contractor will develop an Acid Sulfate Soil Management Plan as part of the Construction Environmental Management Plan (CEMP), in line with the <i>Queensland acid sulfate soils technical manual: soil management guidelines</i>.</p>   | ✓     | ✓         | ✓       | ✓               |

| Aspect                     | Impact   | Mitigation Measure  | Trail | Boardwalk | Bridges | Ancillary works |
|----------------------------|--|---|-------|-----------|---------|-----------------|
|                            | <p><b>Operation</b></p> <p>Trail users may displace soil and progressively wear down natural trail elements</p>                                    | <ul style="list-style-type: none"> <li>• Regular maintenance of SP1 alignment to clearly define trail areas and promote use of designated areas</li> <li>• Signage to encourage trail users to stay on designated track alignment</li> </ul>  | ✓     | ✓         | ✓       | ✓               |
|                            | Erosion and sedimentation from ongoing use of trail  | Active and passive discouragement – no promotion of areas that should be avoided or signage warning of restricted areas   | ✓     | ✗         | ✓       | ✗               |
| <b>Terrestrial ecology</b> | <p><b>Construction</b></p> <p>Construction activities resulting in the removal of vegetation, including areas of TEC, RE and marine plants.</p>    | Design of the SP1 alignment has minimised the disturbance of TEC and marine plants, wherever possible   | ✓     | ✓         | ✓       | ✓               |
|                            | Direct loss and disturbance of marine plants   | Development of offset strategy for marine plants  | ✓     | ✓         | ✓       | ✓               |
|                            | Construction activities may impact flora and fauna biodiversity in the area  | Minimisation of construction footprint through staged clearing activities and utilisation of cleared or modified areas where possible   | ✓     | ✓         | ✓       | ✓               |
|                            | Introduction or increase of invasive species as a result of construction related disturbance, transportation of seed material and additional waste | <p>Implement a vehicle wash down area during the construction of the trail to ensure that vehicles are cleaned of all potential weeds</p> <p>CEMP to include measures to reduce introduction of weeds and pest</p> <p>Trail construction will avoid disruption of forest canopy wherever possible to avoid additional</p> | ✓     | ✓         | ✓       | ✓               |

| Aspect | Impact  | Mitigation Measure  | Trail | Boardwalk | Bridges | Ancillary works |
|--------|---|---|-------|-----------|---------|-----------------|
|        |   | <p>sunlight that can promote weed growth on forest floor</p> <p>General waste will be securely disposed of in provided bins</p>   |       |           |         |                 |
|        | Development within Ecologically Significant Areas | <p>Design shall minimise encroachment into significant vegetation through the inclusion of exclusion zones along the alignment for areas of high ecological value.</p> <p>Appropriate provision will be made for fauna passage and continuation of watercourses and overland flow paths</p> <p>Environmental quality will be preserved through the inclusion of management requirements into the contract documentation for acid sulfate and contaminated soils</p> | ✓     | ✓         | ✓       | ✓               |
|        | Injury or loss of native flora and fauna          | <ul style="list-style-type: none"> <li>• CEMP to include measures to reduce impacts on flora and fauna and maintain remaining vegetation through:</li> <li>• Nomination of no go zones</li> <li>• Fauna spotter/ catcher onsite during clearing</li> <li>• Retain habitat trees (e.g. trees with hollows) wherever practical</li> <li>• Traffic management</li> </ul>   | ✓     | ✓         | ✓       | ✓               |

| Aspect | Impact  | Mitigation Measure  | Trail | Boardwalk | Bridges | Ancillary works |
|--------|---|---|-------|-----------|---------|-----------------|
|        | <b>Operation</b><br>Removal, destruction or damage of marine plants from operational activities | Where marine plants require maintenance, the plants will be trimmed and cut by hand to minimise disturbance impact  | ✓     | ✓         | ✓       | ✓               |
|        | Weed infestation from trail users tracking in weed material on shoes, bikes and equipment       | Development of a weed and pest species management plan to mitigation spread of invasive species by trail users<br><br>Signage to encourage trail users to clean clothing, shoes and equipment before entering trail<br><br>Providing boot wash facility at both ends of the trail to ensure users do not track pest weeds onto the trail<br><br>Signage to discourage trail users from picking or carrying flowers or plants from one area to another | ✓     | ✓         | ✓       | ✓               |
|        | Food and water waste leading to increased pest activities                                       | Signage to encourage trail users to dispose of waste prior to entering trail, as well as providing bins at both ends of the trail   | ✓     | ✗         | ✓       | ✓               |
|        | Trampling of plants as a result of trail users walking off track                                | Providing guidelines to trail users around clearly walking on the trail   | ✓     | ✓         | ✓       | ✓               |
|        | Interference of local wildlife by domestic animals  | • Providing guidelines to trail users around not allowing domestic animals along the trail<br>Signage around awareness of protected species   | ✓     | ✓         | ✓       | ✓               |

| Aspect                 | Impact   | Mitigation Measure   | Trail | Boardwalk | Bridges | Ancillary works |
|------------------------|--|--|-------|-----------|---------|-----------------|
|                        | Dangerous Fauna (Cassowary) inhabit the SP1 Project area. Animal interactions may result in injury/fatality from dangerous fauna | <ul style="list-style-type: none"> <li>To minimise the risks to public safety during this period, local education and community engagement will be used</li> <li>Warning signage to notify trail users</li> </ul>  | ✓     | ✓         | ✓       | ✓               |
| <b>Aquatic Ecology</b> | <b>Construction</b><br>Introduction of additional sediment and materials to aquatic environment                                  | <ul style="list-style-type: none"> <li>Water quality during construction will be managed through a Water Quality Management Plan</li> <li>Storing fuels, chemicals, wastes and other potentially environmentally hazardous substances in contained areas away from watercourses and managed through a Hazardous Substances Management Plan</li> <li>Regular checks of vehicles and equipment for oil leaks</li> <li>Development of a Waste Management Plan</li> <li>Waterway profiles at temporary construction access roads and temporary construction facility areas will be reinstated and disturbed areas promptly stabilised following completion of construction works</li> <li>Emergency spill response</li> <li>Appropriate permits and/or licences will be obtained for all water required during construction</li> </ul> | x     | ✓         | ✓       | ✓               |
|                        | Removal, destruction or damage of marine plants from construction activities   | <ul style="list-style-type: none"> <li>Clearing of marine plants will be avoided, where possible, within temporary construction laydown areas not required for operation</li> </ul>  | ✓     | ✓         | ✓       | ✓               |

| Aspect | Impact   | Mitigation Measure  | Trail | Boardwalk | Bridges | Ancillary works |
|--------|--|---|-------|-----------|---------|-----------------|
|        |  | <ul style="list-style-type: none"> <li>No go areas to be marked with flagging tape to ensure that all work activities remain within the designated work site and areas of vegetation to be retained to be clearly marked to mitigate the risk of accidental clearing</li> </ul>   |       |           |         |                 |
|        | Direct loss and disturbance of marine plants   | <ul style="list-style-type: none"> <li>Development of offset strategy</li> </ul>  | ✓     | ✓         | ✓       | ✓               |
|        | Dangerous Fauna (Crocodiles) inhabit the SP1 Project area. Falls into water or any entry to the water could result in injury/fatality from dangerous fauna | <ul style="list-style-type: none"> <li>Contractor to implement JSEA safe work method statement</li> </ul>   | x     | x         | ✓       | ✓               |
|        | Injury or loss of native flora and fauna   | <p>CEMP to include measures to reduce impacts on flora and fauna and maintain remaining vegetation through:</p> <ul style="list-style-type: none"> <li>Nomination of no go zones</li> <li>Fauna spotter/ catcher onsite during clearing</li> <li>Retain habitat trees (e.g. trees with hollows) wherever practical</li> <li>Traffic management</li> </ul> | ✓     | ✓         | ✓       | ✓               |
|        | <b>Operation</b><br>Removal, destruction or damage of marine plants from operational activities  | <ul style="list-style-type: none"> <li>Where marine plants require maintenance, the plants will be trimmed and cut by hand to minimise disturbance impact</li> </ul>  | ✓     | ✓         | ✓       | ✓               |
|        | Additional disturbance to aquatic environments associated with increased foot traffic and potential  | <ul style="list-style-type: none"> <li>Signage to encourage trail users to stay on designated track alignment</li> </ul>  | ✓     | ✓         | ✓       | ✓               |

| Aspect                     | Impact   | Mitigation Measure  | Trail | Boardwalk | Bridges | Ancillary works |
|----------------------------|--|---|-------|-----------|---------|-----------------|
|                            | deviation from designated trail areas  | <ul style="list-style-type: none"> <li>Regular maintenance of SP1 alignment to clearly define trail areas and promote use of designated areas</li> </ul>  |       |           |         |                 |
|                            | Dangerous Fauna (Crocodiles) inhabit the SP1 Project area. Falls into water or any entry to the water could result in injury/fatality from dangerous fauna                                   | <ul style="list-style-type: none"> <li>To minimise the risks to public safety during this period, local education and community engagement will be used</li> <li>Warning signage to notify trail users</li> </ul>   | x     | x         | ✓       | ✓               |
| <b>Air quality</b>         | <b>Construction</b><br>Generation of dust associated with machinery movement and construction of the SP1 alignment<br>Generation of exhaust emissions associated with machinery and vehicles | <ul style="list-style-type: none"> <li>Implementation of dust suppression methods such as watering down of areas and mulching of cleared vegetation to use as ground cover</li> <li>Avoidance or minimisation of dust generation during severe weather conditions i.e. minimising dust generation during periods of intense wind</li> <li>Selection of machinery to be fit-for-purpose and low emission, wherever possible</li> </ul> | ✓     | ✓         | ✓       | ✓               |
|                            | <b>Operation</b><br>No air quality impacts associated with operation of the SP1 Project  | N/A   | N/A   | N/A       | N/A     | N/A             |
| <b>Noise and vibration</b> | <b>Construction</b><br>Additional noise and vibration may negatively impact immediate and surrounding areas  | <ul style="list-style-type: none"> <li>Impacts will be mitigated through a Construction EMP developed by the Construction Contractor</li> <li>SP1 will abide by environmental impact best practice guidelines by using low impact construction methods</li> </ul>   | ✓     | ✓         | ✓       | ✓               |

| Aspect       | Impact   | Mitigation Measure  | Trail | Boardwalk | Bridges | Ancillary works |
|--------------|--|---|-------|-----------|---------|-----------------|
|              |  | <ul style="list-style-type: none"> <li>• Prior and during the construction phase of SP1, provision of information to nearby residents regarding construction activities and timing should be undertaken, alongside information on who to contact if issues arise.</li> <li>• Construction activities will only occur during daytime hours, with no night time works proposed</li> </ul> |       |           |         |                 |
|              | <p><b>Operation</b></p> <p>Additional noise and vibration associated with trail use may negatively impact flora and fauna</p>                  | <ul style="list-style-type: none"> <li>• Signage around awareness of fauna species and sensitive areas</li> <li>• Active and passive discouragement – no promotion of areas that should be avoided or signage warning of restricted areas</li> <li>• Regular maintenance of SP1 alignment to clearly define trail areas and promote use of designated areas</li> </ul>                  | ✓     | ✓         | ✓       | ✓               |
| <b>Waste</b> | <p><b>Construction</b></p> <p>Construction of the SP1 alignment may result in the introduction of waste material from construction workers</p> | <ul style="list-style-type: none"> <li>• Development of a Waste Management Plan</li> <li>• Storing fuels, chemicals, wastes and other potentially environmentally hazardous substances in contained areas away from watercourses and managed through a Hazardous Substances Management Plan</li> <li>• General waste will be securely disposed of in provided bins</li> </ul>           | ✓     | ✓         | ✓       | ✓               |
|              | <p><b>Operation</b></p> <p>Ongoing trail use may result in erosion and sedimentation to surrounding surface water and the</p>                  | <ul style="list-style-type: none"> <li>• Placement of signage at entrances and exits of the trail informing trail-users of the appropriate use of bins for waste material</li> </ul>  | ✓     | ✓         | ✓       | ✓               |



| Aspect                         | Impact   | Mitigation Measure   | Trail | Boardwalk | Bridges | Ancillary works |
|--------------------------------|--|--|-------|-----------|---------|-----------------|
|                                | introduction of waste material which may negatively impact water quality.  | <ul style="list-style-type: none"> <li>• Providing bins at the entrances and exits of the trail for trail-users to dispose of any waste material before entering and leaving the trail</li> <li>• Active and passive discouragement – no promotion of areas that should be avoided or signage warning of restricted areas</li> </ul> |       |           |         |                 |
| <b>Existing infrastructure</b> | <b>Construction</b><br>Potential for earthworks to expose and damage existing buried services and plant collision with overhead services | • Contractor is to locate services on site prior to doing excavations and relocate services as required. Contractor to implement JSEA/SWMS for plant working near overhead utilities and use spotters as required  | ✓     | ✓         | ✓       | ✓               |
|                                | Mechanical excavation striking the fibre optic cable running through site  | • Contractor to adhere to acceptable construction methods and times in accordance with environmental management plans  | ✓     | ✓         | ✓       | ✓               |
|                                | Damage to existing Road Bridge from excavation of the rock protection for the underpass retaining wall                                   | • Contractor to implement JSEA safe work method statement. Contractor to implement access management plan for access to site of works  | ✗     | ✗         | ✓       | ✓               |
|                                | <b>Operation</b><br>No impacts to existing infrastructure associated with operation of the SP1 Project                                   | N/A  | N/A   | N/A       | N/A     | N/A             |
| <b>Transport</b>               | <b>Construction</b>  | • Employ workers from within the local area and source materials locally, wherever possible  | ✓     | ✓         | ✓       | ✓               |

| Aspect                                 | Impact   | Mitigation Measure   | Trail | Boardwalk | Bridges | Ancillary works |
|--|--|--|-------|-----------|---------|-----------------|
|  | Increased traffic and road congestion as a result of workers and material deliveries       | <ul style="list-style-type: none"> <li>• Appropriate scheduling of deliveries to reduce frequency</li> <li>• Construction traffic to use existing roads and/or gravel road surfaces wherever possible</li> </ul>   |       |           |         |                 |
|  | <b>Operation</b><br>No transport impacts associated with operation of the SP1 Project      | N/A  | N/A   | N/A       | N/A     | N/A             |
| <b>Greenhouse gasses</b>               | <b>Construction</b><br>Production of greenhouse gasses as a result of machinery use        | <ul style="list-style-type: none"> <li>• Selection of machinery to be fit-for-purpose and low emission, wherever possible</li> </ul>   | ✓     | ✓         | ✓       | ✓               |
|  | <b>Operation</b><br>No greenhouse gas impacts associated with operation of the SP1 Project | N/A  | N/A   | N/A       | N/A     | N/A             |
| <b>Social and economic environment</b> | <b>Construction</b><br>SP1 has the potential to impact on native title                     | <ul style="list-style-type: none"> <li>• SP1 will abide by environmental impact best practice guidelines to develop a project that is low impact</li> <li>• Where works are proposed in an area where native title exists, an indigenous land use agreement (ILUA) is likely to be required</li> </ul> | ✓     | ✓         | ✓       | ✓               |
|  | Construction may result in impacts to roads users  | <ul style="list-style-type: none"> <li>• Appropriate traffic management during construction</li> </ul>   | ✘     | ✘         | ✘       | ✓               |

| Aspect                   | Impact  | Mitigation Measure  | Trail | Boardwalk | Bridges | Ancillary works |
|--------------------------|---|---|-------|-----------|---------|-----------------|
|                          | <p><b>Operation</b><br/>Change of social demographics and regional economy as a result of SP1 Project</p>                           | <ul style="list-style-type: none"> <li>• Employ workers from within the local area, wherever possible</li> </ul>  | ✓     | ✓         | ✓       | ✓               |
| <b>Cultural heritage</b> | <p><b>Construction</b><br/>Potential to find unrecorded cultural heritage</p>   | <ul style="list-style-type: none"> <li>• CEMP to include procedure for discovery of unexpected cultural finds</li> <li>• Implementation of FIND-STOP-NOTIFY procedure</li> </ul>  | ✓     | ✓         | ✓       | ✓               |
|                          | <p><b>Operation</b><br/>Additional access to sensitive and restricts sites that may impact on Traditional Owner cultural values</p> | <ul style="list-style-type: none"> <li>• Highlighting the importance of cultural heritage sites with clear signage recommending trail-users do not impact on the areas</li> <li>• Regular maintenance of SP1 alignment to clearly define trail areas and promote use of designated areas</li> </ul> | ✓     | ✓         | ✓       | ✓               |

## 4. Assessable development and documentation

### 4.1 SDAP Assessment

The prescribed tidal works and works within a CMD application is assessable development described in Schedule 10, Part 17, Table 1, Item 5 (e) of the *Planning Regulation 2017* and will require assessment by the local authority Douglas Shire Council against State Code 8: Coastal Development and Tidal Works.

The works require consideration against the Code for assessable development that is Prescribed Tidal Works set out under Schedule 3 of the *Coastal Protection and Management Regulation 2017*.

The proposed prescribed tidal works complies with the requirements of the State Development Assessment Provisions (SDAP) State Code 8. An assessment against the State Code 8 is contained in Appendix A.

### 4.2 Code for assessable development that is prescribed tidal works from Schedule 3 of the *Coastal Protection and Management Regulation 2017*

The prescribed tidal works is assessable development under the *Planning Regulation 2017* and requires assessment against the code for assessable development that is prescribed tidal works in Schedule 3 of the *Coastal Protection and Management Regulation 2017*.

Table 4-1 Response to the code for assessable development that is prescribed tidal works

| Purpose of the code  | Response   |
|--|--|
| The purpose of the code is to ensure prescribed tidal works -                    |  |
| (a) Are compatible with the character and amenity of their surrounding area; and | <p>The purpose of the development is for adventure based ecotourism. The development will consist mostly of a dual use trail, with some areas of boardwalk. Infrastructure that is proposed includes as the Mowbray River Bridge, B38, B39, bridge underpass, carpark and observation viewing platform have been designed to fit the character and amenity and will not cause a large impact to amenity. Refer to Section 3 which provides a detailed discussion of the proposed infrastructure and how they will be constructed. Section 3 also discuss the control measures to be adopted during the various phases of the project.</p> <p>The structures are sympathetic and embedded within the surrounding landscape. The structures are also to be</p> |

|   |  |
|---|--|
|   | constructed with natural materials where possible and do not interfere with coastal processes.   |
| (b) Are designed and constructed in a way to ensure they are structurally sound; and  | <p>The development has been designed and will be constructed in a way that ensures they are structurally sound. This will include having the designs of the infrastructure RPEQ certified prior to construction. Refer to Section 3 which provides a detailed discussion of the proposed infrastructure and how they will be constructed.</p> <p>The list of design drawings that have been prepared for the prescribed tidal works are outlined Table 3-1 and are included in Appendix B. The design drawings have been developed for SP1 for the purpose of securing the development approval for the project and DITID will appoint a suitability qualified design and construction contractor to finalise and verify the drawings with an RPEQ number.</p> |
| (c) Are safe for their intended use; and  | <p>The development will be safe for the intended use as it provides adequate width for both mountain bike riders and hikers to ride/walk along. Refer to Section 3 which provides a detailed discussion of the proposed infrastructure and how they will be constructed.</p> <p>The list of design drawings that have been prepared for the prescribed tidal works are outlined Table 3-1 below and are included in Appendix B. The design drawings have been developed for SP1 for the purpose of securing the development approval for the project and DITID will appoint a suitability qualified design and construction contractor to finalise and verify the drawings with an RPEQ number.</p>  |
| (d) Are adequately serviced with infrastructure, including, for example, infrastructure for the supply of water or the discharge of sewage; and | Sewer, water, telecommunication and electricity infrastructure are not required to support SP1 project as the project involves low impact dual use trail, boardwalk, bridges and ancillary infrastructure. The trail intended to be used during daylight hours. Stormwater infrastructure has been incorporated into the design and refer to section 3.5.2 and Appendix B.   |

(e) Do not cause a significant adverse effect to any of the following –

- (i) Existing public use of, and access to, state tidal land or tidal water
- (ii) Navigable access to, or navigable egress from any lot that adjoins, or is in the immediate surroundings of a lot connected to prescribed tidal works
- (iii) The natural features or tidal water, including, for example, the water quality and bed and banks of the tidal water
- (iv) The structural integrity, operation or maintenance of any existing structure

The purpose of the development is for adventure based ecotourism and the proposed works will not cause a significant adverse impact to the points identified in (e). The proposed Mowbray River bridge will be at a height that will allow for the movement of boats underneath it. The location of the piers are generally in line with the piers of the existing Mowbray River road bridge.

Refer to Section 3 which provides a detailed discussion of the proposed infrastructure and how they will be constructed.

## 5. Conclusion

This report has provided an assessment of the proposed development for SP1 in accordance with the requirements of State Code 8 and the provisions in the *Coastal Protection and Management Regulation 2017*. This report has demonstrated compliance with the performance and acceptable outcomes of:

- State Code 8 – coastal development and tidal works
- Work in a coastal development area, and the code for assessable development that is prescribed tidal works from Schedule 3 of the *Coastal Protection and Management Regulation 2017*.

Approval of the proposed development for SP1 is therefore warranted on this basis. It is concluded that the development satisfies the tests of the *Planning Act 2016* and a development permit can therefore be issued.

## 6. References

BCC (2017) *Bayside Parklands*. Brisbane City Council. Accessed from:  
<https://www.brisbane.qld.gov.au/clean-and-green/natural-environment-and-water/bushland-reserves/bayside-parklands>

GHD (2019) *SK010 Drawing for concept boardwalks*. Prepared for DITID.

International Erosion Control Association (IECA) Australasia Chapter (2008) *Best Practice Erosion & Sediment Control*. IECA.

PwC (2018) *Wangetti Trail Draft Business Case*. Prepared for DITID.

World Trail (2017) *Wangetti Trail Concept Plan*. Prepared for Douglas Shire and Cairns Regional Councils.

World Trail Pty Ltd (2018), *Wangetti Trail Detailed Design – Final Report*, Prepared for DITID.



# Appendices

# Appendix A – State Code 8: Coastal Development and tidal works

## State Code 8: Coastal development and tidal works

Table 8.2.1: All Development

| Performance outcomes  | Acceptable outcomes                  | Response  |
|---|--------------------------------------|---|
| <b>Development in the erosion prone area</b>  |                                      |   |
| <p><b>PO1</b> Development does not occur in the erosion prone area unless the development:</p> <ol style="list-style-type: none"> <li>2. is one of the following types of development:               <ol style="list-style-type: none"> <li>a. coastal-dependent development; or</li> <li>b. temporary, readily relocatable or able to be abandoned; or</li> <li>c. essential community infrastructure; or</li> <li>d. redevelopment of an existing permanent building or structure that cannot be relocated or abandoned; and</li> </ol> </li> <li>3. cannot feasibly be located elsewhere.</li> </ol> | No acceptable outcome is prescribed. | <p><b>Complies with PO1.</b></p> <p>The SP1 Project area is located within an erosion prone area. The works are for an adventure based ecotourism development the use that highlights the Port Douglas coastal areas, it is not feasible for the project to be located elsewhere. Justification for SP1 project is discussed in Section 3 and the proposed use is generally consistent with the tenure of the land being impacted. Onsite mitigation measures to address works in coastal area is discussed in Section 3.8.</p> <p>Section 3 also provides a detailed discussion of the proposed infrastructure and how they will be constructed. DITID will be responsible for appointing a construction contractor who is experienced with constructing dual use trail within north Queensland in coastal areas. The appointed construction contractor will prepare an Erosion and Sediment Control Plan in accordance with the IECA <i>Best Practice Erosion &amp; Sediment Control</i>.</p> |
| <p><b>PO2</b> Development other than coastal protection work:</p> <ol style="list-style-type: none"> <li>1. avoids impacting on coastal processes; and</li> </ol>   | No acceptable outcome is prescribed. | <p><b>Complies with PO2.</b></p> <p>The SP1 Project area has been developed to limit impact to the environment avoid changes to natural processes.</p> <p>The SP1 Project area is located on relatively flat terrain with works in low areas only occurring during low tide. Construction activities will also be undertaken sequentially, with limited</p>   |

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| <p>2. ensures that the protective function of landforms and vegetation is maintained.</p> <p>Note: In considering reconfiguring a lot applications, the state may require land in the erosion prone area to be surrendered to the State for coastal management purposes under the <i>Coastal Protection and Management Act 1995</i>.</p> <p>Where the planning chief executive receives a copy of a land surrender requirement under the <i>Coastal Protection and Management Act 1995</i>, this must be considered in assessing the application.</p> |   | <p>areas of exposed earth to occur at any one time. Section 3 provides a detailed discussion of the proposed infrastructure and how they will be constructed. A list of design drawings that have been prepared for the prescribed tidal works are outlined Table 3-1 and are included in Appendix B.</p> <p>The structures are sympathetic and embedded within the surrounding landscape. The structures are also to be constructed with natural materials where possible and do not interfere with coastal processes.</p>   |
| <p><b>PO3</b> Development is located, designed and constructed to minimise the impacts from coastal erosion by:</p> <ol style="list-style-type: none"> <li>1. locating the development as far landward as practicable; or</li> <li>2. where it is demonstrated that is not feasible, mitigate or otherwise accommodate the risks posed by coastal erosion.</li> </ol>   | <p>No acceptable outcome is prescribed.</p> | <p><b>Complies with PO3.2.</b></p> <p>To experience the best visual amenity that the region has to offer, the trails alignment hugs the shoreline in many cases. However, to minimise erosion impacts, the alignment has been placed as far inland as practicable and hugs previously developed lots where possible.</p> <p>The SP1 Project area is located on relatively flat terrain with works in low areas only occurring during low tide. Construction activities will also be undertaken sequentially, with limited areas of exposed earth to occur at any one time. Section 3 provides a detailed discussion of the proposed infrastructure and how they will be constructed. a list of design drawings that have been prepared for the prescribed tidal works are outlined Table 3-1 and are included in Appendix B.</p> <p>DITID will be responsible for appointing a construction contractor who is experienced with constructing dual use trail within north Queensland in coastal areas. The appointed construction contractor will prepare an Erosion and Sediment</p> |

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|  |   | Control Plan in accordance with the IECA <i>Best Practice Erosion &amp; Sediment Control</i>   |
| <p><b>PO4</b> Development does not significantly increase the risk or impacts to people and property from coastal erosion.</p> | <p>No acceptable outcome is prescribed.</p> | <p><b>Complies with PO4.</b></p> <p>The SP1 Project area will not significantly increase the risk of coastal erosion to people and property from the natural design of the trail and limited infrastructure requirements associated with the design. Minimum clearing will be required for the construction of the trail and associated infrastructure. The location of the proposed works has been designed following numerous of site investigations of the project area, discussions with landowners and stakeholders and input from design team and the environment team. The proposed works is not considered to significantly impact on the tidal areas in the project area due the minor nature of the works.</p> <p>The proposed structures are sympathetic and embedded within the surrounding landscape. The structures are also to be constructed with natural materials where possible and do not interfere with coastal processes. They have been designed so that coastal processes can work around the structures without causing erosion.</p> <p>Section 3 provides a detailed discussion of the proposed infrastructure and how they will be constructed. a list of design drawings that have been prepared for the prescribed tidal works are outlined Table 3-1 and are included in Appendix B.</p> |

**PO5** Development other than coastal protection work avoids directly or indirectly increasing the severity of coastal erosion either on or off the site.

No acceptable outcome is prescribed.

**Complies with PO5.**

The SP1 Project area will not directly or indirectly increase the severity of coastal erosion. The proposed works are minor in nature and where works are proposed, erosion and sediment control measures will be implemented.

The SP1 Project area is located on relatively flat terrain with works in low areas only occurring during low tide. Construction activities will also be undertaken sequentially, with limited areas of exposed earth to occur at any one time.

The proposed structures are sympathetic and embedded within the surrounding landscape. The structures are also to be constructed with natural materials where possible and do not interfere with coastal processes. They have been designed so that coastal processes can work around the structures without causing erosion.

Section 3 provides a detailed discussion of the proposed infrastructure and how they will be constructed. A list of design drawings that have been prepared for the prescribed tidal works are outlined Table 3-1 and are included in Appendix B.

The banks of the Mowbray River is impacted by active erosion as shown in Section 2. Therefore grouted rock pitching protection is proposed on the base and side of the abutment and batter slopes as part of the proposed bridge to reduce erosion along the banks of the river. Grouted rock pitching protection is proposed on the base and side of the abutment and batter slopes for the underpass and the viewing platform. A retaining wall is proposed along the bank of the Mowbray River to where the underpass is proposed to protect it from further erosion.

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|  |                                      | For the other bridge crossings if scouring is an issue a thick reno mattress filled with rocks is proposed as the abutment. |
| <b>PO6</b> In areas where a coastal building line is present, building work is located landward of the coastal building line unless coastal protection work has been constructed to protect the development.   | No acceptable outcome is prescribed. | <b>Complies with PO6.</b><br><br>The works are not proposed in an area where a coastal building line is present.            |
| <b>Artificial waterways</b>  |                                      |   |
| <b>PO7</b> Development of artificial waterways, canals and dry-land marinas minimises impacts on coastal resources by:<br><br>1. maintaining the tidal prism volume of the natural waterway to which it is connected<br><br>2. demonstrating a whole-of-life strategy for the disposal of dredged material.  | No acceptable outcome is prescribed. | <b>Not Applicable with PO7.</b><br><br>Development does not consist of constructing artificial waterways.                   |
| <b>Coastal protection work</b>   |                                      |   |
| <b>PO8</b> Works for beach nourishment minimise adverse impacts on coastal processes and avoid any increase in the severity of erosion on adjacent land by:<br><br>1. sourcing sand from an area that does not adversely impact on the active beach system<br><br>2. ensuring imported sand is compatible with natural beach sediments and coastal processes of the receiving beach. | No acceptable outcome is prescribed. | <b>Not Applicable with PO8.</b><br><br>Development does not consist of coastal protection work.                             |

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| <p><b>PO9</b> Erosion control structures are only constructed where there is an imminent threat to buildings or infrastructure of value, and there is no feasible option for either:</p> <ol style="list-style-type: none"> <li>1. beach nourishment; or</li> <li>2. relocation or abandonment of structures.</li> </ol> <p>Note: The monetary value of buildings or infrastructure should be more than the cost of associated erosion control structures.</p>   | <p>No acceptable outcome is prescribed.</p> | <p><b>Complies with PO9.</b></p> <p>Erosion control structures are not proposed as part of SP1 Project, other than grouted rock pitching protection and retaining wall along the Banks of the Mowbray River. The trail has been designed where it is within tidal areas is expected to be covered with water in a high tide/stormwater event.</p> <p>Section 3 provides a detailed discussion of the proposed infrastructure and how they will be constructed. A list of design drawings that have been prepared for the prescribed tidal works are outlined Table 3-1 and are included in Appendix B.</p>  |
| <p><b>PO10</b> Erosion control structures minimise interference with coastal processes, or any increase to the severity of erosion on adjacent land by:</p> <ol style="list-style-type: none"> <li>1. locating the erosion control structure as far landward as practicable and directly adjacent to the structure it is intended to protect</li> <li>2. where required and feasible, importing sand to the site to mitigate any increase in the severity of erosion</li> <li>3. the design of the structure.</li> </ol> | <p>No acceptable outcome is prescribed.</p> | <p><b>Complies with PO10.</b></p> <p>Erosion control structures are not proposed as part of SP1 Project, other than grouted rock pitching protection and retaining wall along the Banks of the Mowbray River. The trail has been designed where it is within tidal areas to be covered with water in a high tide/stormwater event.</p> <p>The proposed alignment hugs the shoreline in many cases. However, to minimise erosion impacts, the alignment has been placed as far inland as practicable and is located as close as possible to the boundaries of the previously developed lots where possible.</p> <p>Section 3 provides a detailed discussion of the proposed infrastructure and how they will be constructed. A list of design drawings that have been prepared for the prescribed tidal works are outlined Table 3-1 and are included in Appendix B.</p> |
| <p><b>Water quality</b></p>  |   |   |
| <p><b>PO11</b> Development:</p>  | <p>No acceptable outcome is prescribed.</p> | <p><b>Complies with PO11.</b></p>   |



1. maintains or enhances environmental values of receiving waters
2. achieves the water quality objectives of Queensland waters
3. avoids the release of prescribed water contaminants to tidal waters.

Note: See *Environmental Protection (Water) Policy 2009* for the relevant water quality objectives.

Mitigation measures to address water quality for the Project area discussed in Section 3.8. The nominated construction contractor will be responsible for adopting the mitigation measures to develop and implement a construction environmental management plan during the construction phase to ensure water quality objectives are maintained. They will also be responsible for preparing and implementing an Erosion and Sediment Control Plan. Development does not include release of prescribed water contaminants anywhere on site.

The culverts proposed as part of the carpark will channel water from the carpark to the Mowbray River. Appropriate run-off mechanisms will be implemented to capture any potential rubbish left in the carpark area.

Section 3 provides a detailed discussion of the proposed infrastructure and how they will be constructed. A list of design drawings that have been prepared for the prescribed tidal works are outlined Table 3-1 and are included in Appendix B.

**Category C and R areas of vegetation**

**PO12** Development:

1. avoids impacts on category C areas of vegetation and category R areas of vegetation; or
2. minimises and mitigates impacts on category C areas of vegetation and category R areas of vegetation after demonstrating avoidance is not reasonably possible.

No acceptable outcome is prescribed.

**Complies with PO12.**

The SP1 alignment and associated structures have avoided areas of Category C vegetation, however it does impact on some areas of Category R. Vegetation clearing has been minimised within Category R areas and mitigation measures have been developed and are discussed in Section 3.8.

Refer to Appendix D.

**Public use of and access to state coastal land**

**PO13** Development maintains or enhances public use of land access to and along state coastal land (except where this is contrary to the protection of coastal resources or public safety).

No acceptable outcome is prescribed.

**Complies with PO13.**

The public infrastructure and will provide safe passage for pedestrians and mountain bike rides across Mowbray River and provide access to and along state coastal land.

SP1 Project has been designed to retain the natural environment and character through avoiding as much vegetation loss as possible and incorporating natural designs that blend in with the surrounding landscape. The trail promotes indigenous cultural landscapes through educating visitors of cultural heritage in the area. It will also promote the visual amenity that the Douglas region has to offer through scenic views and observation platforms.

SP1 will enhance public use of land access across the region; a trail that connects Mowbray and Craiglie to Four Mile beach and Port Douglas. Users can now experience a trail that connect all suburbs of Port Douglas together in a safe an

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|  |                                      | enjoyable way. It also enhances the connectivity between Craiglie and Port Douglas with cycling and pedestrian transport networks proposed.   |
| <p><b>PO14</b> Private marine development ensures that works:</p> <ol style="list-style-type: none"> <li>1. are used for marine access purposes only</li> <li>2. minimise the use of state coastal land</li> <li>3. do not interfere with access between navigable waterways and adjacent properties.</li> </ol> | No acceptable outcome is prescribed. | <p><b>Complies with PO14.</b></p> <p>SP1 Project does not consist of private marine development.</p>  |
| <p><b>PO15</b> Development ensures erosion control structures are located within the premises they are intended to protect unless there is no feasible alternative.</p>  | No acceptable outcome is prescribed. | <p><b>Complies with PO15.</b></p> <p>Erosion control structures are not proposed as part of SP1 Project, other than grouted rock pitching protection and retaining wall along the Banks of the Mowbray River. The trail has been designed where it is within tidal areas to be covered with water in a high tide/stormwater event.</p> <p>Section 3 provides a detailed discussion of the proposed infrastructure and how they will be constructed. A list of design drawings that have been prepared for the prescribed tidal works are outlined Table 3-1 and are included in Appendix B.</p> |
| <b>Matters of state environmental significance</b>   |                                      |   |
| <p><b>PO16</b> Development:</p> <ol style="list-style-type: none"> <li>1. avoids impacts on matters of state environmental significance; or</li> <li>2. minimises and mitigates impacts on matters of state environmental significance</li> </ol>  | No acceptable outcome is prescribed. | <p><b>Complies with PO16.</b></p> <p>SP1 project area does impact on matters of state environmental significance (MSES). Multiple alternatives were considered for the SP1 Project and the final alignment was been selected as it avoided a number of matters of national</p>  |

after demonstrating avoidance is not reasonably possible; and

3. provides an offset if, after demonstrating all reasonable avoidance, minimisation and mitigation measures are undertaken, the development results in an acceptable significant residual impact on a matter of state environmental significance.

Statutory note: (3) only applies to development on Brisbane core port land within the area identified as E1 Conservation/Buffer, E2 Open Space or Buffer/Investigation in the Brisbane Port LUP precinct plan. For the Brisbane Port LUP, see [www.portbris.com.au](http://www.portbris.com.au).

Note: Guidance for determining if the development will have a significant residual impact on the matter of state environmental significance is provided in the Significant Residual Impact Guideline, Department of State Development, Infrastructure and Planning, 2014. Where the significant residual impact is considered an acceptable impact on the matter of state environmental significance and an offset is considered appropriate, the offset should be delivered in accordance with the *Environmental Offsets Act 2004*.

environmental significance, avoided impact on private property, was located in previously cleared areas and above land subjected to tidal inundation where possible. Refer to section 3.2 and Section 3.3.

### **Vegetation**

Category R Regulated Vegetation (GBR Riverine) is mapped along sections of the Mowbray River. Category B Regulated Vegetation (Endangered or of Concern) is mapped along sections of the SP1 Project Area.

The SP1 project is exempt from triggering an operational work involving clearing native vegetation under Schedule 10, Part 3, Division 4, Table 1, Item 1, as the proposed works is considered to meet the definition of government supported transport infrastructure. Under Schedule 21, part 1, section 1, item 14(b) of the Planning Regulation 2017, an exemption applies for the clearing of native vegetation for constructing or maintaining infrastructure stated in Schedule 5 of the Planning Regulation if the infrastructure is government supported transport infrastructure.

Schedule 5 of the Planning Regulation 2017 covers transport infrastructure, including transport infrastructure stated in schedule 2 of the Act, definition development infrastructure. Given that SP1 work involves developing infrastructure for pedestrian and cyclists is it considered to be a 'public cycleway'. Therefore, SP1 project is exempt from the clearing of remnant Category B, Category C and Category R vegetation.

Category R area impacted for SP1 Project area:

- Trail permanent footprint based on 1.5 m width in areas not mapped as TEC 379.61 m<sup>2</sup>
- Trail temporary footprint based on 0.5 m buffer width on each side of the permanent footprint for all trail areas except TEC areas. 253.63 m<sup>2</sup>
- Area of Proposed Bridges (B38 and Mowbray) and Underpasses permanent disturbance 729.77 m<sup>2</sup>
- Observation viewing platform permanent disturbance 41.10 m<sup>2</sup>
- Carpark and drain footprint – Permanent impact 681.81 m<sup>2</sup>
- Carpark and Mowbray River Bridge –Temporary disturbance 2517.07 m<sup>2</sup>

Vegetation clearing not required for the full extent of the area as the trail. The benefits of a single track trail is that it can wind around obstacles such as trees, large rocks, and bushes, it can blend into the surrounding environment, and disturbs much less ground, making it easier to maintain.

Where the observation viewing platform is proposed, sections of this area has already been cleared of significant vegetation.

Where the carpark, bridge and underpass are proposed. sections of this area have already been cleared of significant vegetation.

Where the bridge is proposed sections of this area has already been cleared of significant vegetation.

'Of concern' regional ecosystems mapped within the SP1 Project area, however vegetation clearing not required for the full extent of the area as the trail. The benefits of a single track trail is that it can wind around obstacles such as trees, large rocks, and bushes, it can blend into the surrounding environment, and disturbs much less ground, making it easier to maintain.

Of concern regional ecosystem impacted by the project:

- Trail permanent footprint based on 1.0 m width in TEC areas 175.77 m<sup>2</sup>
- Trail temporary footprint based on on each side of the permanent footprint for TEC trail areas 263.70 m<sup>2</sup>
- Trail permanent footprint based on 1.5 m width in areas not mapped as TEC 1,680.79 m<sup>2</sup>
- Trail temporary footprint based on 0.5 m buffer width on each side of the permanent footprint for all trail areas except TEC areas. 1,113.54 m<sup>2</sup>
- Boardwalk footprint based on 2.5 m width 175.04 m<sup>2</sup>
- Minor bridges footprint 1.5m and abutments permanent disturbance 168.94 m<sup>2</sup>
- Access track to B38 temporary disturbance - 363.45 m<sup>2</sup>

As part of SP1 Project some clearing will be required to establish the alignment however it will be less than 10 m wide and does not result in exceeding the vegetation clearing thresholds as identified Queensland Environmental Offsets Policy -Significant Residual Impact Guideline. Furthermore, mitigation measures for vegetation clearing will be

implemented as of the project and they are outlined in Section 3.8. No significant residual impact is anticipated.

Essential habitat and wildlife habitat areas mapped within the SP1 project area and they associated with the following fauna species:

- Southern cassowary (southern population)
- Estuarine crocodile
- Eastern curlew
- Bar-tailed godwit
- Lesser sand plover
- Greater sand plover

An ecological survey has been completed by ecologists for SP1 Project area and this is discussed further in Section 2. Mitigation measures have been developed to manage potential impacts to fauna habitat and are discussed in Section 3.8. However, taking into consideration the low-impact nature of the proposed works together with the sub-optimal characteristics of the impacted habitat, no significant residual impact to the species within the area because of SP1 proposed works.

SP1 permanent impact to essential habitat is 8,031 m<sup>2</sup>. However vegetation clearing not required for the full extent of the area as the trail. The benefits of a single track trail is that it can wind around obstacles such as trees, large rocks, and bushes, it can blend into the surrounding environment, and disturbs much less ground, making it easier to maintain.

As part of SP1 Project some clearing will be required to establish the alignment however it will be less than 10 m wide and does not result in exceeding the vegetation clearing thresholds as identified Queensland Environmental Offsets Policy -Significant Residual Impact Guideline. Furthermore, mitigation measures for vegetation clearing will be implemented as of the project and they are outlined in Section 3.8. No significant residual impact is anticipated.

Refer to Appendix D.

#### **Marine Plants**

Marine plants are present within SP1 project areas and they have been confirmed via ecological survey. SP1 project will require the permanent and temporary disturbance of marine plants and triggers referral to SARA for operational works for disturbance/ damage to marine plants. A marine plant report has been prepared and included in the development application package. DITID will address an offset for marine plant disturbance. Refer to the marine plants report.

#### **Protected Area**

The SP1 Project area is located partially within the Great Barrier Reef Marine Park.

The section of SP1 along Four Mile Beach intersects the 'conservation park' zoning area of the Great Barrier Reef Marine Park and a small portion of 'estuarine conservation' zoning near the proposed location of B38.

However, no permanent works are proposed along Four Mile Beach, as hikers and cyclists will follow the alignment along the beach.



The proposed boardwalk section within Lot 5 AP13754 and the remainder of the trail up to the Mowbray River Bridge is located within an 'estuarine conservation' zoned area of the Great Barrier Reef Marine Park, with the exception of where the alignment traverses Andreassen Road and lot 24 SR423. A Marine Park permit from the Great Barrier Reef Marine Park Authority.

### **Waterways**

SP1 project area intersects the following mapped Department of Agriculture and Fisheries (DAF) waterways:

- Mowbray River is a tidal waterway. The proposed works is not considered to adversely impact on the fish passage as the Mowbray River Bridge is a multi-span bridge where both abutments are proposed outside of the high bank. The bridge is therefore not considered to be a waterway barrier.
- The proposed underpass under the Captain Cook Highway is considered to be defined as a bank revetment. The main channel width of the Mowbray River is 52 m wide and the proposed underpass extends 3.9 m from the banks of the River which is less than 10% of the width of Mowbray River (main channel width). Therefore, the proposed underpass is not considered to be a waterway barrier work according to DAF's definition of 'what is not a waterway barrier'. In addition, the structure will also be located above the highest astronomical tide (HAT) level.
- The proposed observation-viewing platform proposed along the bank of the Mowbray River is also considered to be defined as a bank revetment. The main channel width of the Mowbray River is 52 m wide and the proposed

structure extends less than 10% of the width of Mowbray River (main channel width). Therefore, the proposed underpass is not considered to be a waterway barrier work according to DAF's definition of 'what is not a waterway barrier'. In addition, the structure will also be located above the highest astronomical tide (HAT) level.

- The two bridges known as B38 and B39 are located within a tidal area, however they are not considered to be a waterway barrier given they are single span bridges with footings outside of the bed and banks of the waterways.
- The trail and the boardwalk within the mapped tidal waterway area is not considered to be a waterway barrier as defined by DAF 'what is not a waterway barrier' factsheet as they do not act as a barrier to the movement of fish.

### **Wetlands**

Northern section of the trail is located within the wetland protection area trigger area, wetland protection area. High ecologically significant wetlands and trigger areas exist over the proposed alignment. No high impact earthworks are proposed within the SP1 project area.

These include:

- MSES high ecological significance wetlands (HES)
- MSES - Regulated Vegetation - within 100m of wetlands
- Wetlands protection area

MSES high ecological significance wetlands

Approximately 460 m<sup>2</sup> section of the Temporary access track mapped wetland - Refer to Appendix D.

Wetlands protection area - High Ecological Significance

Temporary and permanent impact areas of the proposed works within wetlands protected area outlined below:

- Trail permanent footprint based on 1.0 m width in TEC areas 175.77 m<sup>2</sup>
- Trail temporary footprint based on 0.75 m buffer width on each side of the permanent footprint for TEC trail areas 263.70 m<sup>2</sup>
- Trail permanent footprint based on 1.5 m width in areas not mapped as TEC 436.15 m<sup>2</sup>
- Trail temporary footprint based on 0.5 m buffer width on each side of the permanent footprint for all trail areas except TEC areas. 290.69 m<sup>2</sup>
- Minor Waterway Crossings Footprint 1.5m and Abutments permanent footprint 46.86 m<sup>2</sup>
- Access track to B38 based on a 2.5m width – temporary impact 450.21 m<sup>2</sup>

Refer to Appendix D.

MSES - Regulated Vegetation - within 100m of wetlands

- Trail permanent footprint based on 1.0 m width in TEC areas 175.77m<sup>2</sup>
- Trail temporary footprint based on 0.75 m buffer width on each side of the permanent footprint for TEC trail areas 263.70 m<sup>2</sup>

- Trail permanent footprint based on 1.5 m width in areas not mapped as TEC 1161.60 m<sup>2</sup>
- Trail temporary footprint based on 0.5 m buffer width on each side of the permanent footprint for all trail areas except TEC areas. 773.99 m<sup>2</sup>
- Boardwalk footprint based on 2.5 m width 1450.50 m<sup>2</sup>
- Area of minor bridges and abutments - Permanent disturbance 82.80 m<sup>2</sup>
- Area of Proposed Bridges (B38 and Mowbray) and Underpasses - Permanent disturbance 72.00m<sup>2</sup>
- Temporary Disturbance for minor bridges 25.00 m<sup>2</sup>
- Laydown area – 20 m x 20 m –temporary disturbance) 400.00 m<sup>2</sup>

Access track to B38 based on a 2.5m width –temporary disturbance 568.35 m<sup>2</sup>

As part of SP1, works are proposed in mapped wetlands, part the trail, and B38 bridge crossing are proposed within HES wetland. The area is described as closed canopy dominated by mangrove tree species, dense shrub and understory layer dominated by juvenile mangrove trees, highly productive, muddy marine sediments and subject to tidal cycles. The proposed works is not considered to impact on the hydrological regime or recharge zones of the wetland. Furthermore, the proposed works are not considered to impact on physical and/or chemical characteristics of the water. A number of mitigation measures have been developed in Section 3.8 to manage water quality.

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|  |  | <p>The proposed works are not considered to result in a significant residual impact for the following reasons:</p> <ul style="list-style-type: none"> <li>• A small portion of the wetland would be impacted and the proposed trail and boardwalk are not considered to act as a barrier to water movement in tidal areas as discussed in Section 3. Filling for the trail would be limited and the trail has been proposed where possible to be above HAT level.</li> <li>• The project will adopt a number of mitigation measures outlined in 3.8 to reduce impact on water quality within wetland areas.</li> <li>• Erosion and sediment control measures will be implemented during the construction phase.</li> <li>• The proposed works will not impact on groundwater and no surface water will be taken during the construction and operational phases.</li> <li>• An environmental management plan will be developed and implemented on site during the construction and operational phase to manage flora and fauna pest species.</li> </ul> |
|--|--|--|

**Table 8.2.2: All Operational work**

| Performance outcomes   | Acceptable outcomes                         | Response  |
|--|---|---|
| <b>Private marine development</b>  |   |   |
| <p><b>PO17</b> Private marine development does not require the construction of coastal protection work, shoreline or riverbank hardening or dredging for marine access purposes.</p> | <p>No acceptable outcome is prescribed.</p> | <p><b>Not Applicable.</b></p> <p>The proposed works will not involve development of a private marine development. SP1 works will be public infrastructure and will provide safe passage for</p> |

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|   |                                      | pedestrians and mountain bike rides along the Mowbray River and provide access to and along state coastal land. |
| <b>Disposal of solid waste or dredged material from artificial waterways</b>  |                                      |   |
| <b>PO18</b> Solid waste from land and dredged material from artificial waterways is not disposed of in tidal water unless it is for beneficial reuse.   | No acceptable outcome is prescribed. | <b>Not Applicable.</b><br>The proposed works for SP1 will not involve development of an artificial waterway.    |
| <b>Disposal of dredged material other than from artificial waterways</b>  |                                      |   |
| <b>PO19</b> Dredged material is returned to tidal water where this is needed to maintain coastal processes and sediment volume.   | No acceptable outcome is prescribed. | <b>Not Applicable.</b><br>The proposed works for SP1 will not involve dredging.                                 |
| <b>PO20</b> Where it is not needed to maintain coastal processes and sediment volume, the quantity of dredged material disposed to tidal water is minimised through beneficial reuse or disposal on land.   | No acceptable outcome is prescribed. | <b>Not Applicable.</b><br>The proposed works for SP1 will not involve dredging.                                 |
| <b>All dredging and any disposal of dredged material in tidal water</b>   |                                      |   |
| <b>PO21</b> All dredging and any disposal of dredged material in tidal water is:<br><br>4. demonstrated to be safe with regard to protection of the marine environment and by meeting the National Assessment Guidelines for Dredging 2009, Department of Environment and Energy, 2009, or later version; and | No acceptable outcome is prescribed. | <b>Not Applicable.</b><br>The proposed works for SP1 will not involve dredging.                                 |

|   |  |  |
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| <p>5. supported by a monitoring and management plan that protects the marine environment and that complies with the National Assessment Guidelines for Dredging 2009, Department of Environment and Energy, 2009, or later version.</p> |  |  |
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**Reclamation**

|   |   |  |
|---|---|--|
| <p><b>PO22</b> Development does not involve reclamation of land below tidal water, other than for the purposes of:</p> <ol style="list-style-type: none"> <li>1. coastal-dependent development, public marine development or community infrastructure; or</li> <li>2. strategic ports, priority ports, boat harbours or strategic airports and aviation facilities, in accordance with a statutory land use plan or master plan, where there is a demonstrated net benefit for the state or region and no feasible alternative exists; or</li> <li>3. coastal protection work or work necessary to protect coastal resources or coastal processes.</li> </ol> | <p>No acceptable outcome is prescribed.</p> | <p><b>Not Applicable.</b><br/>The proposed works for SP1 will not involve reclamation.</p> |
|---|---|--|

**Table 8.2.3: Operational work which is not assessed by local government**

| Performance outcomes   | Acceptable outcomes  | Response   |
|--|--|--|
| <p><b>PO23</b> Works are located and designed such that they continue to operate safely during and following a defined storm tide event.</p> | <p><b>AO23.1</b> Tidal work is designed and located in accordance with the Guideline: Building and engineering standards for tidal works, Department of Environment and Heritage Protection, 2017.</p> | <p><b>Not applicable</b></p> <p>SP1 Project area is located within the boundaries of Douglas Shire Council local government area and Douglas Shire Council will be the assessment manager for the development application.</p> |



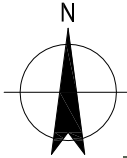
# Appendix B – Design Drawings of SP1

# DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT

## WANGETTI TRAIL

### MOWBRAY RIVER CARPARK

# 42-21067



| DRAWING LIST  |  |
|---------------|--|
| DRG No.       | TITLE                                  |
| 42-21067-C001 | COVER SHEET AND DRAWING INDEX          |
| 42-21067-C002 | CONTROL LINE SET-OUT PLAN              |
| 42-21067-C003 | TYPICAL CROSS SECTIONS                 |
| 42-21067-C004 | GENERAL ARRANGEMENT                    |
| 42-21067-C005 | INTERSECTION SET-OUT PLAN              |
| 42-21067-C006 | INTERSECTION SETOUT POINTS AND DETAILS |
| 42-21067-C007 | CULVERT LAYOUT AND SECTION             |
| 42-21067-C008 | ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| 42-21067-C009 | ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| 42-21067-C010 | ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| 42-21067-C011 | ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| 42-21067-C012 | ANNOTATED CROSS SECTION CTRL LINE MCA1 |

| No | Revision       | Note: * Indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date    |
|----|----------------|---|-------|-------------|------------------|---------|
| 0  | APPROVED ISSUE |   | JPT   | *MI         | *AA              | 11/7/19 |

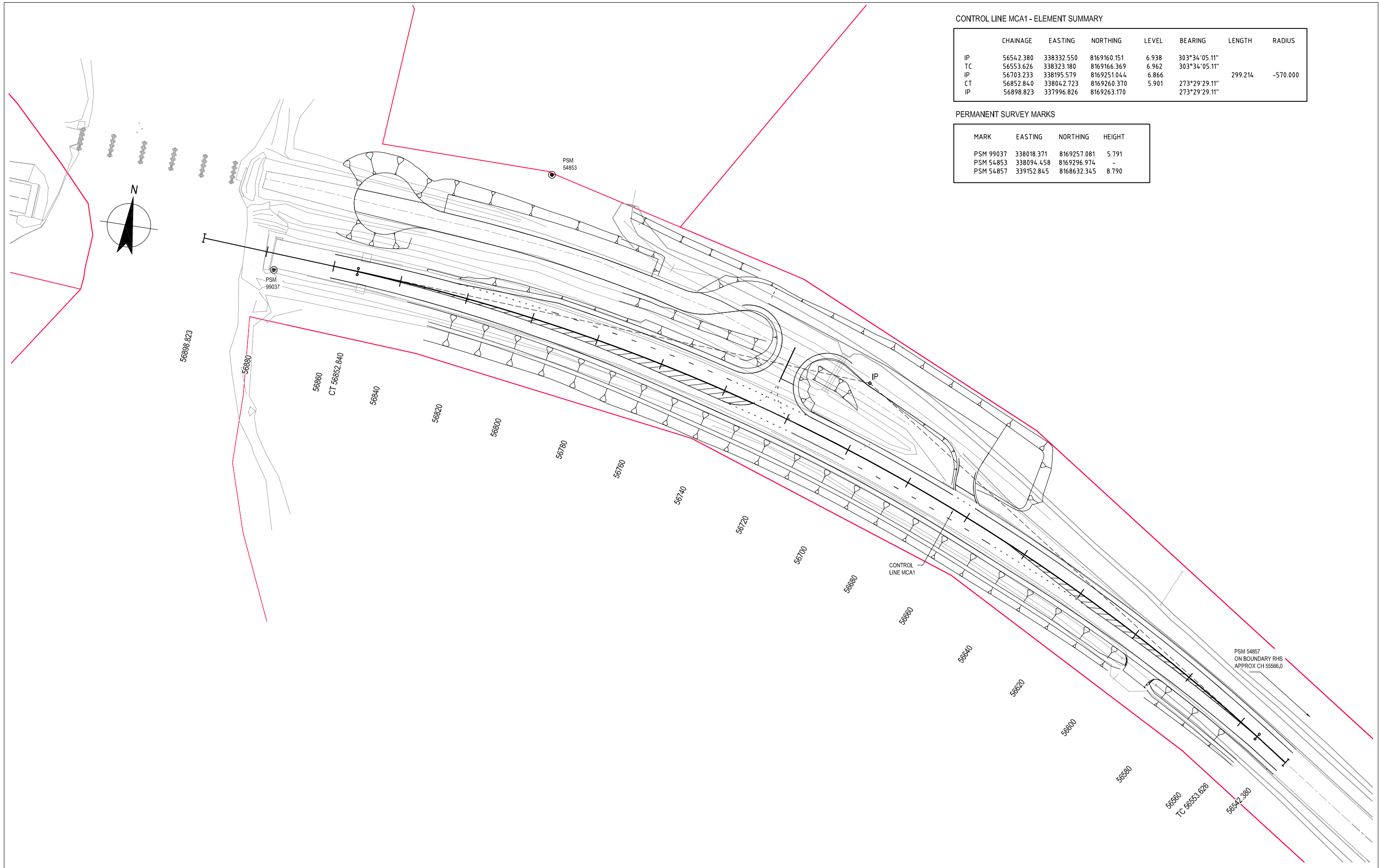
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|  | Drafting Check              | *J.A.RAE        | Design Check   | *D.K.TROTTER |
|  | Approved (Project Director) | *A.A.HILADELLIS |  | Date         |
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|               |  |             |               |
|---------------|--|-------------|---------------|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT |             |               |
| Project       | WANGETTI TRAIL   |             |               |
| Title         | MOWBRAY RIVER CARPARK<br>COVER SHEET AND DRAWING INDEX     |             |               |
| Original Size | A1   | Drawing No: | 42-21067-C001 |
| Rev:          | 0  |             |               |



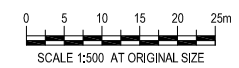
**CONTROL LINE MCA1 - ELEMENT SUMMARY**

|    | CHAINAGE  | EASTING    | NORTHING    | LEVEL | BEARING       | LENGTH  | RADIUS   |
|----|-----------|------------|-------------|-------|---------------|---------|----------|
| IP | 56542.380 | 338332.550 | 8169160.151 | 6.938 | 303°34'05.11" |         |          |
| TC | 56553.626 | 338323.180 | 8169166.369 | 6.962 | 303°34'05.11" |         |          |
| IP | 56703.233 | 338195.579 | 8169251.044 | 6.866 |               | 299.214 | -570.000 |
| CT | 56852.840 | 338042.723 | 8169260.370 | 5.901 | 273°29'29.11" |         |          |
| IP | 56898.823 | 337996.826 | 8169263.170 |       | 273°29'29.11" |         |          |

**PERMANENT SURVEY MARKS**

| MARK      | EASTING    | NORTHING    | HEIGHT |
|-----------|------------|-------------|--------|
| PSM 99037 | 338018.371 | 8169257.081 | 5.791  |
| PSM 54853 | 338094.458 | 8169296.974 | -      |
| PSM 54857 | 339152.845 | 8168632.345 | 8.790  |

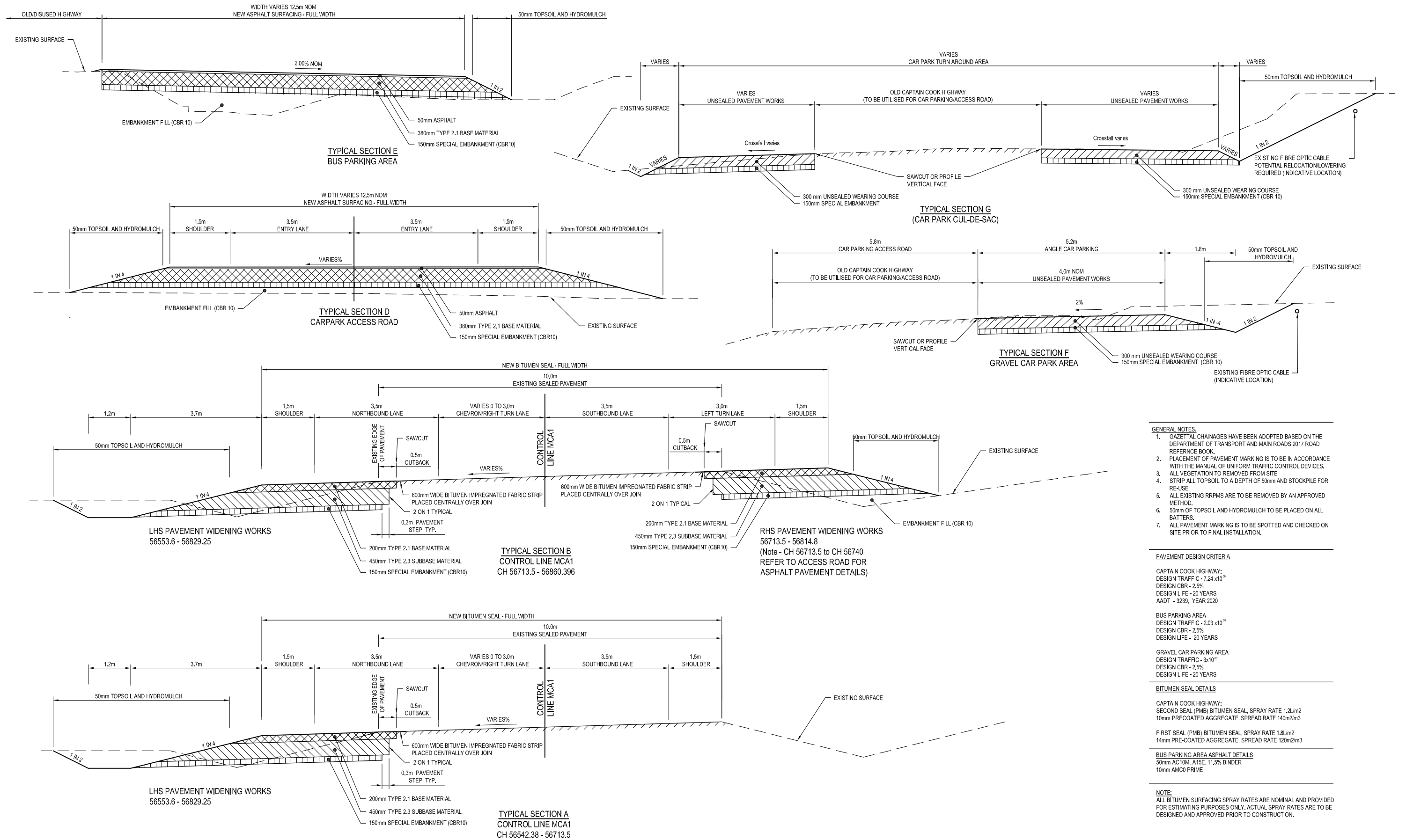
| No | Revision       | Note | Drawn | Job Manager | Project Director | Date    |
|----|----------------|------|-------|-------------|------------------|---------|
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|  | Drafting Check: *J.A.RAE   | Design Check: *D.K.TROTTER |
|  | Approved: *A.HILADELLIS (Project Director)<br>Date: 11/7/19              |                            |
| Scale: AS SHOWN  | This Drawing must not be used for construction unless signed as Approved |                            |

**Client:** DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT  
**Project:** WANGETTI TRAIL  
**Title:** MOWBRAY RIVER CARPARK CONTROL LINE SET-OUT PLAN  
**Original Size:** A1  
**Drawing No:** 42-21067-C002  
**Rev:** 0



- GENERAL NOTES.**
- GAZETTED CHAINAGES HAVE BEEN ADOPTED BASED ON THE DEPARTMENT OF TRANSPORT AND MAIN ROADS 2017 ROAD REFERENCE BOOK.
  - PLACEMENT OF PAVEMENT MARKING IS TO BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
  - ALL VEGETATION TO BE REMOVED FROM SITE.
  - STRIP ALL TOPSOIL TO A DEPTH OF 50mm AND STOCKPILE FOR RE-USE.
  - ALL EXISTING RRPMS ARE TO BE REMOVED BY AN APPROVED METHOD.
  - 50mm OF TOPSOIL AND HYDROMULCH TO BE PLACED ON ALL BATTERS.
  - ALL PAVEMENT MARKING IS TO BE SPOTTED AND CHECKED ON SITE PRIOR TO FINAL INSTALLATION.

**PAVEMENT DESIGN CRITERIA**

CAPTAIN COOK HIGHWAY:  
DESIGN TRAFFIC - 7.24 x10<sup>6</sup>  
DESIGN CBR - 2.5%  
DESIGN LIFE - 20 YEARS  
AADT - 3239, YEAR 2020

**BUS PARKING AREA**  
DESIGN TRAFFIC - 2.03 x10<sup>6</sup>  
DESIGN CBR - 2.5%  
DESIGN LIFE - 20 YEARS

**GRAVEL CAR PARKING AREA**  
DESIGN TRAFFIC - 3x10<sup>6</sup>  
DESIGN CBR - 2.5%  
DESIGN LIFE - 20 YEARS

**BITUMEN SEAL DETAILS**

CAPTAIN COOK HIGHWAY:  
SECOND SEAL (PMB) BITUMEN SEAL. SPRAY RATE 1.2L/m<sup>2</sup>  
10mm PRE-COATED AGGREGATE. SPREAD RATE 140m<sup>2</sup>/m<sup>3</sup>

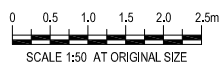
FIRST SEAL (PMB) BITUMEN SEAL. SPRAY RATE 1.8L/m<sup>2</sup>  
14mm PRE-COATED AGGREGATE. SPREAD RATE 120m<sup>2</sup>/m<sup>3</sup>

**BUS PARKING AREA ASPHALT DETAILS**  
50mm AC10M. A15E. 11.5% BINDER  
10mm AMC0 PRIME

**NOTE:**  
ALL BITUMEN SURFACING SPRAY RATES ARE NOMINAL AND PROVIDED FOR ESTIMATING PURPOSES ONLY. ACTUAL SPRAY RATES ARE TO BE DESIGNED AND APPROVED PRIOR TO CONSTRUCTION.

|    |                |       |             |                  |         |
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| No | Revision       | Drawn | Job Manager | Project Director | Date    |

Note: \* Indicates signatures on original issue of drawing or last revision of drawing

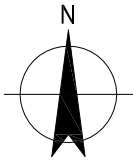


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|---------------------|----------------|----------------------------------|--------------|--------------|
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|                     | Drafting Check | *J.A.RAE                         | Design Check | *D.K.TROTTER |
|                     | Approved       | *A.HILADELLIS (Project Director) | Date         | 11/7/19      |
|                     | Scale          | NOT TO SCALE                     |              |              |

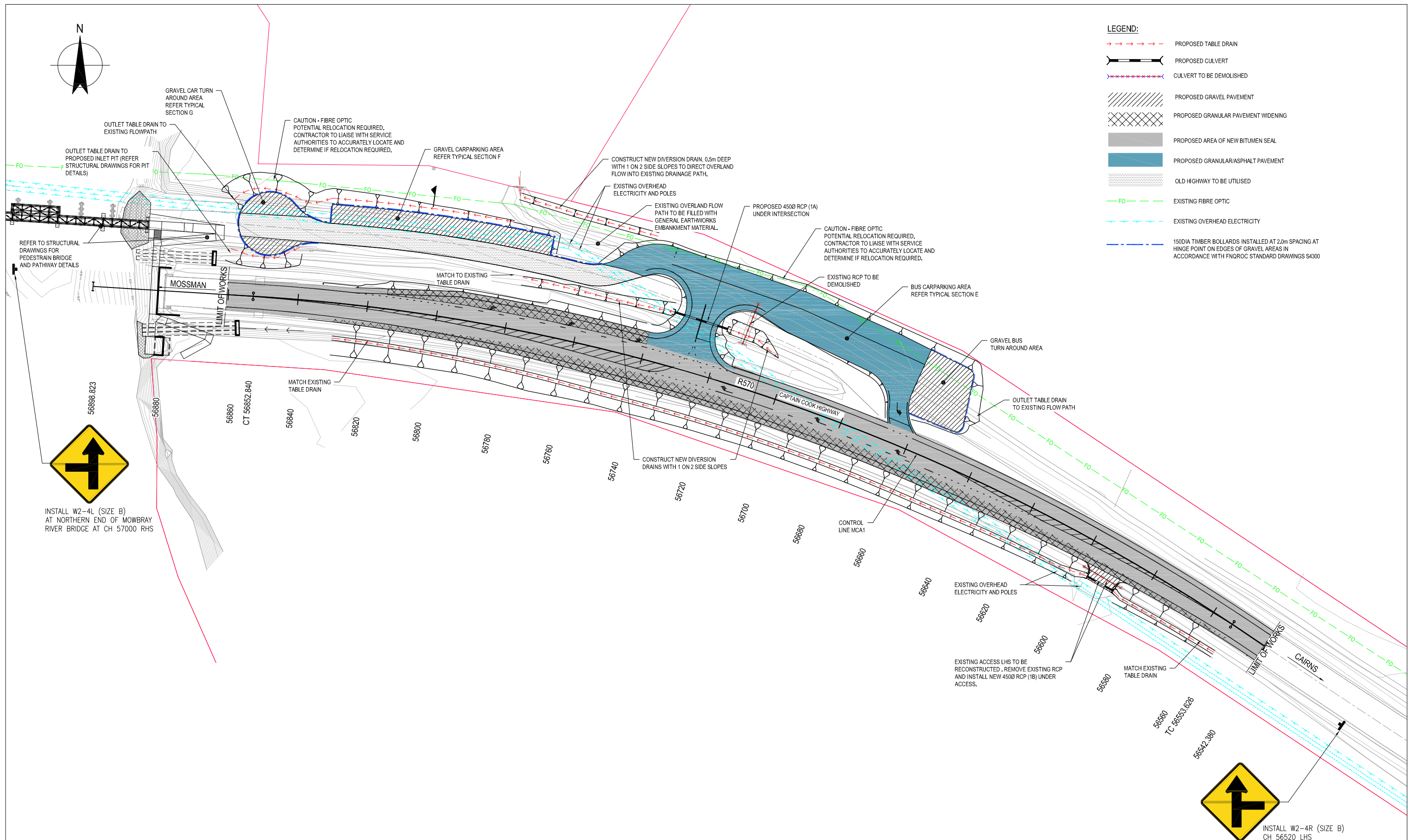
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|---------------|--|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT |
| Project       | WANGETTI TRAIL   |
| Title         | MOWBRAY RIVER CARPARK TYPICAL CROSS SECTIONS               |
| Original Size | A1   |
| Drawing No:   | 42-21067-C003  |
| Rev:          | 0  |



- LEGEND:**
- PROPOSED TABLE DRAIN
  - PROPOSED CULVERT
  - CULVERT TO BE DEMOLISHED
  - PROPOSED GRAVEL PAVEMENT
  - PROPOSED GRANULAR PAVEMENT WIDENING
  - PROPOSED AREA OF NEW BITUMEN SEAL
  - PROPOSED GRANULAR/ASPHALT PAVEMENT
  - OLD HIGHWAY TO BE UTILISED
  - EXISTING FIBRE OPTIC
  - EXISTING OVERHEAD ELECTRICITY
  - 150DIA TIMBER BOLLARDS INSTALLED AT 20m SPACING AT HINGE POINT ON EDGES OF GRAVEL AREAS IN ACCORDANCE WITH FNRQC STANDARD DRAWINGS S4300



INSTALL W2-4L (SIZE B)  
AT NORTHERN END OF MOWBRAY  
RIVER BRIDGE AT CH 57000 RHS

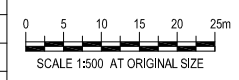


INSTALL W2-4R (SIZE B)  
CH 56520 LHS

THIS DRAWING INCLUDES COLOURED INFORMATION, IF YOU HAVE A BLACK AND WHITE COPY YOU DO NOT HAVE ALL THE INFORMATION, THIS NOTE IS COLOURED RED.



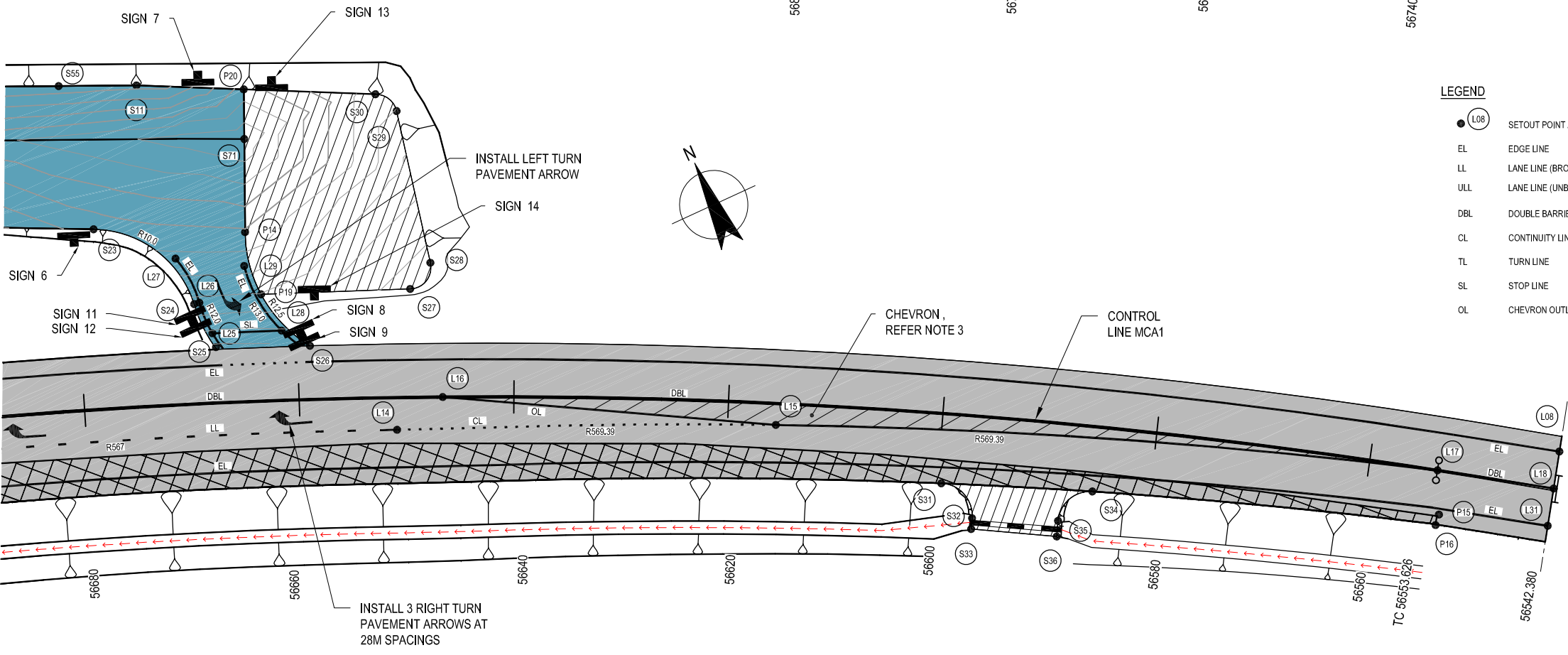
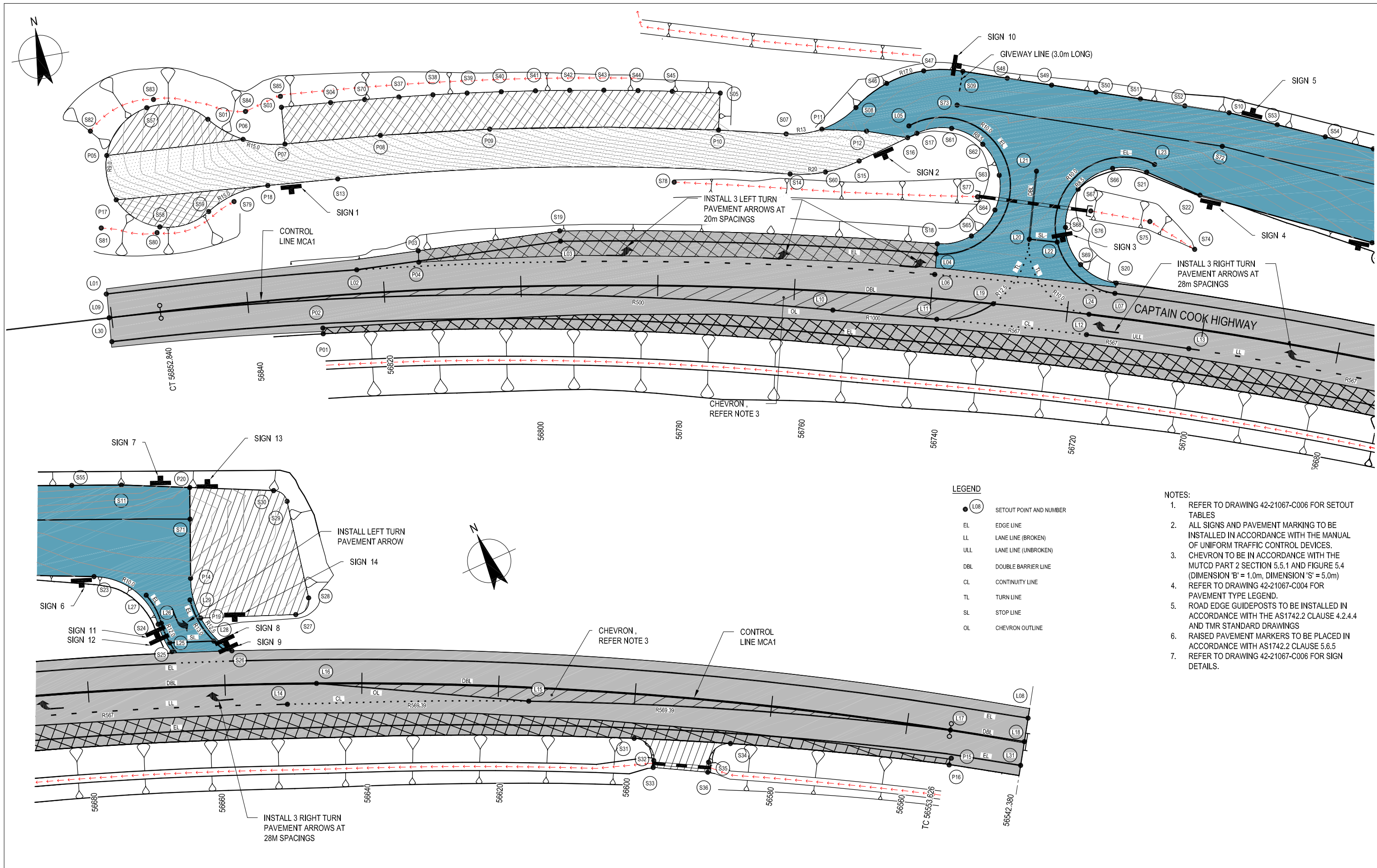
|    |                |       |             |                  |         |
|----|----------------|-------|-------------|------------------|---------|
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| No | Revision       | Drawn | Job Manager | Project Director | Date    |



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|   | Approved *A.HILADELLIS (Project Director) | Date 11/7/19   |
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|               |  |
|---------------|--|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT |
| Project       | WANGETTI TRAIL   |
| Title         | MOWBRAY RIVER CARPARK<br>GENERAL ARRANGEMENT               |
| Original Size | A1   |
| Drawing No:   | 42-21067-C004  |
| Rev:          | 0  |

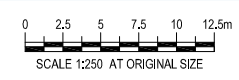


**LEGEND**

|         |                         |
|---------|-------------------------|
| ● (L08) | SETOUT POINT AND NUMBER |
| EL      | EDGE LINE               |
| LL      | LANE LINE (BROKEN)      |
| ULL     | LANE LINE (UNBROKEN)    |
| DBL     | DOUBLE BARRIER LINE     |
| CL      | CONTINUITY LINE         |
| TL      | TURN LINE               |
| SL      | STOP LINE               |
| OL      | CHEVRON OUTLINE         |

- NOTES:**
- REFER TO DRAWING 42-21067-C006 FOR SETOUT TABLES
  - ALL SIGNS AND PAVEMENT MARKING TO BE INSTALLED IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
  - CHEVRON TO BE IN ACCORDANCE WITH THE MUTCD PART 2 SECTION 5.5.1 AND FIGURE 5.4 (DIMENSION 'B' = 1.0m, DIMENSION 'S' = 5.0m)
  - REFER TO DRAWING 42-21067-C004 FOR PAVEMENT TYPE LEGEND.
  - ROAD EDGE GUIDEPOSTS TO BE INSTALLED IN ACCORDANCE WITH THE AS1742.2 CLAUSE 4.2.4.4 AND TMR STANDARD DRAWINGS
  - RAISED PAVEMENT MARKERS TO BE PLACED IN ACCORDANCE WITH AS1742.2 CLAUSE 5.6.5
  - REFER TO DRAWING 42-21067-C006 FOR SIGN DETAILS.

|    |                |   |       |             |                  |      |
|----|----------------|---|-------|-------------|------------------|------|
| 0  | APPROVED ISSUE | JPT   | *MI   | *AA         | 11/7/19          |      |
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|   | Approved *A.HILADELLIS (Project Director) | Date 11/7/19   |
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|               |  |
|---------------|--|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT |
| Project       | WANGETTI TRAIL   |
| Title         | MOWBRAY RIVER CARPARK INTERSECTION SET-OUT PLAN            |
| Original Size | A1   |
| Drawing No:   | 42-21067-C005  |
| Rev:          | 0  |

| SETOUT POINT TABLE - GENERAL POINTS |            |             |       |
|-------------------------------------|------------|-------------|-------|
| POINT                               | EASTING    | NORTHING    | LEVEL |
| S01                                 | 338054.523 | 8169286.834 | 5.446 |
| S02                                 | not used   |             |       |
| S03                                 | 338065.414 | 8169286.667 | 5.886 |
| S04                                 | 338072.603 | 8169286.067 | 6.069 |
| S05                                 | 338128.896 | 8169277.369 | 7.126 |
| S06                                 | not used   |             |       |
| S07                                 | 338137.332 | 8169269.791 | 7.106 |
| S08                                 | 338148.046 | 8169271.791 | 7.199 |
| S09                                 | 338164.363 | 8169274.241 | 7.233 |
| S10                                 | 338201.604 | 8169261.402 | 7.320 |
| S11                                 | 338228.036 | 8169249.513 | 7.382 |
| S12                                 | 338041.184 | 8169277.451 | 4.895 |
| S13                                 | 338071.671 | 8169274.906 | 5.614 |
| S14                                 | 338136.859 | 8169263.926 | 6.602 |
| S15                                 | 338147.128 | 8169264.021 | 6.942 |
| S16                                 | 338154.711 | 8169266.11  | 7.307 |
| S17                                 | 338156.159 | 8169266.509 | 7.357 |
| S18                                 | 338156.237 | 8169250.099 | 7.004 |
| S19                                 | 338102.255 | 8169261.693 | 6.680 |
| S20                                 | 338180.955 | 8169239.803 | 7.050 |
| S21                                 | 338188.215 | 8169254.990 | 7.204 |
| S22                                 | 338195.282 | 8169250.298 | 7.269 |
| S23                                 | 338218.817 | 8169239.018 | 7.470 |
| S24                                 | 338224.424 | 8169228.780 | 7.332 |
| S25                                 | 338224.596 | 8169224.290 | 7.181 |
| S26                                 | 338232.603 | 8169220.751 | 7.187 |
| S27                                 | 338243.294 | 8169221.659 | 7.225 |
| S28                                 | 338246.018 | 8169223.085 | 7.230 |
| S29                                 | 338249.056 | 8169237.228 | 7.398 |
| S30                                 | 338247.921 | 8169239.472 | 7.429 |
| S31                                 | 338280.685 | 8169184.571 | 6.681 |
| S32                                 | 338281.927 | 8169180.415 | 6.649 |
| S33                                 | 338281.432 | 8169179.546 | 6.639 |
| S34                                 | 338293.144 | 8169178.007 | 6.685 |
| S35                                 | 338289.106 | 8169176.855 | 6.668 |

| SETOUT POINT TABLE - GENERAL POINTS |             |              |       |
|-------------------------------------|-------------|--------------|-------|
| POINT                               | EASTING     | NORTHING     | LEVEL |
| S36                                 | 338288.378  | 8169175.576  | 6.638 |
| S37                                 | 338082.557  | 8169285.113  | 6.306 |
| S38                                 | 338087.525  | 8169284.544  | 6.412 |
| S39                                 | 338092.485  | 8169283.914  | 6.526 |
| S40                                 | 338097.437  | 8169283.224  | 6.635 |
| S41                                 | 338102.380  | 8169282.472  | 6.725 |
| S42                                 | 338107.314  | 8169281.661  | 6.816 |
| S43                                 | 338112.237  | 8169280.788  | 6.907 |
| S44                                 | 338117.149  | 8169279.855  | 6.976 |
| S45                                 | 338122.049  | 8169278.862  | 7.047 |
| S46                                 | 338153.098  | 8169274.462  | 7.209 |
| S47                                 | 338158.750  | 8169275.311  | 7.221 |
| S48                                 | 338170.570  | 8169272.101  | 7.248 |
| S49                                 | 338176.777  | 8169269.961  | 7.262 |
| S50                                 | 338182.984  | 8169267.821  | 7.277 |
| S51                                 | 338189.190  | 8169265.681  | 7.291 |
| S52                                 | 338195.397  | 8169263.541  | 7.305 |
| S53                                 | 338208.212  | 8169258.430  | 7.335 |
| S54                                 | 338214.820  | 8169255.457  | 7.351 |
| S55                                 | 338221.428  | 8169252.485  | 7.367 |
| S56                                 | not used    |              |       |
| S57                                 | 338046.019  | 8169290.070  | 5.156 |
| S58                                 | 338044.827  | 8169272.603  | 4.575 |
| S59                                 | 338052.261  | 8169273.551  | 5.008 |
| S60                                 | 338142.000  | 8169263.303  | 6.704 |
| S61                                 | 338161.274  | 8169266.320  | 7.492 |
| S62                                 | 338165.353  | 8169263.228  | 7.523 |
| S63                                 | 338166.917  | 8169258.355  | 7.445 |
| S64                                 | 338165.399  | 8169253.467  | 7.289 |
| S65                                 | 338161.350  | 8169250.336  | 7.127 |
| S66                                 | 338183.405  | 8169256.409  | 7.164 |
| S67                                 | 338177.917  | 8169254.309  | 7.118 |
| S68                                 | 338175.103  | 8169249.150  | 7.071 |
| S69                                 | 338176.308  | 8169243.399  | 7.033 |
| S70                                 | 338077.583  | 8169285.620  | 6.196 |
| S71                                 | 338235.071  | 8169240.793  | 7.694 |
| S72                                 | 338199.760  | 8169256.749  | 7.522 |
| S73                                 | 338162.669  | 8169269.536  | 7.347 |
| S74                                 | 338193.116  | 8169242.648  | 6.519 |
| S75                                 | 338187.391  | 8169247.806  | 6.450 |
| S76                                 | 338179.167  | 8169250.852  | 6.371 |
| S77                                 | 338163.245  | 8169255.818  | 6.325 |
| S78                                 | 338119.984  | 8169265.755  | 6.070 |
| S79                                 | 338056.156  | 8169274.326  | 4.722 |
| S80                                 | 338044.277  | 8169271.837  | 4.304 |
| S81                                 | 338036.371  | 8169273.954  | 4.280 |
| S82                                 | 338037.314  | 8169288.164  | 4.614 |
| S83                                 | 338047.199  | 8169291.090  | 4.732 |
| S84                                 | 338060.130  | 8169286.986  | 5.169 |
| S85                                 | 338065.5637 | 8169288.4608 | 5.536 |

| SETOUT POINT TABLE - PAVEMENTS |            |             |       |
|--------------------------------|------------|-------------|-------|
| POINT                          | EASTING    | NORTHING    | LEVEL |
| P01                            | 338065.578 | 8169253.005 | 5.800 |
| P02                            | 338065.677 | 8169253.838 | 5.843 |
| P03                            | 338081.381 | 8169262.487 | 6.459 |
| P04                            | 338081.176 | 8169260.834 | 6.409 |
| P05                            | 338039.038 | 8169284.236 | 5.040 |
| P06                            | 338059.069 | 8169283.044 | 5.646 |
| P07                            | 338064.964 | 8169281.286 | 5.778 |
| P08                            | 338078.911 | 8169280.064 | 6.124 |
| P09                            | 338094.811 | 8169278.145 | 6.500 |
| P10                            | 338127.700 | 8169272.103 | 7.029 |
| P11                            | 338142.600 | 8169269.560 | 7.217 |
| P12                            | 338148.966 | 8169268.113 | 7.283 |
| P13                            | not used   |             |       |
| P14                            | 338231.529 | 8169232.887 | 7.493 |
| P15                            | 338321.580 | 8169162.573 | 6.814 |
| P16                            | 338320.889 | 8169161.818 | 6.763 |
| P17                            | 338039.253 | 8169277.612 | 4.865 |
| P18                            | 338061.429 | 8169275.761 | 5.370 |
| P19                            | 338230.463 | 8169227.002 | 7.349 |
| P20                            | 338236.959 | 8169245.007 | 7.572 |

| SETOUT POINT TABLE - LINEMARKING |            |             |
|----------------------------------|------------|-------------|
| POINT                            | EASTING    | NORTHING    |
| L01                              | 338035.397 | 8169264.324 |
| L02                              | 338072.054 | 8169261.341 |
| L03                              | 338102.104 | 8169260.198 |
| L04                              | 338155.853 | 8169248.649 |
| L05                              | 338155.201 | 8169267.783 |
| L06                              | 338155.084 | 8169245.749 |
| L07                              | 338180.505 | 8169238.373 |
| L08                              | 338334.227 | 8169183.218 |
| L09                              | 338035.184 | 8169260.830 |
| L10                              | 338139.504 | 8169243.253 |
| L11                              | 338154.210 | 8169239.255 |
| L12                              | 338175.358 | 8169233.170 |
| L13                              | 338189.717 | 8169228.524 |
| L14                              | 338236.710 | 8169210.259 |
| L15                              | 338268.951 | 8169185.942 |
| L16                              | 338241.847 | 8169211.256 |
| L17                              | 338323.180 | 8169166.369 |
| L18                              | 338332.294 | 8169160.315 |
| L19                              | 338162.754 | 8169240.021 |
| L20                              | 338169.591 | 8169248.377 |
| L21                              | 338172.378 | 8169257.881 |
| L22                              | 338173.535 | 8169247.232 |
| L23                              | 338169.543 | 8169255.886 |
| L24                              | 338176.244 | 8169236.036 |
| L25                              | 338224.828 | 8169225.603 |
| L26                              | 338224.918 | 8169228.701 |
| L27                              | 338224.614 | 8169233.355 |
| L28                              | 338230.795 | 8169223.142 |
| L29                              | 338230.139 | 8169230.055 |
| L30                              | 338034.971 | 8169257.337 |
| L31                              | 338330.347 | 8169157.391 |

|                   |  |
|-------------------|--|
| SIGN 1<br>SIGN 14 | <br>R5-35R          |
| SIGN 2<br>SIGN 13 | <br>R5-35L          |
| SIGN 3<br>SIGN 8  | <br>R1-1 (SIZE A)   |
| SIGN 4<br>SIGN 7  | <br>R5-20L          |
| SIGN 5<br>SIGN 6  | <br>R5-20R          |
| SIGN 9<br>SIGN 12 | <br>R2-4 (SIZE B) |
| SIGN 10           | <br>R1-2 (SIZE A) |
| SIGN 11           | <br>R2-6RB        |

|    |                |       |             |                  |         |
|----|----------------|-------|-------------|------------------|---------|
|    |                |       |             |                  |         |
| 0  | APPROVED ISSUE | JPT   | *MI         | *AA              | 11/7/19 |
| No | Revision       | Drawn | Job Manager | Project Director | Date    |



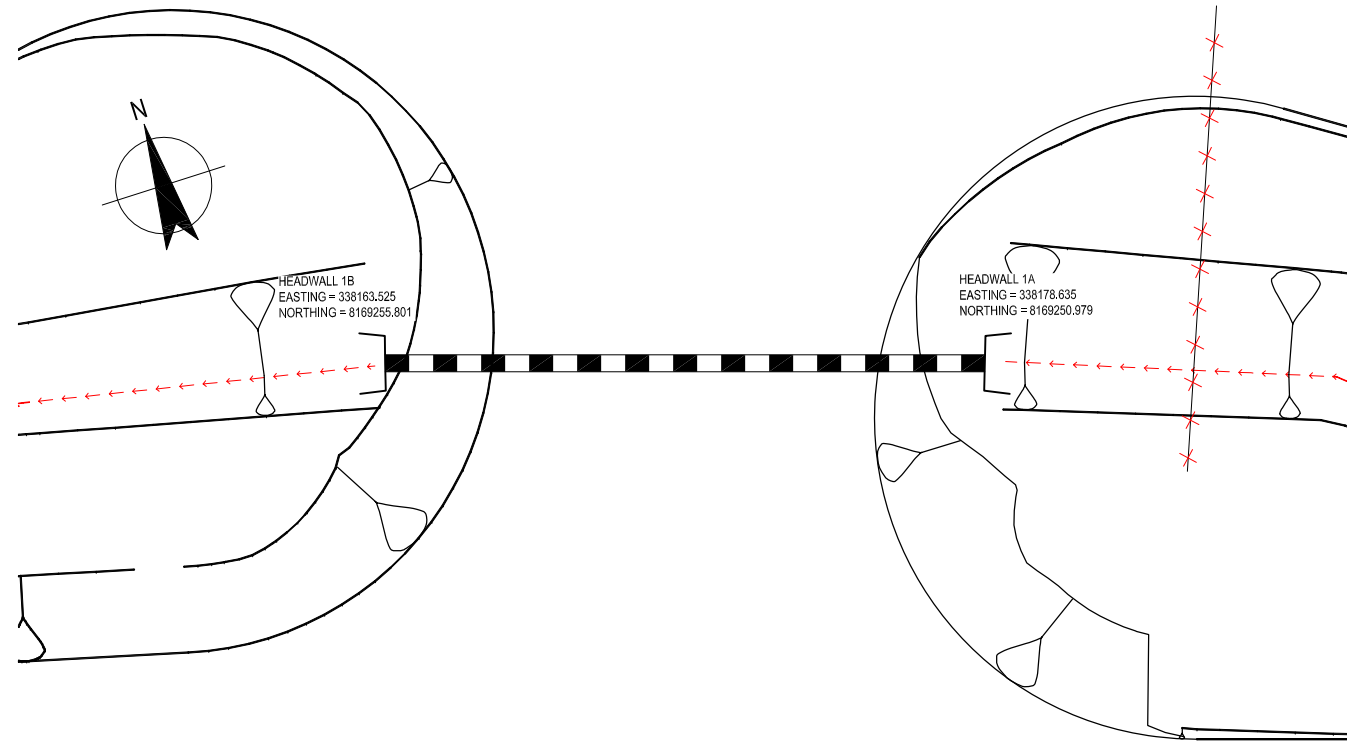
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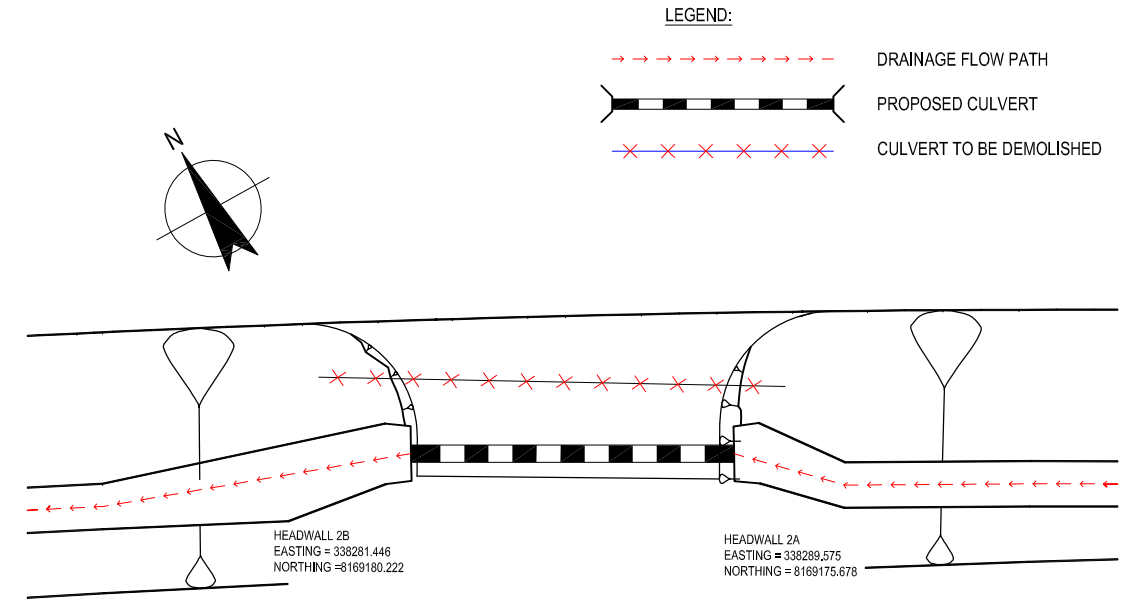
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| Drafting Check | *J.A.RAE                         | Design Check | *D.K.TROTTER |
| Approved       | *A.HILADELLIS (Project Director) |              |              |
| Date           | 11/7/19                          |              |              |
| Scale          | AS SHOWN                         |              |              |

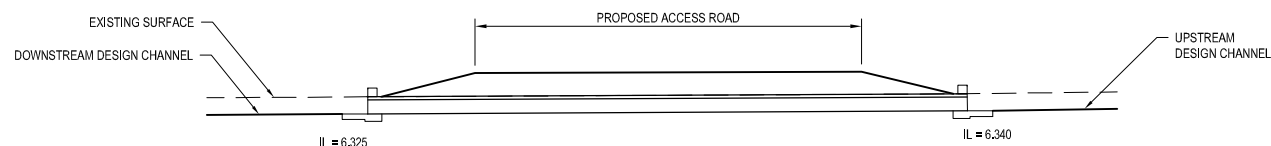
|               |  |             |               |
|---------------|--|-------------|---------------|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT   |             |               |
| Project       | WANGETTI TRAIL   |             |               |
| Title         | MOWBRAY RIVER CARPARK INTERSECTION SETOUT POINTS AND DETAILS |             |               |
| Original Size | A1   | Drawing No: | 42-21067-C006 |
|               |  |             | Rev: 0        |



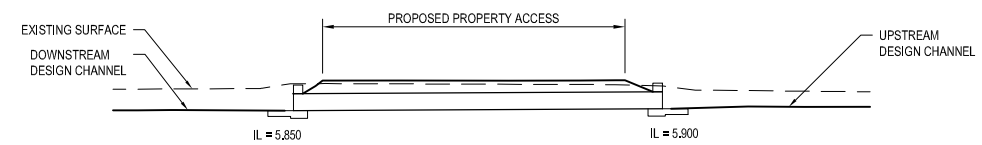
**CULVERT 1A**  
**PLAN VIEW**  
SCALE 1:100



**CULVERT 1B**  
**PLAN VIEW**  
SCALE 1:100



450 RCP CLASS 2  
LENGTH = 15.06  
PRECAST CONCRETE  
SLOPING ENDWALLS X2  
**CULVERT 1A**  
**SECTION VIEW**  
SCALE 1:100



450 RCP CLASS 2  
LENGTH = 9.76  
PRECAST CONCRETE  
SLOPING ENDWALLS X2  
**CULVERT 1B**  
**SECTION VIEW**  
SCALE 1:100



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| Drawn          | MGM                              | Designer     | JPT          |
| Drafting Check | *J.A.RAE                         | Design Check | *D.K.TROTTER |
| Approved       | *A.HILADELLIS (Project Director) |              |              |
| Date           | 11/7/19                          |              |              |
| Scale          | AS SHOWN                         |              |              |

|               |  |             |               |
|---------------|--|-------------|---------------|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT |             |               |
| Project       | WANGETTI TRAIL   |             |               |
| Title         | MOWBRAY RIVER CARPARK<br>CULVERT LAYOUT AND SECTION        |             |               |
| Original Size | A1   | Drawing No: | 42-21067-C007 |
| Rev:          | 0  |             |               |



CONTROL LINE MC02  
 X = 338300.874  
 Y = 8169180.438  
 Z = 7.021

Datum 4.00

|                  |  |  |  |         |         |        |  |        |        |  |       |
|------------------|--|--|--|---------|---------|--------|--|--------|--------|--|-------|
| EXISTING SURFACE |  |  |  | 6.427   | 6.411   | 6.345  |  | 6.609  | 6.776  |  | 7.021 |
| DESIGN SURFACE   |  |  |  | 6.427   | 5.695   | 5.695  |  | 6.695  | 6.776  |  | 7.021 |
| OFFSETS          |  |  |  | -12.523 | -11.060 | -9.860 |  | -5.860 | -4.415 |  | 0.000 |

CHAINAGE 56580.000

CONTROL LINE MC02  
 X = 338317.849  
 Y = 8169169.864  
 Z = 6.976

Datum 4.00

|                  |  |  |  |         |         |        |  |        |        |  |       |
|------------------|--|--|--|---------|---------|--------|--|--------|--------|--|-------|
| EXISTING SURFACE |  |  |  | 6.289   | 6.256   | 6.189  |  | 6.741  | 6.803  |  | 6.976 |
| DESIGN SURFACE   |  |  |  | 6.289   | 5.770   | 5.770  |  | 6.770  | 6.803  |  | 6.976 |
| OFFSETS          |  |  |  | -11.450 | -10.414 | -9.214 |  | -5.214 | -4.394 |  | 0.000 |

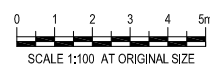
CHAINAGE 56560.000

CONTROL LINE MC02  
 X = 338323.201  
 Y = 8169166.355  
 Z = 6.962

Datum 4.00

|                  |  |  |  |         |         |        |  |        |        |  |       |
|------------------|--|--|--|---------|---------|--------|--|--------|--------|--|-------|
| EXISTING SURFACE |  |  |  | 6.270   | 6.217   | 6.146  |  | 6.768  | 6.806  |  | 6.962 |
| DESIGN SURFACE   |  |  |  | 6.270   | 5.781   | 5.781  |  | 6.781  | 6.806  |  | 6.962 |
| OFFSETS          |  |  |  | -11.188 | -10.210 | -9.010 |  | -5.010 | -4.325 |  | 0.000 |

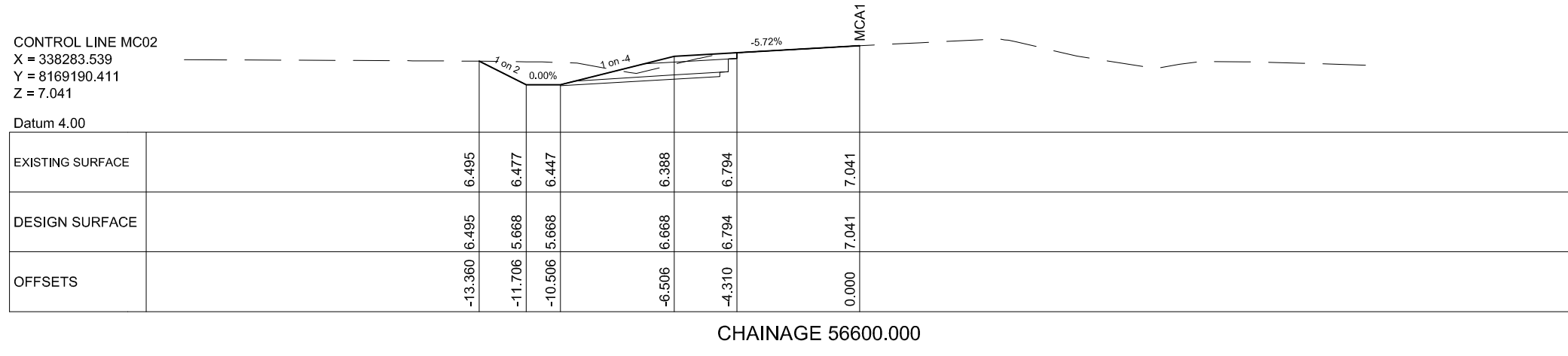
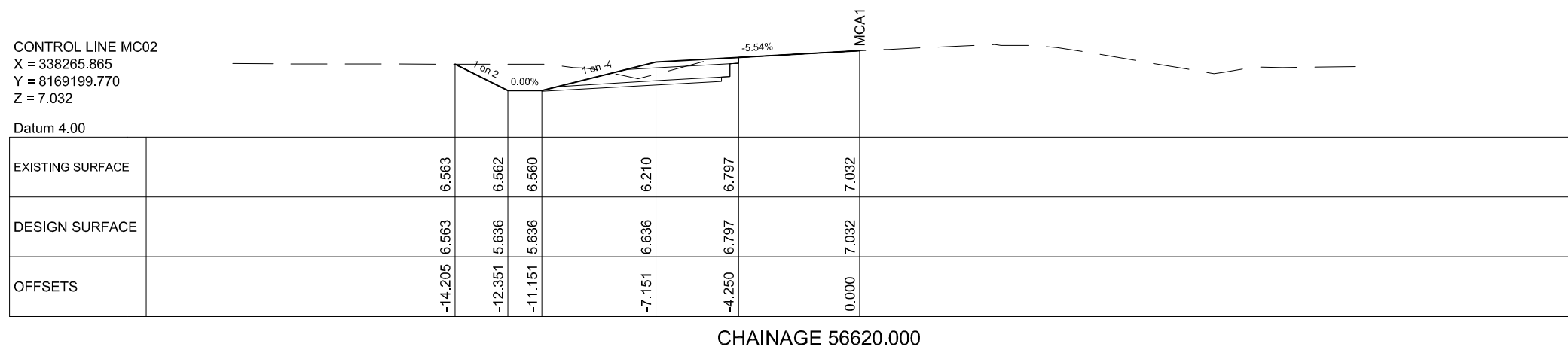
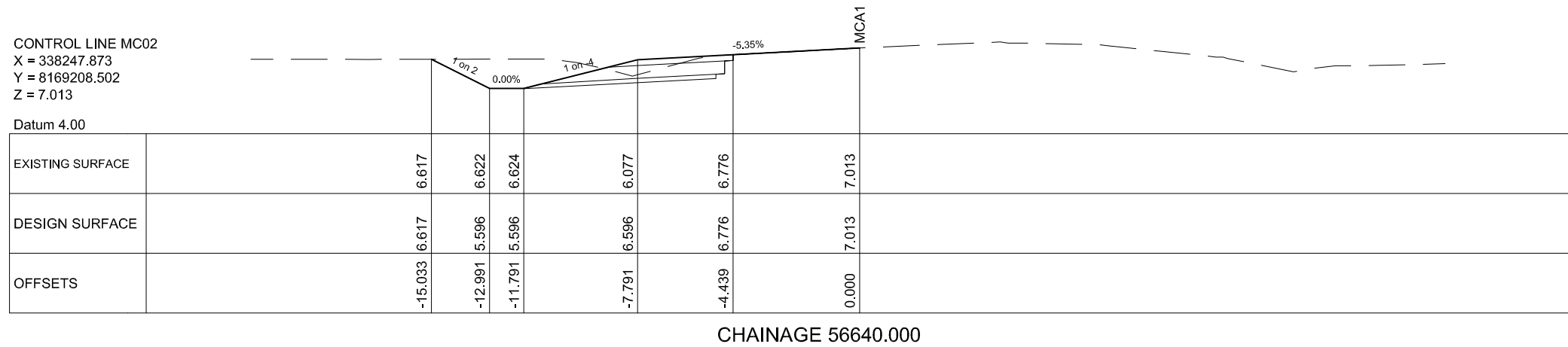
CHAINAGE 56553.600



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|  | Drafting Check              | *J.A.RAE      | Design Check   | *D.K.TROTTER |
|  | Approved (Project Director) | *A.HILADELLIS |  |              |
|  | Date                        | 11/7/19       |  |              |
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|               |   |
|---------------|---|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT      |
| Project       | WANGETTI TRAIL  |
| Title         | MOWBRAY RIVER CARPARK<br>ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| Original Size | A1  |
| Drawing No:   | 42-21067-C008   |
| Rev:          | 0   |



|    |                |       |             |                  |         |
|----|----------------|-------|-------------|------------------|---------|
| 0  | APPROVED ISSUE | JPT   | *MI         | *AA              | 11/7/19 |
| No | Revision       | Drawn | Job Manager | Project Director | Date    |



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|  | Drafting Check              | *J.A.RAE        | Design Check   | *D.K.TROTTER |
|  | Approved (Project Director) | *A.A.HILADELLIS |  |              |
|  | Date                        | 11/7/19         |  |              |
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| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT      |
| Project       | WANGETTI TRAIL  |
| Title         | MOWBRAY RIVER CARPARK<br>ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| Original Size | A1  |
| Drawing No:   | 42-21067-C009   |
| Rev:          | 0   |

CONTROL LINE MC02  
 X = 338192.217  
 Y = 8169230.842  
 Z = 6.874

Datum 4.00

|                  |  |         |         |         |       |        |        |       |       |
|------------------|--|---------|---------|---------|-------|--------|--------|-------|-------|
| EXISTING SURFACE |  |         | 6.608   | 6.631   | 6.642 |        | 5.907  | 6.646 | 6.874 |
| DESIGN SURFACE   |  | 6.608   | 5.458   | 5.458   |       | 6.458  | 6.646  | 6.874 |       |
| OFFSETS          |  | -15.505 | -13.205 | -12.005 |       | -8.005 | -4.401 | 0.000 |       |

CHAINAGE 56700.000

CONTROL LINE MC02  
 X = 338211.027  
 Y = 8169224.048  
 Z = 6.934

Datum 4.00

|                  |  |         |         |         |       |        |        |       |       |
|------------------|--|---------|---------|---------|-------|--------|--------|-------|-------|
| EXISTING SURFACE |  |         | 6.641   | 6.639   | 6.638 |        | 5.966  | 6.705 | 6.934 |
| DESIGN SURFACE   |  | 6.641   | 5.530   | 5.530   |       | 6.530  | 6.705  | 6.934 |       |
| OFFSETS          |  | -15.426 | -13.204 | -12.004 |       | -8.004 | -4.541 | 0.000 |       |

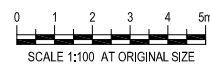
CHAINAGE 56680.000

CONTROL LINE MC02  
 X = 338229.587  
 Y = 8169216.599  
 Z = 6.980

Datum 4.00

|                  |  |         |         |         |       |        |        |       |       |
|------------------|--|---------|---------|---------|-------|--------|--------|-------|-------|
| EXISTING SURFACE |  |         | 6.660   | 6.654   | 6.650 |        | 6.020  | 6.747 | 6.980 |
| DESIGN SURFACE   |  | 6.660   | 5.563   | 5.563   |       | 6.563  | 6.747  | 6.980 |       |
| OFFSETS          |  | -15.398 | -13.204 | -12.004 |       | -8.004 | -4.471 | 0.000 |       |

CHAINAGE 56660.000



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|----------------|----------------------------------|--------------|--------------|
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| Drafting Check | *J.A.RAE                         | Design Check | *D.K.TROTTER |
| Approved       | *A.HILADELLIS (Project Director) |              |              |
| Date           | 11/7/19                          |              |              |
| Scale          | NOT TO SCALE                     |              |              |

|               |   |
|---------------|---|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT      |
| Project       | WANGETTI TRAIL  |
| Title         | MOWBRAY RIVER CARPARK<br>ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| Original Size | A1  |
| Drawing No:   | 42-21067-C010   |
| Rev:          | 0   |

CONTROL LINE MC02  
 X = 338134.522  
 Y = 8169247.211  
 Z = 6.593

Datum 4.00

|                |  |         |         |         |        |        |       |       |       |        |
|----------------|--|---------|---------|---------|--------|--------|-------|-------|-------|--------|
| TIN EXST       |  | 6.840   | 6.771   | 6.738   | 5.556  | 6.290  | 6.593 | 6.793 | 6.071 | 6.345  |
| DESIGN SURFACE |  | 6.840   | 5.073   | 5.073   | 6.073  | 6.290  | 6.593 | 6.793 | 6.898 | 6.345  |
| OFFSETS        |  | -16.245 | -12.711 | -11.511 | -7.511 | -4.373 | 0.000 | 4.477 | 8.000 | 10.214 |

CHAINAGE 56760.000

CONTROL LINE MC02  
 X = 338153.941  
 Y = 8169242.431  
 Z = 6.701

Datum 4.00

|                |  |         |         |         |        |        |       |       |       |        |
|----------------|--|---------|---------|---------|--------|--------|-------|-------|-------|--------|
| TIN EXST       |  | 6.781   | 6.781   | 6.782   | 5.639  | 6.466  | 6.701 | 6.900 | 6.267 | 6.461  |
| DESIGN SURFACE |  | 6.781   | 5.262   | 5.262   | 6.262  | 6.466  | 6.701 | 6.900 | 7.004 | 6.461  |
| OFFSETS        |  | -16.238 | -13.200 | -12.000 | -8.000 | -4.276 | 0.000 | 4.551 | 8.000 | 10.173 |

CHAINAGE 56740.000

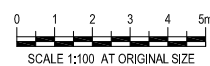
CONTROL LINE MC02  
 X = 338173.181  
 Y = 8169236.973  
 Z = 6.819

Datum 4.00

|                  |  |         |         |         |        |        |       |       |  |  |
|------------------|--|---------|---------|---------|--------|--------|-------|-------|--|--|
| EXISTING SURFACE |  | 6.661   | 6.644   | 6.636   | 5.785  | 6.571  | 6.819 | 6.995 |  |  |
| DESIGN SURFACE   |  | 6.661   | 5.360   | 5.360   | 6.360  | 6.571  | 6.819 | 6.995 |  |  |
| OFFSETS          |  | -15.808 | -13.205 | -12.005 | -8.005 | -4.323 | 0.000 | 4.409 |  |  |

CHAINAGE 56720.000

INTERSECTION RHS  
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|  | Drafting Check              | *J.A.RAE        | Design Check   | *D.K.TROTTER |
|  | Approved (Project Director) | *A.A.HILADELLIS |  |              |
|  | Date                        | 11/7/19         |  |              |
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|---------------|---|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT      |
| Project       | WANGETTI TRAIL  |
| Title         | MOWBRAY RIVER CARPARK<br>ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| Original Size | A1  |
| Drawing No:   | 42-21067-C011   |
| Rev:          | 0   |

|    |                |   |       |             |                  |         |
|----|----------------|---|-------|-------------|------------------|---------|
| No | Revision       | Note: * Indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date    |
| 0  | APPROVED ISSUE |   | JPT   | *MI         | *AA              | 11/7/19 |

CONTROL LINE MC02  
 X = 338066.233  
 Y = 8169258.447  
 Z = 6.078

Datum 4.00

|                  |  |         |  |         |        |  |        |        |  |       |
|------------------|--|---------|--|---------|--------|--|--------|--------|--|-------|
| EXISTING SURFACE |  | 6.939   |  | 6.479   | 5.392  |  | 5.727  | 5.843  |  | 6.078 |
| DESIGN SURFACE   |  | 6.939   |  | 4.801   | 4.801  |  | 5.801  | 5.843  |  | 6.078 |
| OFFSETS          |  | -14.958 |  | -10.683 | -9.483 |  | -5.483 | -4.643 |  | 0.000 |

CHAINAGE 56829.250

CONTROL LINE MC02  
 X = 338075.426  
 Y = 8169257.427  
 Z = 6.166

Datum 4.00

|                  |  |         |  |         |        |  |        |        |  |       |
|------------------|--|---------|--|---------|--------|--|--------|--------|--|-------|
| EXISTING SURFACE |  | 6.964   |  | 6.650   | 5.733  |  | 5.773  | 5.919  |  | 6.166 |
| DESIGN SURFACE   |  | 6.964   |  | 4.866   | 4.866  |  | 5.866  | 5.919  |  | 6.166 |
| OFFSETS          |  | -15.085 |  | -10.889 | -9.689 |  | -5.689 | -4.689 |  | 0.000 |

CHAINAGE 56820.000

CONTROL LINE MC02  
 X = 338095.240  
 Y = 8169254.714  
 Z = 6.313

Datum 4.00

|                |  |         |  |         |         |  |        |        |  |       |  |       |  |       |  |        |
|----------------|--|---------|--|---------|---------|--|--------|--------|--|-------|--|-------|--|-------|--|--------|
| TIN EXST       |  | 6.937   |  | 6.770   | 6.339   |  | 5.721  | 6.091  |  | 6.313 |  | 6.498 |  | 5.931 |  | 5.638  |
| DESIGN SURFACE |  | 6.937   |  | 5.009   | 5.009   |  | 6.009  | 6.091  |  | 6.313 |  | 6.498 |  | 6.590 |  | 5.638  |
| OFFSETS        |  | -15.255 |  | -11.400 | -10.200 |  | -6.200 | -4.544 |  | 0.000 |  | 4.249 |  | 7.289 |  | 15.655 |

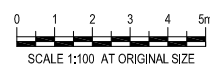
CHAINAGE 56800.000

CONTROL LINE MC02  
 X = 338114.947  
 Y = 8169251.307  
 Z = 6.448

Datum 4.00

|                |  |         |  |         |         |  |        |        |  |       |  |       |  |       |  |        |
|----------------|--|---------|--|---------|---------|--|--------|--------|--|-------|--|-------|--|-------|--|--------|
| TIN EXST       |  | 6.880   |  | 6.775   | 6.742   |  | 5.504  | 6.169  |  | 6.448 |  | 6.674 |  | 6.062 |  | 6.092  |
| DESIGN SURFACE |  | 6.880   |  | 5.006   | 5.006   |  | 6.006  | 6.169  |  | 6.448 |  | 6.674 |  | 6.783 |  | 6.092  |
| OFFSETS        |  | -15.754 |  | -12.007 | -10.807 |  | -6.807 | -4.310 |  | 0.000 |  | 4.386 |  | 8.000 |  | 15.412 |

CHAINAGE 56780.000

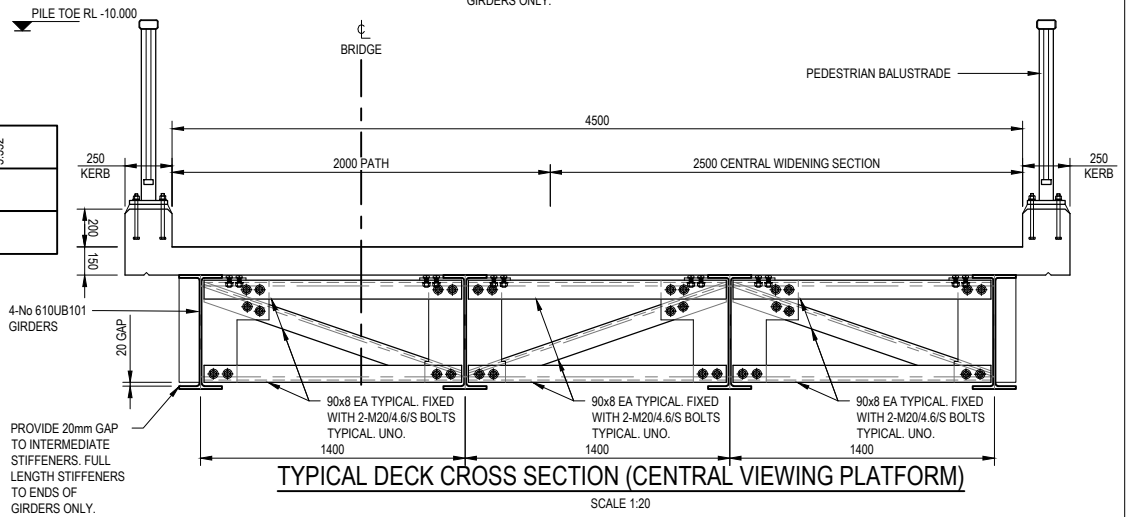
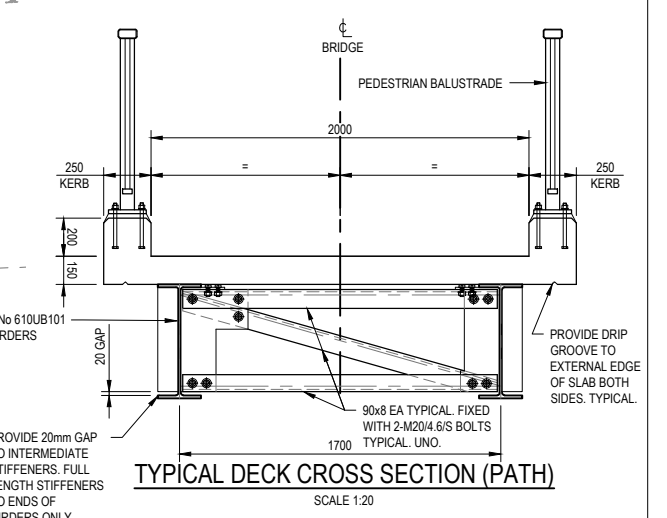
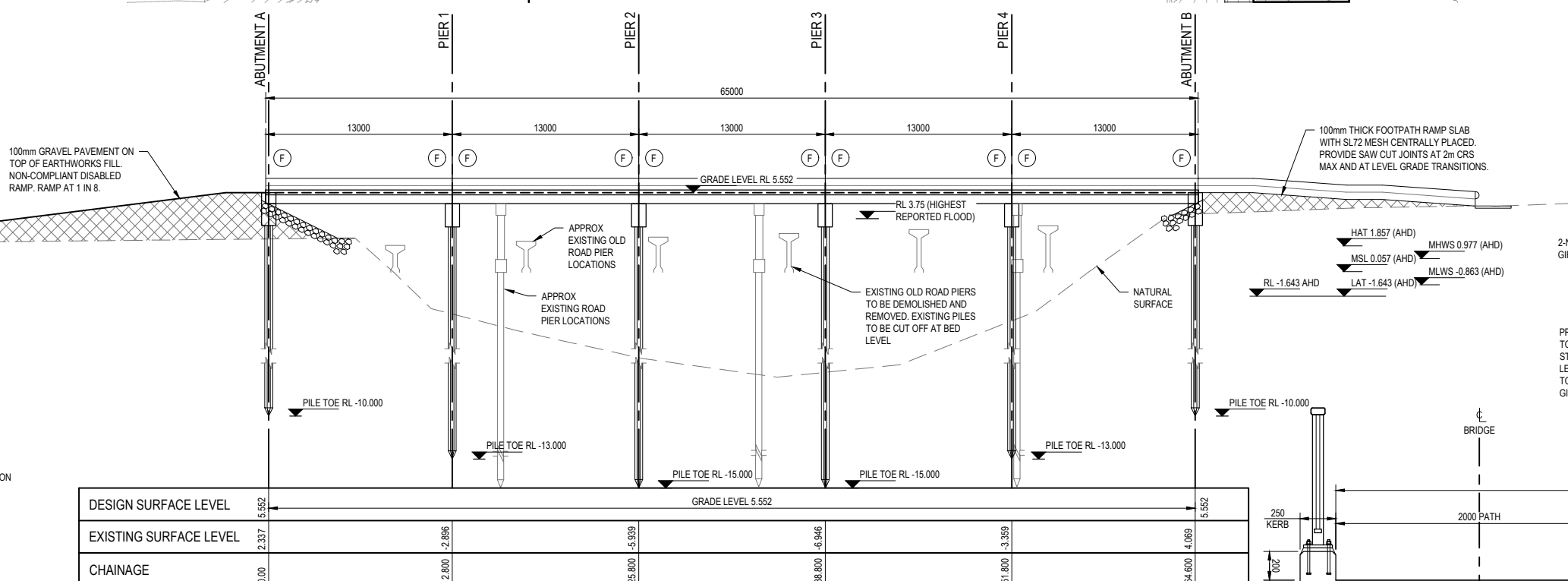
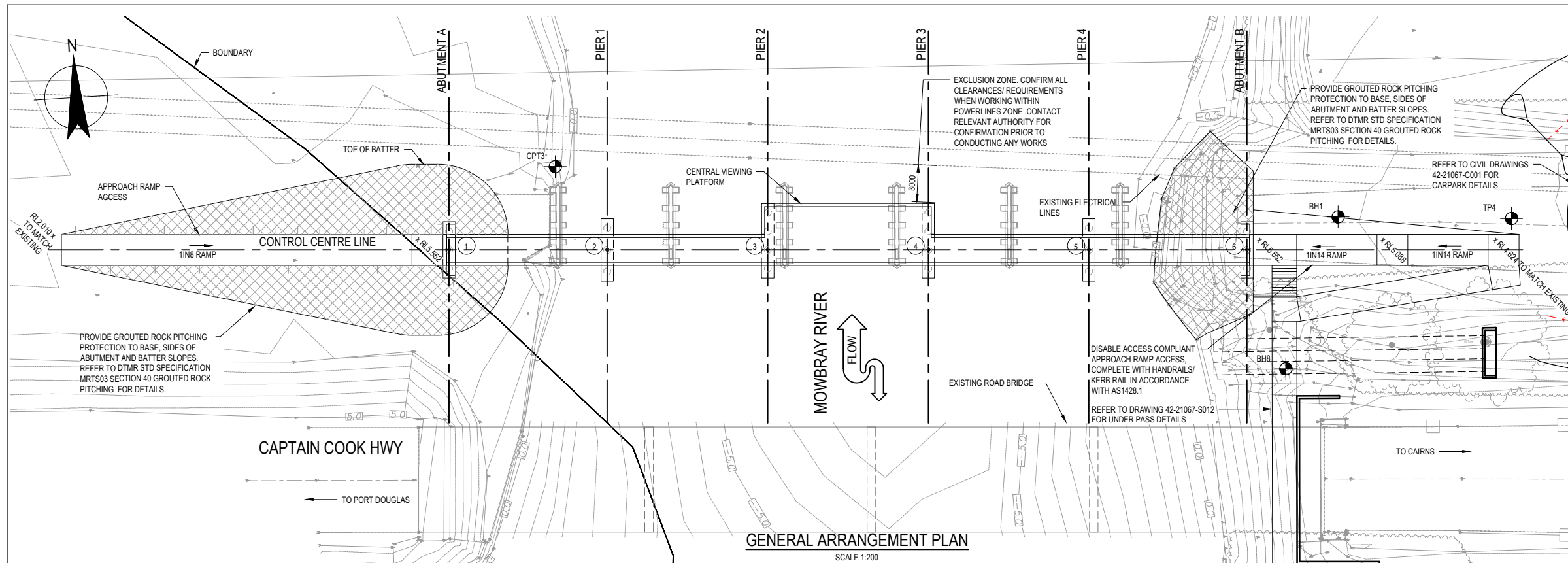


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|  | Drafting Check              | *J.A.RAE        | Design Check | *D.K.TROTTER |
|  | Approved (Project Director) | *A.A.HILADELLIS |              |              |
|  | Date                        | 11/7/19         |              |              |
| Scale  | NOT TO SCALE                |                 |              |              |

|               |   |
|---------------|---|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY AND DEVELOPMENT      |
| Project       | WANGETTI TRAIL  |
| Title         | MOWBRAY RIVER CARPARK<br>ANNOTATED CROSS SECTION CTRL LINE MCA1 |
| Original Size | A1  |
| Drawing No:   | 42-21067-C012   |
| Rev:          | 0   |

**GENERAL NOTES**

1. READ THESE NOTES IN CONJUNCTION WITH OTHER ENGINEERING DRAWINGS AND SPECIFICATIONS, AND WITH SUCH OTHER WRITTEN INSTRUCTIONS ISSUED. IN CASE OF DISCREPANCY, PRECEDENCE IS GIVEN TO DRAWINGS, THEN NOTES THEN SPECIFICATION.
2. CARRY OUT WORK IN A SAFE MANNER IN ACCORDANCE WITH APPLICABLE STATUTORY REGULATIONS, BY-LAWS OR RULES. CONTRACTOR IS RESPONSIBLE FOR OCCUPATIONAL HEALTH AND SAFETY OF SITE PERSONAL AND GENERAL PUBLIC IN ACCORDANCE WITH LEGISLATIVE REQUIREMENTS, INDUSTRIAL AGREEMENTS AND ACCEPTED INDUSTRY PRACTICE.
3. REFER TO GEOTECHNICAL INVESTIGATION REPORT No90810.00 PREPARED BY DOUGLAS PARTNERS DATED MAY 2019. NOTIFY SUPERINTENDENT IF CONDITIONS ENCOUNTERED DIFFER FROM THOSE DESCRIBED IN THE REPORT AND SEEK DIRECTIONS.
4. LEVELS DATUM - AHD  
ORIGIN OF LEVELS: OPSM 58688 (RL 8.533)  
MERIDIAN: MGA ZONE 55
5. NO FILLING TO BE PLACED ABOVE SOFFIT OF ABUTMENT HEADSTOCKS UNTIL AT LEAST TWO (2) DAYS AFTER ERECTION OF ALL SPANS AND GROUTING OF HOLD DOWN BOLTS.
6. REINFORCING STEEL TO BE AUSTRALIAN MADE GRADE 500M TO AS 1302.
7. ALL BOLTS AND NUTS TO BE HOT DIP GALVANISED TO AS 1214 UNO. ALL WASHERS TO BE HOT DIP GALVANISED TO AS1650 UNO. ANY GALVANISED ELEMENT IN CONTACT WITH CEMENTITIOUS MATERIAL TO BE PASSIVATED IN 0.2% SODIUM DICHROMATE SOLUTION.
8. SPACING OF REINFORCEMENT IN HEADSTOCKS MAYBE ALTERED SLIGHTLY IF NECESSARY TO CLEAR HOLD DOWN BOLTS.
9. ALL EXPOSED EDGES TO HAVE 25x25 CHAMFERS UNLESS SHOWN OTHERWISE.
10. A DATE PLATE IS TO BE CAST INTO THE TOP OF THE LEFT HAND SIDE WALL AT ABUTMENT A SIMILAR TO DTMR STANDARD DATE PLATE DRAWING 1063. CONFIRM DATE PLATE WITH CLIENT.
11. A BRASS BENCH MARK IS TO BE CAST INTO THE TOP OF THE LEFT HAND WINGWALL AT ABUTMENT A.
12. LOADINGS IN ACCORDANCE WITH:
  - (a) DESIGN LIVE LOAD IS IN ACCORDANCE WITH AS2156.2 - 1.4 kN CONCENTRATED LOAD TAKEN OVER AN AREA OF 75mm BY 75mm, OR 4kPa FOR VIEWING PLATFORM AND 3 kPa FOR ACCESS WAYS FOR TRACK
  - (b) PILE TIP LEVELS SHOWN ARE CONTRACT LEVELS AND ARE SUBJECT TO VARIANCE AS DIRECTED BY THE SUPERINTENDENT.
  - (c) DESIGN MAXIMUM STREAM VELOCITY - 3.1m/s (ARI 100)
  - (d) BRIDGE IS DESIGNED AS SUBMERGED WITH 1.0m DEBRIS MAT
  - (e) LOG IMPACT PLUS STREAM FORCE = 200kN ACTING AT BASE OF PIER HEADSTOCK
  - (f) DESIGN SCOUR = 1m
13. PILE ULTIMATE LOAD:
  - 550 OCT PILE - ULTIMATE LIMIT STATE 500 kN (1100 kN GEOTECHNICAL LOAD)
  - 550 OCT PILE - ULTIMATE LIMIT STATE UPLIFT 125 kN (280 kN GEOTECHNICAL LOAD)
14. ALL EXISTING SERVICES AND UTILITIES SHALL BE PROTECTED FROM DAMAGE BY THE OPERATIONS OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OF SERVICES DAMAGED DURING CONSTRUCTION. CONTRACTOR TO LOCATE ALL SERVICES ON SITE PRIOR TO COMMENCEMENT OF ANY WORKS.
15. CONTRACTOR SHALL VERIFY ALL SETOUT DETAILS AND DIMENSIONS ON SITE PRIOR TO COMMENCEMENT OF SITE WORKS. ANY DISCREPANCIES TO BE REPORTED TO THE SUPERINTENDENT IMMEDIATELY.
16. SPOIL MATERIAL TO BE USED ON SITE AS DIRECTED BY SUPERINTENDENT.
17. GRADE EVENLY BETWEEN LEVELS SHOWN.
18. SUPERSTRUCTURE STRUCTURAL STEELWORK TO BE COATED USING EITHER 2 PACK EPOXY (PURS) OR HIGH BUILD EPOXY COATING (EHB6) IN ACCORDANCE WITH AS2312.1.



- LEGEND:**
- (F) DENOTES FIXED BEARING
  - (2) DENOTES SETOUT POINT
  - x RL 3.80 DENOTES DESIGN LEVELS
  - BH1 DENOTES BOREHOLE LOCATION
  - CPT1 DENOTES CONE PENETRATION TEST LOCATION
  - TP1 DENOTES TEST PIT LOCATION

| SETOUT POINTS |            |             |
|---------------|------------|-------------|
| POINT         | EASTING    | NORTHING    |
| 1             | 337947.995 | 8169284.821 |
| 2             | 337960.770 | 8169284.023 |
| 3             | 337973.744 | 8169283.213 |
| 4             | 337986.719 | 8169282.404 |
| 5             | 337999.694 | 8169281.594 |
| 6             | 338012.469 | 8169280.796 |

|    |                |   |       |             |                  |      |
|----|----------------|---|-------|-------------|------------------|------|
| 0  | APPROVED ISSUE | WRC   | *MI   | *AA         | 08.07.19         |      |
| No | Revision       | Note: * indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date |



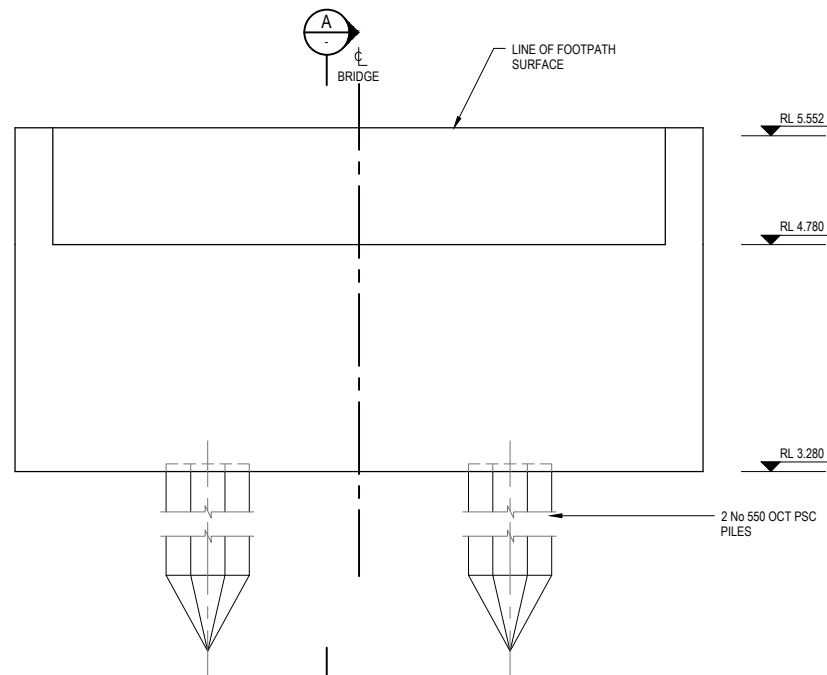
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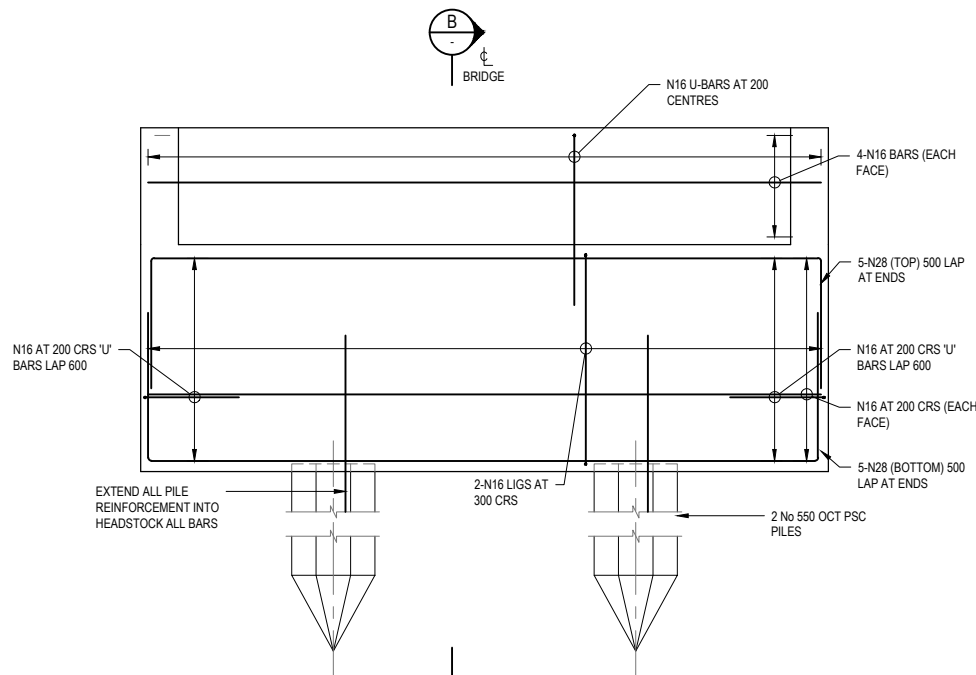
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 Designer: A.AHILADELLIS  
 Drafting Check: \*M.ISENBERT  
 Design Check: \*M.ISENBERT  
 Approved (Project Director): \*A.AHILADELLIS  
 Date: 08.07.19  
 Scale: AS SHOWN

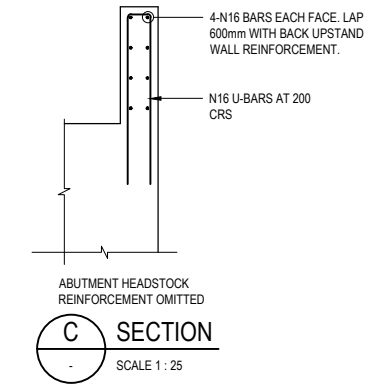
Client: **DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT**  
 Project: **WANGETTI TRAIL**  
 Title: **BRIDGE WORK GENERAL ARRANGEMENT**  
 Original Size: **A1**  
 Drawing No: **42-21067-S001**  
 Rev: **0**



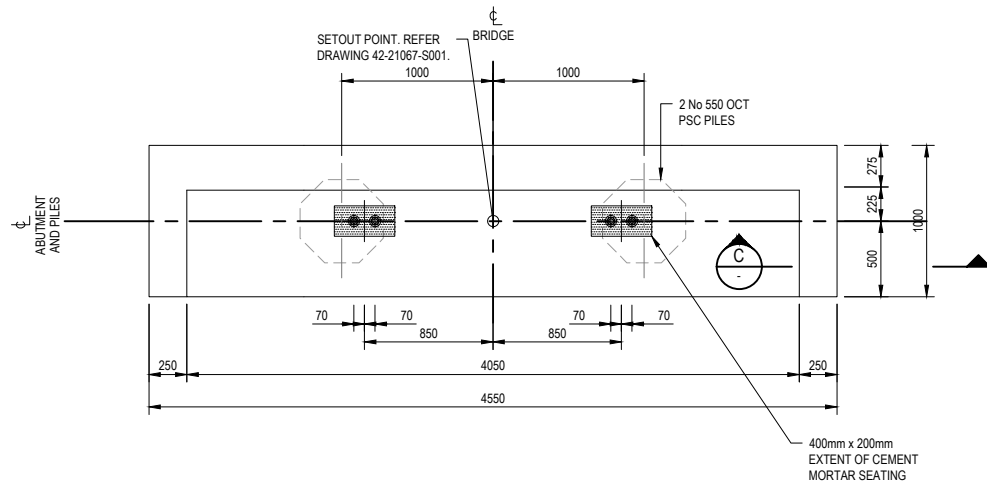
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(ABUTMENT B SIMILAR)  
SCALE 1:25



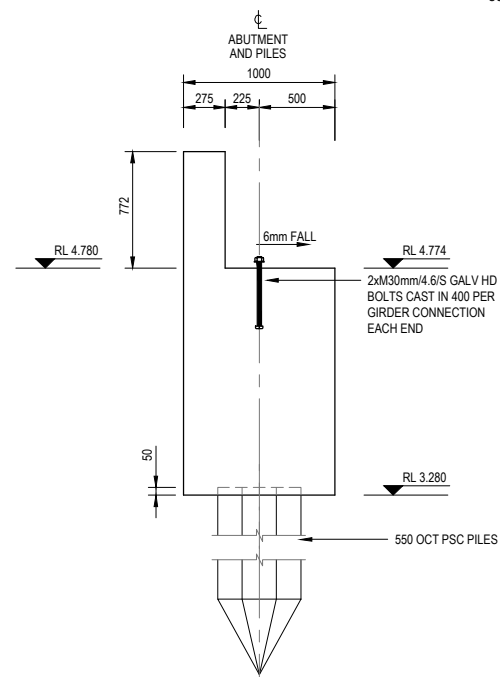
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(ABUTMENT B SIMILAR)  
SCALE 1:25



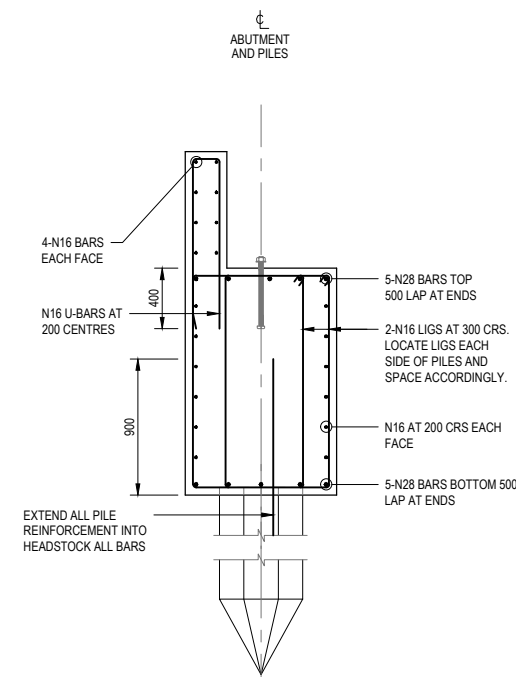
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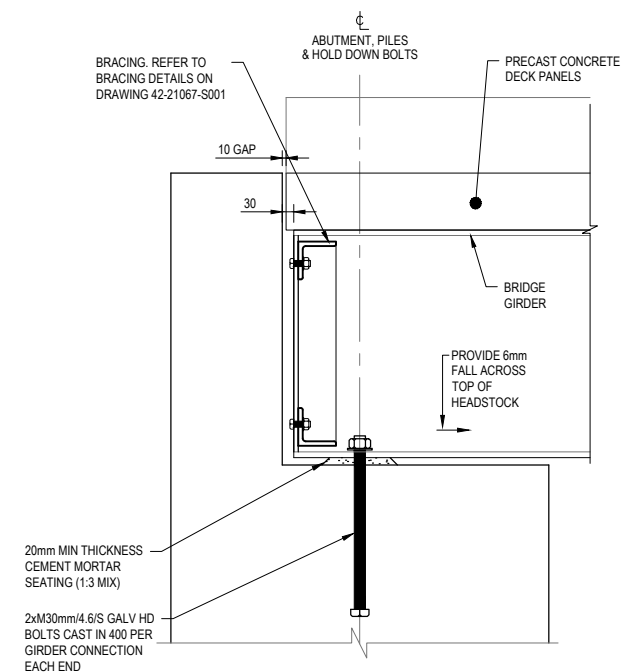
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SCALE 1:25



**SECTION A**  
SCALE 1:25

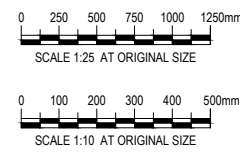


**SECTION B**  
SCALE 1:25



**TYPICAL ABUTMENT ANCHOR DETAILS**  
SCALE 1:10

|    |                |   |       |             |                  |          |
|----|----------------|---|-------|-------------|------------------|----------|
| No | Revision       | Note: * indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date     |
| 0  | APPROVED ISSUE |   | WRC   | *MI         | *AA              | 08.07.19 |



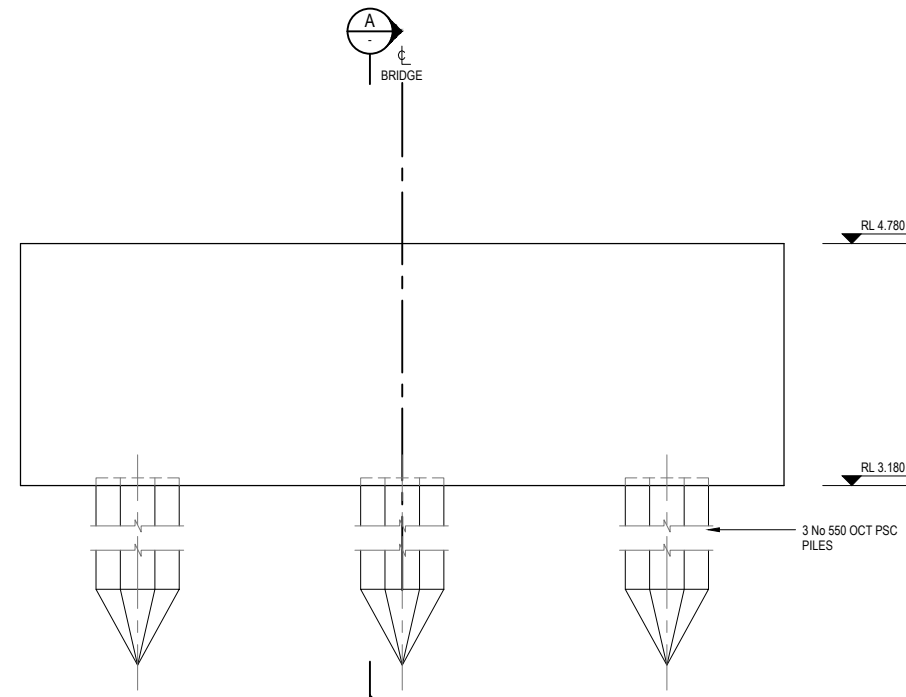
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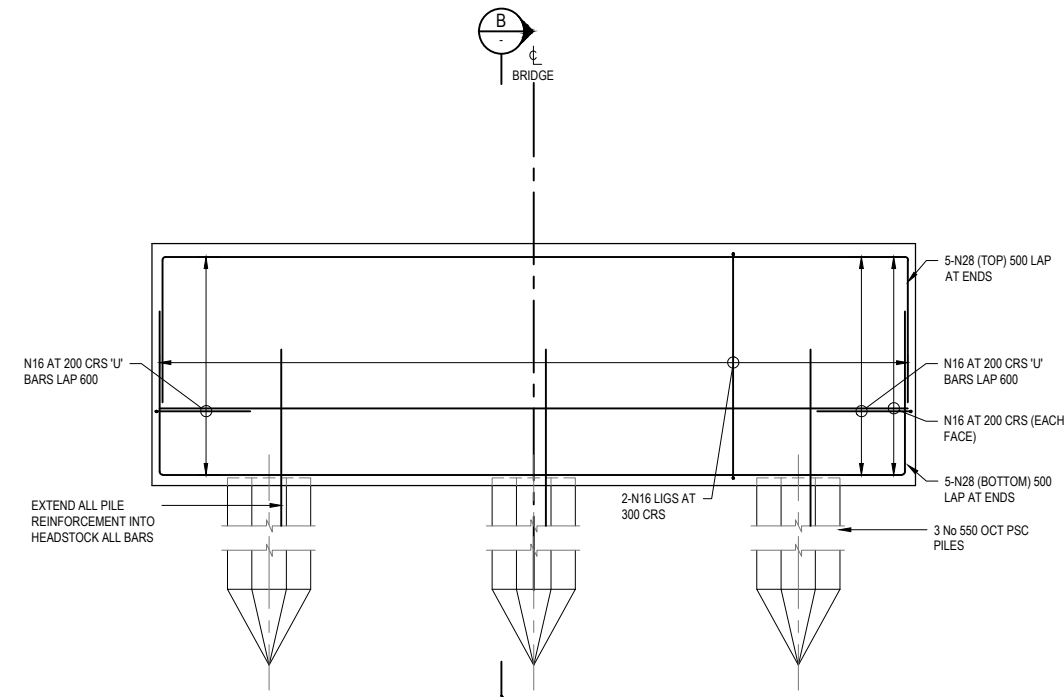
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| Drafting Check              | *M.ISENBERT    | Design Check | *M.ISENBERT   |
| Approved (Project Director) | *A.AHILADELLIS |              |               |
| Date                        | 08.07.19       |              |               |
| Scale                       | AS SHOWN       |              |               |

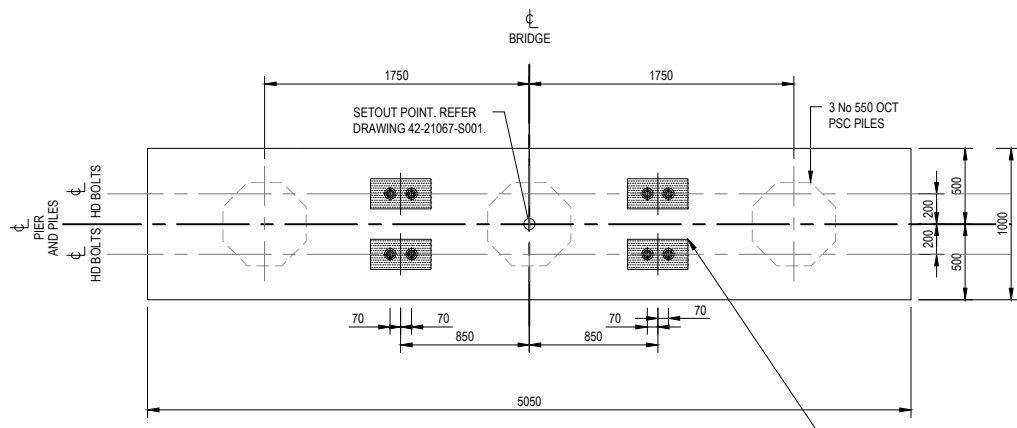
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|---------------|--|-------------|---------------|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT |             |               |
| Project       | WANGETTI TRAIL   |             |               |
| Title         | BRIDGE WORK<br>ABUTMENT DETAILS                        |             |               |
| Original Size | A1   | Drawing No: | 42-21067-S002 |
| Rev:          | 0  |             |               |



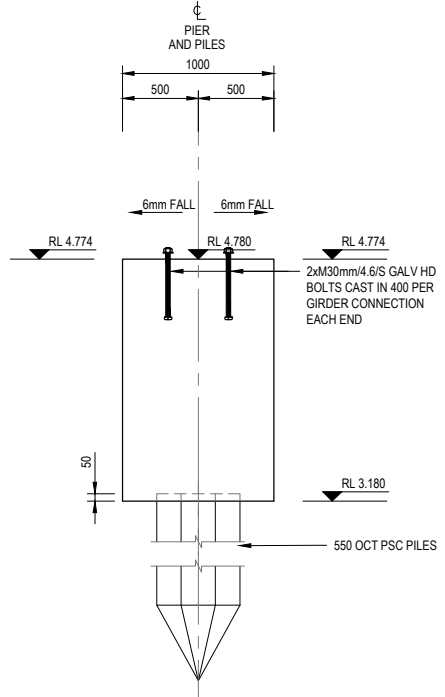
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SCALE 1:25



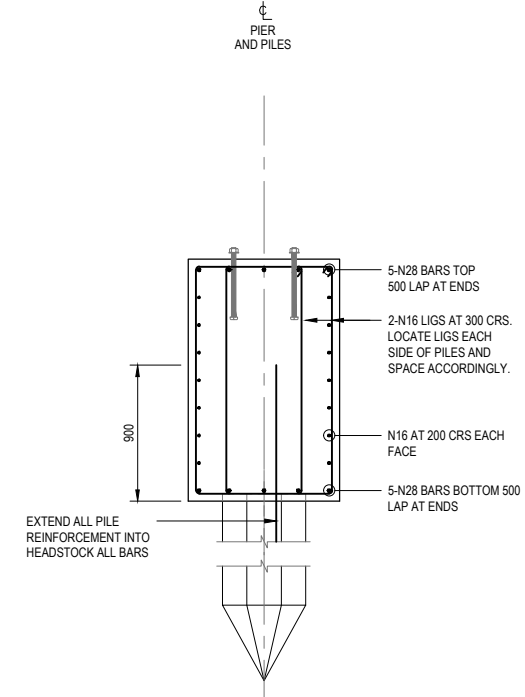
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(PIER 4 SIMILAR)  
SCALE 1:25



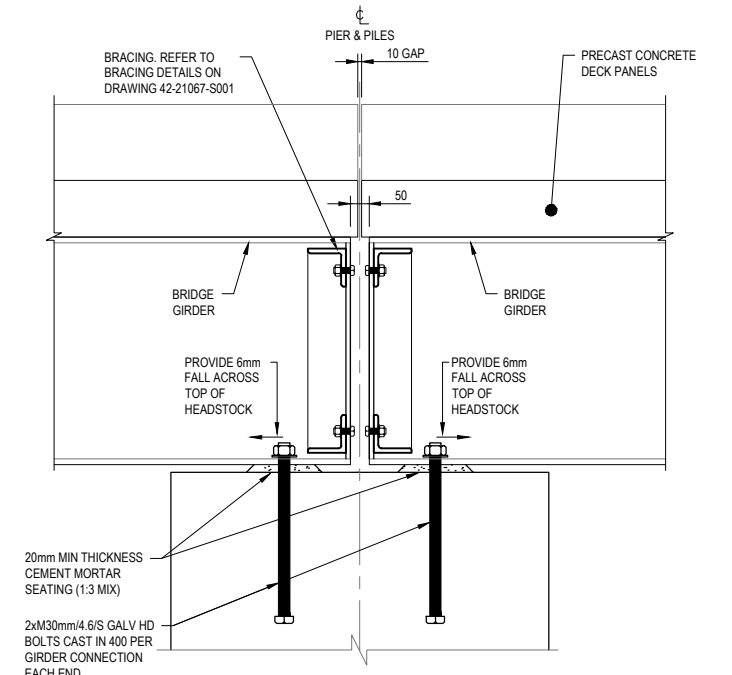
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SCALE 1:25



**A SECTION**  
SCALE 1:25

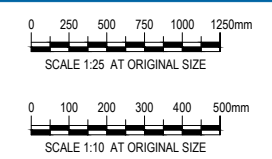


**B SECTION**  
SCALE 1:25



**TYPICAL PIER ANCHOR DETAILS**  
SCALE 1:10

|    |                |   |       |             |                  |          |
|----|----------------|---|-------|-------------|------------------|----------|
| No | Revision       | Note: * indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date     |
| 0  | APPROVED ISSUE |   | WRC   | *MI         | *AA              | 08.07.19 |



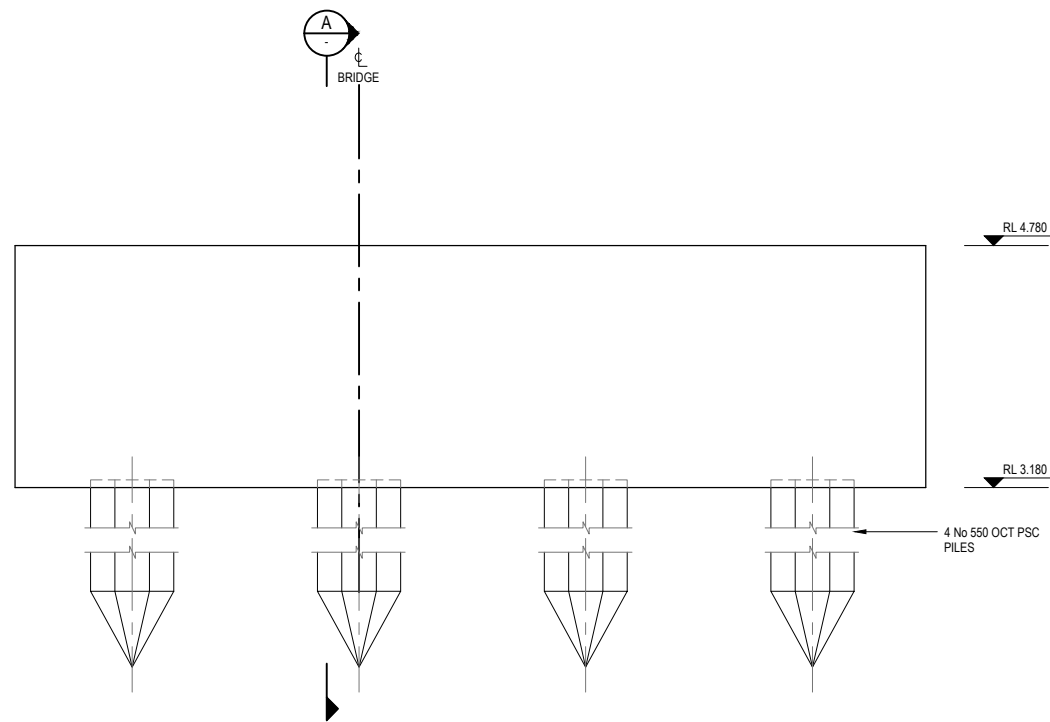
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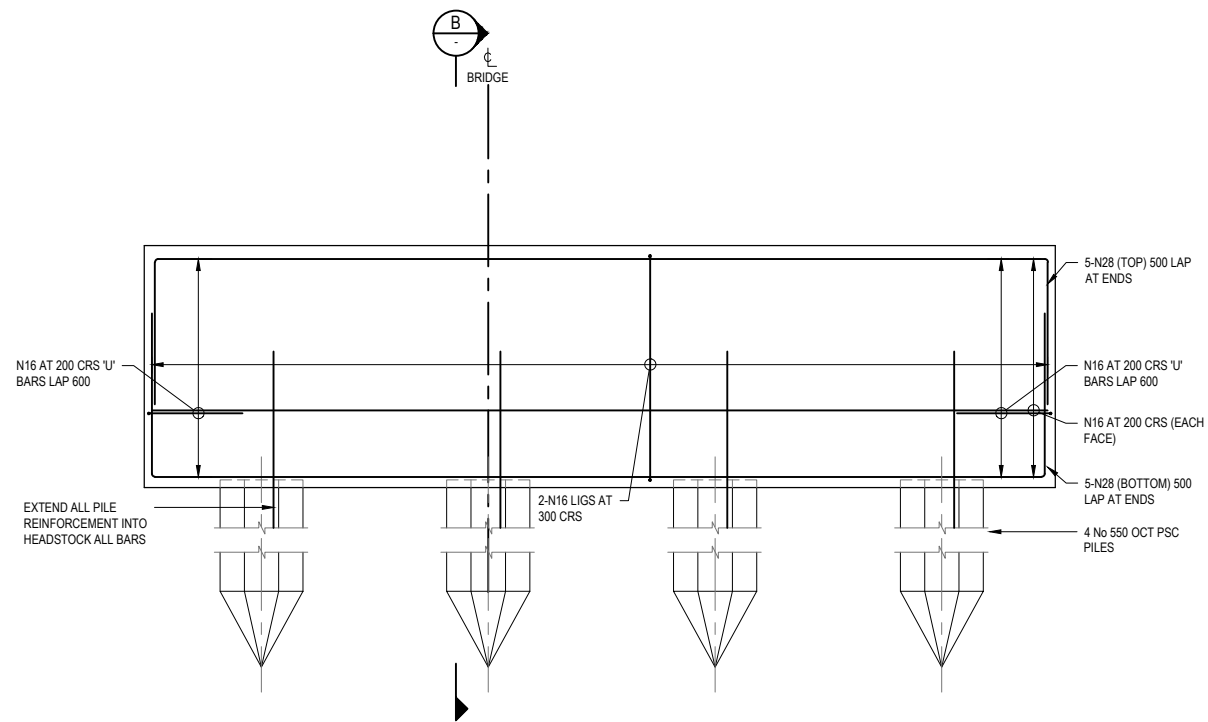
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|               |  |
|---------------|--|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT |
| Project       | WANGETTI TRAIL   |
| Title         | BRIDGE WORK<br>PIERS 1 & 4 DETAILS                     |
| Original Size | A1 Drawing No: 42-21067-S003                           |
| Rev:          | 0  |

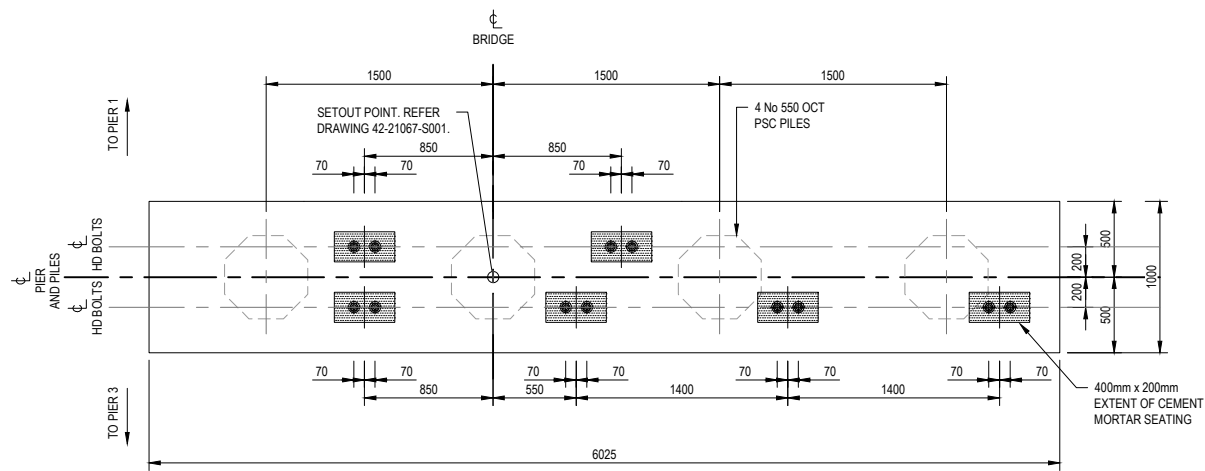




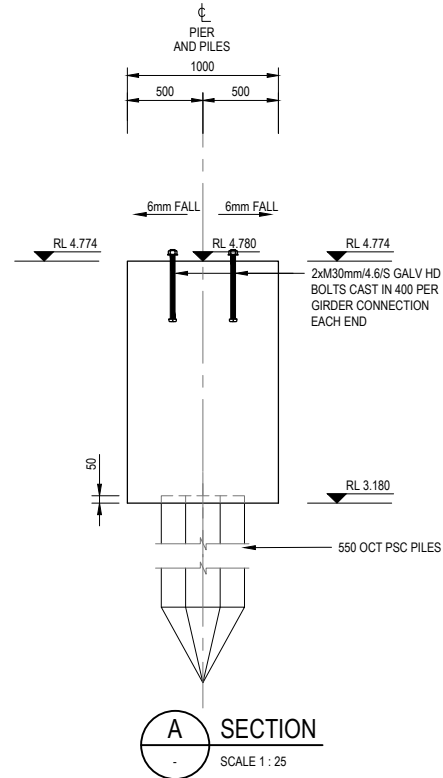
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SCALE 1:25



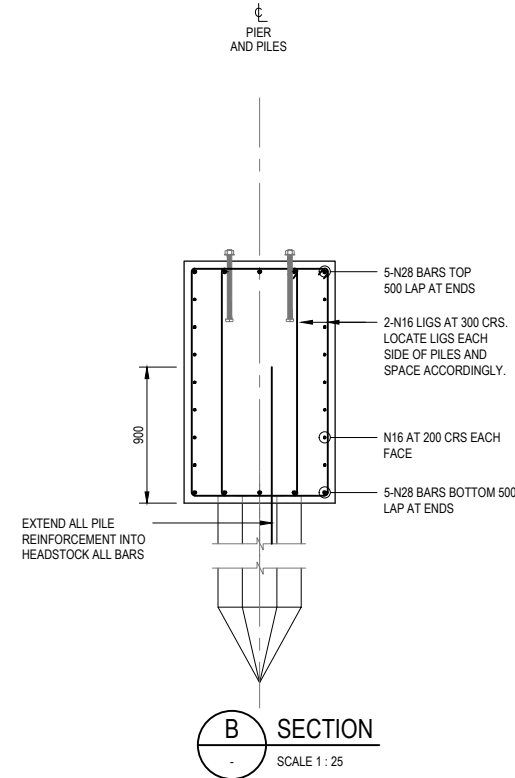
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SCALE 1:25



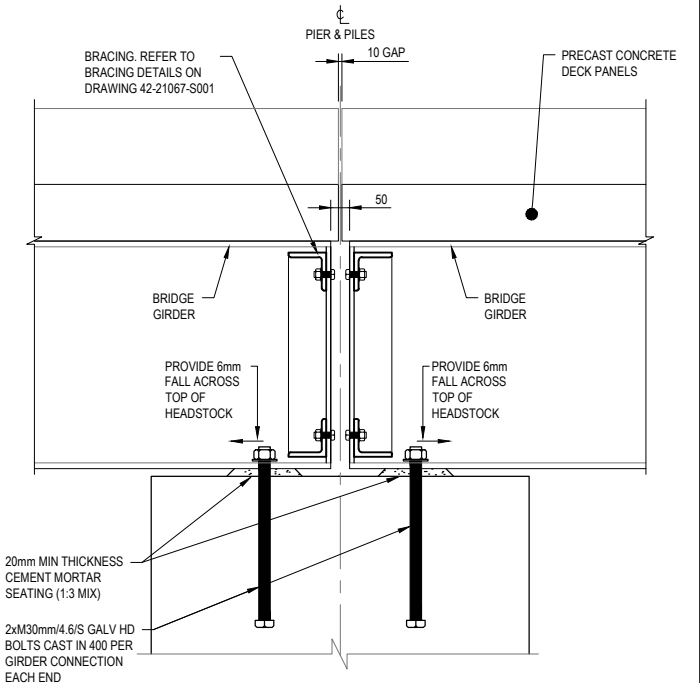
**PLAN ON HEADSTOCK**  
SCALE 1:25



**A SECTION**  
SCALE 1:25

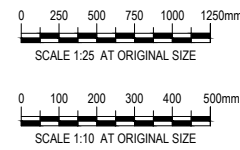


**B SECTION**  
SCALE 1:25



**TYPICAL PIER ANCHOR DETAILS**  
SCALE 1:10

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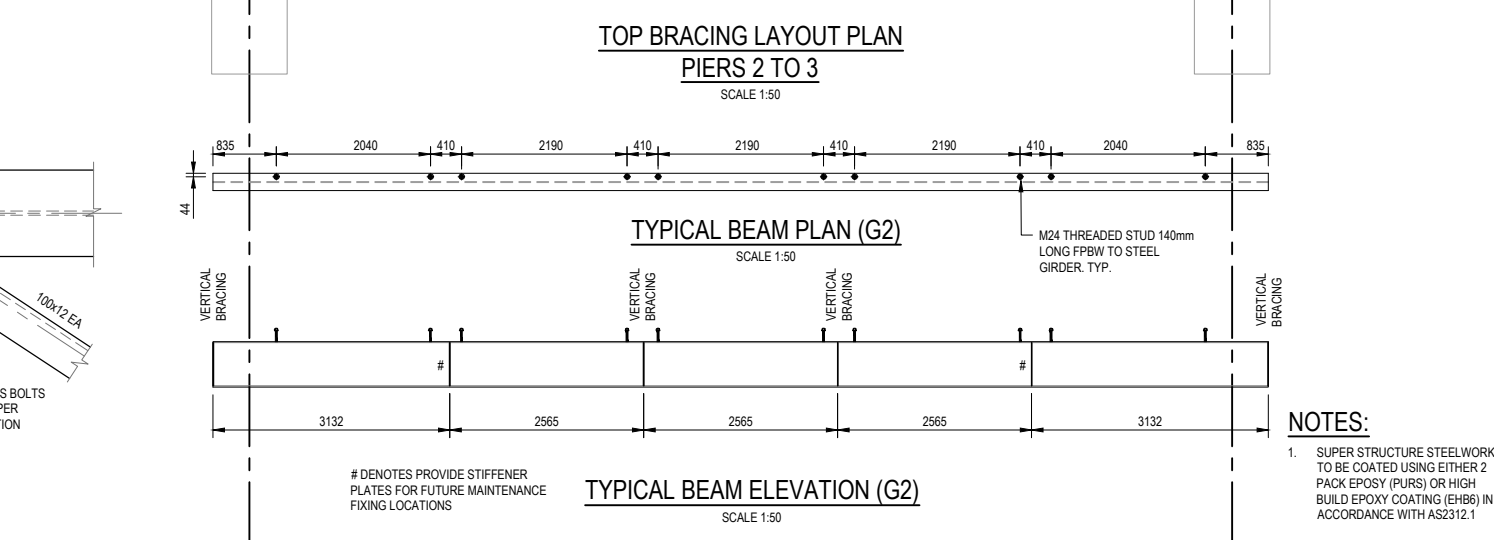
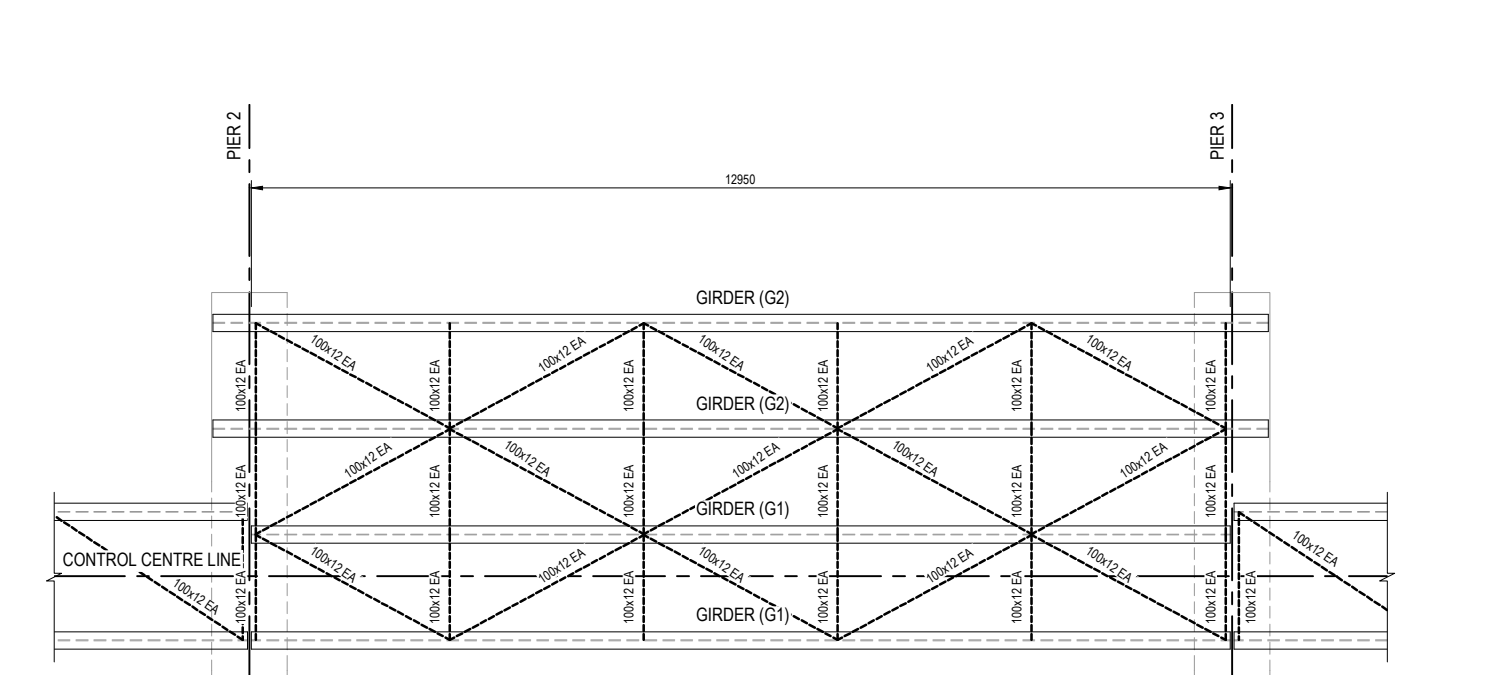
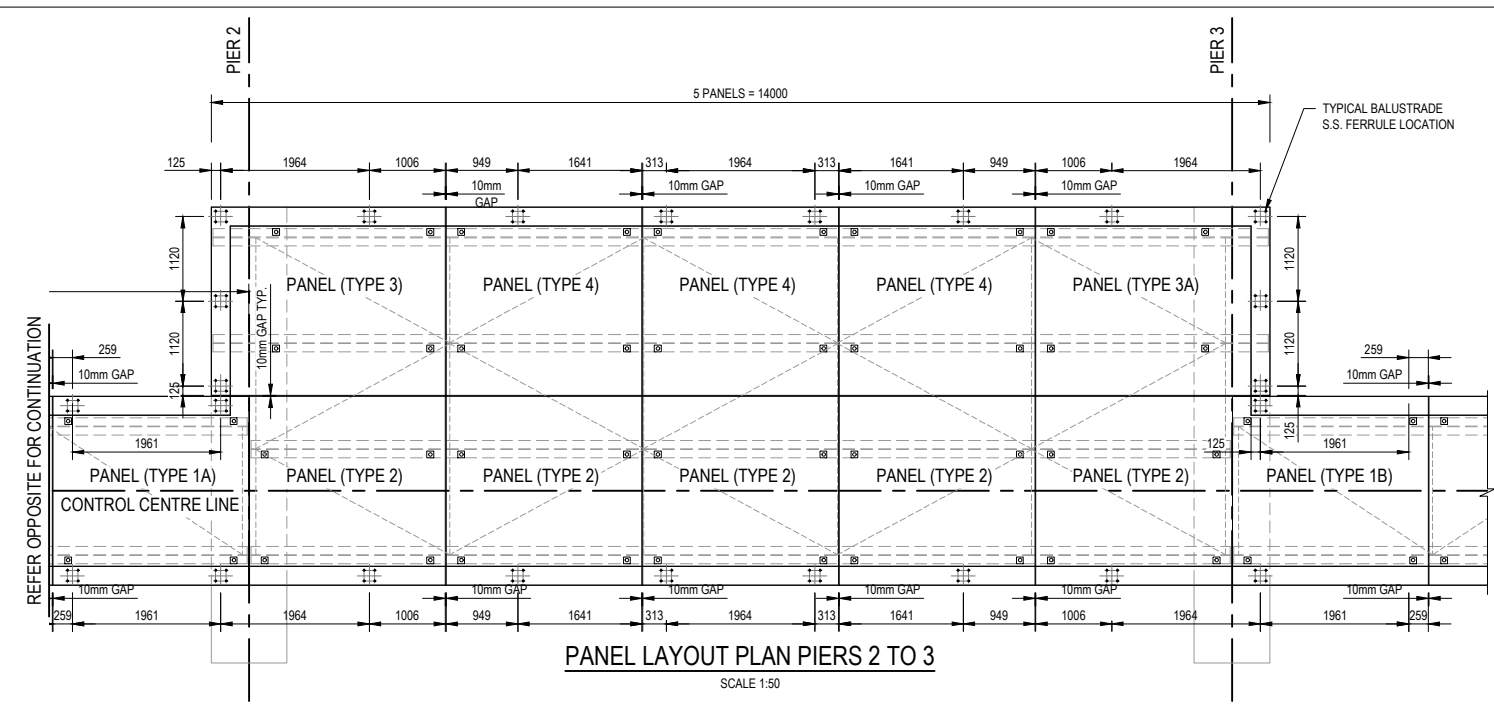
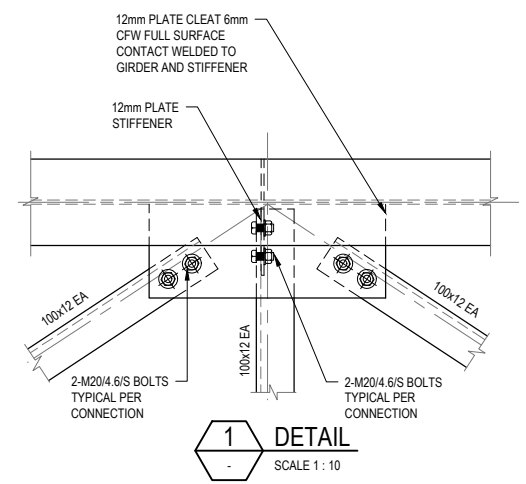
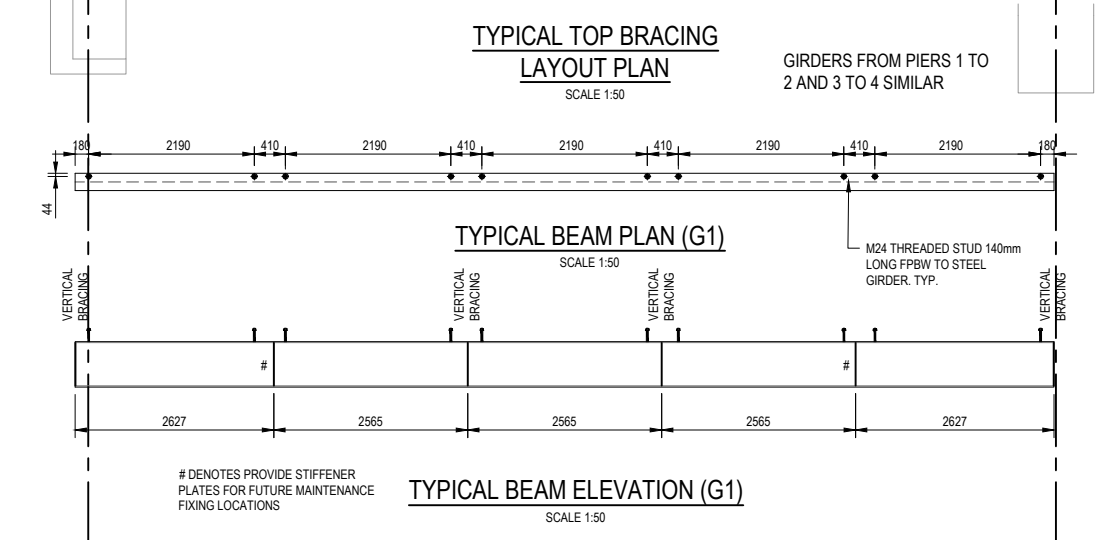
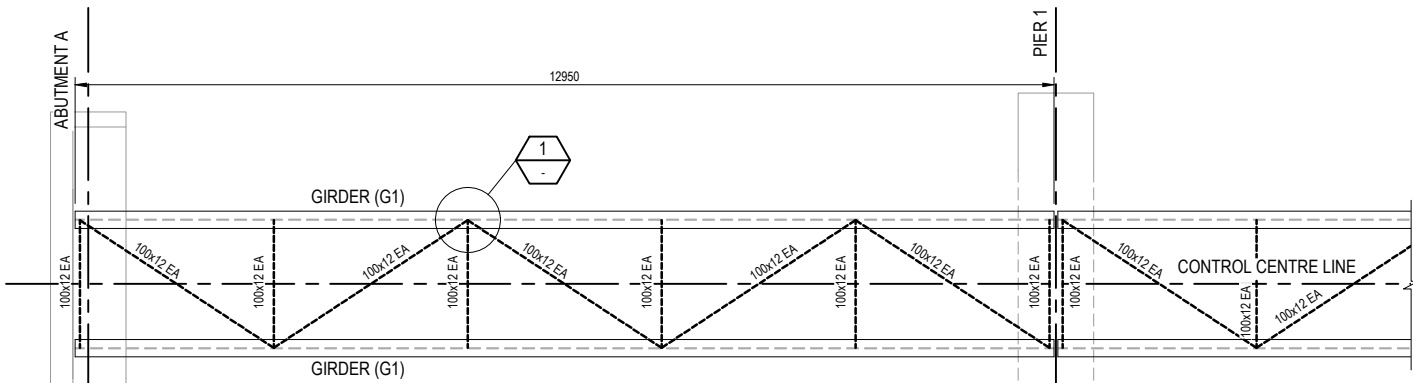
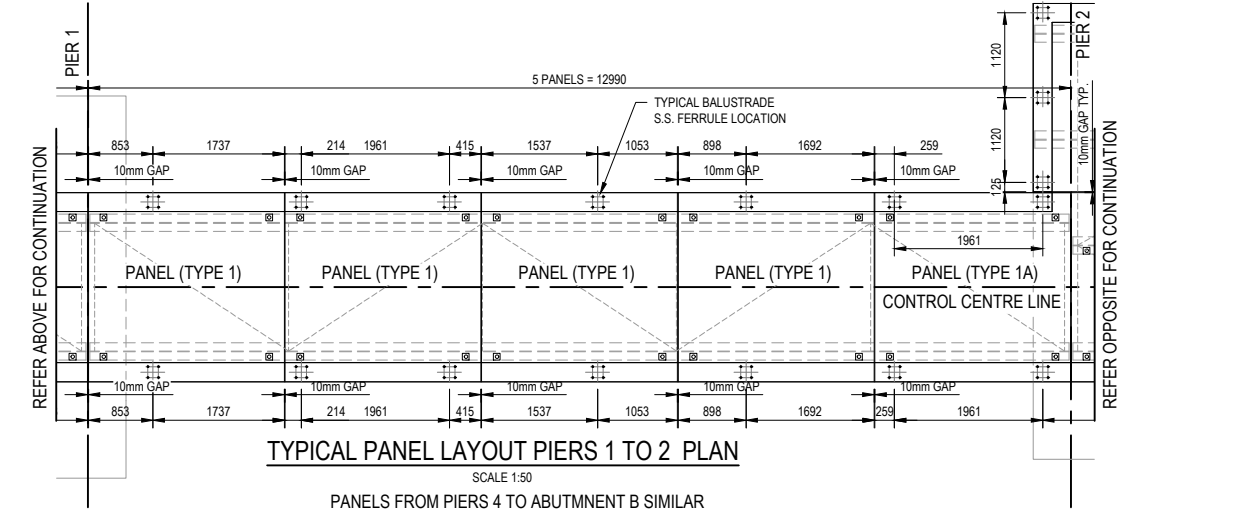
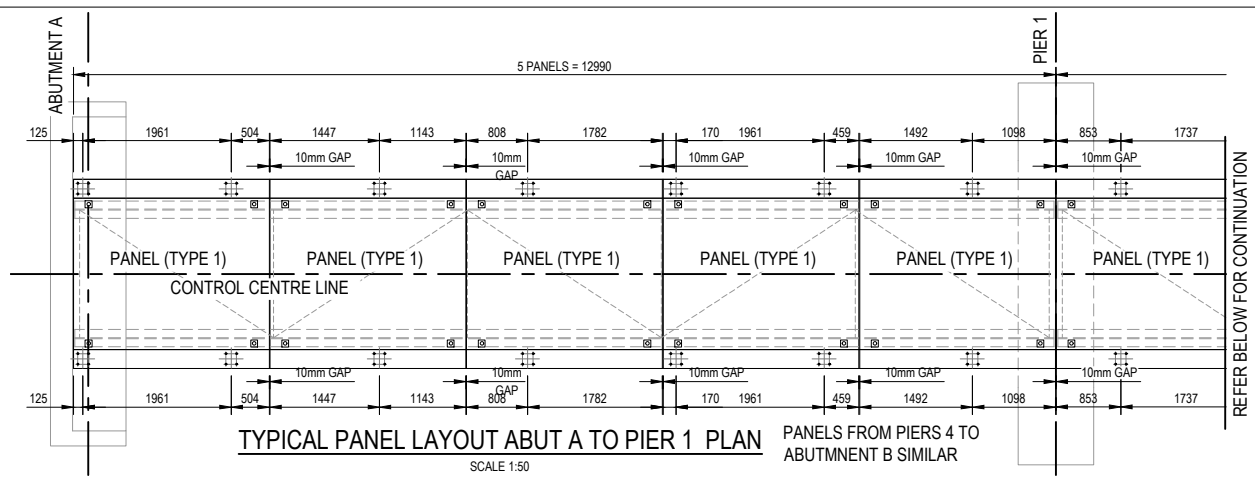
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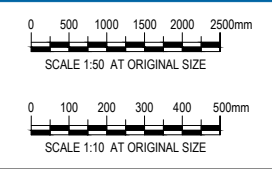
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| Drawn                       | W.CLARKE       | Designer     | A.AHILADELLIS |
| Drafting Check              | *M.ISENBERT    | Design Check | *M.ISENBERT   |
| Approved (Project Director) | *A.AHILADELLIS |              |               |
| Date                        | 08.07.19       |              |               |
| Scale                       | AS SHOWN       |              |               |

|               |  |             |               |
|---------------|--|-------------|---------------|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT |             |               |
| Project       | WANGETTI TRAIL   |             |               |
| Title         | BRIDGE WORK<br>PIERS 2 & 3 DETAILS                     |             |               |
| Original Size | A1   | Drawing No: | 42-21067-S004 |
| Rev:          | 0  |             |               |



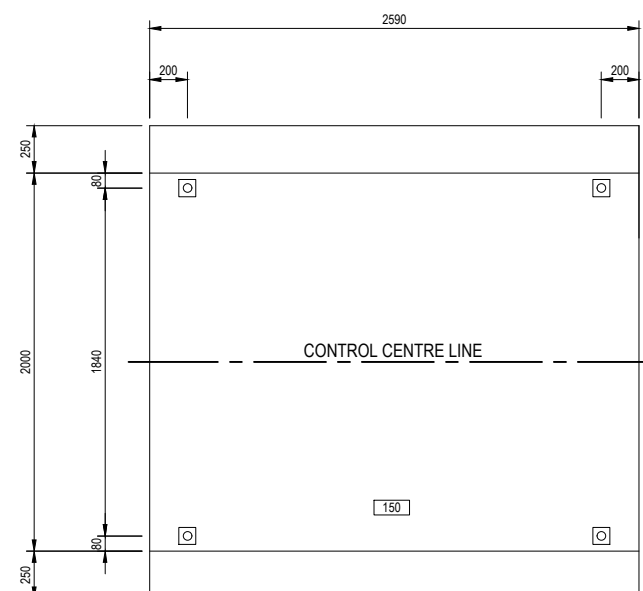
**NOTES:**  
 1. SUPER STRUCTURE STEELWORK TO BE COATED USING EITHER 2 PACK EPOXY (PURS) OR HIGH BUILD EPOXY COATING (EHB6) IN ACCORDANCE WITH AS2312.1

|    |                |   |       |             |                  |      |
|----|----------------|---|-------|-------------|------------------|------|
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| No | Revision       | Note: * indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date |

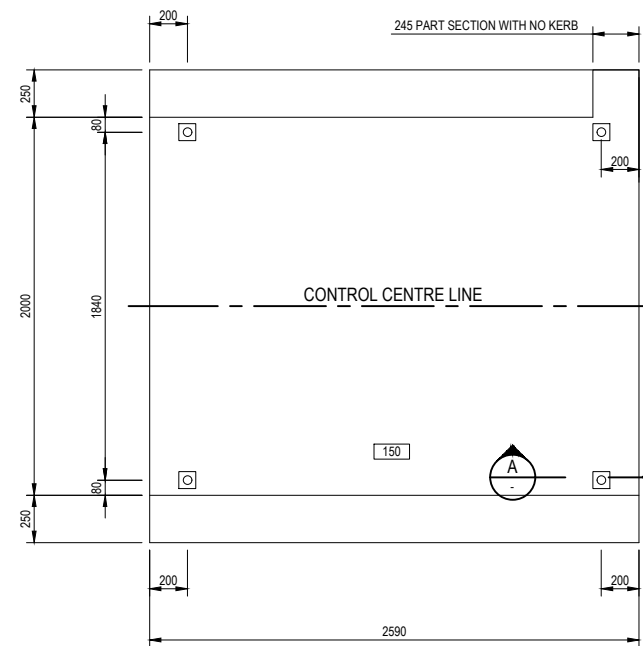


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|--|--|--|--|
| <b>DO NOT SCALE</b>  | Drawn W.CLARKE                             | Designer A.AHILADELLIS   | Client <b>DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT</b>   |
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|  | Approved (Project Director) *A.AHILADELLIS | Date 08.07.19  | Title <b>BRIDGE WORK GIRDER AND DECK SLAB DETAILS - SHEET 1</b>        |
|  | Scale AS SHOWN                             | This Drawing must not be used for Construction unless signed as Approved | Original Size <b>A1</b> Drawing No: <b>42-21067-S005</b> Rev: <b>0</b> |

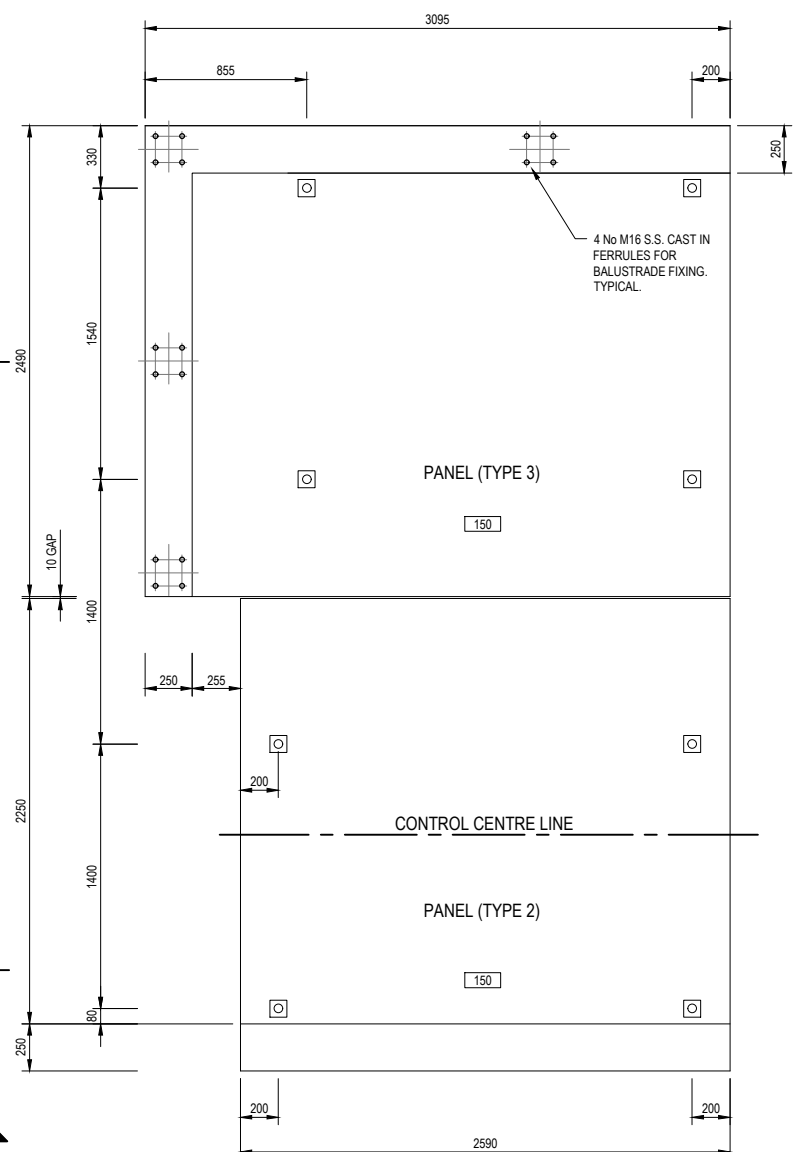


TYPICAL PANEL DETAIL (TYPE 1)  
SCALE 1:20

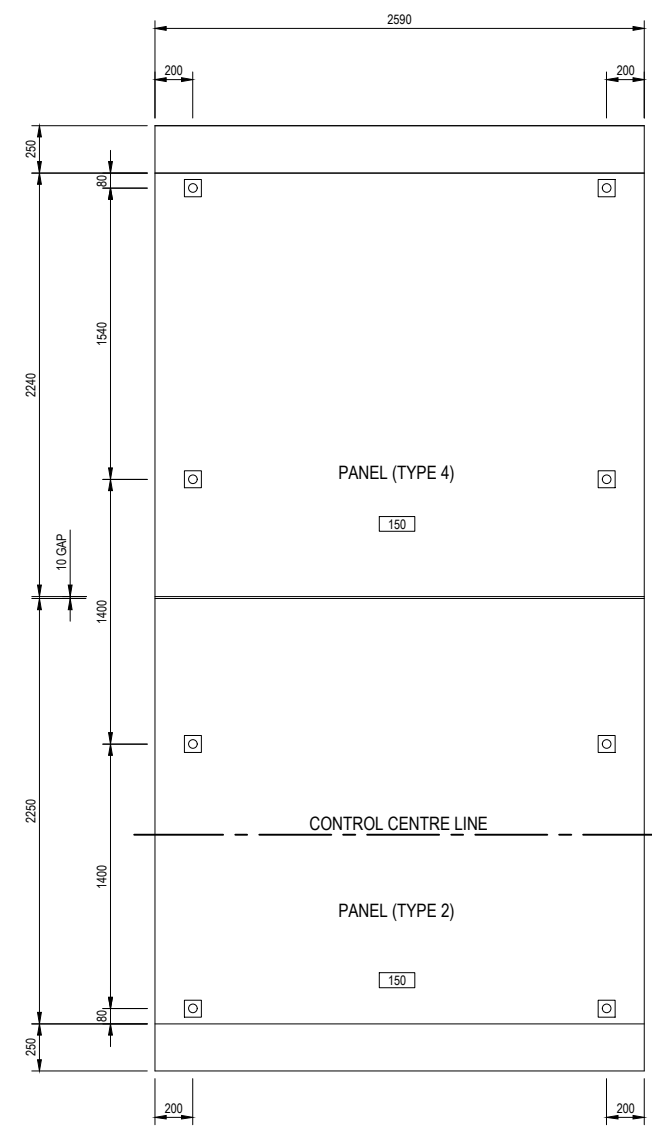


TYPICAL PANEL DETAIL (TYPE 1A)  
SCALE 1:20

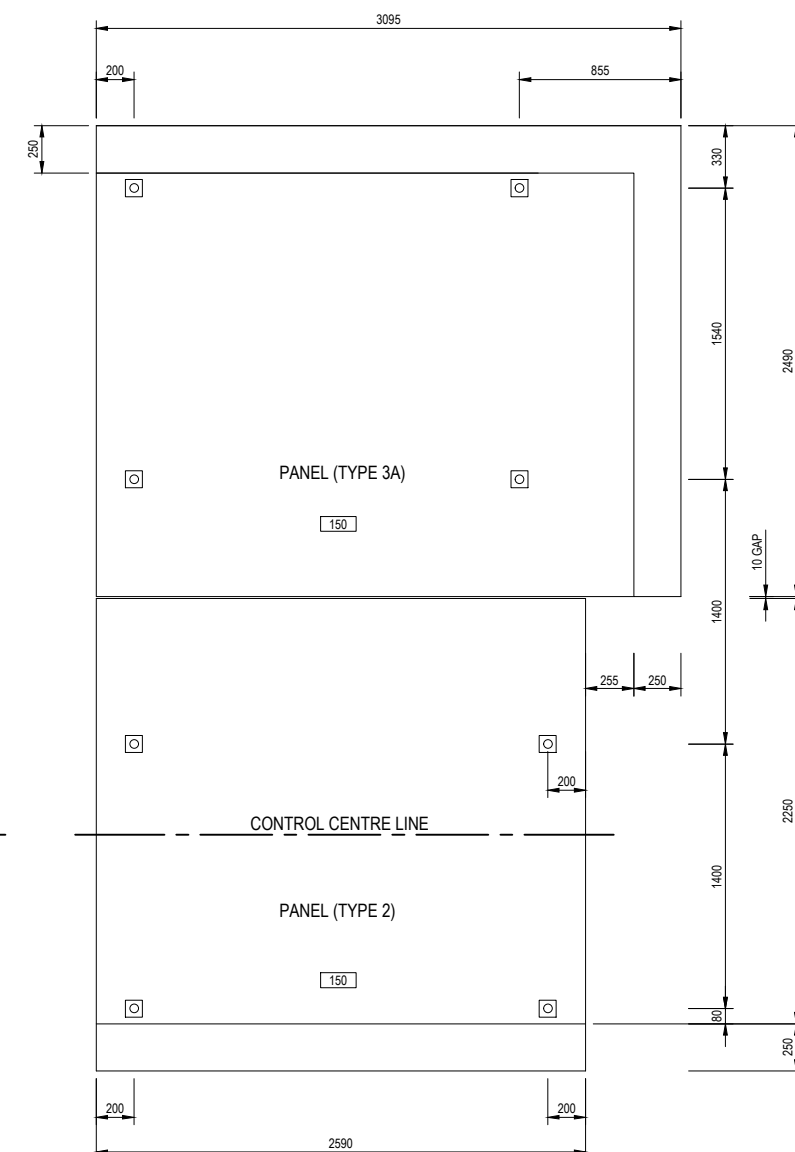
NOTE TYPE 1B SIMILAR  
OPPOSITE HAND



TYPICAL PANEL DETAIL (TYPES 2 & 3)  
SCALE 1:20



TYPICAL PANEL DETAIL (TYPES 2 & 4)  
SCALE 1:20



TYPICAL PANEL DETAIL (TYPES 2 & 3A)  
SCALE 1:20

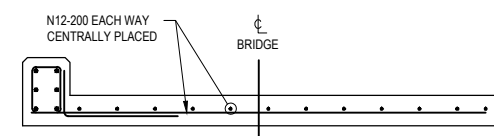
NOTE STAINLESS STEEL FERRULES SHOWN ON PANEL TYPE 3 ONLY FOR CLARITY. ENSURE FERRULES ARE CAST IN ALL PANELS. REFER TO DRAWING 42-21067-S005 FOR LOCATIONS.

LEGEND:

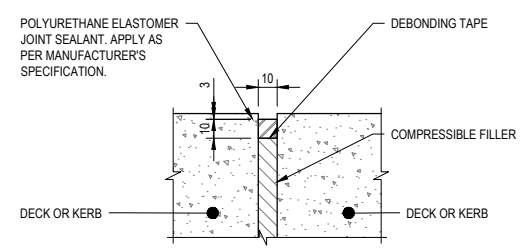
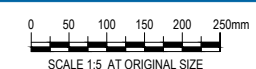
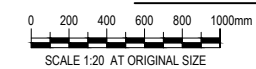
150 DENOTES SLAB THICKNESS



TYPICAL PANEL (TYPES 1, 1A & 1B)  
REINFORCEMENT SECTION  
SCALE 1:20

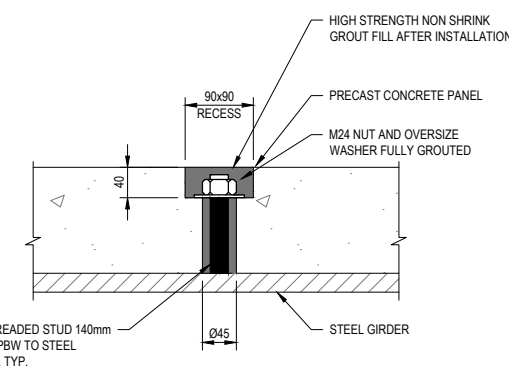


TYPICAL PANEL (TYPE 2,3,4 & 3A)  
REINFORCEMENT SECTION  
SCALE 1:20 AT ORIGINAL SIZE

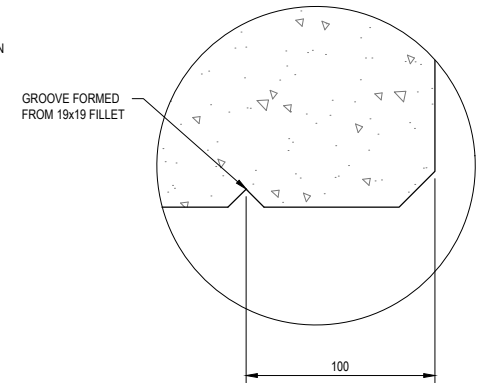


TYPICAL DETAIL ABOVE GIRDER  
SCALE 1:2

PROVIDE SEAL MIN 50mm PAST EACH GIRDER LOCATION TO PROTECT GIRDERS FROM DRIPPING WATER



A SECTION  
SCALE 1:5



TYPICAL DRIP GROOVE DETAIL  
SCALE 1:2  
REINFORCEMENT OMITTED FOR CLARITY

|    |                |       |             |                  |          |
|----|----------------|-------|-------------|------------------|----------|
| 0  | APPROVED ISSUE | WRC   | *MI         | *AA              | 08.07.19 |
| No | Revision       | Drawn | Job Manager | Project Director | Date     |

Plot Date: 8 July 2019 - 4:07 PM Plotted by: Wes Clarke

Cad File No: G:\42\21067\CADD\Drawings\42-21067-S006.dwg

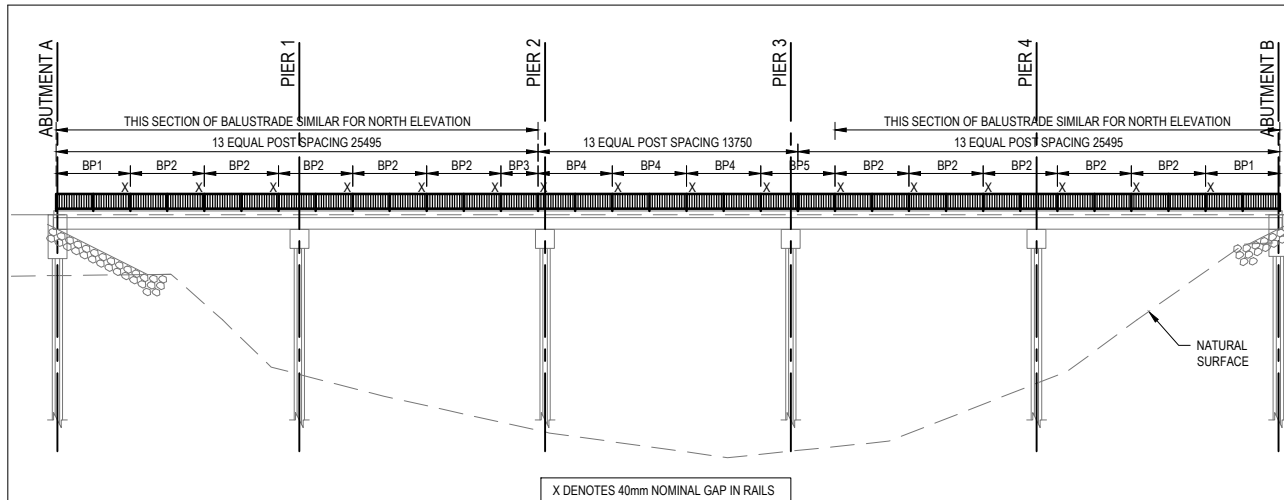
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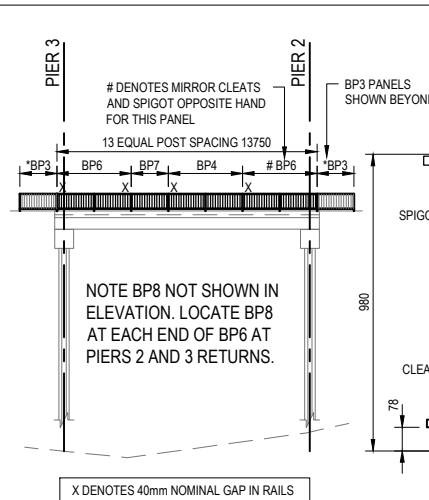
|                             |                |              |               |
|-----------------------------|----------------|--------------|---------------|
| Drawn                       | W.CLARKE       | Designer     | A.AHILADELLIS |
| Drafting Check              | *M.ISENBERT    | Design Check | *M.ISENBERT   |
| Approved (Project Director) | *A.AHILADELLIS |              |               |
| Date                        | 08.07.19       |              |               |
| Scale                       | AS SHOWN       |              |               |

|               |  |
|---------------|--|
| Client        | DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT |
| Project       | WANGETTI TRAIL   |
| Title         | BRIDGE WORK<br>GIRDER AND DECK SLAB DETAILS - SHEET 2  |
| Original Size | A1   |
| Drawing No:   | 42-21067-S006  |
| Rev:          | 0  |

This Drawing must not be used for Construction unless signed as Approved



**SOUTH ELEVATION - BRIDGE RAILING**  
SCALE 1:100



**NORTH ELEVATION - BRIDGE RAILING**  
SCALE 1:100

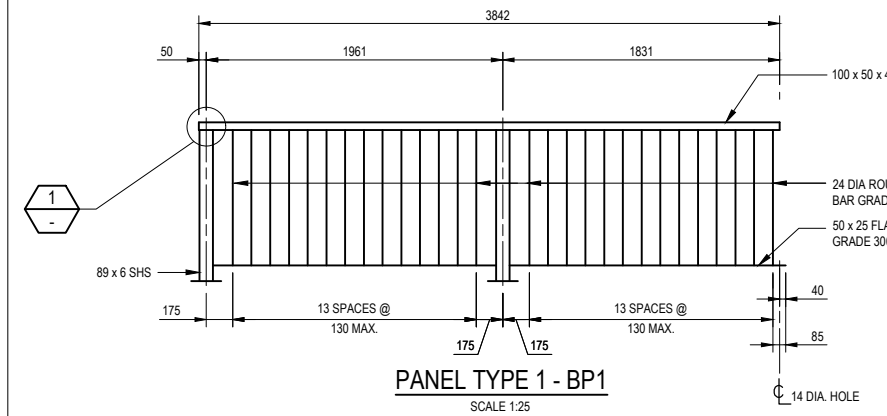
**ELEVATION**

**ELEVATION POST DETAILS**  
SCALE 1:25

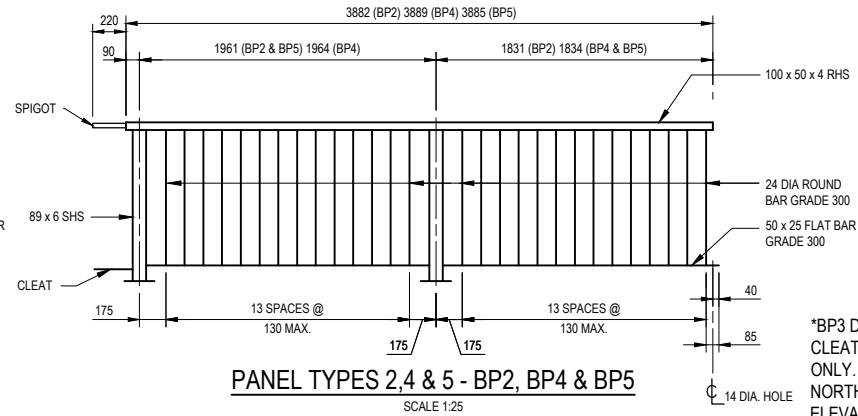
**TYPICAL SECTION**

**NOTES**

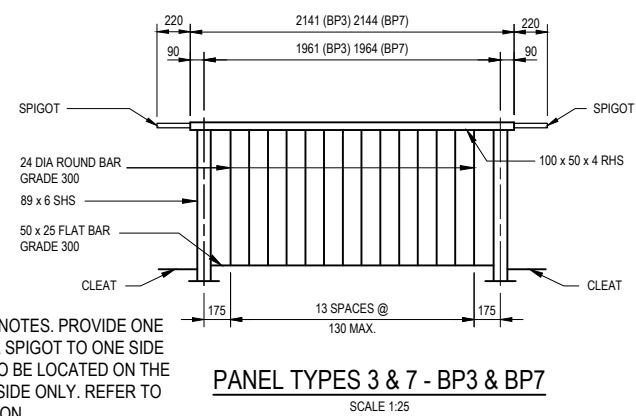
- RHS AND SHS TUBE TO BE GRADE C450L0 TO AS/NZS 1163.
- BASE PLATES AND RAIL CONNECTORS TO BE GRADE 350 TO AS/NZS 3678.
- ALL OTHER PLATES AND FLAT BAR TO BE GRADE 300 TO AS/NZS 3679.1.
- BOLTS CLASS 8.8, NUTS CLASS 8 AND WASHERS FOR CLASS 8.8 BOLTS TO AS/NZS 1252, THIN NUTS CLASS 5 TO AS 1112 AND ELS WASHERS TO AS 1237. UNO.
- ALL BOLTS AND NUTS TO BE HOT DIP GALVANISED TO AS 1214. WASHERS TO BE HOT DIP GALVANISED TO AS/NZS 4680. UNO.
- ALL STRUCTURAL STEELWORK FOR THE BALUSTRADE TO BE HOT DIPPED GALVANISED TO 85 MICRONS THICKNESS. UNO.
- STEELWORK TO BE FABRICATED TO THE REQUIREMENTS OF MRTS 78 FABRICATION OF STRUCTURAL STEELWORK.
- WELDING SYMBOLS CONFORM TO AS 1101.3.
- ALL WELDING TO CONFORM TO MRTS 78 AND AS/NZS 1654.1. ALL WELDS TO BE SP CATEGORY.
- WELDING CONSUMABLES FOR GRADE C450L0 RHS/SHS TO BE CONTROLLED HYDROGEN TYPE: E49XX OR W503.
- WELDING CONSUMABLES FOR ALL OTHER STRUCTURAL STEEL SHALL BE CONTROLLED HYDROGEN TYPE: E49XX OR W50X UNLESS SHOWN OTHERWISE.
- MEMBERS TO BE BRANDED WITH APPROPRIATE TYPE NUMBER AFTER FABRICATION.
- RAIL, POSTS AND CONNECTORS TO HAVE WELD SPLATTER AND WELDING SLAG REMOVED PRIOR TO HOT DIP GALVANISING TO AS/NZS 4680.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.



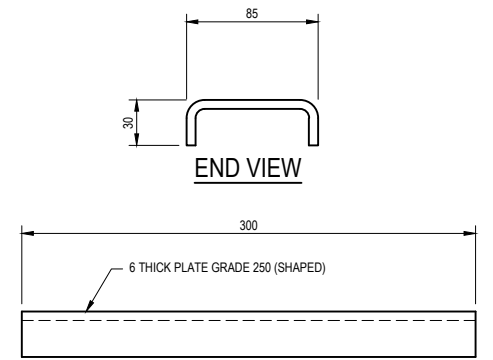
**PANEL TYPE 1 - BP1**  
SCALE 1:25



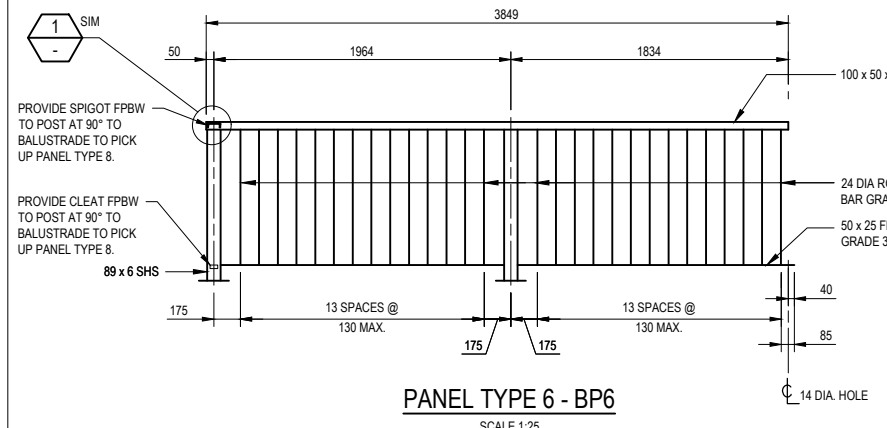
**PANEL TYPES 2, 4 & 5 - BP2, BP4 & BP5**  
SCALE 1:25



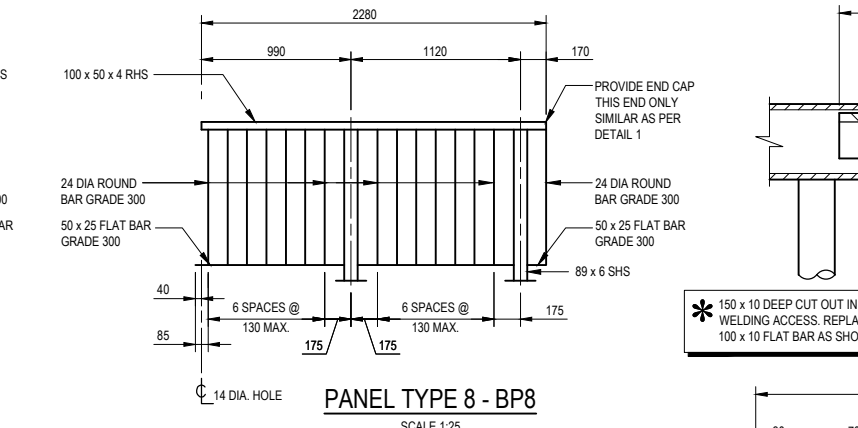
**PANEL TYPES 3 & 7 - BP3 & BP7**  
SCALE 1:25



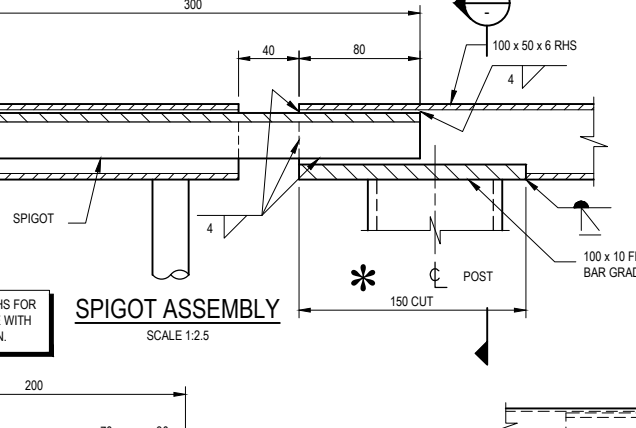
**ELEVATION SPIGOT DETAIL**  
SCALE 1:2.5



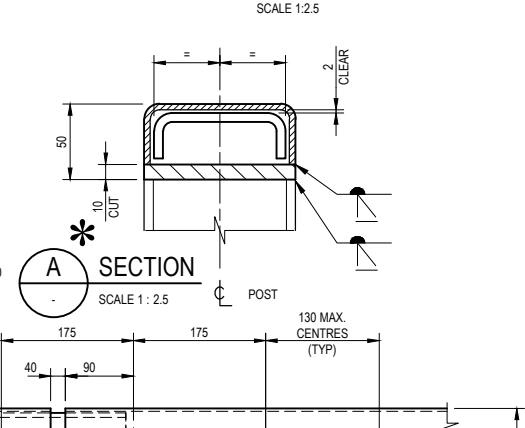
**PANEL TYPE 6 - BP6**  
SCALE 1:25



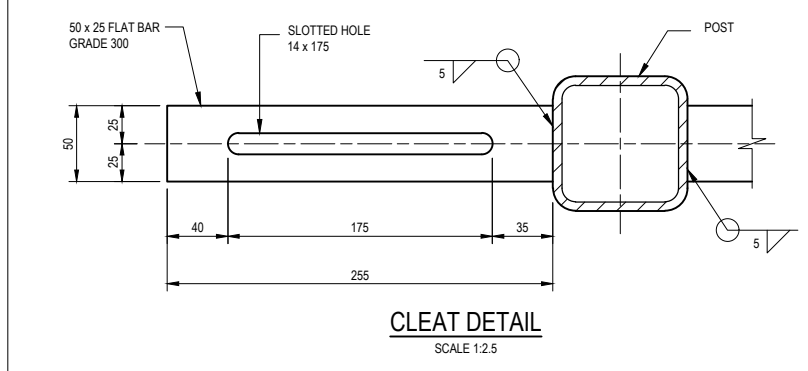
**PANEL TYPE 8 - BP8**  
SCALE 1:25



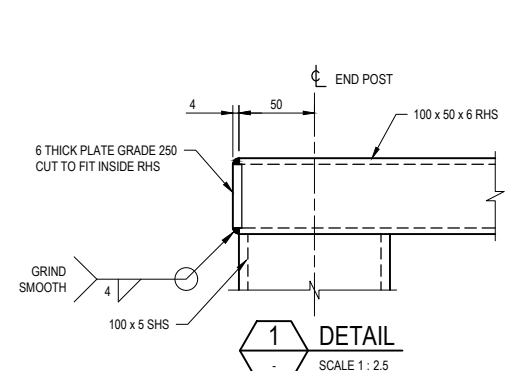
**SPIGOT ASSEMBLY**  
SCALE 1:2.5



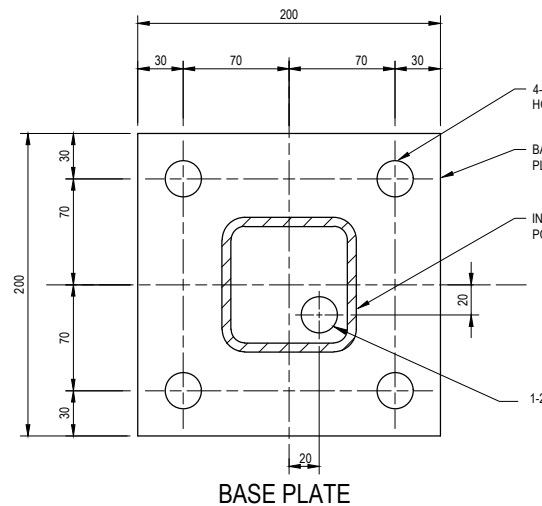
**SECTION A**  
SCALE 1:2.5



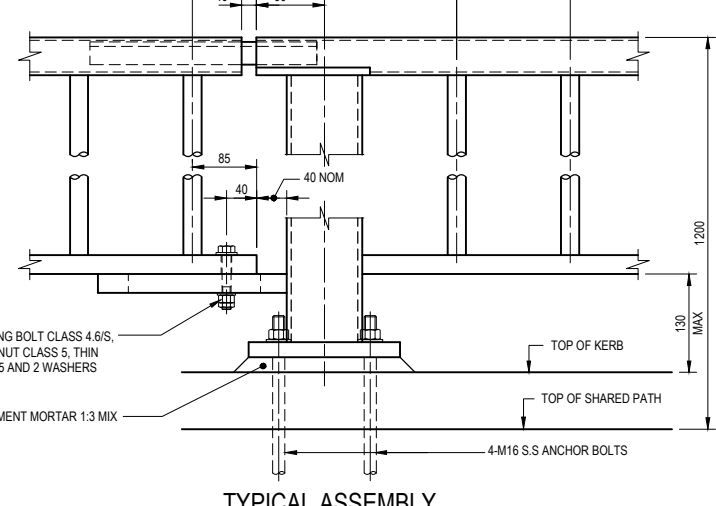
**CLEAT DETAIL**  
SCALE 1:2.5



**DETAIL**  
SCALE 1:2.5

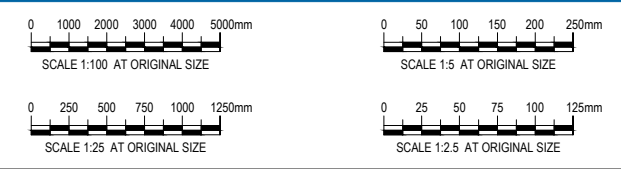


**BASE PLATE**  
SCALE 1:2.5



**TYPICAL ASSEMBLY**  
SCALE 1:5

|    |                |   |       |             |                  |      |
|----|----------------|---|-------|-------------|------------------|------|
| 0  | APPROVED ISSUE | WRC   | *MI   | *AA         | 08.07.19         |      |
| No | Revision       | Note: * indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date |



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|                             |                |              |               |
|-----------------------------|----------------|--------------|---------------|
| Drawn                       | W.CLARKE       | Designer     | A.AHILADELLIS |
| Drafting Check              | *M.ISENBERT    | Design Check | *M.ISENBERT   |
| Approved (Project Director) | *A.AHILADELLIS |              |               |
| Date                        | 08.07.19       |              |               |
| Scale                       | AS SHOWN       |              |               |

Client **DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT**  
Project **WANGETTI TRAIL**  
Title **BRIDGE WORK BALUSTRADE DETAILS**  
Original Size **A1** Drawing No: **42-21067-S007** Rev: **0**

GENERAL

- G1 READ THESE NOTES IN CONJUNCTION WITH OTHER ENGINEERING DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS ISSUED IN CASE OF DISCREPANCY PRECEDENCE IS GIVEN TO DRAWINGS THEN NOTES, THEN SPECIFICATION
G2 CARRY OUT WORK IN A SAFE MANNER IN ACCORDANCE WITH APPLICABLE LEGISLATION, STATUTORY REGULATIONS, BY-LAWS OR RULES. CONTRACTOR IS RESPONSIBLE FOR OCCUPATIONAL HEALTH AND SAFETY OF SITE PERSONNEL AND GENERAL PUBLIC IN ACCORDANCE WITH ALL CURRENT WORK HEALTH AND SAFETY ACTS, LEGISLATIVE REGULATIONS, ASSOCIATED REGULATIONS AND CODES OF PRACTICE, INDUSTRIAL AGREEMENTS AND ACCEPTED INDUSTRY PRACTICE
G3 REFER DISCREPANCIES TO SUPERINTENDENT BEFORE PROCEEDING WITH WORK
G4 SUBMIT DETAILS OF PROPOSED CHANGES TO SCOPE, WORK METHODS OR MATERIALS etc FOR APPROVAL BEFORE PROCEEDING. APPROVAL DOES NOT AUTHORISE A VARIATION TO THE CONTRACT
G5 NOMINATION OF PROPRIETARY ITEMS DOES NOT INDICATE EXCLUSIVE PREFERENCE BUT INDICATES REQUIRED PROPERTIES OF ITEM. SIMILAR ALTERNATIVES HAVING REQUIRED PROPERTIES MAY BE OFFERED FOR APPROVAL. APPROVAL DOES NOT AUTHORISE A VARIATION TO THE CONTRACT. INSTALL PROPRIETARY ITEMS IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS
G6 OBTAIN NECESSARY PERMITS AND APPROVALS FROM RELEVANT AUTHORITIES BEFORE COMMENCING WORK ON SITE. NOTIFY RELEVANT SERVICE AUTHORITIES BEFORE COMMENCING WORK ON SITE
G7 GIVE TWO WORKING DAYS (48 HOURS) NOTICE SO THAT INSPECTION MAY BE MADE OF CRITICAL STAGES OF WORK
G8 INSPECTIONS AND REVIEWS UNDERTAKEN BY SUPERINTENDENT OR OTHERS DO NOT RELIEVE CONTRACTOR OF RESPONSIBILITY FOR COMPLIANCE WITH DRAWINGS AND SPECIFICATIONS
G9 DO NOT OBTAIN DIMENSIONS BY SCALING FROM DRAWINGS
G10 DIMENSIONS ARE IN MILLIMETRES. LEVELS ARE IN METRES UNO. CHAINAGES ARE IN METRES UNO
G11 DATUM FOR LEVELS IS AHD (AUSTRALIAN HEIGHT DATUM). CO-ORDINATES ARE TO MGA ZONE 55
G12 HAVE SURVEY AND SETTING OUT UNDERTAKEN BY A REGISTERED SURVEYOR
G13 VERIFY ON SITE SETTING OUT DIMENSIONS AND EXISTING MEMBER SIZES SHOWN ON DRAWINGS BEFORE SHOP DRAWINGS, CONSTRUCTION AND FABRICATION IS COMMENCED. EXISTING STRUCTURES SHOWN ON DRAWINGS ARE IN APPROXIMATE LOCATIONS ONLY
G14 USE STANDARD BOLT PATTERNS etc THROUGHOUT THE WORKS TO AVOID CONFUSION OR AMBIGUITY
G15 TAKE CARE OF HAZARDS ASSOCIATED WITH BURIED, CONCEALED OR OVERHEAD SERVICES. TAKE PRECAUTIONS AND UNDERTAKE EXPLORATION TO ESTABLISH LOCATION OF AND PROTECT EXISTING SERVICES AT SITE. SERVICES SHOWN ON DRAWINGS ARE IN APPROXIMATE LOCATIONS ONLY. SERVICES OTHER THAN THOSE SHOWN MAY EXIST ON SITE. MARK LOCATIONS OF SERVICES CLEARLY ON SITE, AND ON AS BUILT DRAWINGS. HAND EXCAVATE WITHIN ONE METRE OF IN-GROUND SERVICES
G16 DISPOSE OF SURPLUS MATERIAL OFF-SITE IN ACCORDANCE WITH LOCAL AUTHORITY WASTE REGULATIONS
G17 IMPLEMENT SOIL AND WATER MANAGEMENT PROCEDURES TO AVOID EROSION, CONTAMINATION AND SEDIMENTATION OF SITE, SURROUNDING AREAS AND DRAINAGE SYSTEMS
G18 WORKMANSHIP AND MATERIALS TO COMPLY WITH REQUIREMENTS OF AUSTRALIAN STANDARDS, NATIONAL CONSTRUCTION CODE (NCC), AND BY-LAWS AND ORDINANCES OF RELEVANT BUILDING AUTHORITIES. ALL STANDARDS REFERRED TO ARE THOSE CURRENT (AS AMENDED) AT COMMENCEMENT OF CONTRACT
G19 OBTAIN REQUIREMENTS FOR SERVICES ADJOINING ELEMENTS etc TO BE EMBEDDED IN, FIXED TO OR SUPPORTED ON WORK, AND PROVIDE FOR REQUIRED FINISHES. PROVIDE FOR TEMPORARY SUPPORT OF ADJOINING ELEMENTS DURING CONSTRUCTION. DRAWINGS DO NOT SHOW DETAILS OF ALL REQUIRED FIXTURES, INSERTS, SLEEVES, RECESSES OR OPENINGS etc
G20 PROTECT EXISTING STRUCTURES FROM DAMAGE OR CRACKING. MAKE GOOD ANY DAMAGE TO EXISTING ELEMENTS AT COMPLETION OF WORKS OR AS DIRECTED BY SUPERINTENDENT
G21 WHERE NEW WORK ADJUTS EXISTING, PROVIDE SMOOTH TRANSITION FREE OF ABRUPT CHANGES
G22 NEATLY CUT BACK CONCRETE TO BE REMOVED TO A CLEAN TRUE FACE USING A DIAMOND SAW
G23 HAVE TESTING PERFORMED BY AN INDEPENDENT NATIONAL ASSOCIATION OF TESTING AUTHORITIES ACCREDITED AUTHORITY, AND PROVIDE TEST REPORTS TO SUPERINTENDENT
G24 UNLESS NOTICED OTHERWISE, ULTS-SERVICEABILITY LIMIT STATE, ULTS-LIMIT STATE, UNO-NATURAL SURFACE LEVELS, FS-FINISHED SURFACE LEVELS
G25 BUILD, FABRICATE AND PROCURE ONLY FROM DRAWINGS, ISSUED FOR CONSTRUCTION
G26 KEEP ON SITE A COMPLETE SET OF CONTRACT DOCUMENTS (INCLUDING DRAWINGS AND SPECIFICATIONS) AND SITE INSTRUCTIONS

TEMPORARY WORKS

- G27 THESE DRAWINGS DO NOT DETAIL TEMPORARY WORKS, CONSTRUCTION METHODS AND TEMPORARY WORKS ARE RESPONSIBILITY OF THE CONTRACTOR
G28 PROVIDE SCAFFOLDING BARRIERS, FALL RESTRAINT, HAND RAILS AND TOE BOARDS FOR WORK AT HEIGHT. ERECT ACCESS STAIRS AT EARLIEST OPPORTUNITY TO REDUCE OPEN SHAFT HAZARDS AND FACILITATE ACCESS. MAINTAIN SAFETY MESH AND BARRIERS TO ALL OPENINGS AND ELEVATED EDGES
G29 MAINTAIN STRUCTURE IN A STABLE CONDITION DURING CONSTRUCTION AND PROVIDE TEMPORARY BRACING AND OR SUPPORT AS REQUIRED. SHOW TEMPORARY MEMBERS ON SHOP DRAWINGS. PROVIDE SPREADERS AT LOADS AND OR LIFTING POINTS WHERE REQUIRED. ENSURE NO PART IS OVERSTRESSED. DO NOT PLACE OR STORE BUILDING MATERIALS ON SUPPORT FORMWORK OR PROP FROM STRUCTURAL MEMBERS WITHOUT SUPERINTENDENT'S APPROVAL. PROVIDE CALCULATIONS BY SUITABLY QUALIFIED STRUCTURAL ENGINEER TO PROVE ADEQUACY OF STRUCTURE FOR PROPOSED CONSTRUCTION SEQUENCE, METHODS AND LOADS INCLUDING PROPPING, CRANE LIFTS etc

DESIGN ASSUMPTIONS

- G1 STRUCTURAL WORK HAS BEEN DESIGNED FOR FOLLOWING LOADS
- PERMANENT DEAD LOAD OF STRUCTURE AS SHOWN ON DRAWINGS
- LIVE LOADS ON TO BRIDGE DECK AS PER CLASS 3 TRAIL DIFFICULTY AS PER AS2156 2
4 kPa DISTRIBUTED LOAD
14 kN CONCENTRATED LOAD
- BRIDGE DESIGN LOADING IN ACCORDANCE WITH AS5100
HYDRAULIC LOADS 3.1 m/s (DEBRIS MAT 1.0 s)
- BRIDGE RAILINGS
500 N CONCENTRATED LOAD
750N/m LINE LOAD AT TOP OF RAIL
1 kPa FOR TOTAL BARRIER
- PILE LOADING
500 kN (STRUCTURAL)
1100 kN (GEOTECHNICAL)
- GEOTECHNICAL DESIGN INFORMATION TO GEOTECHNICAL INVESTIGATION REPORT BY DOUGLAS PARTNERS REPORT NO. 50610 DC, DATED MAY 2019
- 3.75 m/s IS THE HIGHEST RECORDED FLOOD LEVEL AS PER EXISTING IMPROVED DRAWINGS

- G2 BRIDGES HAVE BEEN DESIGNED FOR FOLLOWING LOADS
- DEAD LOAD OF STRUCTURE AS SHOWN ON DRAWINGS
- BARRIER LOADS, PEDESTRIAN REQUIREMENTS TO AS5100
- ALL OTHER LOADS TO AS5100 BRIDGE DESIGN CODE
- RETAINING WALL, HAVE BEEN DESIGNED FOR FOLLOWING LOADS
- DEAD LOAD = 5 kPa
- SURCHARGE LOAD = 15 kPa

DELIVERABLES

- G3 RECORD ADOPTED CHANGES TO WORKING DRAWINGS AND SHOP DRAWINGS. ON COMPLETION OF WORKS, SUBMIT A FULL SET OF AS CONSTRUCTED DRAWINGS.

- G4 PREPARE WORKSHOP DRAWINGS, CALCULATIONS etc FOR PREFABRICATED COMPONENTS INCLUDING STRUCTURAL STEELWORK, LIGHTWEIGHT STEELWORK, PRECAST CONCRETE, PRESTRESSING, FABRICATED TIMBER FRAMES etc, AND SUBMIT ELECTRONIC PDFS OR THREE PAPER COPIES OF EACH FOR SUPERINTENDENT'S REVIEW OF GENERAL COMPLIANCE WITH DESIGN CONCEPT. DO NOT COMMENCE FABRICATION UNTIL SHOP DRAWINGS AND CALCULATIONS HAVE BEEN REVIEWED. ALLOW 14 DAYS FOR SUPERINTENDENT'S REVIEW, SUPERINTENDENT'S REVIEW OF SHOP DRAWINGS AND CALCULATIONS IS OF GENERAL COMPLIANCE WITH DESIGN CONCEPT AND GENERAL COMPLIANCE WITH CONTRACT DOCUMENTS ONLY, AND DOES NOT INCLUDE CHECKING OF DIMENSIONS. CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE AND CORRELATING QUANTITIES AND DIMENSIONS, SELECTING FABRICATION PROCEDURES AND CONSTRUCTION TECHNIQUES, AND PERFORMING WORK IN A SAFE MANNER. CORRECTIONS OR COMMENTS MADE ON SHOP DRAWINGS AND CALCULATIONS DO NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR COMPLIANCE WITH REQUIREMENTS OF CONTRACT DRAWINGS AND SPECIFICATION.

SAFETY IN DESIGN

- S D1 THE SAFETY RISK MITIGATION ITEMS BELOW ARE BASED ON GHD'S DESIGN OFFICE EXPERIENCE AND DO NOT NECESSARILY ACCOUNT FOR ALL CONSTRUCTION, OPERATION, MAINTENANCE AND DEMOLITION SAFETY RISKS BASED ON INFORMATION AVAILABLE WHEN THIS DRAWING WAS MADE. IN ITS CAPACITY AS DESIGNER ONLY, GHD HAS TRIED TO IDENTIFY SAFETY RISKS PERTAINING TO CONSTRUCTION, OPERATION, MAINTENANCE AND DEMOLITION PHASES OF THE ASSET. INCLUSION (OR NOT) OF ANY ITEM DOES NOT REFLECT OR LIMIT OBLIGATIONS OF CONSTRUCTION USER, MAINTAINER AND DEMOLISHER TO UNDERTAKE APPROPRIATE RISK MANAGEMENT ACTIVITIES TO REDUCE RISK AND IS NOT AN ADMSSION BY GHD THAT INCLUSION OF ANY ITEM IS DESIGNER'S RESPONSIBILITY
S D2 CONSTRUCT BUILDING ELEMENTS THAT CONTRIBUTE TO SAFETY SUCH AS HANDRAILS AND TOE BOARDS, FALL ARREST SYSTEMS, ACCESS STAIRS etc AS EARLY AS POSSIBLE
S D3 PROVIDE SAFETY BARRIERS AT EDGES OF OPENINGS AND FLOATED AREAS
S D4 REVIEW ADEQUACY OF WORKING SPACE AVAILABLE FOR CONSTRUCTION ACTIVITIES. ENSURE SEPARATION OF PLANT AND PERSONNEL ON SITE, INCLUDING MOVEMENTS OF BOTH
S D5 LOCATE LIFTING SLEW AND LAY DOWN AREAS AWAY FROM REGULAR CONSTRUCTION TRAFFIC
S D6 ENSURE ISOLATION SAFETY SYSTEMS OF WORK OR PROTECTIVE MEASURES ARE INSTALLED BEFORE WORKING NEAR LIVE ELECTRICAL INFRASTRUCTURE. PROVIDE PROTECTION OF ELECTRICAL OVERHEAD WIRING SYSTEMS DURING CONSTRUCTION
S D7 WRITE RISK ASSESSMENTS ARE ADVISED FOR ACCESS TO OPEN EXCAVATIONS
S D8 PROVIDE ACCESS AND EGRESS TO EXCAVATIONS APPROPRIATE IN CASE OF INUNDATION, COLLAPSE OR ENGULFMENT
S D9 LOCATE STOCKPILES AND HEAVY EQUIPMENT INCLUDING CRANES AWAY FROM BURIED SERVICES AND BUILDING BOUNDARIES WHERE ADJACENT BASEMENTS ARE PRESENT
S D10 SEEK ADVICE FROM SUITABLY QUALIFIED GEOTECHNICAL OR STRUCTURAL ENGINEER PRIOR TO OPERATION OF HEAVY SURFACE PLANT AND EQUIPMENT OR STOCKPILING MATERIAL NEAR OPEN EXCAVATIONS OR EXISTING RETAINING STRUCTURES
S D11 DO NOT STOCKPILE MATERIALS BEHIND OR EXCAVATE IN FRONT OF EXISTING RETAINING WALLS UNTIL WALL STABILITY HAS BEEN REVIEWED BY SUITABLY QUALIFIED STRUCTURAL ENGINEER
S D12 SEEK ADVICE FROM SUITABLY QUALIFIED STRUCTURAL ENGINEER BEFORE LAYING SERVICES BELOW EXISTING FOOTING LEVELS
S D13 SEEK ADVICE FROM SUITABLY QUALIFIED STRUCTURAL ENGINEER IF PLANNING CRANE LIFTS OR HOIST INSTALLATION ON PARTIALLY ERECTED OR SUSPENDED STRUCTURES
S D14 INSTRUCT SERVICES CONTRACTORS UNDER NO CIRCUMSTANCES CAN STRUCTURAL MEMBERS BE CUT, NOTCHED OR DRILLED TO ACCOMMODATE NEW SERVICES
S D15 DEVELOP STEELWORK / PRECAST / TILT UP INSTALLATION SAFE WORK METHOD STATEMENT TO ELIMINATE AND MINIMISE RISKS ALLOTTED TO ERECTOR, AND HAVE REVIEWED BY SUITABLY QUALIFIED STRUCTURAL ENGINEER PRIOR TO ERECTION
S D16 DO NOT CUT OR UNBOLT ANY STRUCTURAL MEMBERS WITHOUT SEEKING REVIEW BY SUITABLY QUALIFIED STRUCTURAL ENGINEER
S D17 MINIMIZE SITE BASES TREATMENTS (eg WELDING, CUTTING, SPRAY PAINTING, GRIT BLASTING etc) PROVIDE ADEQUATE PROTECTION ON SCREENING AND VENTILATION TO MINIMIZE HAZARDOUS PERSONNEL EXPOSURE. IRRADIATION IS UNAVOIDABLE
S D18 AVOID HOT WORKS ON SITE PARTICULARLY IN TIMBER FRAMED STRUCTURES. HOT WORKS TO COMPLY WITH CURRENT PROCEDURES FOR APPLICABLE HOT WORKS PERMITS
S D19 MAKE WORK AREAS SAFE WHERE STRUCTURAL ELEMENTS ARE DAMAGED, CRACKED OR HAVE SUFFERED SIGNIFICANT SECTION LOSS BEFORE ALLOWING GENERAL CONSTRUCTION OR REPAIR ACCESS
S D20 REPORT LOOSE OR MISSING BOLTS etc IN CONNECTIONS ENCOUNTERED DURING DAY TO DAY OPERATIONS
S D21 REMOVE MATERIAL FROM STORAGE STRUCTURES BEFORE UNDERTAKING MAINTENANCE WORK

DEMOLITION

- D1 DEMOLITION WORK TO BE TO AS2601. TAKE PRECAUTIONS NECESSARY FOR PROTECTION OF PERSONS AND PROPERTY, PREVENT DAMAGE TO CONCRETE OR REINFORCEMENT TO REMAIN, WHEN CUTTING AND REMOVING OBTAIN NECESSARY PERMITS AND APPROVALS FROM RELEVANT AUTHORITIES BEFORE COMMENCING WORK ON SITE. DO NOT COMMENCE DEMOLITION WORK BEFORE DEMOLITION PERMIT / SCAFFOLD PERMIT OBTAINED
D2 SEEK ADVICE FROM SUITABLY QUALIFIED STRUCTURAL ENGINEER TO ESTABLISH CRITICAL STABILITY ELEMENTS AND ASSIST DEVELOPMENT OF DEMOLITION METHOD STATEMENT
D3 MAKE ALLOWANCE FOR CONDITION OF STRUCTURAL AND OTHER ELEMENTS (eg WALL TIES) INCLUDING LOSS OF CAPACITY DUE TO DETERIORATION OR AGE
D4 HAVE ADJACENT STRUCTURES REVIEWED BY SUITABLY QUALIFIED STRUCTURAL ENGINEER TO ASSESS IMPACT OF PROPOSED DEMOLITION WORK
D5 DO NOT USE EXPLOSIVES
D6 USE DEMOLITION METHODS TO MINIMIZE INTERFERENCE WITH AND PROTECT OCCUPANTS AND THEIR ACTIVITIES, INCLUDING FROM NOISE, NOXIOUS EFFECTS OF DUST, FUMES, LIQUIDS, GASES, INFECTION, FIRE, EXPLOSION, RADIATION OR OTHER HAZARDS, ETC
D7 CAPTURE AND DISPOSE OF SAFELY ANY DUST, DEBRIS OR SPLATTAGES
D8 GIVE NOTICE FOR INSPECTION AT THE FOLLOWING STAGES
- ADJOINING STRUCTURES BEFORE COMMENCEMENT OF DEMOLITION
- BEFORE DISCONNECTION OR DIVERSION OF SERVICES
- REES SPECIFIED TO BE RETAINED BEFORE COMMENCEMENT OF DEMOLITION ON
- MEASURES TO PROTECT ADJOINING STRUCTURES IN PLACE
- UNDERGROUND STRUCTURES AFTER DEMOLITION OF WORK ABOVE SUCH STRUCTURE
- EXCAVATION REMAINS AFTER REMOVAL OF UNDERGROUND WORK
SITE AFTER REMOVAL OF DEMOLISHED MATERIALS
- SERVICES AFTER RECONNECTION OR DIVERSION
ON COMPLETION OF DEMOLITION GIVE NOT LESS THAN SEVEN WORKING DAYS NOTICE ADJOINING STRUCTURES CAN BE INSPECTED
D10 REMOVE FROM SITE ALL DEMOLISHED MATERIALS NOT REQUIRED IN FINAL WORKS

DELIVERABLES

- D11 SUBMIT NAMES AND CONTACT DETAILS OF PROPOSED DEMOLITION SUBCONTRACTORS
D12 SUBMIT ELECTRONIC PDFS OR THREE PAPER COPIES OF PROPOSED DEMOLITION METHOD STATEMENT AT LEAST 14 DAYS PRIOR TO DEMOLITION WORK. DO NOT PROCEED WITH DEMOLITION UNTIL WRITTEN APPROVAL ISSUED. METHOD STATEMENT TO INCLUDE METHODOLOGY, PERSONNEL EQUIPMENT, PROPOSED SEQUENCE OF WORKS, TIMES FOR DISCONNECTION AND RECONNECTION OF SERVICES, SITE SECURITY, HOT WORKS, SPLINTERS AND EXPOSED ELEMENTS, DEBRIS TRANSPORT AND DISPOSAL, ACCESS EQUIPMENT, TEMPORARY BARRIERS, AIR QUALITY AND POLLUTION CONTROL, MEASURES

EARTHWORKS, FOUNDATIONS AND FOOTINGS

EARTHWORKS

- F1 EARTHWORKS TO BE TO AS5796 AND AS2670
F2 REMOVE TOPSOIL MATERIAL CONTAINING GRASS ROOTS OR OTHER ORGANIC MATTER, RUBBLE AND / OR DEBRIS AND ALL UNSUITABLE MATERIAL BELOW FOUNDATIONS AND WHERE SHOWN ON DRAWINGS
F3 STOCKPILE SUITABLE TOPSOIL FOR RE-USE TO 150C mm MAXIMUM HEIGHT
F4 DO NOT STOCKPILE MATERIAL AGAINST RETAINING WALLS, BUILDINGS, FENCES OR TREES etc. DO NOT OBSTRUCT THE FREE FLOW OF WATER
F5 REFER TO GEOTECHNICAL INVESTIGATION REPORT NO. 50610 DC PREPARED BY DOUGLAS PARTNERS DATED MAY 2019. NOTIFY SUPERINTENDENT IF CONDITIONS ENCOUNTERED DIFFER FROM THOSE DESCRIBED IN THE REPORT AND SEEK DIRECTIONS
F6 NOTIFY SUPERINTENDENT IF GROUND WATER ENCOUNTERED
F7 DESIGN IS BASED ON DATA FROM DISCREET LOCATIONS AS RECORDED IN GEOTECHNICAL INVESTIGATION REPORT. SUBSURFACE CONDITIONS SHOWN ON DRAWINGS IS INFERRED FROM DATA IN GEOTECHNICAL INVESTIGATION REPORT AND IS GIVEN AS A GUIDE ONLY. ACTUAL GROUND CONDITIONS MAY VARY FROM THOSE SHOWN
F8 PROVIDE TEMPORARY SUPPORT TO FACES OF EXCAVATIONS AS REQUIRED
F9 HAVE SAFETY OF PROPOSED EXCAVATIONS INCLUDING ANY TEMPORARY WORKS ASSESSED BY SUITABLY QUALIFIED GEOTECHNICAL / STRUCTURAL ENGINEER
F10 GENERAL FILL TO BE WELL GRADED MATERIAL, INORGANIC, LESS THAN 0.5% SULPHUR, MAXIMUM PARTICLE SIZE 75 mm, PLASTICITY INDEX < 55%
F11 SECTORED FILL MATERIAL SHALL COMPLY WITH THE FOLLOWING:
- INORGANIC, LESS THAN 0.5% SULPHUR
- MAXIMUM PARTICLE SIZE 75 mm
- PROPORTION PASSING 0.075 mm SIEVE 25% MAXIMUM
- PLASTICITY INDEX > 7%, < 16%
- PROPORTION EXCEEDING PARTICLE SIZE OF 50 mm 75% MINIMUM
F12 PLACE FILL MATERIAL UNDER BUILDINGS AND OTHER FOOTINGS IN LAYERS NOT EXCEEDING 150 mm THICK AND COMPACT TO AT LEAST 95% MAXIMUM DRY DENSITY (STANDARD COMPACTION) TO AS1288
F13 ADJUST MOISTURE CONTENT OF FILL AT TIME OF COMPACTION WITHIN THE RANGE OF 85-115% OF OPTIMUM MOISTURE CONTENT DETERMINED BY AS 289 TO ACHIEVE REQUIRED DENSITY
F14 SAMPLE AND TEST COMPACTION AS PER SPECIFICATION

FOUNDATIONS

- F15 FOUNDATION LEVELS SHOWN ARE CONTRACT LEVELS. FINAL LEVELS TO BE AS DIRECTED BY SUPERINTENDENT
F16 CONTROLLED FILL IS SAND FILL UP TO 800 mm DEEP, WELL COMPACTED IN LAYERS < 300 mm THICK BY VIBRATING PLATE OR VIBRATING ROLLER OR NON-SAND HILL UP TO 400 mm DEEP, WELL COMPACTED IN LAYERS < 150 mm THICK BY MECHANICAL ROLLER (CLAY FILL TO BE MOST DURING COMPACTION) OR OTHER MATERIAL PLACED AND COMPACTED IN ACCORDANCE WITH SPECIFICATION
F17 ROLLED FILL IS SAND HILL UP TO 300 mm DEEP, COMPACTED IN LAYERS < 300 mm THICK, OR NON-SAND HILL UP TO 300 mm DEEP, COMPACTED IN LAYERS < 150 mm THICK (CLAY FILL TO BE MOST DURING COMPACTION)
F18 AVOID OVER EXCAVATION, BACKFILL OVER EXCAVATION WITH GRADE 70 BUNDING CONCRETE
F19 KEEP EXCAVATIONS FREE OF WATER. PROVIDE ADEQUATE DRAINAGE TO ENSURE FORMATION IS NOT AFFECTED BY MOISTURE. PREVENT FOUNDATION DRYING OUT DUE TO EXPOSURE. PLACE BUNDING FOOTINGS, PILES AND BACKFILL AS SOON AS PRACTICABLE AFTER EXCAVATION
F20 ENSURE EXCAVATIONS ARE STABLE AND PROTECTED SURROUNDING PROPERTY AND SERVICES FROM ADVERSE EFFECTS OF GROUNDWORKS. PROVIDE TEMPORARY WORKS AS REQUIRED. PROVIDE SHORING CERTIFIED BY SUITABLY QUALIFIED STRUCTURAL ENGINEER TO ALL DEEP EXCAVATIONS
F21 DO NOT UNDERMINE EXISTING FOOTINGS
F22 DEEPEX FOOTINGS BY THICKENING BUNDING CONCRETE AS REQUIRED NEAR EXISTING SERVICE TRENCHES (EVEN IF BACKFILLED), EXCAVATIONS, BATTERS etc, SO INFLUENCE LINE (AT 30° TO 40° ZONAL) FROM FOOTING IS BELOW ADJACENT EXCAVATION
F23 PROVIDE SAFETY MESH AND OTHER PROTECTION TO PREVENT EXPOSURE OF PERSONNEL TO EXCAVATIONS DURING FOUNDATION CONSTRUCTION
F24 USE SUITABLE CONSTRUCTION TECHNIQUES AND EQUIPMENT FOR BACKFILLING ADJACENT TO STRUCTURES TO PREVENT OVERSTRESS AND DAMAGE. PROVIDE SUPPORT TO RETAINING WALLS IF CONSTRUCTION METHODS IMPOSE COMPACTION LOADS GREATER THAN ALLOWED (SEE DESIGN LOADS IN GENERAL NOTES). BACKFILL EVENLY TO AVOID DIFFERENTIAL SOIL PRESSURES ON STRUCTURES. BACKFILL AGAINST RETAINING WALLS ONLY AFTER SPECIFIED CONCRETE STRENGTH IS ACHIEVED AND PERMANENT SUPPORT SYSTEMS ALLOU.
F25 BACKFILL FOR RETAINING WALLS TO BE FREE DRAINING GRANULAR MATERIAL. PROVIDE DRAINAGE BEHIND RETAINING WALLS COMPRISING CONTINUOUS SLOTTED DRAIN WITH GRANULAR SURROUND OR 'MELTEX' CONCRETE, CONNECTED TO RELIEF VALVE SUMP/WATER DRAINAGE SYSTEM. PROVIDE 50 mm DIAMETER WEEP HOLES AT 1500 mm MAXIMUM CENTRES AT BASE OF WALL.
F26 SLOPE SERVICES TRENCHES AWAY FROM BUILDING. SLOPE SERVICES ON COMPACTED MATERIAL COMPATIBLE WITH NATURAL MATERIALS IN THE BACKFILL TOP 300 mm OF TRENCHES WITH HAND COMPACTED CLAY WITHIN 1500 mm OF BUILDING. WHERE SERVICES PASS THROUGH MIDDLE THIRD OF FOOTING, SLEEVE SERVICES OR PROVIDE 40 mm THICK CLOSED-CELL POLYETHYLENE LAGGING
F27 FOR SITES CLASSIFIED M OR GREATER REACTIVITY WHERE SERVICES PASS UNDER FOOTINGS, BACKFILL TRENCHES WITH HAND-COMPACTED CLAY OR BUNDING CONCRETE FOR 1500 mm EACH SIDE OF FOOTING AGAINST CLAY DRY, UNDISTURBED NATURAL MATERIAL. BACKFILL TRENCHES WITH HAND-COMPACTED CLAY WITHIN 1500 mm OF BUILDING. PROVIDE FLEXIBLE JOINTS IN SUMP/WATER AND WASTEWATER SERVICES AT EXTERIOR OF BUILDING
F28 FOLLOWING CONSTRUCTION, FOUNDATION MAINTENANCE TO BE IN ACCORDANCE WITH CSIRO BUILDING TECHNOLOGY FILE 18 FOUNDATION MAINTENANCE AND FOOTING PERFORMANCE: A HOMEOWNER'S GUIDE INCLUDING CONSTRAINTS ON TREE LOCATIONS

SLABS AND FOOTINGS

- F29 CONSTRUCT FOOTINGS FOUNDED IN SPECIFIED MATERIALS (AS ABOVE), OR IN GEOTECHNICAL REPORT, REMOVE EXCESSIVE OR LOOSE MATERIAL AND MATERIAL THAT DOES NOT ACHIEVE THESE PRESSURES. ENSURE FORMATION IS CLEAN AND LEVEL. PROVIDE FORMWORK WHERE SIDES OF EXCAVATIONS ARE NOT STABLE
F30 PROOF ROLL FORMATION WITH HEAVY DUTY ROLLER
F31 OBTAIN APPROVAL OF FOUNDATION MATERIAL FOR THE DESIGN PRESSURES FROM SUITABLY QUALIFIED GEOTECHNICAL ENGINEER / SUPERINTENDENT / BUILDING AUTHORITY BEFORE FIXING REINFORCEMENT OR PLACING CONCRETE
F32 SLAB PANELS TO BE FOUNDED ON UNDISTURBED NATURAL SOIL WITH ALLOWABLE BEARING CAPACITY OF NOT LESS THAN 100 kPa. REMOVE SOFT SPOTS AND REPLACE WITH COMPACTED CRUSHED ROCK WHERE SLAB PANELS AND INTERNAL BEAMS FOUNDED ON CONTROLLED FILL. CONTROLLED FILL MUST CONTINUE AT LEAST ONE METRE PAST BUILDING
F33 LOCATE FOOTINGS CENTRALLY UNDER WALLS AND COLUMNS UNO
F34 PROVIDE 12 mm HIGH IMPACT RESISTANT VIRGIN POLYETHYLENE FILM DAMP PROOF MEMBRANE TO AS2670 ON 50 mm SAND BUNDING WHERE SHOWN ON DRAWINGS. LAP 200 mm AND SEAL DAMP PROOF MEMBRANES TAPE AT PENETRATIONS, etc TO ENSURE A COMPLET VAPOUR BARRIER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS2670. PREVENT PUNCTURING OR DAMAGE BY PLACING A PLASTIC PLATE UNDER REINFORCEMENT SUPPORTS
F35 TOP OF CONCRETE SLAB TO BE AT LEAST 150 mm ABOVE ADJACENT GROUND LEVELS
F36 SLOPE GROUND SURROUNDING BUILDING SO WATER WILL DRAIN AWAY FROM BUILDING TO SUITABLE DISCHARGE POINTS WITHOUT PONDS. WHERE ACHIEVED BY FILLING FILL TO BE LESS PERMEABLE THAN UNDERLYING MATERIAL

PILES

- F37 PILES TO BE DESIGN, IDENTIFIED AND INSTALLED BY AN APPROVED SPECIALIST SUB-CONTRACTOR IN ACCORDANCE WITH DRAWINGS, SPECIFICATION AND AS2159 OR AS5100. SUBMIT NAME AND CONTACT DETAILS OF PROPOSED SUBCONTRACTOR
F38 PILING CONTRACTOR TO ALLOW FOR INFORMATION, GEOTECHNICAL INVESTIGATION REPORT AND FOR SITE CONDITIONS
F39 PILE CAPACITY MUST EXCEED SPECIFIED DESIGN LOAD
F40 PILES MUST BE CAPABLE OF RESISTING ADDITIONAL RELEVANT TEMPORARY CONSTRUCTION AND PERMANENT LOADS, INCLUDING FORCES DUE TO ECCENTRICITY OF PILE, LATERAL SOIL LOADS AND DRAG FORCES
F41 INSPECTION MAY BE MADE OF THE FOLLOWING SETTINGS: OUT PILES AND PILING MATERIAL AFTER DELIVERY TO THE SITE AND BEFORE INSTALLATION. INSTALLATION OF PILES, PILE HEADS AFTER PREPARATION, PILE LOAD TESTS, REINFORCEMENT CAGES AFTER ASSEMBLY AND BEFORE INSTALLATION. EXCAVATED SHAFTS INCLUDING CASINGS AND SOCKETS BEFORE PLACING REINFORCEMENT. REINFORCEMENT IN EXCAVATED SHAFTS BEFORE CONCRETING AND CONCRETING OF PILES
F42 PRE-DRILLING OF DRIVEN PILES TO BE APPROVED BY SUPERINTENDENT. MAXIMUM DIAMETER OF PRE-DRILLED HOLES 50 mm LESS THAN DIAGONAL LARGEST DIMENSION OF PILE
F43 FOR BORFD PILES USE TEMPORARY CASING TO SUPPORT LOCSE OR WEAK MATERIAL AS REQUIRED
F44 EXCAVATE PILE SOCKETS TO ENSURE SURFACES ARE FREE OF DEBRIS, CRUSHED ROCK AND SMOULDED MATERIAL. USE CLEANING BUCKETS AND SIDE CLEANING TOOLS SUITABLE FOR THE PILE DIAMETER
F45 ENSURE SIDE WALLS OF PILE SOCKETS ARE FREE OF SOIL AND CRUSHED ROCK OVER AT. FAST 80% OF SIDE WALL AREA. SIDE WALL ROUGHNESS TO BE CLASS H2 (GROOVES OF DEPTH TO 4 mm, WIDTH GREATER THAN 2 mm, SPACING BETWEEN 50 AND 200 mm)
F46 ENSURE BASE OF PILE SOCKETS ARE FREE OF DEBRIS, SOFT MATERIAL etc. EXPOSED NATURAL ROCK OVER AT LEAST 80% OF SOCKET BASE. PREVENT LOOSE MATERIAL FALL INTO HOLE
F47 SOCKET INSPECTIONS TO BE UNDERTAKEN BY SUITABLY QUALIFIED GEOTECHNICAL ENGINEER TO VERIFY SOCKET IS FOUNDED WHOLLY WITHIN CLASS OF ROCK SPECIFIED. MATERIAL UNDER PILING SOCKET BASE IS EQUIVALENT OR BETTER THAN ASSUMED BY DESIGN. SOCKET DIMENSIONS ARE AS SPECIFIED. SIDE WALL AND BASE CLEANLINESS IS AS SPECIFIED
F48 PILE SOCKET LENGTH / DEPTH MEASURED FROM BASE OF EXCAVATION. NO OVER EXCAVATION OF SOCKETED PILES IS PERMITTED
F49 WHERE PILE CUTOFF LEVEL IS ABOVE ADJACENT GROUND, FORM PILE ABOVE GROUND LEVEL
F50 MAKE ALLOWANCE FOR TRIMMING DRIVEN ENDS OF PILES AND EXTENSION OF PILE REINFORCEMENT INTO ABUTMENT / PILECAP AS REQUIRED. LENGTH OF REINFORCEMENT EXTENSION TO BE AS SHOWN ON DRAWINGS. 1000 mm UNO
F51 PILES TO PROJECT INTO 50 mm INTO ABUTMENT / PILECAP UNO
F52 DRIVE PILES TO PROVIDE ULTIMATE RESISTANCE AS NOMINATED ON DRAWINGS. DETERMINE PILE LENGTH TO ACHIEVE THIS CAPACITY. PROVE THIS CAPACITY BY TESTING AT LEAST ONE PILE PER PILECAP USING PILE CAP TESTING WITH CAPWAP ANALYSIS TO CONFIRM LOAD CAPACITY AND MONITOR INTEGRITY DURING INSTALLATION. USE RESULTS OF TESTING TO ESTABLISH PILE DRIVING CRITERIA FOR REMAINING PILES
F53 ADVISE SUPERINTENDENT IF PILES DAMAGED BY DRIVING (OTHERWISE UNBOUND) ABOVE OR BELOW CUTOFF LEVEL
F54 PEG POSITION OF EACH PILE AND ESTABLISH GRID OF RECOVERY PEGS TO ENABLE SETTING OUT TO BE CHECKED
F55 PILE LEVELS SHOWN ARE CONTRACT LEVELS. FINAL LEVELS TO BE AS REQUIRED TO ACHIEVE SPECIFIED PILE CAPACITY. DO NOT FOUND PILES HIGHER THAN LEVELS SHOWN
F56 NOTE POSSIBILITY OF ENCOUNTERING BASALT COBBLES AND / OR BOLLERS IN CLAY. PRE-BORING WILL BE NOTED ON DRAWINGS IF REQUIRED
F57 IF DAMAGE IS CAUSED TO ADJACENT PROPERTY, STOP PILING OPERATIONS AND ADVISE SUPERINTENDENT
F58 PILE DRIVING HEAD TO BE DESIGNED BY PILE SUB-CONTRACTOR
F59 PILE SETTING OUT DIMENSIONS ARE TO CENTRELINE OF PILE AT UNDERSIDE OF PILECAP. TOLERANCE ON POSITIONING OF PILES = 50 mm. MAXIMUM DEVIATION OF PILE FROM SPECIFIED VERTICALITY 1 in 50

PILING DELIVERABLES

- F60 SUBMIT CALCULATIONS AND DRAWINGS TO DEMONSTRATE THE PILE DESIGN SATISFIES THE SPECIFIED DESIGN REQUIREMENTS BEFORE COMMENCING WORK ON SITE
F61 SUBMIT REPORT INCLUDING PILE DRIVING RECORDS AND LOAD TEST RESULTS TO SUPERINTENDENT BEFORE BREAKING BACK PILES
F62 SURVEY AS CONSTRUCTED PILE POSITIONS. GROUND LEVEL AT TIME OF INSTALLATION AND OUT-OF-LEVELS AND SUBMIT RECORDS TO SUPERINTENDENT WITHIN ONE WEEK OF COMPLETION OF PILING

STEEL

- S1 WORKMANSHIP, FABRICATION AND MATERIALS TO COMPLY WITH AS4103, AS125460, AS125154, AS125131 AND AS4673 FOR STAINLESS STEEL
S2 PROVIDE STEEL IN ACCORDANCE WITH
- AS1163 GRADE C350 OR C450 FOR RECTANGULAR AND SQUARE HOLLOW SECTIONS
- AS1163 GRADE C250 OR C350 FOR CIRCULAR HOLLOW SECTIONS, AS NOTED ON DRAWINGS
- AS1397 GRADE C450 FOR PURLINS AND GIRTS
- AS1443 COLD-FINISHED BARS
- AS125154 GRADE 250 HOT-ROLLED STEEL FLAT PRODUCTS,
- AS1253678 FOR PLATES AND FLOOR PLATE
- AS1253679 PART 2 GRADE 300 FOR WELDED BEAMS AND WEAR PLATES
- AS1253679 PART 1 GRADE 300 OR SLIP GRADE 300 PLUS FOR UNIVERSAL BEAMS, UNIVERSAL COLUMNS, PARALLEL FLANGE CHANNELS, ANGLES, BARS AND RODS
- OTHERWISE TO COMPLY WITH AS1253678 OR AS1253679 GRADE 250 UNO
S3 MANUFACTURERS AND PROCESSORS OF STRUCTURAL STEEL MUST HOLD A VALID CERTIFICATE OF APPROVAL, ISSUED BY ACS (AUSTRALIAN CERTIFICATION AUTHORITY FOR REINFORCING AND STRUCTURAL STEELS). PROVIDE ACS CERTIFICATION OF COMPLIANCE WITH RELEVANT STANDARDS, PRODUCT TAGS AND SUPPORTING DOCUMENTATION FOR ALL STRUCTURAL STEELWORK
S4 MARK STEEL GRADES ON STRUCTURAL MEMBERS IN NON-CRITICAL AREAS. USE IDENTIFICATION MARKS COMPATIBLE WITH AND VISIBLE THROUGH PAINT SYSTEM
S5 PROVIDE 3 mm GAP PLATES SEAL WELDED TO-HOLLOW SECTIONS UNO
S6 CARRY OUT ERECTION OF STEELWORK IN ACCORDANCE WITH AS125131 GUIDELINES FOR THE ERECTION OF BUILDING STEELWORK
S7 PROTECT STEELWORK FROM DAMAGE DURING HANDLING, TRANSPORT, STORAGE AND ERECTION. SUBMIT PROPOSED METHOD TO REPAIR DAMAGE FOR APPROVAL. PROTECT STEELWORK STORED ON SITE FROM CORROSION OR DETERIORATION OF COATINGS
S8 SCHEDULE FRICTION WORKS TO AVOID PINCH POINTS AND SLIP CONVECTION
S9 INSTALL BEAMS WITH NATURAL CAMBER UPWARD
S10 PROVIDE STEEL MEMBERS MADE FROM WHOLE LENGTHS WHEREVER POSSIBLE. SEEK APPROVAL TO MAKE LENGTHS UP OF SECTIONS JOINED BY COMPLETE PENETRATION FULL STRENGTH BUTT WELDS. GROUND FLUSH WHERE REQUIRED, WHERE PROPOSED SLOPE JOINTS ON SHOP DRAWINGS. ENSURE MEMBERS ARE ECCENTRIC AT CONNECTIONS (GRAVITY OR GAUGE LINES TO INTERSECT) UNO. ACCURATELY PRE-FORM PARTS TO AVOID FORCE AND / OR RESTRAINT DURING JOINING

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DO NOT SCALE. Drawn: W. CLARKE, Designer: A. AHILADELLIS. Client: DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT. Project: WANGETTI TRAIL. Title: STRUCTURAL NOTES SHEET 1. Drawing No: 42-21067-S009. Rev: 0

| <p>S11 DRILL HOLES FULL SIZE OR REAM TO FULL SIZE AFTER SUB-DRILLING OR SUB-PUNCHING. SUB-DRILLED OR SUB-PUNCHED HOLES TO BE AT LEAST 3mm UNDERSIZE. EXCESS CUTTINGS OF HOLES IS NOT PERMITTED. BOLT HOLE SIZE TO BE</p> <ul style="list-style-type: none"> <li>BOLT DIAMETER PLUS 2mm FOR STEEL TO STEEL CONNECTIONS</li> <li>BOLT DIAMETER PLUS 4mm FOR STEEL TO CONCRETE CONNECTIONS</li> <li>BOLT DIAMETER PLUS 4mm FOR HOLDING DOWN BOLTS UP TO M20</li> <li>BOLT DIAMETER PLUS 6mm FOR HOLDING DOWN BOLTS M24 OR LARGER</li> </ul> <p><b>WELDING</b></p> <p>S12 DEVELOP WELDING PROCEDURES TO SUIT JOINT DETAILS AND SHOW ON SHOP DRAWINGS. USE PREQUALIFIED WELD PROCEDURES AND COMBINABLES TO AS/NZS1554-1:2004. CLAUSE 4.3 OR DEVELOP QUALIFICATION OF WELD PROCEDURES AND COMBINABLES BY TESTING TO AS/NZS1554-1:2004. LIST APPLICABLE PARAMETERS ON WELDING PROCEDURE QUALIFICATION RECORD AND MAKE RECORD AVAILABLE FOR INSPECTION</p> <p>S13 QUALIFIED TO BE UNDERTAKEN BY SUITABLY QUALIFIED EXPERIENCED WELDER UNDER SUPERVISION OF QUALIFIED WELDING SUPERVISOR</p> <p>S14 CARRY OUT WELDING TO AS/NZS1554-1:2004. INTERFACES BETWEEN STEEL SECTIONS TO BE CONNECTED WITH 6mm CONTINUOUS FILLET WELDS. ALL BOLTS TO BE FULLY TENSIONED</p> <ul style="list-style-type: none"> <li>WELDS TO BE SHOP WELDED JOINTS</li> <li>WELDS TO BE CATEGORISED</li> <li>BUTT WELDS TO BE FULL (COMPLETE) PENETRATION JOINTS</li> <li>ELECTRODES TO BE LOW CARBON WITH TENSILE STRENGTH OF 480-500 MPa. PRE-APPROVED TO AS/NZS1554-1:2004 CLASSIFICATION B-E4XX</li> </ul> <p>S15 EXTENT OF WELD INSPECTION / TESTING TO BE</p> <ul style="list-style-type: none"> <li>VISUAL SCANNING 100% OF WELDS</li> <li>VISUAL EXAMINATION 100% OF BUTT WELDS IN TENSION MEMBERS AND 50% OF OTHER WELDS</li> <li>RADIOGRAPHIC OR ULTRASONIC 10% OF BUTT WELDS IN TENSION MEMBERS AND 5% OF OTHER WELDS</li> </ul> <p>S16 GRIND WELDS SMOOTH AND FLUSH WITH PARENT METAL WHERE NOMINATED ON DRAWINGS. GRIND ONLY IN LONGITUDINAL DIRECTION OF MEMBER</p> <p>S17 REPAIR FAULTY WELDS AND DEFECTS REVEALED BY WELD INSPECTION / TESTING AND REPEAT THE EXAMINATION</p> <p>S18 WELDS TO BE INSPECTED BY INDEPENDENT DATA ACCREDITED QUALIFIED WELDING INSPECTOR TO AS2214 PROVIDE WELDING INSPECTOR'S REPORT TO SUPERINTENDENT</p> <p>S19 WELDING SYMBOLS ARE TO AS1100. "CFW" INDICATES CONTINUOUS FILLET WELD. "FSBW" INDICATES FULL STRENGTH BUTT WELD WHICH IS EQUIVALENT TO CPBW. "CPBW" INDICATES COMPLETE PENETRATION BUTT WELD</p> <p><b>BOLTS</b></p> <p>S20 M16 AND LARGER BOLTS TO BE HIGH STRENGTH STRUCTURAL BOLTS. 8.8S PROCEDURE AND M12 SIZE BOLTS SHALL BE COMMERCIAL BOLTS. 4.8S PROCEDURE.</p> <p>S21 FOR BOLTS MANUFACTURED OUTSIDE AUSTRALIA PROVIDE LOCAL INDEPENDENT DATA ACCREDITED LABORATORY COMPLIANCE CERTIFICATE BASED ON APPROPRIATE TESTING AND VERIFICATION</p> <p>S22 USE BOLTS WITH THREADS IN COMPLIANCE WITH AS1276. BOLTS OF STRENGTH GRADE 8.8 TO BE COMMERCIAL GRADE BOLTS TO AS1111 AND 1.12. BOLTS OF STRENGTH GRADE 8.8 TO BE HIGH STRENGTH STRUCTURAL BOLTS. NUTS AND WASHERS TO AS/NZS1292. MECHANICAL PROPERTIES OF BOLTS, NUTS, SCREWS AND STUDS TO COMPLY WITH AS/NZS1292. WASHERS TO COMPLY WITH AS1292. TIGHTENING PROCEDURES TO COMPLY WITH AS4100</p> <ul style="list-style-type: none"> <li>S - SNUG TIGHT</li> <li>T3 - BEARING MODE JOINT BOLTS FULLY TENSIONED</li> <li>T7 - FRICTION MODE JOINT BOLTS FULLY TENSIONED (CONTACT SURFACES OF FRICITION CONNECTIONS TO BE UNOILED AND FREE OF MILL SCALE)</li> </ul> <p>S23 BOLT TYPE AND TIGHTENING PROCEDURE ARE DESIGNATED NUMBER. SIZE, STRENGTH GRADE / TIGHTENING PROCEDURES</p> <p>eg. 4xM24 x 8T T3 = 4 OFF 24 DIAMETER METRIC HIGH STRENGTH STRUCTURAL BOLTS FULLY TENSIONED IN BEARING MODE</p> <p>S24 USE BOLT LENGTHS SO THAT PROJECTION BEYOND NUT IS AT LEAST TWO THREADS AND NOT MORE THAN 10mm</p> <p>S25 USE BOLTS, SCREWS, NUTS AND WASHERS HOT DIP GALVANIZED BY MANUFACTURER TO AS1214. TAP GALVANIZED NUTS 4mm OVERSIZE TO SLIT GALVANIZED THREADS TO AS1214 AND OIL FOR PROTECTION. INSTALL WASHERS UNDER BOLT HEAD OR NUT WHICHEVER PART IS REQUIRED. USE HARDENED OR PLATE WASHERS UNDER BOTH HEAD AND NUT FOR OVERSIZED AND SLOTTED HOLES TO AS4100. USE "APERTED" WASHERS AS REQUIRED UNDER ROTATING PART</p> <p>S26 SLOTTED HOLES TO BE 2.5x BOLT DIAMETER LONG. BOLTS TO BE SET CENTRALLY IN SLOT. UNDO 5mm PLATE WASHERS UNDER BOLT HEAD AND NUT TO COMPLETELY COVER HOLE</p> <p><b>CONNECTIONS</b></p> <p>S27 STEEL CONNECT ON DETAILS TO BE IN ACCORDANCE WITH AS4100 AND AUSTRALIAN STEEL INSTITUTE (ASI) STRUCTURAL STEEL CONNECTION SERIES OF MANUALS AND GUIDES UNO</p> <p>S28 PROVIDE CLEATS AND DRILL HOLES NECESSARY FOR FIXING OTHER ELEMENTS TO STEELWORK. SHOW ON SHOP DRAWINGS</p> <p>S29 PROVIDE RADIUS CORNERS ON EXPOSED CLEATS TO REDUCE RISK OF IMPALEMENT AND LACERATIONS</p> <p>S30 PROVIDE BOLTS TO BEAT CONNECTIONS TO STEEL WELD CONNECTIONS CAPABLE OF BEING LOADED BEFORE OR WHILE CONNECTIONS ARE WELDED TOGETHER</p> <p>S31 CROP INTERNAL CORNERS OF CLEATS AND STIFFENERS etc TO FACILITATE DRAINAGE. PROVIDE DRAINAGE HOLES TO PREVENT WATER POONDING ON STRUCTURAL ELEMENTS DURING CONSTRUCTION. SHOW PROPOSED HOLES ON SHOP DRAWINGS</p> <p><b>STAINLESS STEEL</b></p> <p>S32 PROVIDE STAINLESS STEEL GRADE JNS 3163 LNO</p> <p>S33 BOLTS AND NUTS TO BE STAINLESS STEEL GRADE A4 CLASS 50 TO ISO 3506. WASHERS TO BE STAINLESS STEEL TO ISO 7089 OR ISO 7090. AVOID GALVANIC BY USING METAL-FREE LUBRICANT PASTE OR OTHER METHOD APPROVED BY SUPER INTENDENT</p> <p>S34 DO NOT FLAME CUT STAINLESS STEEL. KEEP STAINLESS STEEL SURFACES CLEAN AND FREE OF BLEMISHES THROUGHOUT FABRICATION</p> <p>S35 FABRICATE STAINLESS STEEL IN WORKSHOP AREAS SEGREGATED FROM CARBON. STEEL FABRICATION AREAS USE TOOLS DEDICATED TO STAINLESS STEEL FABRICATION. WIRE BRUSHES AND WIRE WOOL USED IN FABRICATION OF STAINLESS STEEL TO BE STAINLESS STEEL OR CLEAN INERT MATERIALS</p> <p>S36 PREVENT CONTACT BETWEEN STAINLESS STEEL AND CARBON STEEL. AVOID CHEMICALS OILS AND / OR GREASE. REMOVE SURFACE CONTAMINANTS INCLUDING STICKERS AND MARKINGS PRIOR TO WELDING OR FABRICATION</p> <p><b>BASEPLATES AND HOLDING DOWN BOLTS</b></p> <p>S37 HOLDING DOWN BOLTS TO BE GRADE 4.8 UNO. SUPPLY HOLDING DOWN BOLTS WITH TWO CLASS 5 HEXAGONAL HEAD NUTS AND EXTRA LARGE HARDENED 4mm PLATE WASHER. HOT DIP GALVANIZED HOLDING DOWN BOLTS, NUTS AND WASHERS TO AS1214. THE HOLDING DOWN BOLT GROUPS RIGIDLY TOGETHER PRIOR TO INSTALLATION. TAG WELD WITH 10mm DIAMETER REINFORCING BAR TO FORM A RIGID CAP. "O" FASTENER CONNECTION BOLT LOCAL UNO, AND SET OUT USING A 3mm MILD STEEL TEMPLATE SUPPLIED BY STEEL WORK FABRICATOR. PROVIDE 4x M24 GATTURES TO FIX HOLDING DOWN BOLT CAGE SECURELY TO SLAB / FOOTING REINFORCEMENT</p> <p>S38 GROUT BASE PLATES, HOLDING DOWN BOLTS, REBATES etc BEFORE LOADING COLUMNS OR ERECTING WALLS. USE APPROVED HIGH STRENGTH (40 MPa AT 7 DAYS) NON-SHRINK PRE-MIXED RAYMEX GROUT. GROUT THICKNESS 15mm MINIMUM 40mm MAXIMUM UNO. CHAMFER GROUT EDGES AT 45 DEGREES UNO. DO NOT LOAD GROUT UNTIL FULL STRENGTH HAS BEEN DEVELOPED</p> <p><b>DURABILITY &amp; PROTECTIVE COATINGS</b></p> <p>S39 HOT DIP GALVANIZING GRATING, HANDRAILS, LADDERS AND STEP IRONS etc TO AS/NZS4680. PROVIDE STAIRS LADDERS, PLATEFORMS, WALKWAYS AND HANDRAILS etc TO AS1657</p> <p>S40 PRIME CONCRETE ENCASED STEELWORK IN ACCORDANCE WITH SPECIFICATION AND WRAP WITH FCG 41 MESH WITH 20mm MINIMUM COVER. ENCASEMENT TO BE 50mm MINIMUM THICKNESS OF ENCASEMENT FOR FIRE PROTECTION TO BE AS DETAILED. PROVIDE 75mm ENCASEMENT FOR STEEL IN GROUT WHERE PAINTED STEEL WORK IS PARTLY ENCASED IN CONCRETE. EXPOSED WOOD PAINT SYSTEM AT LEAST 50mm UNO CONCRETE</p> | <p>S41 AFTER COMPLETION OF FABRICATION PREPARATION FOR SURFACE TREATMENT TO BE ROLLOFF ROUGH WELDS, SHARP EDGES (ROUND TO 2mm RADIUS) etc. SURFACE TO BE FREE OF WELDING SPATTER, SLAG UNDERCUTS, VISIBLE PORES, PITS AND CRACKERS. VISIBLE SURVIVAL LAMINATIONS, ROLLED-IN EXTRANEOUS MATTER, GROOVES (RADIUS OF GROUGES TO BE LESS THAN 4mm), INDENTATIONS, ROLL MARKS, BURRS, BRUISES, CRACKS, etc. PREPARE WELDS, EDGES AND OTHER AREAS WITH SURFACE IMPERFECTIONS TO ISO 8501-3 PREPARATION GRADE F3</p> <p>S42 SURFACE PREPARATION REMOVE OIL, GREASE AND OTHER CONTAMINANTS TO AS1027.1. ABRASIVE BLAST CLEAN TO AS1627.4 CLASS SA 2½ WITH SURFACE PROFIL F 40 TO 70 MICRONS OR AS SPECIFIED BY COATINGS MANUFACTURER FOR THE SERVICE CONDITIONS. ASSESS ABRASIVE BLAST CLEANED SURFACE TO AS1627.9 AND SURFACE PROFILE TO AS3894.5. FOR SMALL AREAS WHERE ABRASIVE BLAST CLEANING IS NOT POSSIBLE OBTAIN APPROVAL FROM SUPERVISOR TO USE POWER TOOL. CLEANING TO AS1627.2 CLASS ST 3 / PS 3 AS DEFINED IN ISO 8501.1 FOR STEEL. CLEANED TO A METALLIC FINISH WITH MINIMUM 25 MICRON SURFACE PROFILE. REMOVE DUST BY BRUSHING OR VACUUM CLEANING</p> <p>S43 APPLY PROTECTIVE COATINGS AS SOON AS PRACTICABLE AFTER PREPARATION WITHIN FOUR HOURS AND BEFORE FLASH RUST OR RUST BY-PRODUCT APPEARS. APPLICATION OF PROTECTIVE COATINGS TO COMPLY WITH MANUFACTURER'S RECOMMENDATIONS</p> <p>S44 COATING REPAIRS REINSTATE COATING TO DAMAGED AREAS TO PROTECTIVE COATINGS SPECIFICATION. FIELD WELD REPAIRS DO NOT WELD THROUGH EXISTING GALVANIZING OR COATINGS. REMOVE WELD SPATTER, RESIDUAL FLUX etc BY CHIPPING, GRINDING OR ABRASIVE BLAST CLEANING. GRIND FLUSH ROUGH WELD BEADS. PREPARE SURFACE FOR PAINTING AS PER COATING SPECIFICATION. REMOVE RUST, LOOSE AND BURNT PAINT AND SUFFICIENT SOUND COATING. COAT PAINT EDGES IS FEATHERED AND SMOOTH. "STRIP COAT" ALL WELDS, EDGES AND ROUGH SURFACES USING A BRUSH. REINSTATE COATING AS PER PROTECTIVE COATINGS SPECIFICATION</p> <p>S45 WHERE NOMINATED AS GALVANIZED ON DRAWINGS. STEELWORK IS TO BE HOT DIPPED GALVANIZED TO AS/NZS4680 AND AS 1214 FOR FASTENERS. THICKNESS OF GALVANIZED COATINGS TO AS/NZS4680. ZINC IN GALVANIZING BATH TO BE NOT LESS THAN 98% PURE. BATH TEMPERATURE, TIME OF IMMERSION AND WITHDRAWAL SPEED TO BE AS REQUIRED TO ACHIEVE SPECIFIED COATING THICKNESS AND FINISH. ZINC COATING TO BE CONTINUOUS, ADHERENT, FREE FROM LUMPS, SPIKES, DIPS, RUNS, BUSTERS, BUCKERS, GRIFFY AREAS, UNCOATED SPOTS, ACID AND BLACK SPOTS, CROSS-FLUX AND OTHER IMPERFECTIONS</p> <p>S46 DO NOT USE HIGH STRENGTH LOW ALLOY STEELS CONTAINING HIGH SILICONE (POORLY SILICON) CAN PRODUCE THICKER AND / OR BRITTLE GALVANIZED COATINGS. REFER TO GALVANIZER FOR ACCEPTABLE STEEL COMPOSITIONS</p> <p>S47 BUTT WELD END PLATES ON FOLLOW SECTIONS TO BE HOT DIPPED GALVANIZED IN LIEU OF FILLET WELD TO AVOID RISK OF CREVICE CORROSION. DO NOT USE A BACKING PLATE</p> <p>S48 PASSIVATE GALVANIZED STEEL TO BE IN CONTACT WITH CONCRETE BY DIPPING IN 0.2% SODIUM DICHROMATE SOLUTION</p> <p>S49 STRAIGHTEN MEMBERS DISTORTED DURING FABRICATION AND / OR GALVANIZING PROCESS USING AN APPROVED METHOD</p> <p>S50 ANNEAL COLD WORKED TEMS TO 600 C OR UP TO GALVANIZING</p> <p>S51 REPAIR DAMAGE TO GALVANIZED COATING TO AS/NZS 4680 SECTION 6 - REPAIR AFTER GALVANIZING. USE ORGANIC TWO-PACK ZINC RICH EPOXY COATING COMPLYING WITH AS/NZS3750.9 APPLIED INTO TWO COATS EACH 50 MICRON MINIMUM TOTAL DRY FILM THICKNESS 100 MICRONS. DO NOT USE SPRAY CANS OF GOLD GALT OR ZINC ALLOY SOLDER STICKS. SURFACE PREPARATION OF EXPOSED BARE STEEL TO BE ABRASIVE BLAST CLEANED TO AS1627.4 CLASS SA 2 (PREFERRED) OR POWER TOOL CLEANED TO AS1627.2 CLASS ST 3. LIGHTLY SWEEP BLAST GALVANIZED SURFACES</p> <p>S52 PROVIDE DRAIN / DRAIN HOLES AT TOP AND BOTTOM EXTREMITIES FOR FOLLOW SECTIONS TO BE HOT DIPPED GALVANIZED. PROVIDE RUBBER SEALS OR PLUG WELD VENT / DRAIN HOLES THAT REMAIN EXPOSED. REPAIR DAMAGE TO GALVANIZING</p> <p>S53 PROVIDE DRILLED SUSPENS ON HOLES. END PLATES ETC FOR TEMS TO BE HOT DIPPED GALVANIZED. PRIOR TO DIPPING ADVISE SUPERINTENDENT OF ANY DESIGN FEATURES THAT MAY LEAD TO DIFFICULTIES DURING GALVANIZING AND SUBMIT DETAILS FOR IMPROVEMENT</p> <p>S54 DO NOT PAINT GALVANIZED STEELWORK UNLESS SPECIFIED ON THE ENGINEERING DRAWINGS. ADVISE GALVANIZER OF TEMS TO BE PAINTED AFTER GALVANIZING AND FINAL ZINC PASSIVATION IS TO BE OMITTED. PREPARE GALVANIZED SURFACES TO BE PAINTED AS PER AS/NZS4680 APPENDIX 1 AND APPLY PAINT IN THE WORKSHOP. COATING MANUFACTURER TO PROVIDE A 10 YEAR WARRANTY OF COATING SYSTEM</p> <p>S55 PROTECTIVE COATINGS ARE TO BE SHOP APPLIED AND CURED IN WORKSHOP IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS APPROVED OTHERWISE IN WRITING BY SUPERINTENDENT. PROTECTIVE COATINGS ARE TO BE SMOOTH (UNIFORM) AND WITHOUT RUNS, BEADS, Holes, SURFACE CRACKING OR OTHER IMPERFECTIONS</p> <p>S56 PROTECT COATINGS FROM DAMAGE AND DETERIORATION DURING HANDLING, TRANSPORT, STORAGE AND ERECTION. REPAIR DAMAGE TO PROTECTIVE COATINGS TO REINSTATE INTEGRITY OF NOMINATED COATING IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATION. EDGES OF PATCH REPAIRS TO BE FEATHERED</p> <p>S57 REFER SPECIFICATION FOR DECORATIVE COATINGS</p> <p>S58 100% DIP GALVANIZED FLOOR GRATING AND SUPPLY WITH EDGE TRIMMING BARS ALL ROUND UNO. SECURE GRATING TO STEELWORK WITH A PROPRIETARY CLAMPING SYSTEM INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS</p> <p><b>DELIVERABLES</b></p> <p>S60 SUBMIT NAMES AND CONTACT DETAILS OF PROPOSED FABRICATION AND INSTALLATION SUBCONTRACTORS</p> <p>S61 SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS. REFER GENERAL DELIVERABLES NOTES. SHOP DRAWINGS AND DESIGN CALCULATIONS TO SHOW ARRANGEMENT OF MEMBERS, MARKING PLAN MEMBER SCHEDULE, LOCATION AND ORIENTATION OF MEMBERS IN BUILDING. REQUIRED CEMBER (WHERE APPLICABLE), RELEVANT DETAILS OF EACH ASSEMBLY COMPONENT AND CONNECTION, DIMENSIONS OF ITEMS, LOADING PARAMETERS AND BRACING LENGTHS ASSUMED IN DESIGN. DESIGN STRESSES, STRENGTH OF MATERIALS, SIZE OF EACH MEMBER, TOLERANCES ON MEMBER SIZES, JOINT DETAILS, TRIMMERS, NOGGINGS etc. LIFTING POINTS, METHOD OF FIXING AND BRACING DESIGN DETAIL ON. METHOD OF FABRICATION, SIZE AND SPECIFICATION OF CLEATS, BOLTS, SCREWS, WELDS, WELD CATEGORIES AND BOLT NUT CATEGORIES. WELD PROCEDURES INCLUDING POST WELD HEAT TREATMENT, SURFACE PREPARATION METHODS AND PROTECTIVE COATING SYSTEM. VENT / DRAIN HOLES FOR HOT DIP GALVANIZING. PROPOSED JOINTS IN MEMBERS, TEMPORARY MEMBERS, BRACES AND FIXINGS, LOCATIONS OF ALL ARRES' CONNECTIONS, FIXINGS FOR ADJOINING BUILDING ELEMENTS, BASE PLATE OF ALL FIXINGS FOR PURLINS, GIRDS, LOCATION OF AND PREPARATION FOR SITE WELDS AND BRACING METHOD OF HANDLING TEMPORARY WORKS, ASSEMBLY, TRANSPORT AND ERECTION (INCLUDING TEMPORARY BRACING IF REQUIRED), PRECAMBER etc.</p> <p>S62 PROVIDE DOCUMENTARY EVIDENCE (INCLUDING TEST RESULTS) OF COMPLIANCE WITH RELEVANT AUSTRALIAN STANDARDS ISSUED BY MANUFACTURER FOR ALL STEELWORK AND EACH BATCH OF FASTENERS USED. EVIDENCE MUST PROVIDE CLEAR VERIFICATION THAT PRODUCT MEETS RELEVANT AUSTRALIAN STANDARDS AND BE WRITTEN IN ENGLISH ALPHANUMERIC CHARACTERISTICS. EVIDENCE TO INCLUDE NAMES AND ADDRESSES OF MANUFACTURER, SUPPLIER AND TESTING AUTHORITY, TEST CERTIFICATE NUMBER AND DATE WITH PAGE NUMBER ON EACH PAGE. PRODUCT TESTING SPECIFICATION AND GRADE OF STEEL. PRODUCT DESIGNATION AND RELEVANT DIMENSIONS. PRODUCT STEEL MAKING PROCESS LENGTH, BUNDLE PACK OR UNIQUE IDENTIFIER TO WHICH CERTIFICATE APPLIES. HEAT NUMBER (FROM CASTING) MECHANICAL PROPERTIES FROM TENSILE TEST (ALL VALUES CITED IN AS/NZS STANDARD), WHETHER EACH MEASURED MECHANICAL PROPERTY COMPLIES WITH AS/NZS STANDARD. CHEMICAL ANALYSIS RESULTS AND TYPE OF ANALYSIS UNDERTAKEN. CUSTOMER PURCHASE ORDER TO MATCH BATCH NUMBER. ANY OTHER SYSTEM REFERENCE NUMBERS AND SIGNATURE OF AUTHORITY.</p> | <p>C2 WET CONCRETE TO BE UNIFORM DENSE HOMOGENEOUS. COHESIVE AND ABLE TO WORK READILY INTO CORNERS AND AROUND REINFORCEMENT. COMPLETELY FILLING FORMWORK WITHOUT SEGREGATION OF AGGREGATES AND / OR FIBRES. EXCESS FREE WATER ON SURFACE. LOSS OF MATERIAL, CONTAMINATION OR OTHER VISIBLE DEFECTS</p> <p>CONCRETE TO HAVE GOOD DIMENSIONAL STABILITY AND ABLE TO RESIST PLASTIC SETTLEMENT, CRACKING, THERMAL CRACKING AND SHRINKAGE CRACKING</p> <p>C3 FINISHED CONCRETE TO BE A DURABLE DENSE HOMOGENEOUS MASS COMPLETELY FILLING FORMWORK. FIBRE REINFORCEMENT AND TENSILES AND FREE OF STAKE POCKETS OR HONEYCOMBS OF UNIFORM COLOUR AND TEXTURE, WITH LOW PERMEABILITY AND ADEQUATE BUT NOT EXCESSIVE STRENGTH FOR GRADE</p> <p>C4 AIR ENTRAPMENT IS NOT PERMITTED UNLESS APPROVED IN WRITING BY SUPERINTENDENT</p> <p>C5 EXTERNALLY EXPOSED CONCRETE TO BE CLASSIFICATION B1 UNO</p> <p>C6 QUALITY OF CONCRETE ELEMENTS TO BE AS FOLLOWS</p> <table border="1"> <thead> <tr> <th>STRUCTURAL ELEMENT</th> <th>BLINDING</th> <th>PILES</th> <th>ABUTMENTS &amp; HEADSTOCKS</th> <th>DECK PANELS</th> <th>SLABS</th> <th>ELSEWHERE</th> </tr> </thead> <tbody> <tr> <td>EXPOSURE CLASSIFICATION</td> <td>B1</td> <td>C2</td> <td>C1</td> <td>B2</td> <td>B1</td> <td>B1</td> </tr> <tr> <td>STRENGTH GRADE (MPa)</td> <td>A7</td> <td>860</td> <td>550</td> <td>550</td> <td>540</td> <td>550</td> </tr> <tr> <td>MINIMUM DENSITY (kg/m<sup>3</sup>)</td> <td>2300</td> <td>2350</td> <td>2350</td> <td>2350</td> <td>2350</td> <td>2350</td> </tr> <tr> <td>MAX AGGREGATE SIZE (mm)</td> <td>-</td> <td>20</td> <td>20</td> <td>20</td> <td>20</td> <td>20</td> </tr> </tbody> </table> <p>C7 CONCRETE IDENTIFIED WITH STRENGTH GRADE PREFIX SUCH AS S40, IS REQUIRED TO HAVE HIGH DURABILITY. PROVIDE CONCRETE WITH</p> <ul style="list-style-type: none"> <li>AN AVERAGE COMPRESSIVE STRENGTH AT COMPLETION OF CURING NOT LESS THAN 75% OF SPECIFIED FC</li> <li>A TOTAL REACTIVE ALKALI CONTENT NOT GREATER THAN 3.0 kg Na<sub>2</sub>O (EQUIVALENT) CONCRETE, DENOTED WITH STRENGTH GRADE PREFIX SUCH AS S40, IS REQUIRED TO HAVE HIGH DURABILITY.</li> <li>DO NOT USE METAL INSERTS WITHIN COVER CONCRETE INCLUDING METAL BAR CHAIRS.</li> <li>DO NOT ALLOW CONCRETE TO FALL VERTICALLY WHEN PLACING OR TO ENTRAP AIR IN ANY OTHER WAY.</li> <li>PREVENT EVAPORATION OF WATER FROM CONCRETE SURFACES IMMEDIATELY AFTER LAYING.</li> <li>MOIST CURE CONCRETE FOR A MINIMUM OF SEVEN DAYS.</li> </ul> <p>C8 SUPPLEMENTARY CEMENTITIOUS MATERIALS INCLUDING AMORPHOUS SILICA FUME, FLY ASH AND GROUND GRANULATED BLAST FURNACE SLAG (GGBFS) OR SLAG COMPLEYING WITH AS3582</p> <p>SLUMP TO BE AS REQUIRED FOR PLACEMENT (eg PUMPING CHUTE SPRAYING etc). COMPACTION AND FINISHING USE SUPERPLASTISERS AND HIGH RANGE WATER REDUCERS TO AVOID OR REDUCE EXCESSIVE PLACEMENT WORKABILITY</p> <p>C9 MAXIMUM SULPHATE CONTENT OF CONCRETE TO BE LESS THAN 5% BY MASS OF ACID SOLUBLE SO<sub>4</sub> AS A PERCENTAGE OF CEMENTITIOUS MATERIAL FOR CONCRETE BLENDED CEMENT TOTAL. SUPPLEMENTARY CEMENTITIOUS MATERIAL MUST BE LESS THAN 43% SUPPLEMENTARY CEMENTITIOUS MATERIALS</p> <ul style="list-style-type: none"> <li>SILICA FUME TO BE LESS THAN 10% OR</li> <li>FLYASH TO BE LESS THAN 25% OR</li> <li>GROUND GRANULATED BLAST FURNACE SLAG TO BE LESS THAN 40%</li> </ul> <p>FOR DOUBLE BLENDED CEMENT TOTAL, SUPPLEMENTARY CEMENTITIOUS WATER A<sub>1</sub> MUST BE LESS THAN SMALLER OF PERCENTAGES GIVEN ABOVE FOR CONSTITUENTS INCLUDED</p> <p>C10 SUPPLEMENTARY CEMENTITIOUS MATERIALS SPECIFIED IN TABLE ABOVE ARE IN ADDITION TO MATERIALS INCORPORATED IN GB CEMENT</p> <p>C11 ADMIXTURES TO COMPLY WITH AS1478. ADMIXTURES MUST NOT REDUCE STRENGTH OF CONCRETE BELOW SPECIFIED VALUE IN SHORT OR LONG TERM. ADMIXTURES MUST NOT CONTAIN CALCIUM CHLORIDE</p> <p>USE ADMIXTURES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. CONCRETE ADMIXTURES SHALL NOT CAUSE OR ACCELERATE CORROSION OF REINFORCEMENT NOR BE DETRIMENTAL TO CONCRETE OR STEEL DURING EXPECTED LIFE OF STRUCTURE. DO NOT USE CHEMICAL ADMIXTURES OR OTHER MATERIALS WITHOUT SUPERINTENDENT'S WRITTEN APPROVAL</p> <p>C12 DO NOT ADD WATER TO CONCRETE AFTER TRUCK HAS LEFT BATCHING PLANT</p> <p>C13 MIX CONCRETE TO ENSURE UNIFORM DISTRIBUTION OF CONSTITUENTS</p> <p><b>CONCRETE TESTING</b></p> <p>C17 TEST SLUMP OF EACH BATCH OF CONCRETE DELIVERED BEFORE PLACING CONCRETE FROM THAT DELIVERY SLUMP MEASURED TO BE NO GREATER THAN TARGET SLUMP WITHIN TOLERANCES GIVEN IN AS1379. CLAUSE 5.2.3. CONCRETE OUTSIDE SLUMP TOLERANCE LIMITS IS LIABLE TO REJECTION</p> <p>C18 REGISTER PROJECT FOR DISSEMINATION OF CONCRETE PRODUCTION. ASSESSMENT INFORMATION MANUFACTURER TO CARRY OUT PRODUCTION ASSESSMENT OF CONCRETE FOR COMPLIANCE WITH REQUIREMENTS OF AS1379</p> <p>C19 CARRY OUT PROJECT ASSESSMENT OF CONCRETE TO AS1379. CLAUSE 6.4 AND 6.5. TAKE SAMPLES AT PROJECT SITE AT POINT OF DISCHARGE FROM AGITATOR. SPREAD SAMPLING EVENLY THROUGH POUR. SAMPLE CONCRETE FOR PROJECT ASSESSMENT CONCURRENTLY WITH EACH SAMPLE TAKEN FOR PRODUCT ON ASSESSMENT AT PROJECT SITE. FOR EACH CONCRETE DESIGN MIX TAKE ONE SAMPLE FROM EACH 25m<sup>3</sup> OF CONCRETE DELIVERED PER DAY. NOT LESS THAN FIVE SAMPLES TOTAL. FOR EACH MIX DESIGN EACH SAMPLE TO COMPRISE FOUR CYLINDERS TEST TWO AT 7 DAYS AND TWO AT 28 DAYS. ADDITIVELY SUPERINTENDENT WITH IN 72 WORKING DAYS. 7 DAY CONCRETE TEST RESULTS INDICATE 28 DAY STRENGTHS ARE LIKELY TO BE BELOW SPECIFIED STRENGTH</p> <p>C20 CARRY OUT CURING SHRINKAGE TESTING TO AS1912.13 FOR EACH CONCRETE DESIGN MIX TAKE ONE SAMPLE EVERY THREE MONTHS OR FOR EVERY 1000m<sup>3</sup> OF CONCRETE PLACED. MINIMUM OF ONE SAMPLE EACH SAMPLE TO COMPRISE THREE SPECIMENS. SAMPLE CONCRETE AT PROJECT SITE DIRECTLY FROM DELIVERY VEHICLE. BASE ASSESSMENT ON AVERAGE OF THREE TEST RESULTS</p> <p>C21 CONCRETE SAMPLING AND TESTING TO BE BY AN APPROVED INDEPENDENT DATA REGISTERED LABORATORY</p> <p><b>FORMWORK</b></p> <p>C22 RESPONSIBILITY FOR DESIGN, CERTIFICATION, CONSTRUCTION AND PERFORMANCE OF FORMWORK AND FALSEWORK LIES WITH CONTRACTOR</p> <p>C23 FORMWORK TO BE DESIGNED BY A SUITABLY QUALIFIED CHARTERED ENGINEER REGISTERED WITH RELEVANT PROFESSIONAL ENGINEER OF QUEENSLAND (PEQ) TO AS3580 AND INDEPENDENTLY CERTIFIED BY A CHARTERED ENGINEER EXPERIENCED IN FORMWORK DESIGN AND RECASTING WITH RELEVANT PROFESSIONAL ENGINEER OF QUEENSLAND (PEQ). PROVIDE COPY OF DESIGN CALCULATIONS AND CERTIFICATE ON TO SUPERINTENDENT. DESIGN FORMWORK TO ACCOMMODATE DIMENSIONAL CHANGES AND MOVEMENTS RESULTING FROM IMPROVED ACTIONS. CONCRETE SHRINKAGE AND CREEP. TEMPERATURE CHANGES, PRESTRESSING FORCES etc.</p> <p>C24 DO NOT SUPPORT OR RESTRAIN FORMWORK ON PERMANENT WORKS WITHOUT SUPERINTENDENT'S WRITTEN APPROVAL</p> <p>C25 CONSTRUCT FORMWORK TO COMPLY WITH AS3610 AND CLAUSE 17.6 OF AS3610 WHERE THIS IS MORE STRINGENT. SO CONCRETE WILL HAVE DIMENSIONS, SHAPE, LOCATION AND FINISH SPECIFIED</p> <p>C26 PROVIDE OPENINGS OR REMOVABLE PANELS IN FORMWORK FOR INSPECTION AND CLEANING</p> <p>C27 APPLY RELEASE AGENT COMPATIBLE WITH CONTACT SURFACES TO INTERIOR OF FORMWORK (EXCEPT WHERE CONCRETE IS TO RECEIVE AN APPLIED FINISH OR COATING FOR WHICH TYPICALLY IS NOT COMPATIBLE). RELEASE AGENT WHERE NECESSARY CLEAN REINFORCEMENT TO REMOVE TRACES OF RELEASE AGENT</p> <p>C28 SEAL JOINTS BETWEEN FORMWORK PANELS AND TO HARDENED CONCRETE WITH A FLEXIBLE RUBBER STRIPS ON FORMWORK TO GIVE A REGULAR ARRANGEMENT OF PANELS, JOINTS, BOLT HOLES AND SIMILAR VISIBLE ELEMENTS IN FORMED SURFACE</p> <p>C29 DO NOT USE FORMWORK HARDWARE THAT FORMS A COMPLETE HOLE THROUGH CONCRETE ELEMENTS. DO NOT USE REINFORCEMENT TO SUPPORT FORMWORK</p> | STRUCTURAL ELEMENT     | BLINDING    | PILES | ABUTMENTS & HEADSTOCKS | DECK PANELS | SLABS | ELSEWHERE | EXPOSURE CLASSIFICATION | B1 | C2 | C1 | B2 | B1 | B1 | STRENGTH GRADE (MPa) | A7 | 860 | 550 | 550 | 540 | 550 | MINIMUM DENSITY (kg/m <sup>3</sup> ) | 2300 | 2350 | 2350 | 2350 | 2350 | 2350 | MAX AGGREGATE SIZE (mm) | - | 20 | 20 | 20 | 20 | 20 | <p>C30 PROVIDE HOLES IN REBATE FORMERS etc AS REQUIRED TO PREVENT AIR ENTRAPMENT</p> <p>C31 DO NOT STRIP FORMWORK PRIOR TO 36 HOURS AFTER PLACEMENT</p> <p>C32 DO NOT STRIP FORMWORK UNTIL CONCRETE IS HARDENED SUFFICIENTLY TO WITHSTAND MOVEMENT AND FORM REMOVAL WITHOUT DAMAGE. MINIMUM STRIPPING TIMES TO BE AS PER AS3610 TABLE 5.4:</p> <p>C33 STRIP FORMWORK TO AS3600. CLAUSE 17.6. REMOVE FORMS WITHOUT DAMAGING CONCRETE. PARTS OF BOLTS LEFT IN CONCRETE MUST NOT INTERFERE WITH COVER CONCRETE. FLASHES IN HOLES USING MIXED NON-SHRINK CEMENTITIOUS APPROVED REPAIR MORTAR MATCHING CONCRETE SURFACE COLOUR, STRENGTH AND DURABILITY. AND ADEQUATE BOND. SUBMIT DETAILS OF PROPOSED REPAIR METHODS TO SUPERINTENDENT FOR APPROVAL</p> <p><b>PLACING CONCRETE</b></p> <p>C34 CONSTRUCT ON TOLERANCES TO BE TO AS3610</p> <p>C35 FORMWORK REINFORCEMENT AND COVER DOWELS WATERSTOPS CASTINGS etc TO BE INSPECTED AND APPROVED BY SUITABLY QUALIFIED GEOTECHNICAL ENGINEER / SUPERINTENDENT / BUILDING SURVEYOR BEFORE CONCRETE IS PLACED</p> <p>C36 REMOVE FREE WATER, DUST AND DEBRIS STAINS etc FROM FORMS, EXCAVATIONS etc BEFORE PLACING CONCRETE. IN HOT CONDITIONS DAMPEN FORMWORK AND / OR SUB-GRADE BEFORE PLACING CONCRETE</p> <p>C37 INSTALL 0.2mm THICK IMPACT RESISTANT VIRGIN POLYETHYLENE LDM DAMP PROOF MEMBRANE TO AS2870 TO BASE TO RETAIN WATER IN FRESH CONCRETE</p> <p>C38 PLACE CONCRETE IN LAYERS LESS THAN 300mm THICK FOR FIRST LAYER AND 75% OF IMMERSION VIBRATOR LENGTH FOR SUBSEQUENT LAYERS AND VIBRATE EACH LAYER BEFORE PLACING NEXT</p> <p>C39 ELAPSED TIME BETWEEN POURING OF MIX AND DISCHARGE OF CONCRETE AT SITE MUST BE AS SHORT AS POSSIBLE AND MUST NOT EXCEED LIMITS GIVEN WITHOUT SUPERINTENDENT'S PRIOR WRITTEN CONSENT</p> <table border="1"> <thead> <tr> <th>CONCRETE TEMPERATURE AT TIME OF DISCHARGE (°C)</th> <th>MAXIMUM ELAPSED TIME (HOURS)</th> </tr> </thead> <tbody> <tr> <td>10 - 24</td> <td>2.00</td> </tr> <tr> <td>24 - 27</td> <td>1.50</td> </tr> <tr> <td>27 - 30</td> <td>1.00</td> </tr> <tr> <td>30 - 32</td> <td>0.75</td> </tr> </tbody> </table> <p>C40 USE PLACEMENT METHODS THAT WILL MINIMIZE PLASTIC SETTLEMENT AND SHRINKAGE CRACKING. LIMIT VERTICAL FREE FALL BY USE OF CHUTES etc. KEEP CHUTES VERTICAL, FULL AND IMMERSED IN CONCRETE. PLACE CONCRETE IN LAYERS AS VISIBLE. SUCCEED IN LAYERS WITH COMPACTION. MAINTAIN CONCRETE EDGE IN A PLASTIC STATE. PROPERLY COMPACT CONCRETE USING MECHANICAL VIBRATORS AND HAND METHODS IF APPROVED BY SUPERINTENDENT. TO REMOVE AIR BUBBLES AND GIVE MAXIMUM COMPACT ON WITHOUT SEGREGATION OF CONCRETE. TAKE CARE TO AVOID CONTACT BETWEEN VIBRATORS AND PARTIALLY HARDENED CONCRETE. FORMWORK OR REINFORCEMENT. DO NOT USE VIBRATORS TO MOVE CONCRETE ALONG FORMS</p> <p>C41 OBTAIN SUPERINTENDENT'S WRITTEN APPROVAL OF PLACEMENT METHODS FOR CONCRETE ELEMENTS GREATER THAN 1500mm HEIGHT</p> <p>C42 KEEP ON SITE A LOG BOOK RECORDING EACH PLACEMENT OF CONCRETE INCLUDING DATE, CLIMATIC CONDITIONS, POSITION OF WORK, SPECIFIED GRADE AND SOURCE OF CONCRETE DELIVERY, JOCKEY DATA, METHODS OF PLACEMENT AND COMPACTION, PROJECT ASSESSMENT CARRIED OUT, SLUMP MEASUREMENTS, VOLUME AND OTHER NOTABLE MATTERS THAT MAY AFFECT PERFORMANCE OF CONCRETE</p> <p>C43 IN HOT WEATHER PREVENT PREMATURITY STIFFENING OF FRESH CONCRETE. REDUCE WATER ABSORPTION AND EVAPORATION LOSSES. MIX, TRANSPORT, PLACE AND COMPACT CONCRETE AS QUICKLY AS POSSIBLE DURING PLACEMENT. TEMPERATURE OF CONCRETE MUST NOT EXCEED TEMPERATURES BELOW</p> <table border="1"> <thead> <tr> <th>CONCRETE ELEMENT</th> <th>TEMPERATURE LIMIT</th> </tr> </thead> <tbody> <tr> <td>UNREINFORCED CONCRETE IN SECTIONS 1METRE EACH 3MENS ON</td> <td>27 °C</td> </tr> <tr> <td>CONCRETE IN 40 MPa IN SECTIONS 500mm THICKNESS</td> <td>27 °C</td> </tr> <tr> <td>CONCRETE IN FOOTINGS, BEAMS, COLUMNS, WALLS AND SLABS &gt; 32MPa</td> <td>32 °C</td> </tr> <tr> <td>ELSEWHERE</td> <td>32 °C</td> </tr> </tbody> </table> <p>DO NOT MIX CONCRETE WHEN SURROUNDING OUTDOOR SHADE TEMPERATURE &gt; 30°C. MAINTAIN TEMPERATURE OF FORMWORK AND REINFORCEMENT AT 32°C BEFORE AND DURING PLACING. COOL REINFORCEMENT AND FORMWORK AS REQUIRED. MAINTAIN SPECIFIED TEMPERATURE OF PLACED CONCRETE BY</p> <ul style="list-style-type: none"> <li>PLACING CONCRETE WHEN AMBIENT TEMPERATURE IS LOW AT NIGHT</li> <li>COVER CONCRETE USING HIGH INTRINSIC INSULATION BEFORE PLACING OR</li> <li>COVER CONTAINER IN WHICH CONCRETE IS TRANSPORTED TO FORMS OR</li> <li>SHADING AND SPRAYING COARSE AGGREGATE USING COOL WATER OR</li> <li>USE CHILLED MIXING WATER</li> </ul> <p>C44 PROTECT FRESH CONCRETE FROM PREMATURE DRYING - PARTICULARLY IN HOT WINDY OR DRY (LOW HUMIDITY) CONDITIONS. EXCESSIVELY HOT OR COOL CONCRETE IS TRANSPORTED TO FORMS OR MAINTAIN CONCRETE AT A REASONABLY CONSTANT TEMPERATURE WITH MINIMUM MOISTURE LOSS FOR CURING PERIOD</p> <p>C45 FOR CONCRETE WITH WATER CEMENT RATIO LESS THAN 0.5 IN HOT WINDY OR DRY (LOW HUMIDITY) CONDITIONS SPRAY EXPOSED SURFACES OF FRESH CONCRETE WITH FOG SPRAY APPLICATION OF ALIPHATIC ALCOHOL RETARDANT IMMEDIATELY AFTER PLACING. MITIGATE RISK OF PLASTIC SHRINKAGE CRACKING IN SEVERE CLIMATIC CONDITIONS. CONSIDER RELATIVE BRATING CONCRETE BEFORE IT REACHES INITIAL SET COMMENCEMENT. CURING OF CONCRETE TO AS3600 AS SOON AS POSSIBLE AFTER PLACING AND FINISHING OR STRIPPING AND WITHIN ONE HOUR. ENSURE EXPOSED SURFACES ARE NOT STAINED. ACCEPTABLE METHODS OF CURING INCLUDE</p> <ul style="list-style-type: none"> <li>RETENTION OF FORMWORK</li> <li>POUNDING OR CONTINUOUS SPRINKLING WITH WATER (MOST CURING)</li> <li>AN IMPERMEABLE MEMBRANE (USE CLEAR WHITE OR LIGHT COLOURED PLASTIC IN HOT CONDITIONS) SEALED AROUND EDGES</li> <li>AN ABSORPTIVE COVER KEPT CONTINUOUSLY WET AND COVERED BY IMPERMEABLE MEMBRANE</li> <li>STEAM CURING</li> <li>AN APPROVED CURING COMPOUND PROVIDE EFFICIENCY INDEX <ul style="list-style-type: none"> <li>CERTIFIED TEST RESULTS FOR WATER RETENTION TO AS3799 APPENDIX B</li> <li>EVIDENCE THAT AN ACCEPTABLE FINISH SURFACE COLOUR WILL BE OBTAINED</li> <li>EVIDENCE OF COMPATIBILITY WITH CONCRETE AND APPLIED FINISHES (IF ANY)</li> <li>METHODS OF OBTAINING REQUIRED ADHESION FOR TOPPING, REHEAR etc.</li> <li>UNIFORM CONTINUOUS FLEXIBLE FINISHING WITHOUT VISIBLE BREAKS OR PINHOLEs, WHICH REMAINS UNBROKEN FOR AT LEAST THE CURING PERIOD AFTER APPLICATION</li> </ul> </li> </ul> <p>C47 DO NOT USE HALOGENATED OR CHLORINATED RUBBER-BASED CURING COMPOUNDS ON SURFACES FORMING SUBSTRATE TO APPLIED FINISHES. CONCRETE TOPINGS AND CEMENT BASED REPAIR CONCRETE CONSISTENTLY. NUMBER OF DAYS DURING WHICH AIR TEMPERATURE IS ABOVE 10°C TOTALS</p> <ul style="list-style-type: none"> <li>3 DAYS FOR EXPOSURE CLASSIFICATION A1 AND A2</li> <li>7 DAYS FOR EXPOSURE CLASSIFICATION B1 AND B2</li> </ul> <p>C48 PREVENT RAPID DRYING CURT AT END OF CURING PERIOD. FINISH CONCRETE SURFACES TO AS3610 AND AS SHOWN BELOW</p> <table border="0"> <tr> <td>FORMED SURFACES</td> <td>EXPOSED SURFACES 1C 2C 3C OR 4</td> </tr> <tr> <td>FINISHES AS LINED</td> <td>HIDDEN SURFACES 5</td> </tr> <tr> <td>EXPOSED SURFACES STEEL TROWEL UNO</td> <td>5</td> </tr> <tr> <td>HIDDEN SURFACES WOOD FLOA</td> <td>5</td> </tr> </table> <p>C49 PROVIDE EXPOSED EDGES AND REINFRANV CORNERS WITH 45 DEGREE x 25mm CHAMFERS OR FILLETS UNO</p> | CONCRETE TEMPERATURE AT TIME OF DISCHARGE (°C) | MAXIMUM ELAPSED TIME (HOURS) | 10 - 24 | 2.00 | 24 - 27 | 1.50 | 27 - 30 | 1.00 | 30 - 32 | 0.75 | CONCRETE ELEMENT | TEMPERATURE LIMIT | UNREINFORCED CONCRETE IN SECTIONS 1METRE EACH 3MENS ON | 27 °C | CONCRETE IN 40 MPa IN SECTIONS 500mm THICKNESS | 27 °C | CONCRETE IN FOOTINGS, BEAMS, COLUMNS, WALLS AND SLABS > 32MPa | 32 °C | ELSEWHERE | 32 °C | FORMED SURFACES | EXPOSED SURFACES 1C 2C 3C OR 4 | FINISHES AS LINED | HIDDEN SURFACES 5 | EXPOSED SURFACES STEEL TROWEL UNO | 5 | HIDDEN SURFACES WOOD FLOA | 5 |
|---|--|--|------------------------|-------------|-------|------------------------|-------------|-------|-----------|-------------------------|----|----|----|----|----|----|----------------------|----|-----|-----|-----|-----|-----|--------------------------------------|------|------|------|------|------|------|-------------------------|---|----|----|----|----|----|---|--|------------------------------|---------|------|---------|------|---------|------|---------|------|------------------|-------------------|--|-------|--|-------|---|-------|-----------|-------|-----------------|--------------------------------|-------------------|-------------------|-----------------------------------|---|---------------------------|---|
| STRUCTURAL ELEMENT  | BLINDING   | PILES  | ABUTMENTS & HEADSTOCKS | DECK PANELS | SLABS | ELSEWHERE              |             |       |           |                         |    |    |    |    |    |    |                      |    |     |     |     |     |     |                                      |      |      |      |      |      |      |                         |   |    |    |    |    |    |   |  |                              |         |      |         |      |         |      |         |      |                  |                   |  |       |  |       |   |       |           |       |                 |                                |                   |                   |                                   |   |                           |   |
| EXPOSURE CLASSIFICATION   | B1   | C2   | C1                     | B2          | B1    | B1                     |             |       |           |                         |    |    |    |    |    |    |                      |    |     |     |     |     |     |                                      |      |      |      |      |      |      |                         |   |    |    |    |    |    |   |  |                              |         |      |         |      |         |      |         |      |                  |                   |  |       |  |       |   |       |           |       |                 |                                |                   |                   |                                   |   |                           |   |
| STRENGTH GRADE (MPa)  | A7   | 860  | 550                    | 550         | 540   | 550                    |             |       |           |                         |    |    |    |    |    |    |                      |    |     |     |     |     |     |                                      |      |      |      |      |      |      |                         |   |    |    |    |    |    |   |  |                              |         |      |         |      |         |      |         |      |                  |                   |  |       |  |       |   |       |           |       |                 |                                |                   |                   |                                   |   |                           |   |
| MINIMUM DENSITY (kg/m <sup>3</sup> )  | 2300   | 2350   | 2350                   | 2350        | 2350  | 2350                   |             |       |           |                         |    |    |    |    |    |    |                      |    |     |     |     |     |     |                                      |      |      |      |      |      |      |                         |   |    |    |    |    |    |   |  |                              |         |      |         |      |         |      |         |      |                  |                   |  |       |  |       |   |       |           |       |                 |                                |                   |                   |                                   |   |                           |   |
| MAX AGGREGATE SIZE (mm)   | -  | 20   | 20                     | 20          | 20    | 20                     |             |       |           |                         |    |    |    |    |    |    |                      |    |     |     |     |     |     |                                      |      |      |      |      |      |      |                         |   |    |    |    |    |    |   |  |                              |         |      |         |      |         |      |         |      |                  |                   |  |       |  |       |   |       |           |       |                 |                                |                   |                   |                                   |   |                           |   |
| CONCRETE TEMPERATURE AT TIME OF DISCHARGE (°C)  | MAXIMUM ELAPSED TIME (HOURS)   |  |                        |             |       |                        |             |       |           |                         |    |    |    |    |    |    |                      |    |     |     |     |     |     |                                      |      |      |      |      |      |      |                         |   |    |    |    |    |    |   |  |                              |         |      |         |      |         |      |         |      |                  |                   |  |       |  |       |   |       |           |       |                 |                                |                   |                   |                                   |   |                           |   |
| 10 - 24   | 2.00   |  |                        |             |       |                        |             |       |           |                         |    |    |    |    |    |    |                      |    |     |     |     |     |     |                                      |      |      |      |      |      |      |                         |   |    |    |    |    |    |   |  |                              |         |      |         |      |         |      |         |      |                  |                   |  |       |  |       |   |       |           |       |                 |                                |                   |                   |                                   |   |                           |   |
| 24 - 27   | 1.50   |  |                        |             |       |                        |             |       |           |                         |    |    |    |    |    |    |                      |    |     |     |     |     |     |                                      |      |      |      |      |      |      |                         |   |    |    |    |    |    |   |  |                              |         |      |         |      |         |      |         |      |                  |                   |  |       |  |       |   |       |           |       |                 |                                |                   |                   |                                   |   |                           |   |
| 27 - 30   | 1.00   |  |                        |             |       |                        |             |       |           |                         |    |    |    |    |    |    |                      |    |     |     |     |     |     |                                      |      |      |      |      |      |      |                         |   |    |    |    |    |    |   |  |                              |         |      |         |      |         |      |         |      |                  |                   |  |       |  |       |   |       |           |       |                 |                                |                   |                   |                                   |   |                           |   |
| 30 - 32   | 0.75   |  |                        |             |       |                        |             |       |           |                         |    |    |    |    |    |    |                      |    |     |     |     |     |     |                                      |      |      |      |      |      |      |                         |   |    |    |    |    |    |   |  |                              |         |      |         |      |         |      |         |      |                  |                   |  |       |  |       |   |       |           |       |                 |                                |                   |                   |                                   |   |                           |   |
| CONCRETE ELEMENT  | TEMPERATURE LIMIT  |  |                        |             |       |                        |             |       |           |                         |    |    |    |    |    |    |                      |    |     |     |     |     |     |                                      |      |      |      |      |      |      |                         |   |    |    |    |    |    |   |  |                              |         |      |         |      |         |      |         |      |                  |                   |  |       |  |       |   |       |           |       |                 |                                |                   |                   |                                   |   |                           |   |
| UNREINFORCED CONCRETE IN SECTIONS 1METRE EACH 3MENS ON  | 27 °C  |  |                        |             |       |                        |             |       |           |                         |    |    |    |    |    |    |                      |    |     |     |     |     |     |                                      |      |      |      |      |      |      |                         |   |    |    |    |    |    |   |  |                              |         |      |         |      |         |      |         |      |                  |                   |  |       |  |       |   |       |           |       |                 |                                |                   |                   |                                   |   |                           |   |
| CONCRETE IN 40 MPa IN SECTIONS 500mm THICKNESS  | 27 °C  |  |                        |             |       |                        |             |       |           |                         |    |    |    |    |    |    |                      |    |     |     |     |     |     |                                      |      |      |      |      |      |      |                         |   |    |    |    |    |    |   |  |                              |         |      |         |      |         |      |         |      |                  |                   |  |       |  |       |   |       |           |       |                 |                                |                   |                   |                                   |   |                           |   |
| CONCRETE IN FOOTINGS, BEAMS, COLUMNS, WALLS AND SLABS > 32MPa   | 32 °C  |  |                        |             |       |                        |             |       |           |                         |    |    |    |    |    |    |                      |    |     |     |     |     |     |                                      |      |      |      |      |      |      |                         |   |    |    |    |    |    |   |  |                              |         |      |         |      |         |      |         |      |                  |                   |  |       |  |       |   |       |           |       |                 |                                |                   |                   |                                   |   |                           |   |
| ELSEWHERE   | 32 °C  |  |                        |             |       |                        |             |       |           |                         |    |    |    |    |    |    |                      |    |     |     |     |     |     |                                      |      |      |      |      |      |      |                         |   |    |    |    |    |    |   |  |                              |         |      |         |      |         |      |         |      |                  |                   |  |       |  |       |   |       |           |       |                 |                                |                   |                   |                                   |   |                           |   |
| FORMED SURFACES   | EXPOSED SURFACES 1C 2C 3C OR 4   |  |                        |             |       |                        |             |       |           |                         |    |    |    |    |    |    |                      |    |     |     |     |     |     |                                      |      |      |      |      |      |      |                         |   |    |    |    |    |    |   |  |                              |         |      |         |      |         |      |         |      |                  |                   |  |       |  |       |   |       |           |       |                 |                                |                   |                   |                                   |   |                           |   |
| FINISHES AS LINED   | HIDDEN SURFACES 5  |  |                        |             |       |                        |             |       |           |                         |    |    |    |    |    |    |                      |    |     |     |     |     |     |                                      |      |      |      |      |      |      |                         |   |    |    |    |    |    |   |  |                              |         |      |         |      |         |      |         |      |                  |                   |  |       |  |       |   |       |           |       |                 |                                |                   |                   |                                   |   |                           |   |
| EXPOSED SURFACES STEEL TROWEL UNO   | 5  |  |                        |             |       |                        |             |       |           |                         |    |    |    |    |    |    |                      |    |     |     |     |     |     |                                      |      |      |      |      |      |      |                         |   |    |    |    |    |    |   |  |                              |         |      |         |      |         |      |         |      |                  |                   |  |       |  |       |   |       |           |       |                 |                                |                   |                   |                                   |   |                           |   |
| HIDDEN SURFACES WOOD FLOA   | 5  |  |                        |             |       |                        |             |       |           |                         |    |    |    |    |    |    |                      |    |     |     |     |     |     |                                      |      |      |      |      |      |      |                         |   |    |    |    |    |    |   |  |                              |         |      |         |      |         |      |         |      |                  |                   |  |       |  |       |   |       |           |       |                 |                                |                   |                   |                                   |   |                           |   |

|                                   |                |   |       |             |                             |                |  |  |                              |   |  |
|-----------------------------------|----------------|---|-------|-------------|-----------------------------|----------------|--|--|------------------------------|---|--|
|                                   |                |   |       |             | <b>DO NOT SCALE</b>         |                |  |  | Client                       | <b>DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT<br/>WANGETTI TRAIL<br/>STRUCTURAL NOTES<br/>SHEET 2</b> |  |
|                                   |                |   |       |             | Drawn                       | W.CLARKE       |  | Designer   | A.AHILADELLIS                |   |  |
|                                   |                |   |       |             | Drafting Check              | M.ISENBERT     |  | Design Check   | *M.ISENBERT                  |   |  |
|                                   |                |   |       |             | Approved (Project Director) | *A.AHILADELLIS |  |  |                              |   |  |
|                                   |                |   |       |             | Date                        | 08.07.19       |  |  |                              |   |  |
|                                   |                |   |       |             | Scale                       | AS SHOWN       |  | This Drawing must not be used for construction unless signed as Approved |                              |   |  |
| 0                                 | APPROVED ISSUE |   | WRC   | *MI         | *AA                         | 08.07.19       |  |  |                              |   |  |
| No                                | Revision       | Note: * indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director            | Date           |  | Original Size  | A1 Drawing No: 42-21067-S010 |   |  |
| Plot Date: 8 July 2019 - 11:43 AM |                |   |       |             | Plotted By: Wes Clarke      |                |  | Cad File No: G:\421067\CADD\Drawings\42-21067-S010.dwg                   |                              |   |  |



- C53 FORM CONSTRUCTION JOINTS AND USE ONLY WHEN SHOWN OR WHERE APPROVED BY SUPERINTENDENT CONSTRUCTION JOINTS IN SLABS TO BE VERTICAL STRAIGHT AND TRUE TO ACHIEVE ADEQUATE BOND ENSURE ENTIRE SURFACE IS CLEAN, FREE OF LAITANCE AND BLEMISHES AND INTENTIONALLY ROUGHENED TO A FULL AMP. ITUDE OF NOT LESS THAN 5mm WITH COARSE AGGREGATE EXPOSED
- C54 F CONSTRUCTION JOINTS PROPOSED OTHER THAN WHERE SHOWN, PROVIDE PROPOSED LOCATIONS FOR SUPERINTENDENT'S APPROVAL AT LEAST 7 DAYS PRIOR TO CONSTRUCTION
- C55 PROVIDE JOINTING MATERIALS COMPATIBLE WHEN USED TOGETHER AND NON-STAINING TO CONCRETE IN VISIBLE LOCATIONS
- C56 SAW CUT CRACK CONTROL JOINTS AS SOON AFTER CASTING AS PRACTICABLE TO AVOID SPALLING OR RAVELLING OF JOINT EDGES AND WITHIN 16 HOURS OF CASTING TO PREVENT THERMAL AND/OR SHRINKAGE CRACKING OF SLAB IMMEDIATELY AFTER SAW CUTTING FLUSH JOINTS TO REMOVE SAWING RESIDUE AND INSERT A TEMPORARY FORMED PLASTIC BEAD TO KEEP JOINT CLEAN PRIOR TO FILLING OR SEALING PROTECT SAW CUTS FROM WHEEL LOADS FOR AT LEAST ONE WEEK AFTER CURING
- C57 DO NOT INSTALL SEALANTS IF EXPECTED MAXIMUM DAILY TEMPERATURE EXCEEDS 30 DEGREES C. ENSURE RECESSES ARE CLEAN AND DRY PRIOR TO INSTALLING FILLERS OR SEALANTS AND PREPARE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS TO BRANCE ON SEALANT WIDTHS 4-5.0mm

- REINFORCEMENT COVER**
- C58 COVER IS CLEAR DISTANCE BETWEEN ANY REINFORCEMENT (INCLUDING LIGATURES, TIE WIRE etc) AND OUTSIDE SURFACE OF STRUCTURAL CONCRETE
- C59 COVER MUST NOT BE LESS THAN SPECIFIED PROVIDE MINIMUM CLEAR COVER TO REINFORCEMENT AS SHOWN BELOW EXCEPT WHERE SPECIFIED OTHERWISE
- | LOCATION               | COVER (mm) |
|------------------------|------------|
| PILES                  | 75         |
| HEADSTOCKS & ABUTMENTS | 70         |
| DECK PANELS            | 40         |
| SLABS                  | 50         |
| ELSEWHERE              | 50         |

- COVER GIVEN ONLY FOR CONCRETE CAST AGAINST FORMWORK OR CONCRETE BLINDINGS UNO REQUEST REQUIRED COVER DIMENSION FROM SUPERINTENDENT WHERE CONCRETE IS CAST AGAINST GROUND OR A FLEXIBLE MEMBRANE ON GROUND CONCRETE THICKNESSES MAY BE INCREASED
- C60 PROVIDE 50mm BANDING CONCRETE UNDER STRUCTURAL REINFORCED CONCRETE CAST ON GROUND UNO DELIVERABLES
- C61 SUBMIT NAMES AND CONTACT DETAILS OF PROPOSED CONCRETE SUBCONTRACTORS INCLUDING SPRAYED CONCRETE SUBCONTRACTORS
- C62 AT LEAST ONE WEEK PRIOR TO CONCRETE PLACEMENT SUBMIT DETAILS OF PROPOSED READY MIXED CONCRETE SUPPLIER, NAME OF CONCRETE DELIVERY SUPERVISOR, LOCATION OF BATCHING PLANT, CONCRETE MIX DESIGNS, METHOD OF CONCRETE TEMPERATURE CONTROL, MIXING HANDLING, TRANSPORT, TIMING, PLACEMENT, SPRAYING, COMPACTION, FINISHING, PROTECTION AND CURING SEQUENCE AND TIMES FOR CONCRETE JOINTS, CONSTRUCTION JOINT LOCATIONS AT LEAST ONE WEEK PRIOR TO DELIVERY OF CONCRETE FOR SUPERINTENDENT'S APPROVAL, NOMINATE FOR EACH MIX CLASS ONE SOURCE, TYPE AND PROPORTIONS OF CONSTITUENTS, AGGREGATE GRADINGS AND SATURATED SURFACE DRY DENITIES, ADDITIVES AND ADMIXTURES, MAXIMUM WATER CONTENT AND MAXIMUM WATER/CEMENT RATIO, TARGET SLUMP, TARGET CHARACTERISTIC STRENGTH (f<sub>c</sub>) AND TARGET DRYING SHRINKAGE
- C63 PROVIDE DOCUMENTARY EVIDENCE OF PREVIOUS PERFORMANCE AND RELEVANT TEST RESULTS OF MIX DESIGN TARGETS INCLUDING ONE HOUR, THREE HOUR, 7 DAY AND 28 DAY COMPRESSIVE STRENGTHS FOR SPRAYED CONCRETE AND 3, 7 AND 28 DAY COMPRESSIVE STRENGTHS FOR OTHER CONCRETE MIXES, CHARACTERISTIC STRENGTH TEMPERATURE RISE, DRYING SHRINKAGE, LIMITS OF SOLUBLE SALTS AND ALKAL AGGREGATE REACTIVITY etc. BEING CERTIFIED TEST RESULTS MADE ON AT LEAST TWO SEPARATE SAMPLES FROM A REGISTERED LABORATORY EITHER
- OR CONCRETE OF SAME MIX DESIGN (IN RESPECT OF ALL DETAILS TO BE NOMINATED ABOVE) OF SAME GRADE MADE UNDER PRODUCTION CONDITIONS IN SAME PLANT WITHIN LAST SIX MONTHS OR
  - OR PRIMARY TESTS FROM LABORATORY OR PLANT TRACES OF PROPOSED MIX

- C64 USE READY MIXED CONCRETE MIXED BY BATCH PRODUCTION PROCESS DELIVERED IN AGITATING TRUCKS FOR EACH BATCH SUPPLY A DOCUMENT LISTING INFORMATION REQUIRED BY AS 375 CLAUSE 1.7.3 AND FOLLOWING
- SERIAL NUMBER OF IDENTIFICATION CERTIFICATES OF EACH BATCH
  - TIME OF BATCHING
  - NAME OF CONCRETE DELIVERY SUPERVISOR
  - ELEMENT FOR WHICH CONCRETE WAS ORDERED AND WHERE IT WAS PLACED
  - METHOD OF PLACEMENT AND CLIMATE CONDITIONS DURING POUR
  - PROJECT ASSESSMENT CARRIED OUT
  - TOTAL AMOUNT OF WATER REQUIRED BY MIX DESIGN
  - ADMIXTURES TYPE AND QUANTITY
  - ADDITIVES TYPE AND QUANTITY
  - TOTAL AMOUNT OF WATER ADDED AT PLANT
  - TOTAL FREE WATER IN CONCRETE
- SUPERINTENDENT MAY NOT REQUIRE CONCRETE TRIAL MIX TESTS SUBJECT TO REVIEW OF PRODUCTION TEST RESULTS
- C65 PROVIDE RECORD OF SLUMP TESTING TO SUPERINTENDENT REFER CONCRETE TESTING NOTES
- C66 FORWARD CONCRETE PRODUCTION ASSESSMENT INFORMATION TO SUPERINTENDENT AS PER AS1379 CLAUSE 5.4 WHEN PRODUCTION ASSESSMENT IS UNDERTAKEN REFER CONCRETE TESTING NOTES
- C67 FORWARD CONCRETE PRODUCTION ASSESSMENT INFORMATION TO SUPERINTENDENT AS PER AS1379 CLAUSE 5.3 WHEN PROJECT ASSESSMENT IS UNDERTAKEN REFER CONCRETE TESTING NOTES
- C68 REPORT DRYING SHRINKAGE TESTING RESULTS TO SUPERINTENDENT REFER CONCRETE TESTING NOTES
- C69 PROVIDE CONCRETE TEST RESULTS TO SUPERINTENDENT PROMPTLY WITHIN SEVEN DAYS OF TESTING

**REINFORCEMENT**

- R1 SYMBOLS ON DRAWINGS FOR GRADE AND TYPE OF REINFORCEMENT ARE AS FOLLOWS
- R STRUCTURAL GRADE 250 PLAIN ROLLED BAR TO AS/NZS4671
  - N HOT ROLLED GRADE 500 DEFORMED IR BARS; BAR DUCTILITY CLASS N TO AS/NZS4671
  - L HOT ROLLED GRADE 500 DEFORMED BAR DUCTILITY CLASS L TO AS/NZS4671
  - SI HARD DRAWN WIRE GRADE 500 SQUARE MESH DUCTILITY CLASS I TO AS/NZS4671
  - RL HARD DRAWN WIRE GRADE 500 RECTANGULAR MESH DUCTILITY CLASS L TO AS/NZS4671
  - TM HARD DRAWN WIRE GRADE 500 TRENCH MESH DUCTILITY CLASS L TO AS/NZS4671
  - W GRADE 600 STEEL REINFORCING WIRE TO AS/NZS4671
- R2 MANUFACTURERS AND PROCESSORS OF STEEL REINFORCING AND PRESTRESSING MATERIALS MUST HOLD A VALID CERTIFICATE OF APPROVAL ISSUED BY ACRS (ALUMINUM) CERTIFICATION AUTHORITY FOR REINFORCING AND STRUCTURAL STEELS; PROVIDE ACRS CERTIFICATION OF COMPLIANCE WITH AS/NZS4671, PRODUCT TAGS AND SUPPORTING DOCUMENTATION FOR ALL REINFORCEMENT PROVIDE CERTIFICATION OF COMPLIANCE WITH AS/NZS4671 FOR ALL PRESTRESSING TENDONS
- R3 PROVIDE DOCUMENTATION TO SHOW THAT REINFORCEMENT SUPPLIER AND MILL COMPLY WITH AS/NZS4671
- R4 REINFORCEMENT MUST HAVE UNIQUE MARKS TO IDENTIFY SUPPLIER
- R5 DO NOT USE LOW DUCTILITY REINFORCEMENT (GRADE L) UNO
- R6 REINFORCEMENT TO BE CLEAN FREE OF LOOSE MILL SCALE, RUST, OIL, GREASE, MUD OR OTHER MATERIAL THAT MIGHT REDUCE BOND BETWEEN REINFORCEMENT AND CONCRETE
- R7 SUBMIT PROPOSAL FOR CUTTING OR DISPLACING REINFORCEMENT, CLEAN AND PROTECT EXPOSED CUT ENDS OF REINFORCEMENT USING 6mm APPROVED EPOXY REFER TO CONCRETE REPAIR NOTES FOR TREATMENT OF NEWLY EXPOSED CONCRETE AND REINFORCEMENT SURFACES AT NEW PENETRATIONS OR AREAS OF DEMOLITION

- R8 DESIGNATION OF REINFORCEMENT BARS IS AS SHOWN
- 69 / N20 - 350 SF
- 17 DENOTES NO OF BARS AND TYPE IN GROUP
  - N DENOTES BAR GRADE AND DUCTILITY CLASS
  - 20 DENOTES NOMINAL BAR DIAMETER IN mm
  - 350 DENOTES SPACING IN mm
  - SF DENOTES LOCATION
- R9 TO MINIMIZE TRIP HAZARDS CONSIDER MAXIMUM REINFORCEMENT BAR SPACING FOR WALKABLE AREAS PRIOR TO CASTING CONCRETE OF 200mm ALTERNATIVELY PROVIDE SL2 ADDITIONAL IF MAIN REINFORCEMENT SPACING IS GREATER THAN 200mm
- R10 FOLLOWING ABBREVIATIONS APPLY TO LOCATIONS OF REINFORCEMENT
- |              |          |                              |
|--------------|----------|------------------------------|
| EW EACH WAY  | FF FACE  | BB BOTTOM BOTTOM (L&R SIDES) |
| EF EACH FACE | B BOTTOM | TT TOP TOP (L&R SIDES)       |
| NF NEAR FACE | F TOP    | CC OR CC' CENTRALLY PLACED   |
- R11 PROVIDE STANDARD COGS AND HOOKS TO AS3600 TERMINATE ENDS OF COLUMN AND BEAM LIGATURES IN A HOOK OF AT LEAST 125 D OF BARS PROVIDE FIRST LIGATURE WITHIN 60mm OF FACE OF SUPPORT
- R12 PROVIDE ONE CONTINUOUS BAR PARALLEL TO WITHIN 75mm OF CONCRETE EDGES INCLUDING CONSTRUCTION JOINTS UNO
- R13 PROVIDE HIT DIAGONAL TRIMMER BARS BY 100mm LONG AT EACH LAYER OF REINFORCEMENT AT REINFORCEMENT CORNERS, OPENINGS, SERVICE PENETRATIONS etc UNO
- R14 REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND IS NOT NECESSARILY IN TRUE PROJECTION SET REINFORCEMENT OUT AT EQUAL CENTRES IF SPACING IS NOT NOMINATED
- R15 CAP STARTER BARS AND OTHER REINFORCEMENT TO REDUCE RISK OF IMPALEMENT AND LACERATIONS
- R16 ENSURE ALL REINFORCING BARS ARE RESTRAINED BEFORE STOPPING WORK TO PREVENT BARS ROLLING UNDER FOOT
- R17 SECURE REINFORCEMENT IN POSITION AGAINST DISPLACEMENT AND MAINTAIN SPECIFIED CLEAR CONCRETE COVER TO REINFORCEMENT INCLUDING FITMENTS BY APPROVED CHAIRS, SPACERS, LIGATURES OR TIES AT 80mm MAXIMUM CENTRES EACH WAY UNO PROVIDE ADEQUATE SUPPORT TO PREVENT DISPLACEMENT OF REINFORCEMENT BY WORKMEN OR EQUIPMENT DURING CONCRETE PLACEMENT
- R18 SECURELY TIE REINFORCEMENT WITH WIRE TIES TURN ENDS OF THE WIRES INTO CONCRETE CLEAR OF COVER ZONE
- R19 SUPPORT REINFORCEMENT ON PROPRIETARY CONCRETE METAL OR PLASTIC SUPPORTS ADEQUATE TO WITHSTAND CONSTRUCTION AND TRAFFIC LOADS AND MAINTAIN DURABILITY OF FINISHED CONCRETE STRUCTURE FOR CONCRETE SURFACES WITH 32 EXPOSURE CLASSIFICATION OR GREATER ONLY USE PROPRIETARY HIGH STRENGTH FIBRE REINFORCED CONCRETE SPACER BLOCKS OR SUPPORTS
- R20 ENSURE REINFORCEMENT IS ELECTRICALLY CONTINUOUS THROUGHOUT BY WELDING AT ONE METRE CENTRES UNO
- R21 DO NOT PLACE OR MOVE REINFORCEMENT DURING OR AFTER CONCRETE PLACEMENT
- R22 ENSURE EMBEDDED ITEMS (INSERTS, THERMAID SOCKETS, FERRULES, BOLTS, DISMILAH METAL ITEMS etc) IN COVER CONCRETE OR EXPOSED TO AIR ARE NOT IN CONTACT WITH REINFORCEMENT PROVIDE SOLUTION BETWEEN DISMILAH METALS AND BETWEEN REINFORCEMENT AND EXPOSED ITEMS
- R23 SPLICE REINFORCEMENT ONLY AT LOCAL ON-SITE SHOWING DRAWINGS OR AS APPROVED BY SUPERINTENDENT STAGGER LAPS WHERE POSSIBLE LAPPED SPLICE LENGTHS TO COMPLY WITH AS3600 CLEAR SPACING BETWEEN LAPPED BARS TO BE AT LEAST THREE TIMES BAR DIAMETER WHERE BAR SIZES VARY USE LAPPED SPLICE LENGTH FOR SMALLER BAR DIAMETER
- R24 LAPPED SPLICE LENGTHS FOR HORIZONTAL BARS WITH MORE THAN 300mm CONCRETE CAST BELOW THE BAR AND SPACED AT 150mm CENTRES TO COMPLY WITH THE FOLLOWING UNO

| COVER | f <sub>c</sub> | N12 | N16  | N20  | N24  | N28  | N32  |
|-------|----------------|-----|------|------|------|------|------|
| 25    | 20             | 770 | 1150 | 1570 | -    | -    | -    |
| 30    | 25             | 630 | 960  | 1350 | 1740 | -    | -    |
| 40    | 32             | 510 | 770  | 1100 | 1440 | 1810 | 2220 |
| 50    | 40             | 460 | 630  | 890  | 1200 | 1530 | 1890 |

- DO NOT INTERPOLATE INTERMEDIATE VALUES OF SPLICE LENGTHS
- LAPPED SPLICE LENGTHS FOR BARS IN COLUMNS REFER TO AS3600 OR SUPERINTENDENT EPOXY COATED BARS BARS IN HIGH-TWIGHT CONCRETE AND SLIP FORMED CONCRETE WILL REQUIRE LONGER SPLICE LENGTHS REFER TO AS3600 OR SUPERINTENDENT
- R25 LAPPED SPLICE LENGTHS FOR VERTICAL BARS AND HORIZONTAL BARS WITH LESS THAN 300mm CONCRETE CAST BELOW THE BARS SPACED AT 150mm CENTRES TO COMPLY WITH THE FOLLOWING UNO

| COVER | f <sub>c</sub> | N12 | N16 | N20  | N24  | N28  | N32  |
|-------|----------------|-----|-----|------|------|------|------|
| 25    | 20             | 590 | 860 | 1210 | -    | -    | -    |
| 30    | 25             | 490 | 750 | 1040 | 1340 | -    | -    |
| 40    | 32             | 390 | 600 | 840  | 1110 | 1430 | 1710 |
| 50    | 40             | 350 | 490 | 690  | 920  | 1180 | 1450 |

- NOT APPLICABLE FOR BARS IN COLUMNS
- DO NOT INTERPOLATE INTERMEDIATE VALUES OF SPLICE LENGTHS
- LAPPED SPLICE LENGTHS FOR BARS IN COLUMNS REFER TO AS3600 OR SUPERINTENDENT EPOXY COATED BARS BARS IN HIGH-TWIGHT CONCRETE AND SLIP FORMED CONCRETE WILL REQUIRE LONGER SPLICE LENGTHS REFER TO AS3600 OR SUPERINTENDENT
- R26 JAY MESH REINFORCEMENT SO THAT MINIMUM COVER IS TO MAIN WIRES UNO
- R27 PROVIDE MINIMUM MESH LAPS TO CROSS WIRES OF REINFORCING MESH SO TWO OUTERMOST WIRES OF ONE SHEET OVERLAP TWO OUTERMOST WIRES OF ADJACENT SHEET BY AT LEAST 25mm THUS

| MESH TYPE                   | END LAP | SIDE LAP |
|-----------------------------|---------|----------|
| RECTANGULAR MESHES          | 225     | 125      |
| SQUARE MESHES SL102 TO SL42 | 225     | 225      |
| SL3                         | 125     | 125      |
| TRENCH MESH                 | 500     | N/A      |

- USE LAP LENGTHS BASED ON LARGEST WIRE SPACING DO NOT LAP MORE THAN THREE SHEETS AT ANY ONE POINT
- R28 ALTERNATIVELY USE N12 SPLICE BARS TO LAP ADJACENT SHEETS OF MESH SPACING OF SPLICE BARS TO MATCH SPACING OF BARS IN MESH SPLICE BARS TO OVERLAP MESH BY 750mm MINIMUM UNO
- R29 SPLICE TRENCH MESH BY A LAP OF 760mm MINIMUM UNO AT T- AND J- INTERSECTIONS, CONTINUE TRENCH MESH FULL WIDTH OF INTERSECTION AT L- INTERSECTIONS PROVIDE AN N12 L BAR TO LAP 760mm WITH OUTSIDE BARS UNO
- R30 DO NOT WELD REINFORCEMENT CAST IN ITEMS (e.g. ITEMS NOT LESS SHOWN ON DRAWINGS OR OTHERWISE APPROVED BY SUPERINTENDENT) WHERE ALLOWED WELDING OF REINFORCEMENT (INCLUDING TACK WELDING FOR FIXING PURPOSES) TO COMPLY WITH AS3600 AND AS/NZS1563 DO NOT WELD REINFORCEMENT WITH IN 75mm OF A JOINT THAT HAS BEEN BONDED TO 30mm FOR N28 AND N32 BARS, 125mm FOR N36 BARS) EXTENT OF WELD INSPECTION / TESTING IS:
- VISUAL SCANNING 100% OF WELDS
  - VISUAL EXAMINATION 50% OF WELDS
  - RADIOGRAPHIC OR ULTRASONIC 5% OF HELD WELDS AND 10% OF BUTT WELDS
- R31 DO NOT BEND OR STRAIN REINFORCEMENT IN A WAY THAT MAY CAUSE DAMAGE BEND 4 METERS TO BE TO AS3600 BARS TO BE BENT COLD UNO GRADE 250 BARS MAY BE BENT AT TEMPERATURES UP TO 800C DO NOT COOL HEATED BARS BY QUENCHING
- R32 ENSURE HOT BENDING OF REINFORCEMENT COMPLIES WITH AS3600 CLAUSE 17.2.3 DO NOT HEAT 3600 REINFORCEMENT USE TEMPERATURE INDICATOR PAINTS AND/OR CRAYONS TO ENSURE REINFORCEMENT TEMPERATURE DOES NOT EXCEED MANUFACTURER'S RECOMMENDED LIMITS 450 DEGREES MAXIMUM REINFORCEMENT THAT CHANGED COLOUR DURING HEATING MUST BE DISCARDED
- R33 DO NOT BEND REINFORCEMENT AFTER GALVANIZING OR APPLICATION OF OTHER COATINGS

- R34 PRECISION ROTARY DRILL HOLES FOR GROUTED BARS AND THREADED RODS (NOTE GROUT HOLES MUST BE ROUGHENED) HOLE DIAMETER AND INSTALLATION TO BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS EMBEDMENT LENGTHS AS PER DRAWINGS
- R35 ENSURE HOLES FOR GROUTED BARS AND THREADED RODS ARE DRY AND CLEANED THOROUGHLY BEFORE INSTALLING ANCHORS WIRE BRUSH HOLES AND BLOW OUT WITH COMPRESSED AIR TO REMOVE DUST FILL HOLES WITH ADHESIVE USING A CAULKING GUN FROM BOTTOM OF HOLE OUTWARDS DISCARD ADHESIVE FROM FIRST TRIGGER PULL PROVIDE BARS / THREADED RODS WITH CHAMFERED (CHISELED) ENDS BARS TO BE DECREASED AND FLAKY RUST REMOVED ROTATE WHILE INSERTING TO ENSURE FULLY COATED AND FULLY INTO HOLE PROTECT FROM DISTURBANCE DURING CURING FOLLOW MANUFACTURER'S RECOMMENDATIONS

**PRESTRESSING**

- P1 PRESTRESSING WORKMANSHIP, MATERIALS, PROCEDURES AND EQUIPMENT TO COMPLY WITH AS3600
- P2 PRESTRESSING REINFORCEMENT RATIOS SHOWN FOR INFORMATION ONLY CONTRACTOR IS RESPONSIBLE FOR DETERMINING PRESTRESSING REINFORCEMENT REQUIRED CONTRACTOR TO EMPLOY SPECIALIST SUB-CONTRACTOR FOR THIS WORK
- P3 LONG TERM DESIGN DEFLECTION LIMIT SPAN ON 380 UNO
- INCREMENTAL DESIGN DEFLECTION LIMIT SPAN ON 500 UNO
  - LONG TERM DESIGN DEFLECTION LIMIT FOR TRANSFER BEAMS / SLABS SPAN ON 750
  - INCREMENTAL DESIGN DEFLECTION LIMIT FOR TRANSFER BEAMS / SLABS SPAN ON 750
- P4 TENDONS TO BE 12.7 / 15.2mm DIAMETER RELAX 2 STRAND TO AS/NZS4671 WITH MINIMUM BREAKING LOAD OF 75 / 260 KN MODULUS OF ELASTICITY (E) OF 195000 MPa
- P5 SUPPLY STRAND IN COILS SUFFICIENTLY LARGE SO STRAND REMAINS ITS PHYSICAL PROPERTIES AND IS STRAIGHT WHEN UNWOUND PROVIDE MANUFACTURER'S TEST CERTIFICATES FOR EACH COIL MARK STRANDS TO IDENTIFY COIL NUMBER
- P6 STRAND LENGTHS TO INCLUDE STRESSING ALLOWANCE AT EACH END
- P7 TENDON PROFILE DIMENSIONS ARE FROM SLAB SOFFIT TO UNDERSIDE OF DUCT UNO TENDON DRAPES TO BE PARABOLIC UNO
- P8 USE 16mm RIGID GALVANIZED CORRUGATED STEEL DUCTS UNO TAPE DUCT JOINTS TO PREVENT SLURRY LOSS DURING CONCRETING
- P9 DO NOT USE GREASE TO DEBOND TENDONS
- P10 SUPPORT AND SECURE TENDONS / DUCTS AT 1000mm MAXIMUM CENTRES TOLERANCE ON VERTICAL POSITION OF TENDONS / DUCTS 45mm
- P11 PROTECT TENDONS AND PREVENT DAMAGE PROVIDE ACCESS PLAYS ACROSS SLAB BANDS SUPPORT CONCRETE PUMP LINES ABOVE TENDONS / DUCTS
- P12 STRESS TO 25% JACKING FORCE AT 1hr 30m (APPROX 24 HOURS AFTER POUR) STRESS TO 100% JACKING FORCE AT 1hr 25m
- P13 CONFIRM CONCRETE TRANSFER STRENGTH BY TESTING SITE-CURED CYLINDERS PRIOR TO EACH STRESSING STAGE
- P14 MINIMISE ECCENTRICITIES AND LATERAL EFFECTS WHEN TRANSFERRING PRESTRESS FORCES FROM TENDONS TO CONCRETE
- P15 STRESS TRANSVERSE TO SLAB BANDS FIRST WHERE APPLICABLE
- P16 MAXIMUM JACKING FORCE TO BE 85% OF MINIMUM BREAKING LOAD
- P17 TOTAL INITIAL FORCE IN TENDONS TO BE 147% IN PER STRAND AFTER ALLOWANCE FOR LOSSES IN GRIPS, JACKETS etc
- P18 TOTAL CALCULATED FINAL TENDON FORCE 125kN/PER STRAND AT MIDSPAN AFTER LONG TERM SHRINKAGE AND CREEP LOSSES
- P19 IMMEDIATE LOSS DESIGN ASSUMPTIONS ARE DRAW IN 1:5mm FRICTION CURVATURE FACTOR m = 0.20 DUCT WOBBLE FACTOR b = 0.024 ADVISE SUPERINTENDENT IF THESE VALUES NOT APPROPRIATE
- P20 RELEASE CENTRE TENDONS FIRST AND THEN RELEASE SYMMETRICALLY OUTWARDS
- P21 CUT ENDS OF PRESTRESSING STRAND FISH WITH CONCRETE CLEAN AND PROTECT EXPOSED STRAND WITH 6mm APPROVED EPOXY
- P22 PRESSURE GROUT DUCTS AS SOON AS PRACTICABLE AFTER STRESSING RECORDS APPROVED
- P23 GROUT FOR DUCTS TO HAVE WATER CEMENT RATIO 0.5 TO AS3600 CLAUSE 19.1.6
- P24 AFTER GROUTING DUCTS REMOVE TEMPORARY SEALS AND FILL STRESSING RECESSES AND POCKETS WITH WELL VIBRATED STIFF CONCRETE 1:40 MPa, 40mm SLUMP
- P25 PROVIDE VISUAL INDICATING STRIPS TO ALL POST-TENSIONED SLAB STRUCTURE SOFFITS SHOWING PLAN LOCATION OF POST-TENSIONED DUCTS
- P26 EMBEDDED FIXTURES (INSERTS, THERMAID SOCKETS, FERRULES, BOLTS, STRAINLESS REINFORCING etc) WITHIN COVER CONCRETE OR EXPOSED TO AIR MUST NOT BE IN CONTACT WITH REINFORCING STEEL PROVIDE ISOLATING STRIPS BETWEEN DISMILAH STEELS AND TO SEPARATE EXPOSED FIXTURES

**DELIVERABLES**

- P27 PRESTRESSING TO BE DESIGNED TO AS3600 BY A SUITABLY QUALIFIED CHARTERED ENGINEER REGISTERED WITH REGISTERED PROFESSIONAL ENGINEER OF QUEENSLAND (RPEQ) PROVIDE WORKSHOP DRAWINGS AND DESIGN CALCULATIONS
- P28 SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS REFER GENERAL DELIVERABLES NOTES DESIGN CALCULATIONS / SHOP DRAWINGS TO SHOW MARKING PLAN, ARRANGEMENT OF MEMBERS, LOCATION OF MEMBERS IN BUILDING, LOADING PARAMETERS ASSUMED, MATERIAL PROPERTIES AND DESIGN STRESSES, SIZE OF EACH MEMBER, PRESTRESSING STRAND NUMBERS AND DRAP DIMENSIONS, TOLERANCES, STRESSING FORCES, STAGES AND PROCEDURES ASSUMED, LOSSES FOR SHRINKAGE, CREEP, RELAXATION AND (DRAWING EXPECTED DEFORMATIONS ANCHORAGE DETAILS etc
- P29 PROVIDE CERTIFICATION OF COMPLIANCE WITH AS/NZS4671 FOR ALL PRESTRESSING TENDONS
- P30 PROVIDE SAMPLES OF PRESTRESSING STRAND FOR TESTING IF REQUESTED
- P31 PROVIDE RESULTS OF STRESSING EXTENSIONS TO SUPERINTENDENT FOR APPROVAL IMMEDIATELY AFTER STRESSING OBTAIN SUPERINTENDENT'S APPROVAL OF FINAL STRESSING BEFORE GROUTING DUCTS

**PRECAST CONCRETE**

- W1 COMPLY WITH REQUIREMENTS OF AS3600 PREFABRICATED CONCRETE ELEMENTS CODE, NATIONAL CONSTRUCTION CODE (NCC) CONCRETE NOTES AND SPECIFICATION
- W2 PRECAST CONCRETE UNITS HAVE BEEN DESIGNED FOR INSTALLED CONDITIONS ONLY
- W3 PRECAST UNITS AND CONNECTIONS HAVE NOT BEEN DESIGNED FOR VEHICLE IMPACT
- W4 PRECAST UNITS TO BE SUPPLIED BY A SPECIALIST SUB-CONTRACTOR
- W5 SUPPLIER TO DESIGN, PRECAST CONCRETE UNITS, PROPS, CONNECTIONS, FIXING DETAILS AND JOINTS etc TO PROVIDE SATISFACTORY PERFORMANCE FOR STABILITY, FIRE RESISTANCE (WHEN REQUIRED) AS NOTED IN DRAWINGS, SERVICEABILITY AND STRENGTH REQUIREMENTS DURING MANUFACTURE, SHIPPING, HANDLING, LIFTING, STACKING, TRANSPORT, ERECT ON AND INSTALLATION OPERATIONS PROVIDE TEMPORARY PROPS AND ADDITIONAL REINFORCEMENT AS REQUIRED
- W6 USE FORMWORK BOND BREAKERS AND STRONG BACKS AS REQUIRED
- W7 DO NOT USE VENEERED CONSTRUCTION UNO
- W8 DO NOT APPLY ACID TREATMENTS TO PRECAST CONCRETE SURFACES UNO
- W9 LOCATE CONNECTIONS TO FACILITATE CONCRETE PLACEMENT EASE OF ACCESS DURING INSTALLATION AND FINAL AESTHETICS
- W10 USE CAST IN FERRULES FOR STRUCTURAL FIXINGS NOT MECHANICAL OR CHEMICAL ANCHORS
- W11 DO NOT USE REBARS OR STRESSING TENDONS AS LIFTING LOOPS DO NOT USE FIXINGS FOR LIFTING USE PROPRIETARY LIFTING INSERTS WITH PUBLISHED LOAD RATINGS LIFT OR SUPPORT PRECAST UNITS ONLY AT SPECIFIED POINTS LOCATE LIFTING POINTS TO SUIT CENTRE OF GRAVITY OF UNO
- W12 PROVIDE THIN WALLED GALVANIZED GROUT TUBES FOR THE BARS AS SHOWN ON DRAWINGS
- W13 SUBMIT NAME, CONTACT DETAILS AND CREDENTIALS OF PROPOSED MANUFACTURER OF PRECAST UNITS

- W14 PROVIDE TEMPORARY BRACING TO AS3600 AND AS/NZS 1710 AS REQUIRED TO ENSURE STABILITY DURING CONSTRUCTION
- W15 DO NOT PLACE LIFTING ATTACHMENTS, HOLES OR OTHER TEMPORARY FIXINGS etc ON VISIBLE FACES OF UNITS
- W16 USE DEFORMABLE TIES WHERE REQUIRED SO THAT IN EVENT OF FIRE RISK OF OUTWARD COLLAPSE OF PANELS IS MINIMISED REFER TO PRECAST CONCRETE DESIGN NOTE NO. 1, AUGUST 2000 STEEL PORTAL FRAME BUILDING SUPPORT OF EXTERNAL CONCRETE WALL PANELS
- W17 ENSURE THAT PRECAST UNITS REMAIN UNCRACKED AND UNDEFORMED DURING MANUFACTURE, HANDLING, ERECTION AND INSTALLATION OPERATIONS PROVIDE PROTECTION TO AVOID CRUSHING AND / OR CHAFING PROTECT UNITS FROM STAINING, DISCOLORATION AND OTHER DAMAGE
- W18 HOT DIP GALVANIZED CAST IN STEELWORK INCLUDING LIFTING INSERTS, FERRULES, DOWEL BARS, ANGLE CLEATS, BOLTS, NUTS, WASHERS AND PACKERS etc MINIMUM GALVANIZED COATING THICKNESS 630 g/m
- W19 PROVIDE FERRULES WITH FULL CAPACITY OF BOLT PROVIDE 10mm CROSS BARS IN FERRULES FERRULES TO ACCOMMODATE M20 BOLTS UNO
- W20 RECESS FERRULES TO REMAIN EXPOSED BY 30mm INTO CONCRETE APPLY BONDING AGENT AND GROUT UP RECESS WITH APPROVED 40 MPa NON-SHRINK GROUT
- W21 USE RIGID FORMWORK AND INTENSE COMPACTION SUCH AS VIBRATING TABLES OR FORM VIBRATORS TO AS3600
- W22 PRECAST UNIT TOLERANCES TO BE TO AS3600 EXCEPT WHERE VARIED BY SPECIFICATION
- W23 CAST JOINTS WITH OUTER FACE OFF FORM
- W24 FINISH SURFACE OF PRECAST UNITS IN ACCORDANCE WITH SPECIFICATION
- W25 PROVIDE 15mm x 45 DEGREE CHAMFERS OR FILLETS AT EDGES AND CORNERS OF PRECAST UNITS
- W26 EACH UNIT TO HAVE LEGIBLE MARKINGS (HIDDEN IN COMPLETED STRUCTURE) INCLUDING UNIT THICKNESS, REINFORCING SIZES AND SPACING NUMBER OF STRANDS AND STRAND DIAMETER, CONCRETE COVER DATE OF CASTING, CORRECT ORIENTATION OF UNIT AND WEIGHT POSITION FOR TEMPORARY BEARING DURING STORAGE etc
- W27 SET ASIDE DAMAGED UNITS (CRACKED, SPALLED, INADEQUATE COVER) FOR INSPECTION BY SUPERINTENDENT REPAIR OR RECAST AS INSTRUCED
- W28 ALLOW FOR DEPARTMENT OF LABOUR OR OTHER REQUIREMENT'S GOVERNING HANDLING, LIFTING, ROTATION OR TRANSPORT OF PRECAST UNITS
- W29 WHERE PRECAST UNITS ARE TO BE SUPPORTED BY CONCRETE MEMBERS DO NOT ERECT UNITS UNTIL 28 DAY STRENGTH HAS BEEN ACHIEVED
- W30 USE 20mm THICK HIGH-STRENGTH PVC OR FIBRE CEMENT SHEET LEVELLING PADS x 150mm LONG (MIN.) AND PLACE CENTRAL UNDER WALL PANEL AND 300mm FROM ENDS OF PRECAST UNITS CHECK WITH SUITABLY QUALIFIED STRUCTURAL ENGINEER BEFORE USING ADDITIONAL SUPPORT POINTS USE TWO LEVELLING PADS FOR EACH UNIT DO NOT USE STEEL LEVELLING PADS USE PACKERS OF SUITABLE THICKNESS SUCH THAT NOT MORE THAN THREE PACKERS ARE REQUIRED PACKERS CAN REMAIN IN PLACE IF PROVIDED WITH 10mm GROUT COVER UNO
- W31 PROVIDE COMPLEMENTARY MATERIALS, FASTENERS, BRACES, STRONG BACKS, SHIM JOINTING STRIPS, SEALANTS, FLASHING GROUT AND MORTAR BEARING PADS AND STRIPS, TILES, DOWELS, CLIPS, FIXINGS etc AS REQUIRED
- W32 RECESS LIFTING INSERTS, REMOVE TEMPORARY ATTACHMENTS AFTER ERECTION, MAKE GOOD AND SEAL
- W33 SEAL GAPS BEFORE GROUTING USE NON-SHRINK NON-SILICATING GROUT WITH 2mm CHARACTERISTIC STRENGTH OF 40 MPa SUBMIT DETAILS FOR APPROVAL
- W34 JOINTS BETWEEN UNITS TO BE AS SPECIFIED ON DRAWINGS TO BRACE OR WITHIN 15-30mm PROVIDE CONSTRUCTION TO ENSURE HARD MATERIALS AND OTHER DESIRABLES DOES NOT FALL INTO OR REMAIN IN JOINTS REMOVE POLYSTYRENE PRIOR TO FILLING JOINTS OR AT COMPLETION MAINTAIN JOINTS FOR UNIFORM PLACEMENT OF SEALANTS
- W35 PROTECT, CLEAN AND MAINTAIN PERMANENT BEARINGS DURING CONSTRUCTION

**DELIVERABLES**

- W36 SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS (PREPARED BY A SUITABLY QUALIFIED CHARTERED ENGINEER REGISTERED WITH REGISTERED PROFESSIONAL ENGINEER OF QUEENSLAND (RPEQ)) REFER GENERAL DELIVERABLES NOTES DRAWINGS TO SHOW PROPOSED DETAILS FOR DESIGN, MANUFACTURE, ASSEMBLY, TRANSPORT AND INSTALLATION OF PRECAST CONCRETE ELEMENTS INCLUDING FOLLOWING INFORMATION: SPECIFIED, AS/NZS4672 CLAUSE 2.10 AND APPENDIX A PROJECT TITLE AND MANUFACTURER'S NAME, MARKING, PLANS AND ELEVATIONS WITH BUILDING GRID AND FLOOR LOCATING EACH UNIT, SHAPE AND PROFILE DRAWINGS INCLUDING WEIGHT OF UNITS, REINFORCEMENT AND TENDON DETAILS INCLUDING LOCATIONS, SIZES, MATERIALS, DUCTILITY AND STRESS GRADES, CAST IN ITEMS INCLUDING LOCATIONS, SIZES, DETAILS, MATERIALS, CORROSION PROTECTION AND GRADE OF FERRULES, PLATES, CUT-OUTS AND OPENINGS, ANCHORS, LIFTING DEVICES, PLUGS FOR SEALING RECESSES etc CALLING MARKINGS, BAFFLES, WATERPROOFING, ACOUSTIC INSULATION AND PRE-PRONG W/ CAST IN SERVICES EQUIPMENT AND METHODS OF HANDLING, LIFTING, TRANSPORT INCLUDING LOCATION OF LIFTING POINTS, MAXIMUM LOADS ON LIFTING AND BRACING POINTS, EVIDENCE OF LOAD CAPACITY OF LIFTING AND BRACING INSERTS AND ATTACHMENTS IN FORM OF TEST REPORTS OR CALCULATIONS, CONCRETE MIX DESIGN, FORMWORK TYPE, SURFACE FINISH CLASS AND SURFACE TREATMENT, CURING AND PROTECTION METHODS, IDENTIFICATION MARKS, EQUIPMENT AND METHODS FOR HANDLING, TRANSPORT AND INSTALLATION OPERATIONS
- W37 SUBMIT SAFE WORK METHOD STATEMENT SPECIFIC TO PROJECT FOR MANUFACTURE AND INSTALLATION OF UNITS CARRY OUT WORK ONLY UNDER WIND AND TEMPERATURE CONDITIONS CONSISTENT WITH SAFE WORK METHOD STATEMENT AND STRUCTURAL CAPABILITY OF UNIT

|    |                |       |   |       |             |                  |      |
|----|----------------|-------|---|-------|-------------|------------------|------|
| 0  | APPROVED ISSUE | WRC   | MI  | AA    | 08.07.19    |                  |      |
| No | Revision       | Note: | * indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date |



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|                             |                |              |               |
|-----------------------------|----------------|--------------|---------------|
| Drawn                       | W.CLARKE       | Designer     | A.AHILADELLIS |
| Drafting Check              | *M.ISENBERT    | Design Check | *M.ISENBERT   |
| Approved (Project Director) | *A.AHILADELLIS |              |               |
| Date                        | 08.07.19       |              |               |
| Scale                       | AS SHOWN       |              |               |

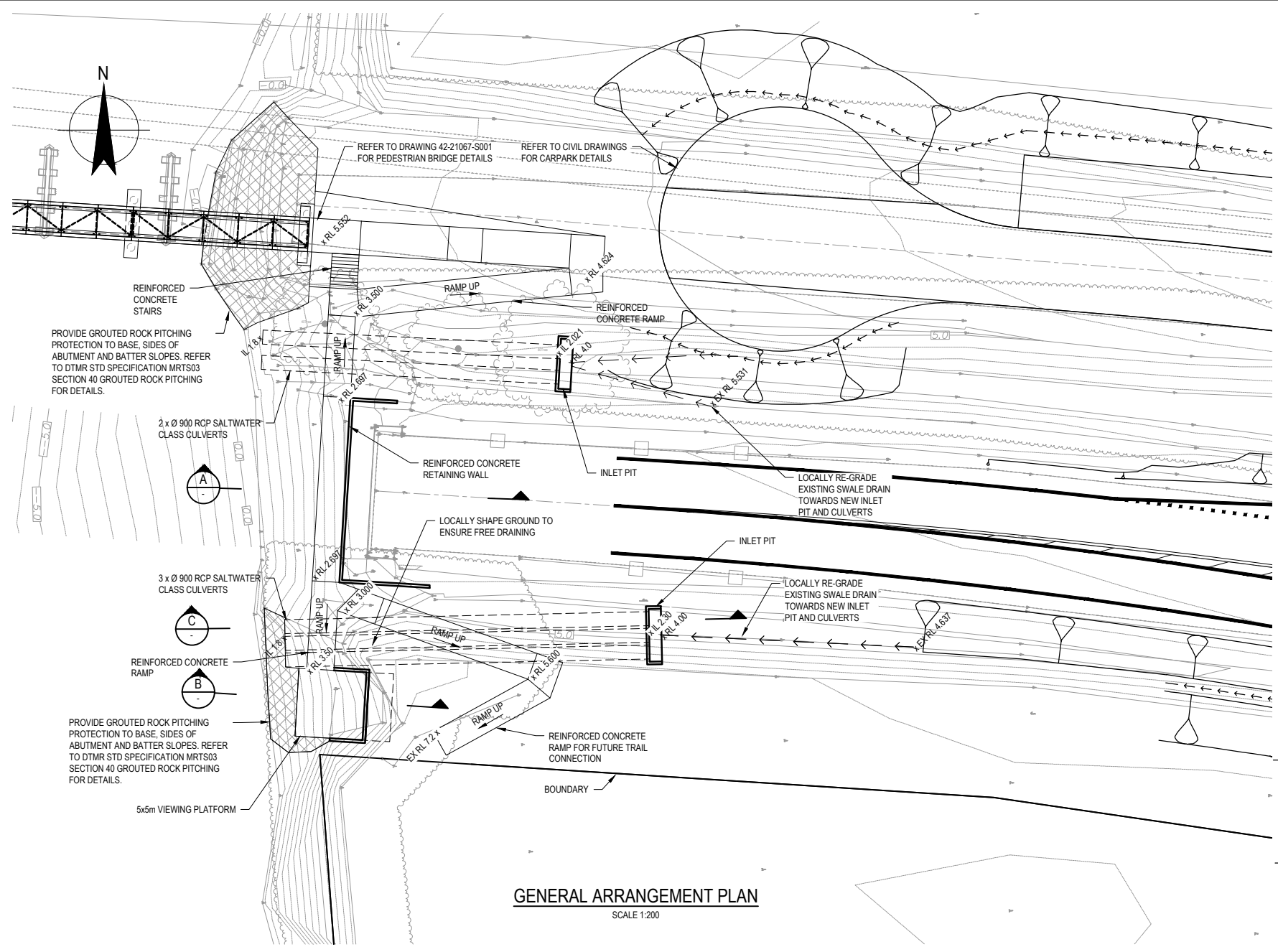
This Drawing must not be used for construction unless signed as Approved

Client: **DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT**

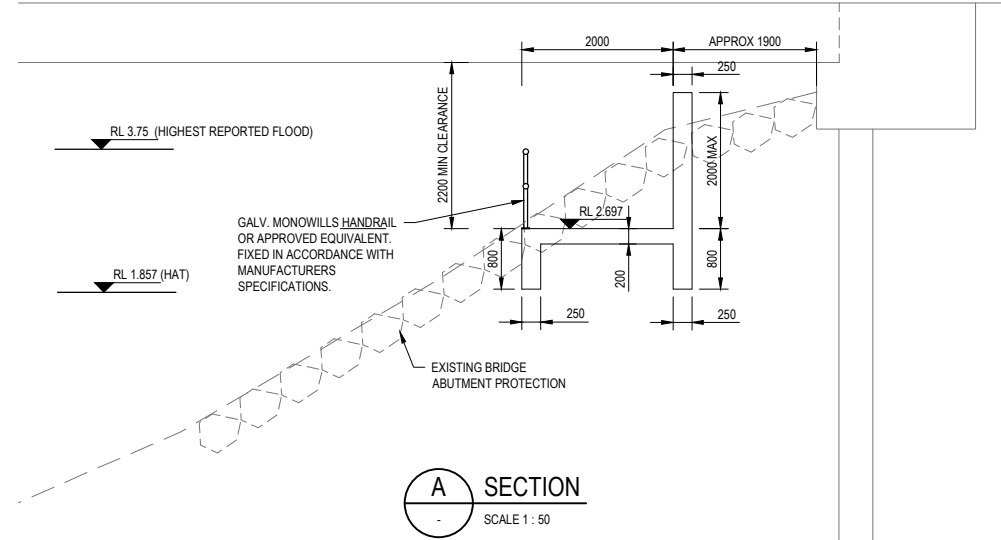
Project: **WANGETTI TRAIL**

Title: **STRUCTURAL NOTES SHEET 3**

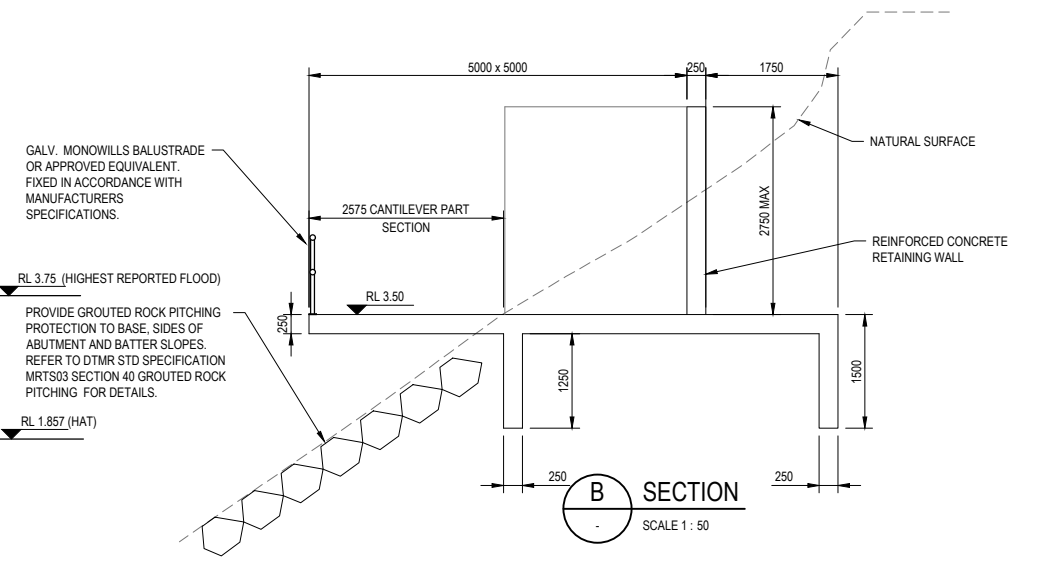
Original Size: **A1** Drawing No: **42-21067-S011** Rev: **0**



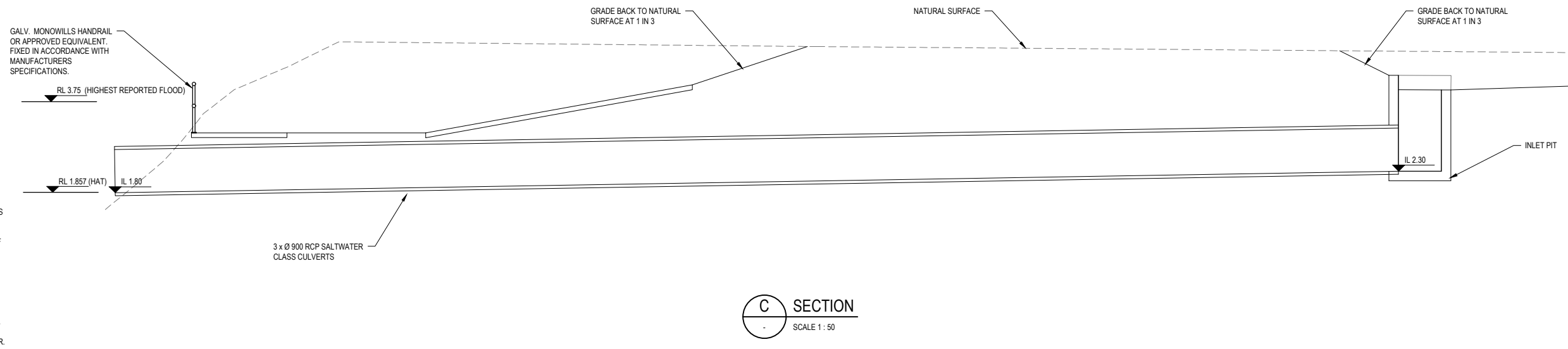
**GENERAL ARRANGEMENT PLAN**  
SCALE 1:200



**A SECTION**  
SCALE 1:50



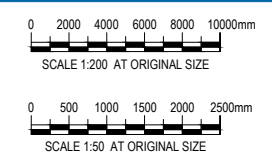
**B SECTION**  
SCALE 1:50



**C SECTION**  
SCALE 1:50

- NOTES:**
- REFER TO DRAWING 42-21067-S009 TO S011 FOR NOTES.
  - UNSUITABLE MATERIALS SHALL BE REMOVED TO A MINIMUM DEPTH OF 300mm AND REPLACED WITH APPROVED BACKFILL.
  - INSTALLATION AND BACKFILLING OF CULVERTS TO BE IN ACCORDANCE WITH FNQROC STD DWG 1046
  - CARRY OUT WORK IN A SAFE MANNER IN ACCORDANCE WITH APPLICABLE LEGISLATION, STATUTORY REGULATIONS, BY-LAWS OR RULES. CONTRACTOR IS RESPONSIBLE FOR OCCUPATIONAL HEALTH AND SAFETY OF SITE PERSONNEL AND GENERAL PUBLIC IN ACCORDANCE WITH WORK HEALTH AND SAFETY ACT 2010, LEGISLATIVE REQUIREMENTS, ASSOCIATED REGULATIONS AND CODES OF PRACTICE, INDUSTRIAL AGREEMENTS AND ACCEPTED INDUSTRY PRACTICE.
  - HAVE SURVEY AND SETTING OUT UNDERTAKEN BY A REGISTERED SURVEYOR.
  - DISPOSE OF SURPLUS MATERIAL OFF SITE IN ACCORDANCE WITH LOCAL AUTHORITY WASTE REGULATIONS.
  - IMPLEMENT SOIL AND WATER MANAGEMENT PROCEDURES TO AVOID EROSION, CONTAMINATION AND SEDIMENTATION OF SITE, SURROUNDING AREAS AND DRAINAGE SYSTEMS.
  - MAKE GOOD ANY DAMAGE TO EXISTING ELEMENTS AT COMPLETION OF WORKS.
  - THESE DRAWINGS DO NOT DETAIL TEMPORARY WORKS. CONSTRUCTION METHODS AND TEMPORARY WORKS ARE RESPONSIBILITY OF THE CONTRACTOR.

|    |                |   |       |             |                  |      |
|----|----------------|---|-------|-------------|------------------|------|
| 0  | APPROVED ISSUE | WRC   | *MI   | *AA         | 08.07.19         |      |
| No | Revision       | Note: * indicates signatures on original issue of drawing or last revision of drawing | Drawn | Job Manager | Project Director | Date |

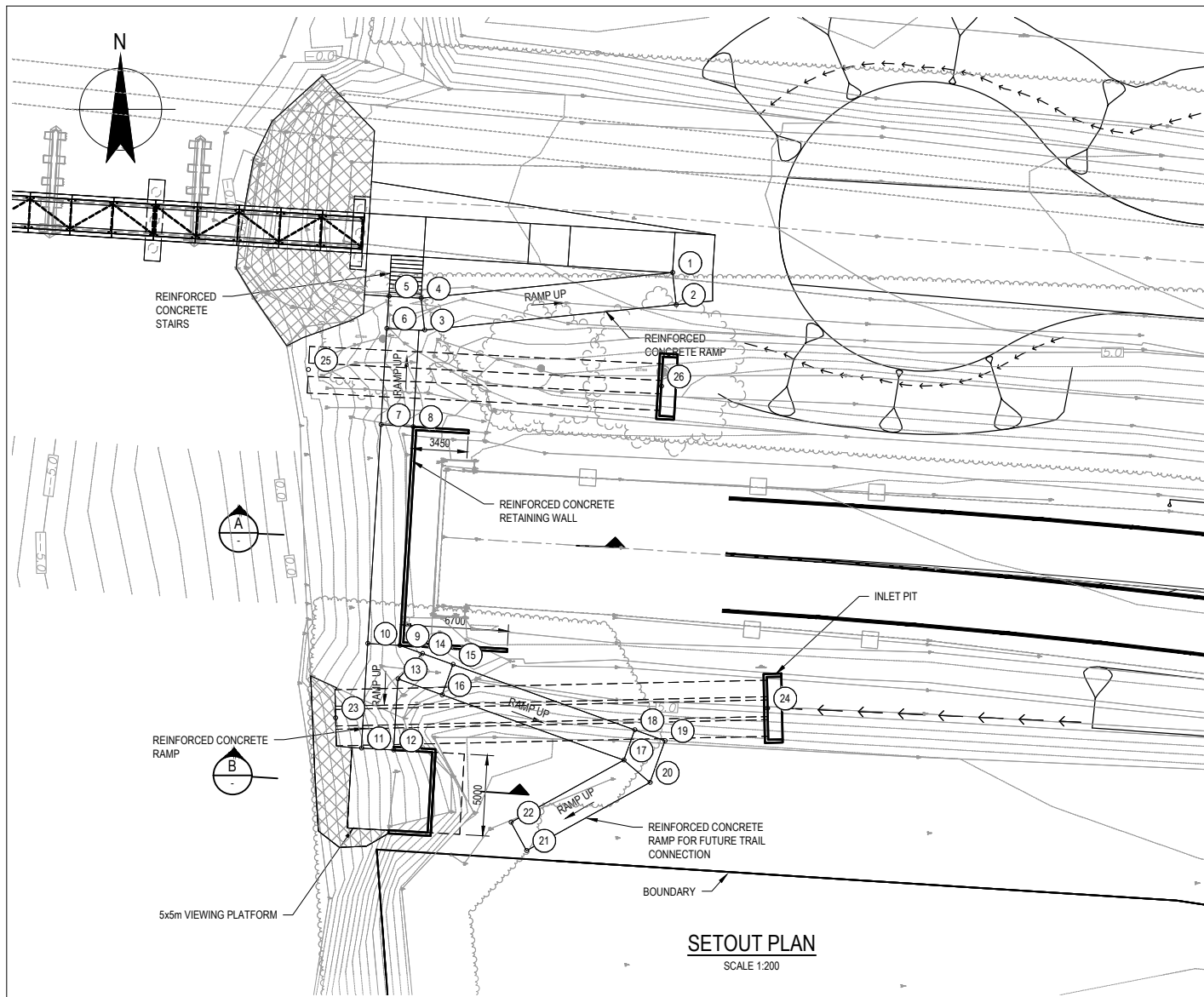


**GHD**

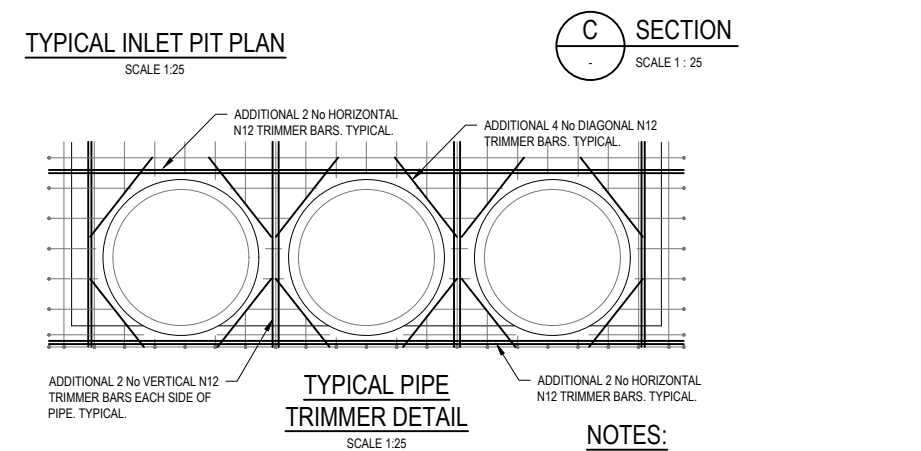
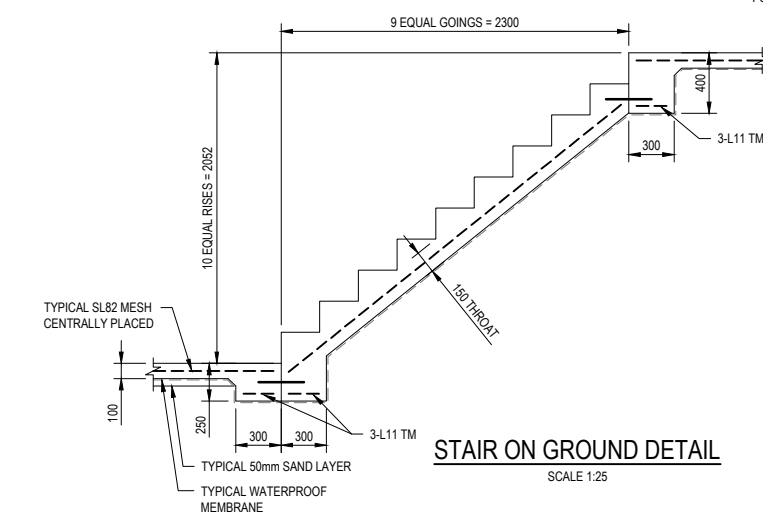
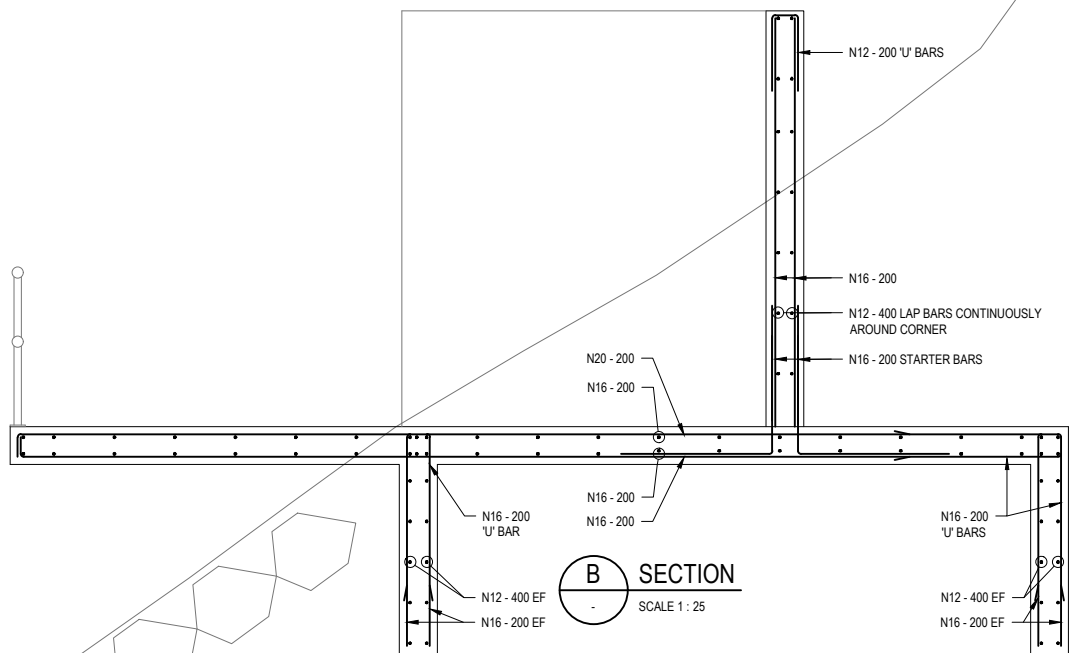
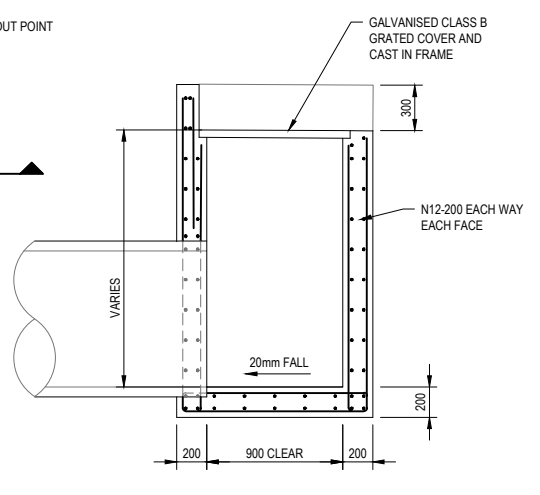
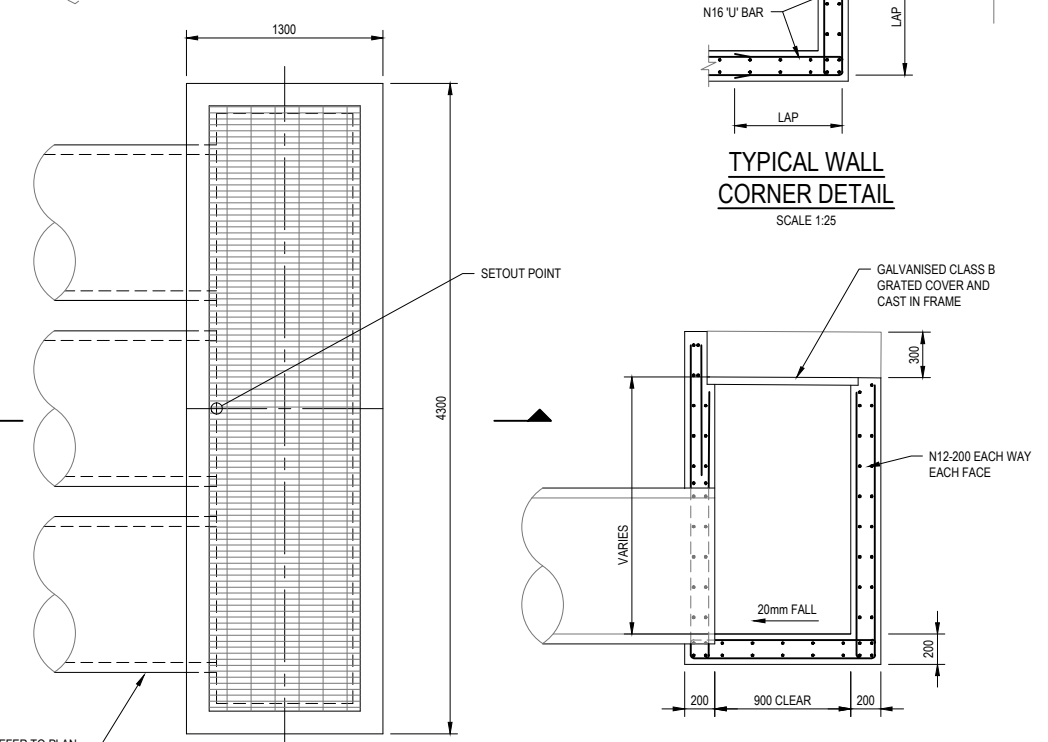
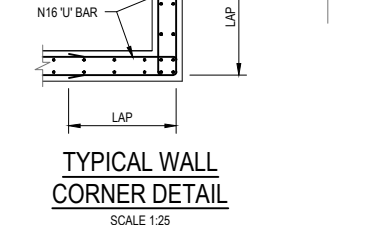
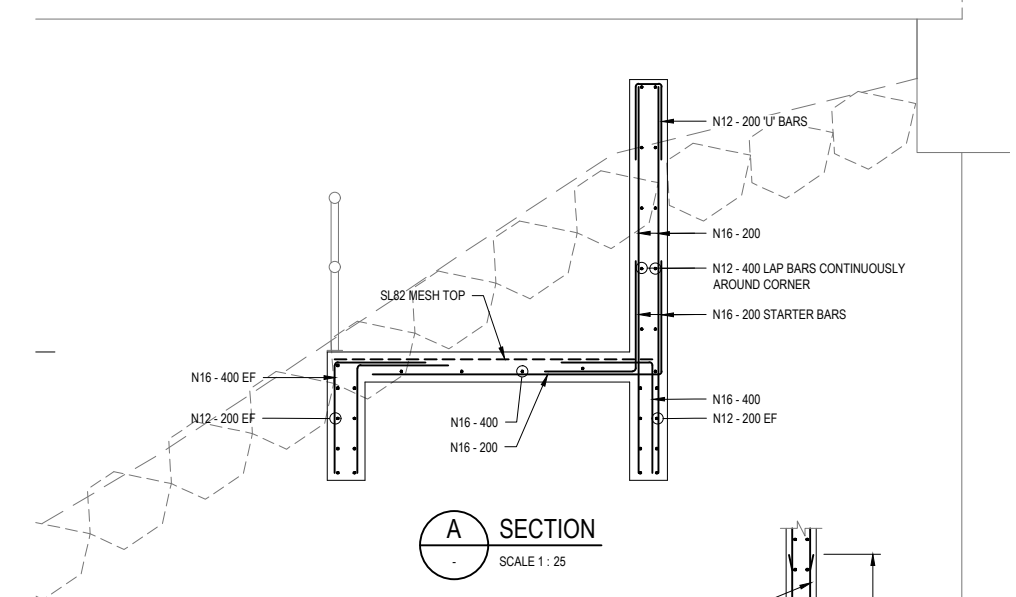
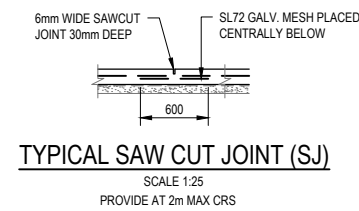
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|   |  |  |  |
|---|--|--|--|
| <b>DO NOT SCALE</b>   | Drawn W.CLARKE                             | Designer A.AHILADELLIS   | Client <b>DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT</b> |
| Conditions of Use.<br>This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose. | Drafting Check *M.ISENBERT                 | Design Check *S.DURAIRAJ   | Project <b>WANGETTI TRAIL</b>  |
|   | Approved (Project Director) *A.AHILADELLIS | Date 08.07.19  | Title <b>TRAIL UNDERPASS</b>   |
|   | Scale AS SHOWN                             | This Drawing must not be used for Construction unless signed as Approved | Original Size <b>A1</b>  |
|   |  |  | Rev: 0   |



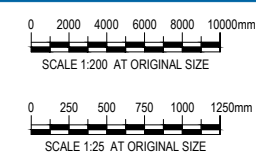


| POINT | EASTING    | NORTHING    |
|-------|------------|-------------|
| 1     | 338031.872 | 8169278.336 |
| 2     | 338032.096 | 8169276.349 |
| 3     | 338016.470 | 8169274.764 |
| 4     | 338016.247 | 8169276.751 |
| 5     | 338014.250 | 8169276.873 |
| 6     | 338014.129 | 8169274.876 |
| 7     | 338013.764 | 8169268.887 |
| 8     | 338015.761 | 8169268.766 |
| 9     | 338014.934 | 8169255.174 |
| 10    | 338012.938 | 8169255.296 |
| 11    | 338012.542 | 8169248.802 |
| 12    | 338014.539 | 8169248.680 |
| 13    | 338014.807 | 8169253.095 |
| 14    | 338016.346 | 8169254.667 |
| 15    | 338018.228 | 8169253.991 |
| 16    | 338017.552 | 8169252.109 |
| 17    | 338028.845 | 8169248.052 |
| 18    | 338029.521 | 8169249.934 |
| 19    | 338031.404 | 8169249.258 |
| 20    | 338030.472 | 8169246.665 |
| 21    | 338022.806 | 8169242.437 |
| 22    | 338021.840 | 8169244.189 |
| 23    | 338010.945 | 8169250.685 |
| 24    | 338037.778 | 8169251.277 |
| 25    | 338009.251 | 8169272.310 |
| 26    | 338031.180 | 8169271.279 |



**NOTES:**  
1. REFER TO DRAWING 42-21067-S009 TO S011 FOR NOTES.

| No | Revision       | Note | Drawn | Job Manager | Project Director | Date     |
|----|----------------|------|-------|-------------|------------------|----------|
| 0  | APPROVED ISSUE |      | WRC   | *MI         | *AA              | 08.07.19 |



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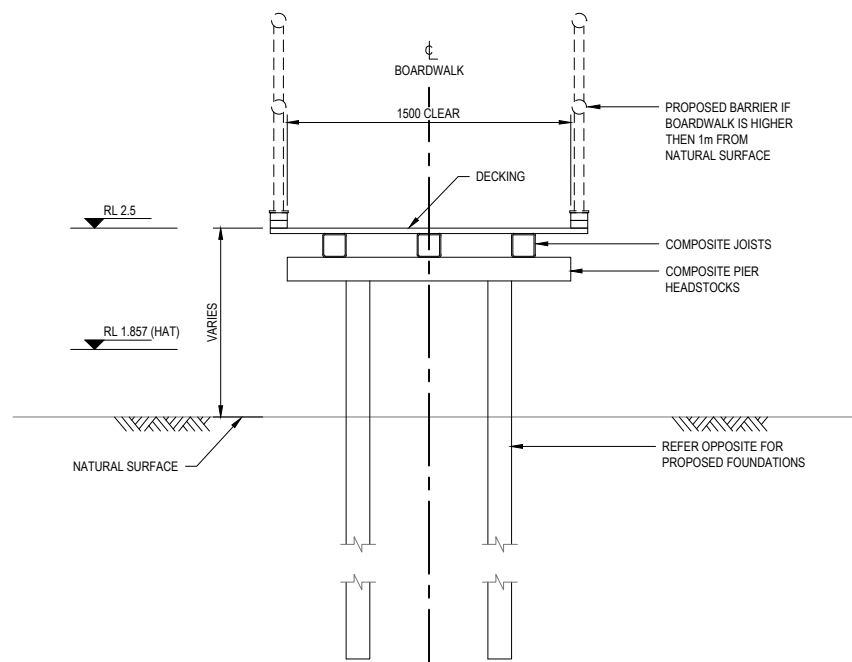
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|-----------------------------|----------------|--------------|---------------|
| Drawn                       | W.CLARKE       | Designer     | A.AHILADELLIS |
| Drafting Check              | *M.ISENBERT    | Design Check | *S.DURAIRAJ   |
| Approved (Project Director) | *A.AHILADELLIS |              |               |
| Date                        | 08.07.19       |              |               |
| Scale                       | AS SHOWN       |              |               |

This Drawing must not be used for Construction unless signed as Approved

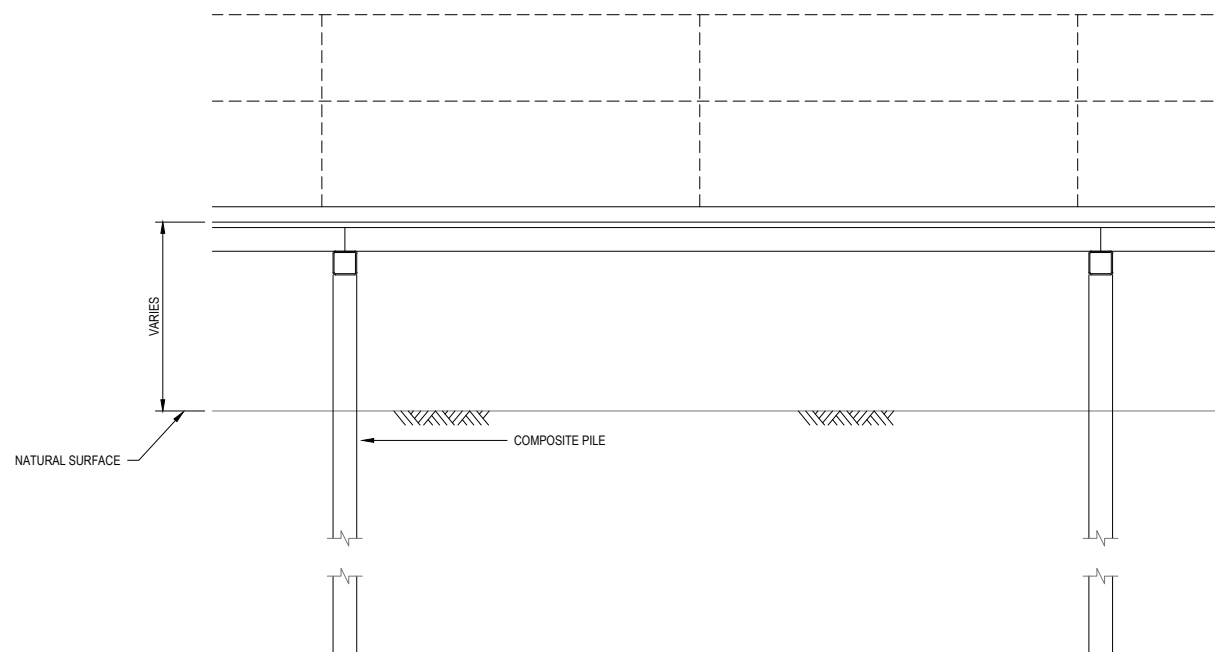
Client **DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT**  
Project **WANGETTI TRAIL**  
Title **TRAIL UNDERPASS SETOUT AND REINFORCEMENT DETAILS**

Original Size **A1** Drawing No: **42-21067-S013** Rev: **0**



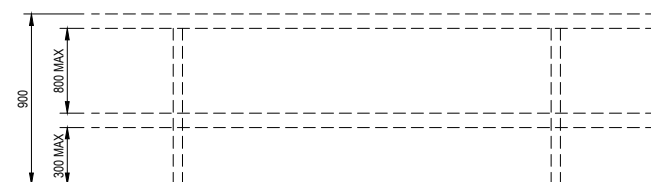
TYPICAL BOARDWALK SECTION (COMPOSITE)

SCALE 1:20



TYPICAL BOARDWALK ELEVATION (COMPOSITE)

SCALE 1:20



TYPICAL BARRIER ELEVATION (TYPE C)

SCALE 1:20

NOTE: PROVIDE TYPE C IN AREAS 1m OR GREATER.  
PROVIDE TYPE C WITH MESH IN AREAS PRONE TO NATIVE WILDLIFE ATTACK



PRELIMINARY

| rev | description   | app'd | date     |
|-----|---------------|-------|----------|
| A   | CONCEPT ISSUE | *AA   | 16.05.19 |

DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT  
WANGETTI TRAIL  
CONCEPT BOARDWALKS  
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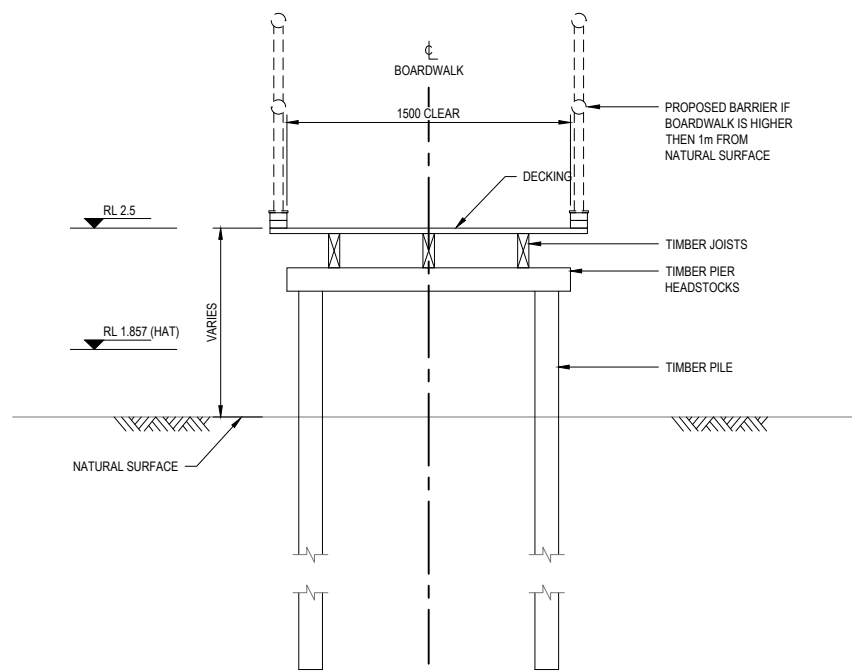
scale AS SHOWN for A1 job no. 42-21067  
date MAY 2019 rev no. A

approved (PD) ..... SK010

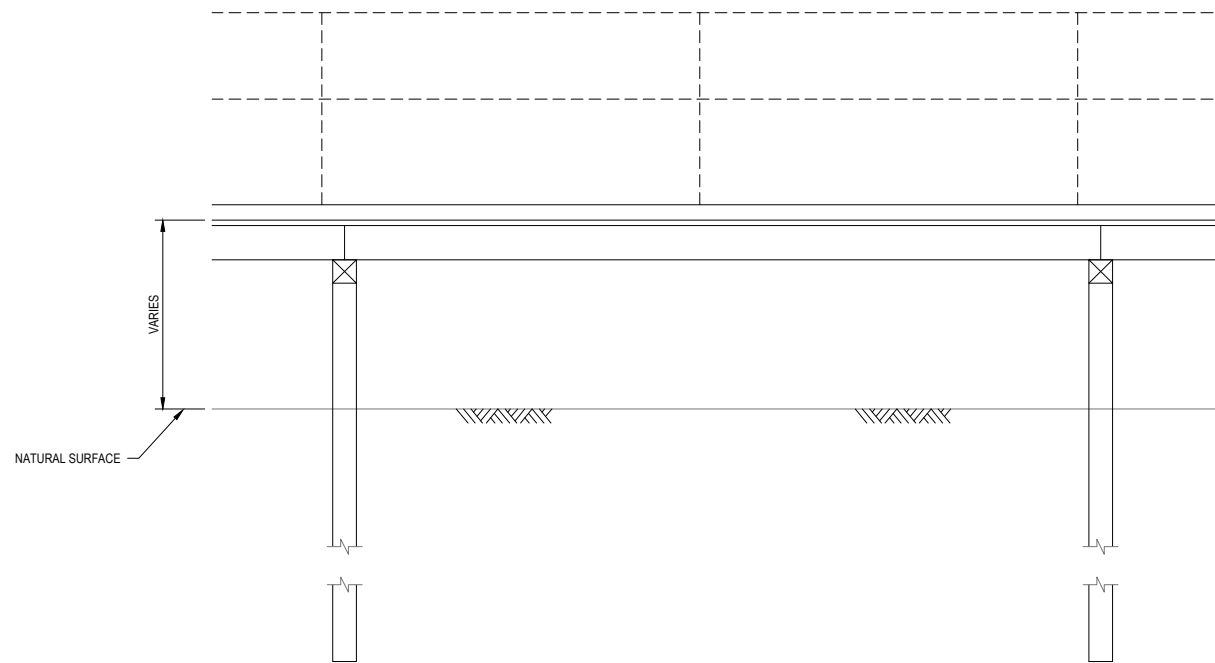
NOTES:

PROPOSED WORKS OUTCOMES

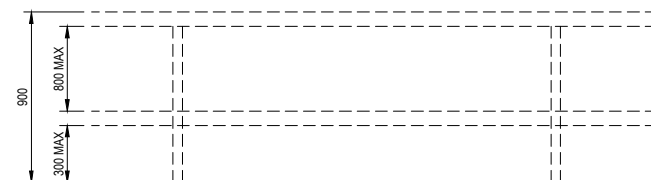
- LIVE LOAD TO AS2156.2 - 4 kPa FOR VIEWING PLATFORMS AND 3kPa FOR ACCESS WAYS FOR TRACKS CLASS 3
- PROPOSED CLEAR WIDTH ON PATH TO BE 1.5m.



TYPICAL BOARDWALK SECTION (TIMBER)  
SCALE 1:20



TYPICAL BOARDWALK ELEVATION (TIMBER)  
SCALE 1:20



TYPICAL BARRIER ELEVATION (TYPE C)  
SCALE 1:20

NOTE: PROVIDE TYPE C IN AREAS 1m OR GREATER.  
PROVIDE TYPE C WITH MESH IN AREAS PRONE TO NATIVE WILDLIFE  
ATTACK



PRELIMINARY

| rev | description   | app'd | date     |
|-----|---------------|-------|----------|
| A   | CONCEPT ISSUE | *AA   | 16.05.19 |

DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT  
WANGETTI TRAIL  
CONCEPT BOARDWALKS  
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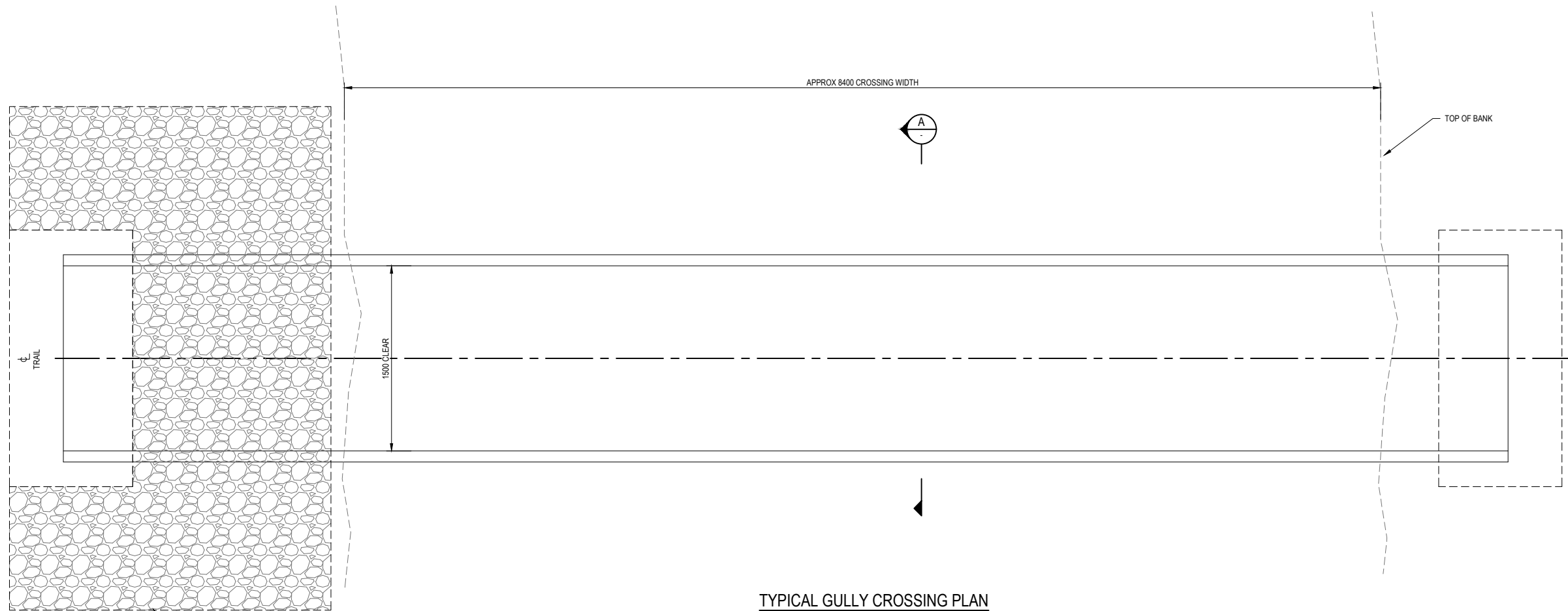
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scale | AS SHOWN for A1 | job no. | 42-21067  
date | MAY 2019 | rev no. | A

approved (PD) ..... SK011

NOTES:  
PROPOSED WORKS OUTCOMES

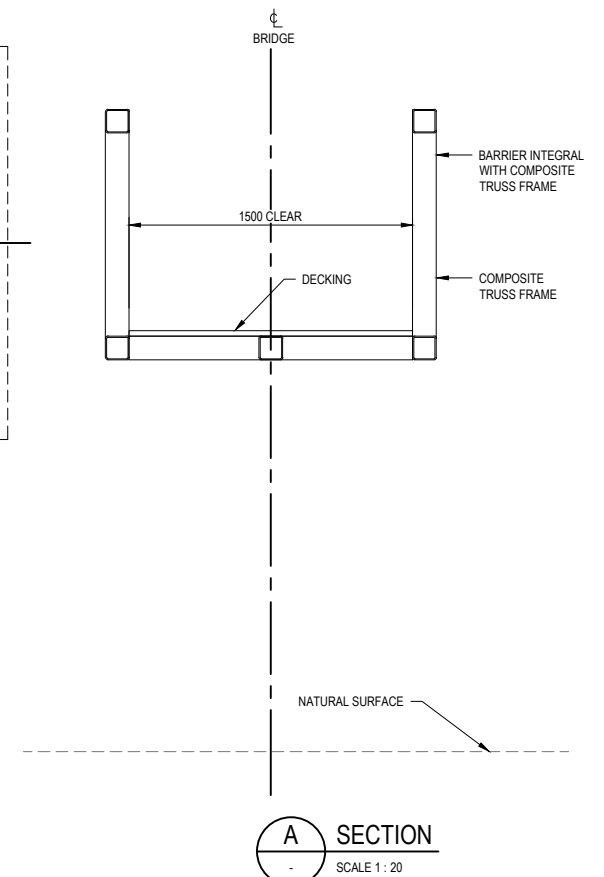
- LIVE LOAD TO AS2156.2 - 4 kPa FOR VIEWING PLATFORMS AND 3kPa FOR ACCESS WAYS FOR TRACKS CLASS 3
- PROPOSED CLEAR WIDTH ON PATH TO BE 1.5m.



TYPICAL GULLY CROSSING PLAN

SCALE 1:20

IF SCOUR SURROUNDING CROSSING FOUNDATIONS ENCOUNTERED PROVIDE 150 THICK RENO MATTRESS FILLED WITH ROCK

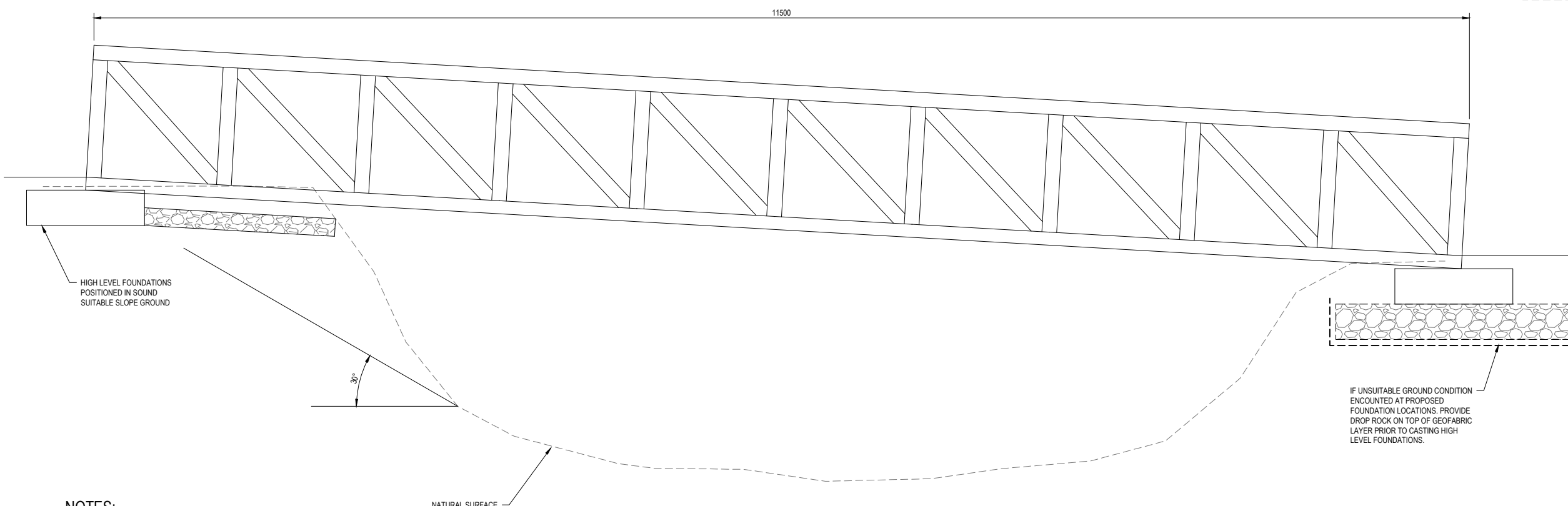


A SECTION

SCALE 1:20



SCALE 1:20 AT ORIGINAL SIZE



TYPICAL GULLY CROSSING SECTION

SCALE 1:20

CONCEPT GULLY CROSSING SHOWN FOR B41  
 CONCEPT CROSSING B40 - 5.3m APPROX CROSSING WIDTH SIMILAR  
 CONCEPT CROSSING B39 - 6.0m APPROX CROSSING WIDTH SIMILAR

**NOTES:**  
 PROPOSED WORKS OUTCOMES

- LIVE LOAD TO AS2156.2 - 4 kPa FOR VIEWING PLATFORMS AND 3kPa FOR ACCESS WAYS FOR TRACKS CLASS 3
- PROPOSED CLEAR WIDTH ON PATH TO BE 1.5m.

**PRELIMINARY**

| rev | description   | app'd | date     |
|-----|---------------|-------|----------|
| A   | CONCEPT ISSUE | *AA   | 16.05.19 |

DEPARTMENT OF INNOVATION, TOURISM INDUSTRY DEVELOPMENT  
 WANGETTI TRAIL  
 CONCEPT GULLY CROSSINGS  
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scale AS SHOWN for A1 job no. 42-21067  
 date MAY 2019 rev no. A

approved (PD) ..... SK017

## Appendix C - Certificate of title

# CURRENT RESERVE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 31510775

Search Date: 24/06/2019 14:54

Title Reference: 49014317

Date GAZETTED: 06/12/1980

PAGE: 1378

Opening Ref: B 2423-250

Purpose: RECREATION

Sub-Purpose:

Local Name:

Address: CAPTAIN COOK HIGHWAY, MOWBRAY RIVER

County (R) No: R181

File Ref: RES 19154

## TRUSTEES

DOUGLAS SHIRE COUNCIL GAZETTED ON 06/12/1980 PAGE 1378

## LAND DESCRIPTION

LOT 161 CROWN PLAN SR673 GAZETTED ON 26/10/1991 PAGE 765,766

Local Government: DOUGLAS

LOT 164 CROWN PLAN SR673 GAZETTED ON 26/10/1991 PAGE 765,766

Local Government: DOUGLAS

Area: 10.500000 Ha. (ABOUT)

## EASEMENTS AND ENCUMBRANCES

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

\*\* End of Current Reserve Search \*\*

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Requested By: D-ENQ CITEC CONFIRM

# CURRENT RESERVE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 31510778  
Search Date: 24/06/2019 14:54

**Title Reference: 49014317**  
Date GAZETTED: 06/12/1980  
PAGE: 1378

Opening Ref: B 2423-250  
Purpose: RECREATION  
Sub-Purpose:  
Local Name:  
Address: CAPTAIN COOK HIGHWAY, MOWBRAY RIVER  
County (R) No: R181  
File Ref: RES 19154

## TRUSTEES

DOUGLAS SHIRE COUNCIL GAZETTED ON 06/12/1980 PAGE 1378

## LAND DESCRIPTION

LOT 161 CROWN PLAN SR673 GAZETTED ON 26/10/1991 PAGE 765,766  
Local Government: DOUGLAS  
LOT 164 CROWN PLAN SR673 GAZETTED ON 26/10/1991 PAGE 765,766  
Local Government: DOUGLAS

Area: 10.500000 Ha. (ABOUT)

## EASEMENTS AND ENCUMBRANCES

ADMINISTRATIVE ADVICES - NIL  
UNREGISTERED DEALINGS - NIL

## CERTIFICATE OF TITLE ISSUED - No

\*\* End of Current Reserve Search \*\*

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Requested By: D-ENQ CITEC CONFIRM

# CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 31679732

Search Date: 17/07/2019 09:28

Title Reference: 21433007

Date Created: 08/03/1990

Previous Title: 20782019

20782020

## REGISTERED OWNER

Dealing No: 709827466 04/08/2006

CHRISTOPHER DELIOS

BARBARA ANNE DELIOS

KYLEE MAREE DELIOS

DIANNE HAZEL PLATANIA JOINT TENANTS

## ESTATE AND LAND

Estate in Fee Simple

LOT 24 CROWN PLAN SR423

Local Government: DOUGLAS

## EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by Deed of Grant No. 20706120 (POR 24)
2. CAVEAT No 719283618 27/02/2019 at 16:02  
PORT MOWBRAY PTY LTD A.C.N. 631 358 622  
pursuant to section 74, Property Law Act 1974

## ADMINISTRATIVE ADVICES

| Dealing                        | Type       | Lodgement Date   | Status  |
|--------------------------------|------------|------------------|---------|
| 716631694                      | VEG NOTICE | 16/07/2015 13:06 | CURRENT |
| VEGETATION MANAGEMENT ACT 1999 |            |                  |         |

UNREGISTERED DEALINGS - NIL

## CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

\*\* End of Current Title Search \*\*

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Requested By: D-ENQ CITEC CONFIRM



# CURRENT STATE TENURE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 31510777

Search Date: 24/06/2019 14:54

Title Reference: 47021123

Date Created: 30/09/2006

## OWNER

THE STATE OF QUEENSLAND

(REPRESENTED BY

DEPARTMENT OF NATURAL RESOURCES, MINES AND ENERGY)

## ESTATE

Estate in Unallocated State Land

LOT 5

CROWN PLAN AP13754

Local Government: DOUGLAS

## EASEMENTS AND ENCUMBRANCES

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

## CERTIFICATE OF TITLE ISSUED - No

Corrections have occurred - Refer to Historical Search

\*\* End of Current State Tenure Search \*\*

Information provided under section 34 Land Title Act(1994) or  
section 281 Land Act(1994)

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Requested By: D-ENQ CITEC CONFIRM

# Appendix D MSES Mapping for SP1 Project Area

# Essential Habitat Mapping SP1 Project Area

16°31'16"S 145°27'44"E

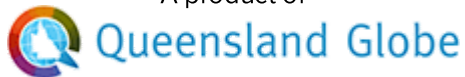
16°31'16"S 145°29'43"E



16°33'10"S 145°27'44"E

16°33'10"S 145°29'43"E

A product of



Legend located on next page



0 500 metres

Scale: 1:18455

Printed at: A4

Print date: 29/7/2019

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# Essential Habitat Mapping SP1 Project Area

## Legend

## Attribution

SP1 Alignment-24072019.zip  
- line

Land parcel - gt 1 ha

 Parcel

Land parcel label - gt 1 ha

Essential habitat map

 Essential habitat map

Railway



Cities and Towns



Road

 Highway

 Main

 Local

 Private

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# MSES high ecological significance wetlands SP1 Project Area

16°31'4"S 145°27'17"E

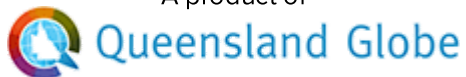
16°31'4"S 145°29'25"E



16°33'11"S 145°27'17"E

16°33'11"S 145°29'25"E

A product of



Legend located on next page



0 250 metres

Scale: 1:13874

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# MSES high ecological significance wetlands SP1 Project Area

## Legend

SP1 Alignment-  
24072019.zip - line

MSES high ecological  
significance wetlands



Land parcel



Land parcel label

Road



Railway



Cities and Towns



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# Regulated Vegetation SP1 Project Area

16°29'27"S 145°25'35"E

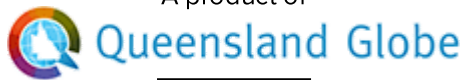
16°29'27"S 145°30'40"E



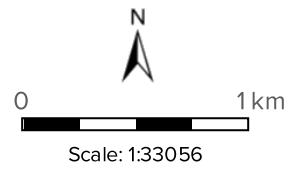
16°34'29"S 145°25'35"E

16°34'29"S 145°30'40"E

A product of



Legend located on next page



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Print date: 29/7/2019

Datum: Geocentric Datum of Australia 1994

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# Regulated Vegetation SP1 Project Area

## Legend

SP1 Alignment-  
24072019.zip - line

Category A or B area  
containing of concern  
regional ecosystems



Category C or R area  
containing of concern  
regional ecosystems



Road

 Highway

 Main

 Local

 Private

Railway



Cities and Towns



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# Wetland Protection Area SP1 Project Area

16°29'15"S 145°25'50"E

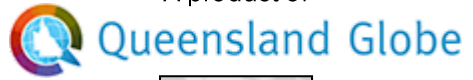
16°29'15"S 145°30'55"E



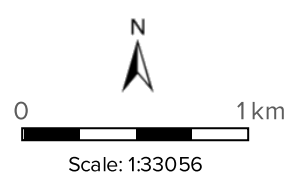
16°34'17"S 145°25'50"E

16°34'17"S 145°30'55"E

A product of



Legend located on next page



Printed at: A3  
 Print date: 29/7/2019  
 Datum: Geocentric Datum of Australia 1994  
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# Wetland Protection Area SP1 Project Area

## Legend

SP1 Alignment-  
24072019.zip - line

Wetlands of high ecological  
significance



Trigger area



MSES regulated vegetation  
[defined watercourse]



Railway



Cities and Towns



Road

Highway

Main

Local

Private

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See Map Sheet ASS-016

## Acid Sulfate Soils Overlay Map

### Acid Sulfate Soils:

- Acid Sulfate Soils (5-20m AHD)
- Acid Sulfate Soils (< 5m AHD)

### Other Map Layers:

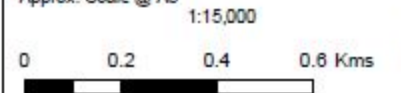
- 1:15,000 Map Extents
- Property Boundaries
- Local Government Boundaries
- Ocean

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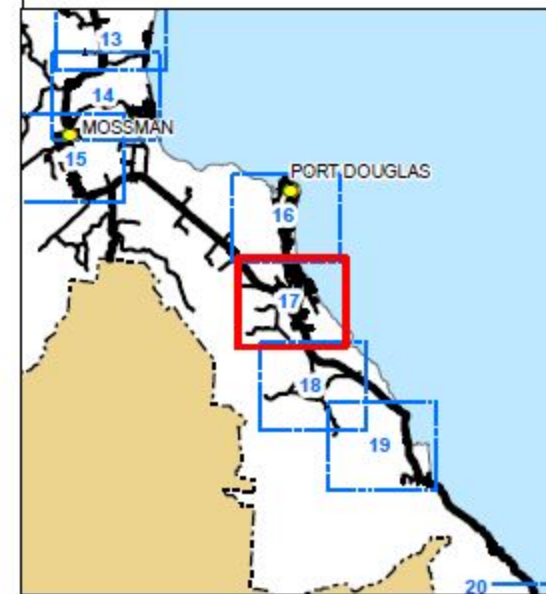
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Produced by: Mangoesmapping Pty Ltd on 25/10/2017  
hello@mangoesmapping.com.au

Projection: MGA84 Zone 55  
Approx. Scale @ A3






### Map Sheets:



## Flood and Storm Tide Inundation Overlay Map

### Flood and Storm Tide Inundation:

-  Storm Tide - High Hazard
-  Storm Tide - Medium Hazard
-  100 Year ARI (Mossman, Port Douglas and Daintree Flood Studies)
-  Floodplain Assessment Overlay

### Other Map Layers:

-  1:15,000 Map Extents
-  Property Boundaries
-  Ocean
-  Local Government Boundaries

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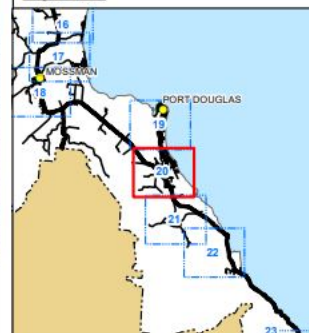
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Approx. Scale @ A3: 1:15,000



### Map Sheets:



## Flood and Storm Tide Inundation Overlay Map Sheet - FST-020



# EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 12/02/19 11:00:04

[Summary](#)

[Details](#)

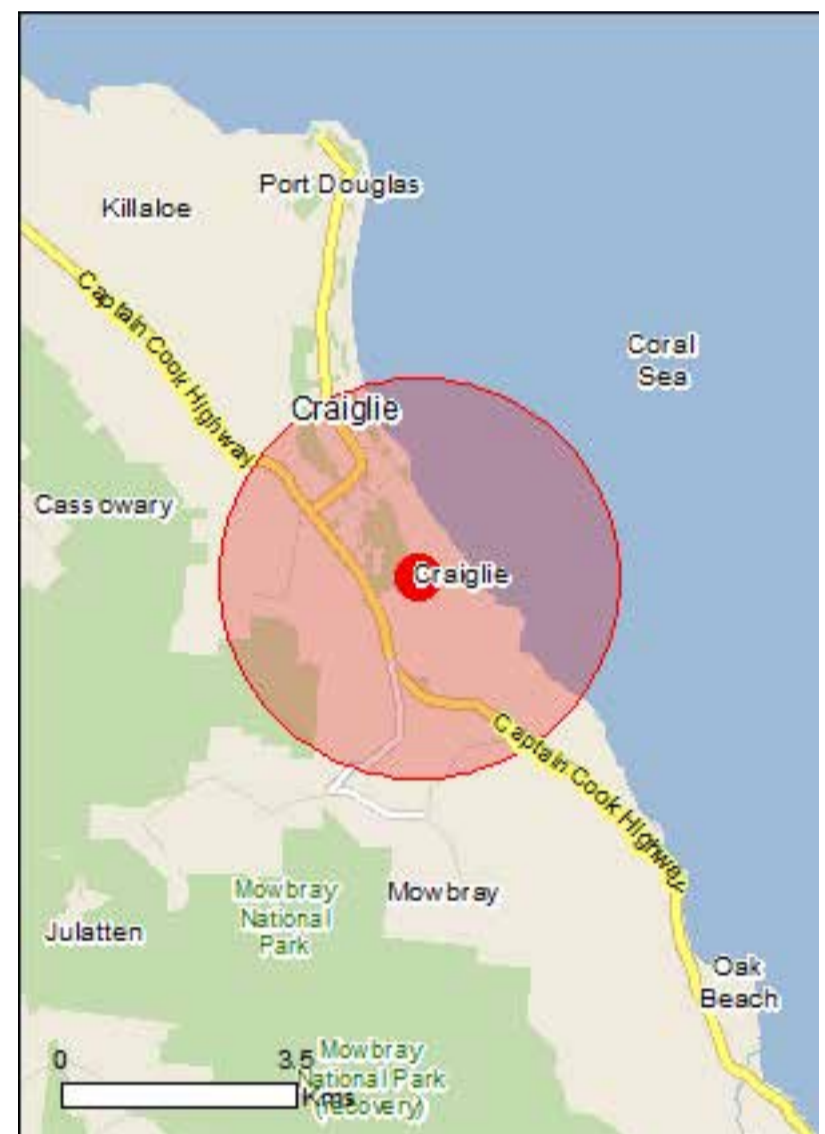
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

[Coordinates](#)

Buffer: 3.0Km



# Summary

## Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

|   |      |
|---|------|
| <a href="#">World Heritage Properties:</a>                | 2    |
| <a href="#">National Heritage Places:</a>                 | 3    |
| <a href="#">Wetlands of International Importance:</a>     | None |
| <a href="#">Great Barrier Reef Marine Park:</a>           | 1    |
| <a href="#">Commonwealth Marine Area:</a>                 | None |
| <a href="#">Listed Threatened Ecological Communities:</a> | 1    |
| <a href="#">Listed Threatened Species:</a>                | 46   |
| <a href="#">Listed Migratory Species:</a>                 | 46   |

## Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

|  |      |
|--|------|
| <a href="#">Commonwealth Land:</a>                 | None |
| <a href="#">Commonwealth Heritage Places:</a>      | None |
| <a href="#">Listed Marine Species:</a>             | 98   |
| <a href="#">Whales and Other Cetaceans:</a>        | 12   |
| <a href="#">Critical Habitats:</a>                 | None |
| <a href="#">Commonwealth Reserves Terrestrial:</a> | None |
| <a href="#">Australian Marine Parks:</a>           | None |

## Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

|  |      |
|--|------|
| <a href="#">State and Territory Reserves:</a>    | 1    |
| <a href="#">Regional Forest Agreements:</a>      | None |
| <a href="#">Invasive Species:</a>                | 23   |
| <a href="#">Nationally Important Wetlands:</a>   | 1    |
| <a href="#">Key Ecological Features (Marine)</a> | None |

# Details

## Matters of National Environmental Significance

| World Heritage Properties                 |       | [ Resource Information ] |
|---|-------|--------------------------|
| Name                                      | State | Status                   |
| <a href="#">Great Barrier Reef</a>        | QLD   | Declared property        |
| <a href="#">Wet Tropics of Queensland</a> | QLD   | Declared property        |

| National Heritage Properties  |       | [ Resource Information ] |
|---|-------|--------------------------|
| Name  | State | Status                   |
| <b>Natural</b>  |       |                          |
| <a href="#">Great Barrier Reef</a>                                  | QLD   | Listed place             |
| <a href="#">Wet Tropics of Queensland</a>                           | QLD   | Listed place             |
| <b>Indigenous</b>   |       |                          |
| <a href="#">Wet Tropics World Heritage Area (Indigenous Values)</a> | QLD   | Within listed place      |

| Great Barrier Reef Marine Park |            | [ Resource Information ] |
|--------------------------------|------------|--------------------------|
| Type                           | Zone       | IUCN                     |
| Conservation Park              | CP-16-4032 | IV                       |

| Listed Threatened Ecological Communities   | [ Resource Information ] |
|--|--------------------------|
| For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps. |                          |

| Name  | Status     | Type of Presence                |
|---|------------|---------------------------------|
| <a href="#">Broad leaf tea-tree (Melaleuca viridiflora) woodlands in high rainfall coastal north Queensland</a> | Endangered | Community may occur within area |

| Listed Threatened Species  | [ Resource Information ] |  |
|--|--------------------------|--|
| Name   | Status                   | Type of Presence                                       |
| <b>Birds</b>   |                          |  |
| <a href="#">Calidris canutus</a><br>Red Knot, Knot [855]   | Endangered               | Species or species habitat known to occur within area  |
| <a href="#">Calidris ferruginea</a><br>Curlew Sandpiper [856]  | Critically Endangered    | Species or species habitat known to occur within area  |
| <a href="#">Casuarius casuarius johnsonii</a><br>Southern Cassowary, Australian Cassowary, Double-wattled Cassowary [25986]                | Endangered               | Species or species habitat known to occur within area  |
| <a href="#">Erythrotriorchis radiatus</a><br>Red Goshawk [942]   | Vulnerable               | Species or species habitat likely to occur within area |
| <a href="#">Fregetta grallaria grallaria</a><br>White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438] | Vulnerable               | Species or species habitat likely to occur within area |
| <a href="#">Limosa lapponica baueri</a><br>Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]                           | Vulnerable               | Species or species habitat known to occur within area  |
| <a href="#">Limosa lapponica menzbieri</a><br>Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]                   | Critically Endangered    | Species or species habitat may occur within area       |

| Name  | Status                | Type of Presence                                       |
|---|-----------------------|--|
| <a href="#">Numenius madagascariensis</a><br>Eastern Curlew, Far Eastern Curlew [847]   | Critically Endangered | Species or species habitat known to occur within area  |
| <a href="#">Rostratula australis</a><br>Australian Painted-snipe, Australian Painted Snipe [77037]  | Endangered            | Species or species habitat may occur within area       |
| <a href="#">Tyto novaehollandiae kimberli</a><br>Masked Owl (northern) [26048]  | Vulnerable            | Species or species habitat likely to occur within area |
| <b>Frogs</b>  |                       |  |
| <a href="#">Litoria dayi</a><br>Australian Lace-lid, Lace-eyed Tree Frog, Day's Big-eyed Treefrog [86707]   | Endangered            | Species or species habitat likely to occur within area |
| <a href="#">Litoria nannotis</a><br>Waterfall Frog, Torrent Tree Frog [1817]  | Endangered            | Species or species habitat may occur within area       |
| <a href="#">Litoria rheocola</a><br>Common Mistfrog [1802]  | Endangered            | Species or species habitat likely to occur within area |
| <b>Mammals</b>  |                       |  |
| <a href="#">Balaenoptera musculus</a><br>Blue Whale [36]  | Endangered            | Species or species habitat may occur within area       |
| <a href="#">Dasyurus hallucatus</a><br>Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]   | Endangered            | Species or species habitat likely to occur within area |
| <a href="#">Dasyurus maculatus gracilis</a><br>Spotted-tailed Quoll (North Queensland), Yarri [64475]   | Endangered            | Species or species habitat may occur within area       |
| <a href="#">Hipposideros semoni</a><br>Semon's Leaf-nosed Bat, Greater Wart-nosed Horseshoe-bat [180]   | Vulnerable            | Species or species habitat may occur within area       |
| <a href="#">Macroderma gigas</a><br>Ghost Bat [174]   | Vulnerable            | Species or species habitat likely to occur within area |
| <a href="#">Megaptera novaeangliae</a><br>Humpback Whale [38]   | Vulnerable            | Species or species habitat known to occur within area  |
| <a href="#">Mesembriomys gouldii rattoides</a><br>Black-footed Tree-rat (north Queensland), Shaggy Rabbit-rat [87620]   | Vulnerable            | Species or species habitat may occur within area       |
| <a href="#">Petauroides volans</a><br>Greater Glider [254]  | Vulnerable            | Species or species habitat may occur within area       |
| <a href="#">Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)</a><br>Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104] | Vulnerable            | Species or species habitat may occur within area       |
| <a href="#">Pteropus conspicillatus</a><br>Spectacled Flying-fox [185]  | Vulnerable            | Species or species habitat likely to occur within area |
| <a href="#">Rhinolophus robertsi</a><br>Large-eared Horseshoe Bat, Greater Large-eared Horseshoe Bat [87639]  | Vulnerable            | Species or species habitat likely to occur within area |
| <a href="#">Saccolaimus saccolaimus nudicluniatus</a><br>Bare-rumped Sheath-tailed Bat, Bare-rumped Sheath-tail Bat [66889]   | Vulnerable            | Species or species habitat likely to occur             |



| Name   | Status     | Type of Presence within area                                      |
|--|------------|---|
| <a href="#">Xeromys myoides</a><br>Water Mouse, False Water Rat, Yirrkoo [66]              | Vulnerable | Species or species habitat may occur within area                  |
| <b>Plants</b>  |            |   |
| <a href="#">Acriopsis emarginata</a><br>Pale Chandelier Orchid [83928]                     | Vulnerable | Species or species habitat may occur within area                  |
| <a href="#">Canarium acutifolium</a><br>[23956]  | Vulnerable | Species or species habitat likely to occur within area            |
| <a href="#">Cyclophyllum costatum</a><br>a shrub [82770]                                   | Vulnerable | Species or species habitat may occur within area                  |
| <a href="#">Myrmecodia beccarii</a><br>Ant Plant [11852]                                   | Vulnerable | Species or species habitat likely to occur within area            |
| <a href="#">Phaius australis</a><br>Lesser Swamp-orchid [5872]                             | Endangered | Species or species habitat may occur within area                  |
| <a href="#">Phaius pictus</a><br>[22564]   | Vulnerable | Species or species habitat likely to occur within area            |
| <a href="#">Phalaenopsis amabilis subsp. rosenstromii</a><br>Native Moth Orchid [87535]    | Endangered | Species or species habitat likely to occur within area            |
| <a href="#">Vappodes lithocola</a><br>Dwarf Butterfly Orchid, Cooktown Orchid [78893]      | Endangered | Species or species habitat likely to occur within area            |
| <a href="#">Vappodes phalaenopsis</a><br>Cooktown Orchid [78894]                           | Vulnerable | Species or species habitat may occur within area                  |
| <b>Reptiles</b>  |            |   |
| <a href="#">Caretta caretta</a><br>Loggerhead Turtle [1763]                                | Endangered | Breeding likely to occur within area                              |
| <a href="#">Chelonia mydas</a><br>Green Turtle [1765]                                      | Vulnerable | Breeding known to occur within area                               |
| <a href="#">Dermochelys coriacea</a><br>Leatherback Turtle, Leathery Turtle, Luth [1768]   | Endangered | Breeding likely to occur within area                              |
| <a href="#">Egernia rugosa</a><br>Yakka Skink [1420]                                       | Vulnerable | Species or species habitat may occur within area                  |
| <a href="#">Eretmochelys imbricata</a><br>Hawksbill Turtle [1766]                          | Vulnerable | Species or species habitat known to occur within area             |
| <a href="#">Lepidochelys olivacea</a><br>Olive Ridley Turtle, Pacific Ridley Turtle [1767] | Endangered | Breeding likely to occur within area                              |
| <a href="#">Natator depressus</a><br>Flatback Turtle [59257]                               | Vulnerable | Foraging, feeding or related behaviour known to occur within area |
| <b>Sharks</b>  |            |   |
| <a href="#">Carcharodon carcharias</a><br>White Shark, Great White Shark [64470]           | Vulnerable | Species or species habitat may occur within area                  |

| Name   | Status     | Type of Presence                                      |
|--|------------|---|
| <a href="#">Pristis pristis</a><br>Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756] | Vulnerable | Species or species habitat known to occur within area |
| <a href="#">Pristis zijsron</a><br>Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]  | Vulnerable | Breeding likely to occur within area                  |
| <a href="#">Rhincodon typus</a><br>Whale Shark [66680]   | Vulnerable | Species or species habitat may occur within area      |

### Listed Migratory Species

[ [Resource Information](#) ]

\* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

| Name   | Threatened | Type of Presence                                       |
|--|------------|--|
| <b>Migratory Marine Birds</b>  |            |  |
| <a href="#">Anous stolidus</a><br>Common Noddy [825]                           |            | Species or species habitat known to occur within area  |
| <a href="#">Apus pacificus</a><br>Fork-tailed Swift [678]                      |            | Species or species habitat likely to occur within area |
| <a href="#">Fregata ariel</a><br>Lesser Frigatebird, Least Frigatebird [1012]  |            | Species or species habitat known to occur within area  |
| <a href="#">Fregata minor</a><br>Great Frigatebird, Greater Frigatebird [1013] |            | Species or species habitat known to occur within area  |
| <a href="#">Sternula albifrons</a><br>Little Tern [82849]                      |            | Species or species habitat may occur within area       |

### Migratory Marine Species

|  |            |  |
|--|------------|--|
| <a href="#">Anoxypristis cuspidata</a><br>Narrow Sawfish, Knifetooth Sawfish [68448]     |            | Species or species habitat likely to occur within area |
| <a href="#">Balaenoptera edeni</a><br>Bryde's Whale [35]                                 |            | Species or species habitat may occur within area       |
| <a href="#">Balaenoptera musculus</a><br>Blue Whale [36]                                 | Endangered | Species or species habitat may occur within area       |
| <a href="#">Carcharodon carcharias</a><br>White Shark, Great White Shark [64470]         | Vulnerable | Species or species habitat may occur within area       |
| <a href="#">Caretta caretta</a><br>Loggerhead Turtle [1763]                              | Endangered | Breeding likely to occur within area                   |
| <a href="#">Chelonia mydas</a><br>Green Turtle [1765]                                    | Vulnerable | Breeding known to occur within area                    |
| <a href="#">Crocodylus porosus</a><br>Salt-water Crocodile, Estuarine Crocodile [1774]   |            | Species or species habitat likely to occur within area |
| <a href="#">Dermochelys coriacea</a><br>Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Breeding likely to occur within area                   |
| <a href="#">Dugong dugon</a><br>Dugong [28]  |            | Species or species habitat known to occur within area  |
| <a href="#">Eretmochelys imbricata</a><br>Hawksbill Turtle [1766]                        | Vulnerable | Species or species                                     |

| Name   | Threatened | Type of Presence   |
|--|------------|--|
| <a href="#">Lepidochelys olivacea</a><br>Olive Ridley Turtle, Pacific Ridley Turtle [1767]   | Endangered | habitat known to occur within area<br>Breeding likely to occur within area |
| <a href="#">Manta alfredi</a><br>Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]   |            | Species or species habitat likely to occur within area                     |
| <a href="#">Manta birostris</a><br>Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]   |            | Species or species habitat likely to occur within area                     |
| <a href="#">Megaptera novaeangliae</a><br>Humpback Whale [38]  | Vulnerable | Species or species habitat known to occur within area                      |
| <a href="#">Natator depressus</a><br>Flatback Turtle [59257]   | Vulnerable | Foraging, feeding or related behaviour known to occur within area          |
| <a href="#">Orcaella heinsohni</a><br>Australian Snubfin Dolphin [81322]   |            | Species or species habitat may occur within area                           |
| <a href="#">Orcinus orca</a><br>Killer Whale, Orca [46]  |            | Species or species habitat may occur within area                           |
| <a href="#">Pristis pristis</a><br>Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756] | Vulnerable | Species or species habitat known to occur within area                      |
| <a href="#">Pristis zijsron</a><br>Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]  | Vulnerable | Breeding likely to occur within area                                       |
| <a href="#">Rhincodon typus</a><br>Whale Shark [66680]   | Vulnerable | Species or species habitat may occur within area                           |
| <a href="#">Sousa chinensis</a><br>Indo-Pacific Humpback Dolphin [50]  |            | Foraging, feeding or related behaviour known to occur within area          |
| <b>Migratory Terrestrial Species</b>   |            |  |
| <a href="#">Cecropis daurica</a><br>Red-rumped Swallow [80610]   |            | Species or species habitat known to occur within area                      |
| <a href="#">Cuculus optatus</a><br>Oriental Cuckoo, Horsfield's Cuckoo [86651]   |            | Species or species habitat may occur within area                           |
| <a href="#">Hirundapus caudacutus</a><br>White-throated Needletail [682]   |            | Species or species habitat known to occur within area                      |
| <a href="#">Hirundo rustica</a><br>Barn Swallow [662]  |            | Species or species habitat known to occur within area                      |
| <a href="#">Monarcha frater</a><br>Black-winged Monarch [607]  |            | Species or species habitat may occur within area                           |
| <a href="#">Monarcha melanopsis</a><br>Black-faced Monarch [609]   |            | Species or species habitat known to occur within area                      |
| <a href="#">Monarcha trivirgatus</a><br>Spectacled Monarch [610]   |            | Species or species habitat known to occur within area                      |

| Name  | Threatened            | Type of Presence                                       |
|---|-----------------------|--|
| <a href="#">Motacilla flava</a><br>Yellow Wagtail [644]                               |                       | Species or species habitat likely to occur within area |
| <a href="#">Myiagra cyanoleuca</a><br>Satin Flycatcher [612]                          |                       | Species or species habitat known to occur within area  |
| <a href="#">Rhipidura rufifrons</a><br>Rufous Fantail [592]                           |                       | Species or species habitat known to occur within area  |
| <b>Migratory Wetlands Species</b>   |                       |  |
| <a href="#">Actitis hypoleucos</a><br>Common Sandpiper [59309]                        |                       | Species or species habitat known to occur within area  |
| <a href="#">Calidris acuminata</a><br>Sharp-tailed Sandpiper [874]                    |                       | Species or species habitat known to occur within area  |
| <a href="#">Calidris canutus</a><br>Red Knot, Knot [855]                              | Endangered            | Species or species habitat known to occur within area  |
| <a href="#">Calidris ferruginea</a><br>Curlew Sandpiper [856]                         | Critically Endangered | Species or species habitat known to occur within area  |
| <a href="#">Calidris melanotos</a><br>Pectoral Sandpiper [858]                        |                       | Species or species habitat likely to occur within area |
| <a href="#">Gallinago hardwickii</a><br>Latham's Snipe, Japanese Snipe [863]          |                       | Species or species habitat may occur within area       |
| <a href="#">Limosa lapponica</a><br>Bar-tailed Godwit [844]                           |                       | Species or species habitat known to occur within area  |
| <a href="#">Numenius madagascariensis</a><br>Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat known to occur within area  |
| <a href="#">Pandion haliaetus</a><br>Osprey [952]                                     |                       | Species or species habitat known to occur within area  |
| <a href="#">Tringa nebularia</a><br>Common Greenshank, Greenshank [832]               |                       | Species or species habitat likely to occur within area |

## Other Matters Protected by the EPBC Act

| Listed Marine Species  |            | [ <a href="#">Resource Information</a> ]              |
|--|------------|---|
| * Species is listed under a different scientific name on the EPBC Act - Threatened Species list. |            |   |
| Name   | Threatened | Type of Presence                                      |
| <b>Birds</b>   |            |   |
| <a href="#">Actitis hypoleucos</a><br>Common Sandpiper [59309]                                   |            | Species or species habitat known to occur within area |
| <a href="#">Anous stolidus</a><br>Common Noddy [825]   |            | Species or species habitat known to occur within area |

| Name   | Threatened            | Type of Presence                                       |
|--|-----------------------|--|
| <a href="#">Anseranas semipalmata</a><br>Magpie Goose [978]                    |                       | Species or species habitat may occur within area       |
| <a href="#">Apus pacificus</a><br>Fork-tailed Swift [678]                      |                       | Species or species habitat likely to occur within area |
| <a href="#">Ardea alba</a><br>Great Egret, White Egret [59541]                 |                       | Species or species habitat known to occur within area  |
| <a href="#">Ardea ibis</a><br>Cattle Egret [59542]                             |                       | Species or species habitat may occur within area       |
| <a href="#">Calidris acuminata</a><br>Sharp-tailed Sandpiper [874]             |                       | Species or species habitat known to occur within area  |
| <a href="#">Calidris canutus</a><br>Red Knot, Knot [855]                       | Endangered            | Species or species habitat known to occur within area  |
| <a href="#">Calidris ferruginea</a><br>Curlew Sandpiper [856]                  | Critically Endangered | Species or species habitat known to occur within area  |
| <a href="#">Calidris melanotos</a><br>Pectoral Sandpiper [858]                 |                       | Species or species habitat likely to occur within area |
| <a href="#">Chrysococcyx osculans</a><br>Black-eared Cuckoo [705]              |                       | Species or species habitat may occur within area       |
| <a href="#">Fregata ariel</a><br>Lesser Frigatebird, Least Frigatebird [1012]  |                       | Species or species habitat known to occur within area  |
| <a href="#">Fregata minor</a><br>Great Frigatebird, Greater Frigatebird [1013] |                       | Species or species habitat known to occur within area  |
| <a href="#">Gallinago hardwickii</a><br>Latham's Snipe, Japanese Snipe [863]   |                       | Species or species habitat may occur within area       |
| <a href="#">Haliaeetus leucogaster</a><br>White-bellied Sea-Eagle [943]        |                       | Species or species habitat known to occur within area  |
| <a href="#">Hirundapus caudacutus</a><br>White-throated Needletail [682]       |                       | Species or species habitat known to occur within area  |
| <a href="#">Hirundo daurica</a><br>Red-rumped Swallow [59480]                  |                       | Species or species habitat known to occur within area  |
| <a href="#">Hirundo rustica</a><br>Barn Swallow [662]                          |                       | Species or species habitat known to occur within area  |
| <a href="#">Limosa lapponica</a><br>Bar-tailed Godwit [844]                    |                       | Species or species habitat known to occur within area  |
| <a href="#">Merops ornatus</a><br>Rainbow Bee-eater [670]                      |                       | Species or species habitat may occur within area       |

| Name   | Threatened            | Type of Presence                                       |
|--|-----------------------|--|
| <a href="#">Monarcha frater</a><br>Black-winged Monarch [607]  |                       | Species or species habitat may occur within area       |
| <a href="#">Monarcha melanopsis</a><br>Black-faced Monarch [609]   |                       | Species or species habitat known to occur within area  |
| <a href="#">Monarcha trivirgatus</a><br>Spectacled Monarch [610]   |                       | Species or species habitat known to occur within area  |
| <a href="#">Motacilla flava</a><br>Yellow Wagtail [644]  |                       | Species or species habitat likely to occur within area |
| <a href="#">Myiagra cyanoleuca</a><br>Satin Flycatcher [612]   |                       | Species or species habitat known to occur within area  |
| <a href="#">Numenius madagascariensis</a><br>Eastern Curlew, Far Eastern Curlew [847]                                  | Critically Endangered | Species or species habitat known to occur within area  |
| <a href="#">Pandion haliaetus</a><br>Osprey [952]  |                       | Species or species habitat known to occur within area  |
| <a href="#">Rhipidura rufifrons</a><br>Rufous Fantail [592]  |                       | Species or species habitat known to occur within area  |
| <a href="#">Rostratula benghalensis (sensu lato)</a><br>Painted Snipe [889]  | Endangered*           | Species or species habitat may occur within area       |
| <a href="#">Sterna albifrons</a><br>Little Tern [813]  |                       | Species or species habitat may occur within area       |
| <a href="#">Tringa nebularia</a><br>Common Greenshank, Greenshank [832]  |                       | Species or species habitat likely to occur within area |
| <b>Fish</b>  |                       |  |
| <a href="#">Acentronura tentaculata</a><br>Shortpouch Pygmy Pipehorse [66187]  |                       | Species or species habitat may occur within area       |
| <a href="#">Bulbonaricus davaoensis</a><br>Davao Pughead Pipefish [66190]  |                       | Species or species habitat may occur within area       |
| <a href="#">Choeroichthys brachysoma</a><br>Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]               |                       | Species or species habitat may occur within area       |
| <a href="#">Choeroichthys sculptus</a><br>Sculptured Pipefish [66197]  |                       | Species or species habitat may occur within area       |
| <a href="#">Choeroichthys suillus</a><br>Pig-snouted Pipefish [66198]  |                       | Species or species habitat may occur within area       |
| <a href="#">Corythoichthys amplexus</a><br>Fijian Banded Pipefish, Brown-banded Pipefish [66199]                       |                       | Species or species habitat may occur within area       |
| <a href="#">Corythoichthys flavofasciatus</a><br>Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200] |                       | Species or species habitat may occur within area       |

| Name   | Threatened | Type of Presence                                 |
|--|------------|--|
| <a href="#">Corythoichthys intestinalis</a><br>Australian Messmate Pipefish, Banded Pipefish [66202]                           |            | Species or species habitat may occur within area |
| <a href="#">Corythoichthys ocellatus</a><br>Orange-spotted Pipefish, Ocellated Pipefish [66203]                                |            | Species or species habitat may occur within area |
| <a href="#">Corythoichthys paxtoni</a><br>Paxton's Pipefish [66204]  |            | Species or species habitat may occur within area |
| <a href="#">Corythoichthys schultzi</a><br>Schultz's Pipefish [66205]  |            | Species or species habitat may occur within area |
| <a href="#">Cosmocampus maxweberi</a><br>Maxweber's Pipefish [66209]   |            | Species or species habitat may occur within area |
| <a href="#">Doryrhamphus dactyliophorus</a><br>Banded Pipefish, Ringed Pipefish [66210]  |            | Species or species habitat may occur within area |
| <a href="#">Doryrhamphus excisus</a><br>Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211] |            | Species or species habitat may occur within area |
| <a href="#">Doryrhamphus janssi</a><br>Cleaner Pipefish, Janss' Pipefish [66212]   |            | Species or species habitat may occur within area |
| <a href="#">Festucalex cinctus</a><br>Girdled Pipefish [66214]   |            | Species or species habitat may occur within area |
| <a href="#">Festucalex gibbsi</a><br>Gibbs' Pipefish [66215]   |            | Species or species habitat may occur within area |
| <a href="#">Halicampus dunckeri</a><br>Red-hair Pipefish, Duncker's Pipefish [66220]   |            | Species or species habitat may occur within area |
| <a href="#">Halicampus grayi</a><br>Mud Pipefish, Gray's Pipefish [66221]  |            | Species or species habitat may occur within area |
| <a href="#">Halicampus macrorhynchus</a><br>Whiskered Pipefish, Ornate Pipefish [66222]  |            | Species or species habitat may occur within area |
| <a href="#">Halicampus mataafae</a><br>Samoan Pipefish [66223]   |            | Species or species habitat may occur within area |
| <a href="#">Halicampus nitidus</a><br>Glittering Pipefish [66224]  |            | Species or species habitat may occur within area |
| <a href="#">Halicampus spirostris</a><br>Spiny-snout Pipefish [66225]  |            | Species or species habitat may occur within area |
| <a href="#">Hippichthys cyanospilos</a><br>Blue-speckled Pipefish, Blue-spotted Pipefish [66228]                               |            | Species or species habitat may occur within area |
| <a href="#">Hippichthys heptagonus</a><br>Madura Pipefish, Reticulated Freshwater Pipefish [66229]                             |            | Species or species habitat may occur within area |

| Name  | Threatened | Type of Presence                                 |
|---|------------|--|
| <a href="#">Hippichthys penicillus</a><br>Beady Pipefish, Steep-nosed Pipefish [66231]                                  |            | Species or species habitat may occur within area |
| <a href="#">Hippichthys spicifer</a><br>Belly-barred Pipefish, Banded Freshwater Pipefish [66232]                       |            | Species or species habitat may occur within area |
| <a href="#">Hippocampus bargibanti</a><br>Pygmy Seahorse [66721]  |            | Species or species habitat may occur within area |
| <a href="#">Hippocampus histrix</a><br>Spiny Seahorse, Thorny Seahorse [66236]  |            | Species or species habitat may occur within area |
| <a href="#">Hippocampus kuda</a><br>Spotted Seahorse, Yellow Seahorse [66237]   |            | Species or species habitat may occur within area |
| <a href="#">Hippocampus planifrons</a><br>Flat-face Seahorse [66238]  |            | Species or species habitat may occur within area |
| <a href="#">Hippocampus zebra</a><br>Zebra Seahorse [66241]   |            | Species or species habitat may occur within area |
| <a href="#">Micrognathus andersonii</a><br>Anderson's Pipefish, Shortnose Pipefish [66253]                              |            | Species or species habitat may occur within area |
| <a href="#">Micrognathus brevirostris</a><br>thorntail Pipefish, Thorn-tailed Pipefish [66254]                          |            | Species or species habitat may occur within area |
| <a href="#">Microphis brachyurus</a><br>Short-tail Pipefish, Short-tailed River Pipefish [66257]                        |            | Species or species habitat may occur within area |
| <a href="#">Nannocampus pictus</a><br>Painted Pipefish, Reef Pipefish [66263]   |            | Species or species habitat may occur within area |
| <a href="#">Phoxocampus diacanthus</a><br>Pale-blotched Pipefish, Spined Pipefish [66266]                               |            | Species or species habitat may occur within area |
| <a href="#">Siokunichthys breviceps</a><br>Softcoral Pipefish, Soft-coral Pipefish [66270]                              |            | Species or species habitat may occur within area |
| <a href="#">Solegnathus hardwickii</a><br>Pallid Pipehorse, Hardwick's Pipehorse [66272]                                |            | Species or species habitat may occur within area |
| <a href="#">Solenostomus cyanopterus</a><br>Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]                   |            | Species or species habitat may occur within area |
| <a href="#">Solenostomus paradoxus</a><br>Ornate Ghostpipefish, Harlequin Ghost Pipefish, Ornate Ghost Pipefish [66184] |            | Species or species habitat may occur within area |
| <a href="#">Syngnathoides biaculeatus</a><br>Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]   |            | Species or species habitat may occur within area |
| <a href="#">Trachyrhamphus bicoarctatus</a><br>Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]   |            | Species or species habitat may occur within area |



| Name  | Threatened | Type of Presence                                       |
|---|------------|--|
| <a href="#">Trachyrhamphus longirostris</a><br>Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281] |            | Species or species habitat may occur within area       |
| <b>Mammals</b>  |            |  |
| <a href="#">Dugong dugon</a><br>Dugong [28]   |            | Species or species habitat known to occur within area  |
| <b>Reptiles</b>   |            |  |
| <a href="#">Acalyptophis peronii</a><br>Horned Seasnake [1114]  |            | Species or species habitat may occur within area       |
| <a href="#">Aipysurus duboisii</a><br>Dubois' Seasnake [1116]   |            | Species or species habitat may occur within area       |
| <a href="#">Aipysurus eydouxii</a><br>Spine-tailed Seasnake [1117]  |            | Species or species habitat may occur within area       |
| <a href="#">Aipysurus laevis</a><br>Olive Seasnake [1120]   |            | Species or species habitat may occur within area       |
| <a href="#">Astrotia stokesii</a><br>Stokes' Seasnake [1122]  |            | Species or species habitat may occur within area       |
| <a href="#">Caretta caretta</a><br>Loggerhead Turtle [1763]   | Endangered | Breeding likely to occur within area                   |
| <a href="#">Chelonia mydas</a><br>Green Turtle [1765]   | Vulnerable | Breeding known to occur within area                    |
| <a href="#">Crocodylus porosus</a><br>Salt-water Crocodile, Estuarine Crocodile [1774]                                      |            | Species or species habitat likely to occur within area |
| <a href="#">Dermochelys coriacea</a><br>Leatherback Turtle, Leathery Turtle, Luth [1768]                                    | Endangered | Breeding likely to occur within area                   |
| <a href="#">Disteira kingii</a><br>Spectacled Seasnake [1123]   |            | Species or species habitat may occur within area       |
| <a href="#">Disteira major</a><br>Olive-headed Seasnake [1124]  |            | Species or species habitat may occur within area       |
| <a href="#">Enhydrina schistosa</a><br>Beaked Seasnake [1126]   |            | Species or species habitat may occur within area       |
| <a href="#">Eretmochelys imbricata</a><br>Hawksbill Turtle [1766]   | Vulnerable | Species or species habitat known to occur within area  |
| <a href="#">Hydrophis elegans</a><br>Elegant Seasnake [1104]  |            | Species or species habitat may occur within area       |
| <a href="#">Hydrophis mcdowellii</a><br>null [25926]  |            | Species or species habitat may occur within area       |
| <a href="#">Hydrophis ornatus</a><br>Spotted Seasnake, Ornate Reef Seasnake [1111]  |            | Species or species habitat may occur within area       |
| <a href="#">Lapemis hardwickii</a><br>Spine-bellied Seasnake [1113]   |            | Species or species                                     |

| Name   | Threatened | Type of Presence  |
|--|------------|---|
| <a href="#">Laticauda colubrina</a><br>a sea krait [1092]                                  |            | habitat may occur within area<br><br>Species or species habitat may occur within area |
| <a href="#">Laticauda laticaudata</a><br>a sea krait [1093]                                |            | Species or species habitat may occur within area                                      |
| <a href="#">Lepidochelys olivacea</a><br>Olive Ridley Turtle, Pacific Ridley Turtle [1767] | Endangered | Breeding likely to occur within area  |
| <a href="#">Natator depressus</a><br>Flatback Turtle [59257]                               | Vulnerable | Foraging, feeding or related behaviour known to occur within area                     |
| <a href="#">Pelamis platurus</a><br>Yellow-bellied Seasnake [1091]                         |            | Species or species habitat may occur within area                                      |

## Whales and other Cetaceans

[ [Resource Information](#) ]

| Name  | Status     | Type of Presence  |
|---|------------|---|
| <b>Mammals</b>  |            |   |
| <a href="#">Balaenoptera acutorostrata</a><br>Minke Whale [33]  |            | Species or species habitat may occur within area                  |
| <a href="#">Balaenoptera edeni</a><br>Bryde's Whale [35]  |            | Species or species habitat may occur within area                  |
| <a href="#">Balaenoptera musculus</a><br>Blue Whale [36]  | Endangered | Species or species habitat may occur within area                  |
| <a href="#">Delphinus delphis</a><br>Common Dolphin, Short-beaked Common Dolphin [60]                   |            | Species or species habitat may occur within area                  |
| <a href="#">Grampus griseus</a><br>Risso's Dolphin, Grampus [64]  |            | Species or species habitat may occur within area                  |
| <a href="#">Megaptera novaeangliae</a><br>Humpback Whale [38]   | Vulnerable | Species or species habitat known to occur within area             |
| <a href="#">Orcaella brevirostris</a><br>Irrawaddy Dolphin [45]   |            | Species or species habitat may occur within area                  |
| <a href="#">Orcinus orca</a><br>Killer Whale, Orca [46]   |            | Species or species habitat may occur within area                  |
| <a href="#">Sousa chinensis</a><br>Indo-Pacific Humpback Dolphin [50]                                   |            | Foraging, feeding or related behaviour known to occur within area |
| <a href="#">Stenella attenuata</a><br>Spotted Dolphin, Pantropical Spotted Dolphin [51]                 |            | Species or species habitat may occur within area                  |
| <a href="#">Tursiops aduncus</a><br>Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418] |            | Species or species habitat likely to occur within area            |
| <a href="#">Tursiops truncatus s. str.</a><br>Bottlenose Dolphin [68417]                                |            | Species or species habitat may occur within area                  |

## Extra Information

### State and Territory Reserves [\[ Resource Information \]](#)

| Name    | State |
|---------|-------|
| Mowbray | QLD   |

### Invasive Species [\[ Resource Information \]](#)

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

| Name | Status | Type of Presence |
|------|--------|------------------|
|------|--------|------------------|

#### Birds

|  |  |  |
|--|--|--|
| Acridotheres tristis<br>Common Myna, Indian Myna [387] |  | Species or species habitat likely to occur within area |
|--|--|--|

|  |  |  |
|--|--|--|
| Columba livia<br>Rock Pigeon, Rock Dove, Domestic Pigeon [803] |  | Species or species habitat likely to occur within area |
|--|--|--|

|  |  |  |
|--|--|--|
| Lonchura punctulata<br>Nutmeg Mannikin [399] |  | Species or species habitat likely to occur within area |
|--|--|--|

|  |  |  |
|--|--|--|
| Passer domesticus<br>House Sparrow [405] |  | Species or species habitat likely to occur within area |
|--|--|--|

|   |  |  |
|---|--|--|
| Streptopelia chinensis<br>Spotted Turtle-Dove [780] |  | Species or species habitat likely to occur within area |
|---|--|--|

#### Frogs

|                                      |  |   |
|--------------------------------------|--|---|
| Rhinella marina<br>Cane Toad [83218] |  | Species or species habitat known to occur within area |
|--------------------------------------|--|---|

#### Mammals

|  |  |  |
|--|--|--|
| Canis lupus familiaris<br>Domestic Dog [82654] |  | Species or species habitat likely to occur within area |
|--|--|--|

|  |  |  |
|--|--|--|
| Felis catus<br>Cat, House Cat, Domestic Cat [19] |  | Species or species habitat likely to occur within area |
|--|--|--|

|                                   |  |  |
|-----------------------------------|--|--|
| Mus musculus<br>House Mouse [120] |  | Species or species habitat likely to occur within area |
|-----------------------------------|--|--|

| Name   | Status | Type of Presence                                       |
|--|--------|--|
| Oryctolagus cuniculus<br>Rabbit, European Rabbit [128] |        | Species or species habitat likely to occur within area |
| Rattus rattus<br>Black Rat, Ship Rat [84]              |        | Species or species habitat likely to occur within area |
| Sus scrofa<br>Pig [6]                                  |        | Species or species habitat likely to occur within area |

| Plants   |  |  |
|--|--|--|
| Andropogon gayanus<br>Gamba Grass [66895]  |  | Species or species habitat likely to occur within area |
| Cenchrus ciliaris<br>Buffel-grass, Black Buffel-grass [20213]  |  | Species or species habitat may occur within area       |
| Cryptostegia grandiflora<br>Rubber Vine, Rubbervine, India Rubber Vine, India Rubbervine, Palay Rubbervine, Purple Allamanda [18913]   |  | Species or species habitat likely to occur within area |
| Dolichandra unguis-cati<br>Cat's Claw Vine, Yellow Trumpet Vine, Cat's Claw Creeper, Funnel Creeper [85119]  |  | Species or species habitat likely to occur within area |
| Hymenachne amplexicaulis<br>Hymenachne, Olive Hymenachne, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754]  |  | Species or species habitat likely to occur within area |
| Lantana camara<br>Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892] |  | Species or species habitat likely to occur within area |
| Opuntia spp.<br>Prickly Pears [82753]  |  | Species or species habitat likely to occur within area |
| Parthenium hysterophorus<br>Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]  |  | Species or species habitat likely to occur within area |
| Sagittaria platyphylla<br>Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]  |  | Species or species habitat likely to occur within area |
| Salvinia molesta<br>Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]  |  | Species or species habitat likely to occur within area |

| Reptiles   |  |  |
|--|--|--|
| Ramphotyphlops braminus<br>Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258] |  | Species or species habitat likely to occur within area |

| Nationally Important Wetlands                  |  | [ Resource Information ] |
|--|--|--------------------------|
| Name   |  | State                    |
| <a href="#">Great Barrier Reef Marine Park</a> |  | QLD                      |

# Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

# Coordinates

-16.53621 145.47662

# Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

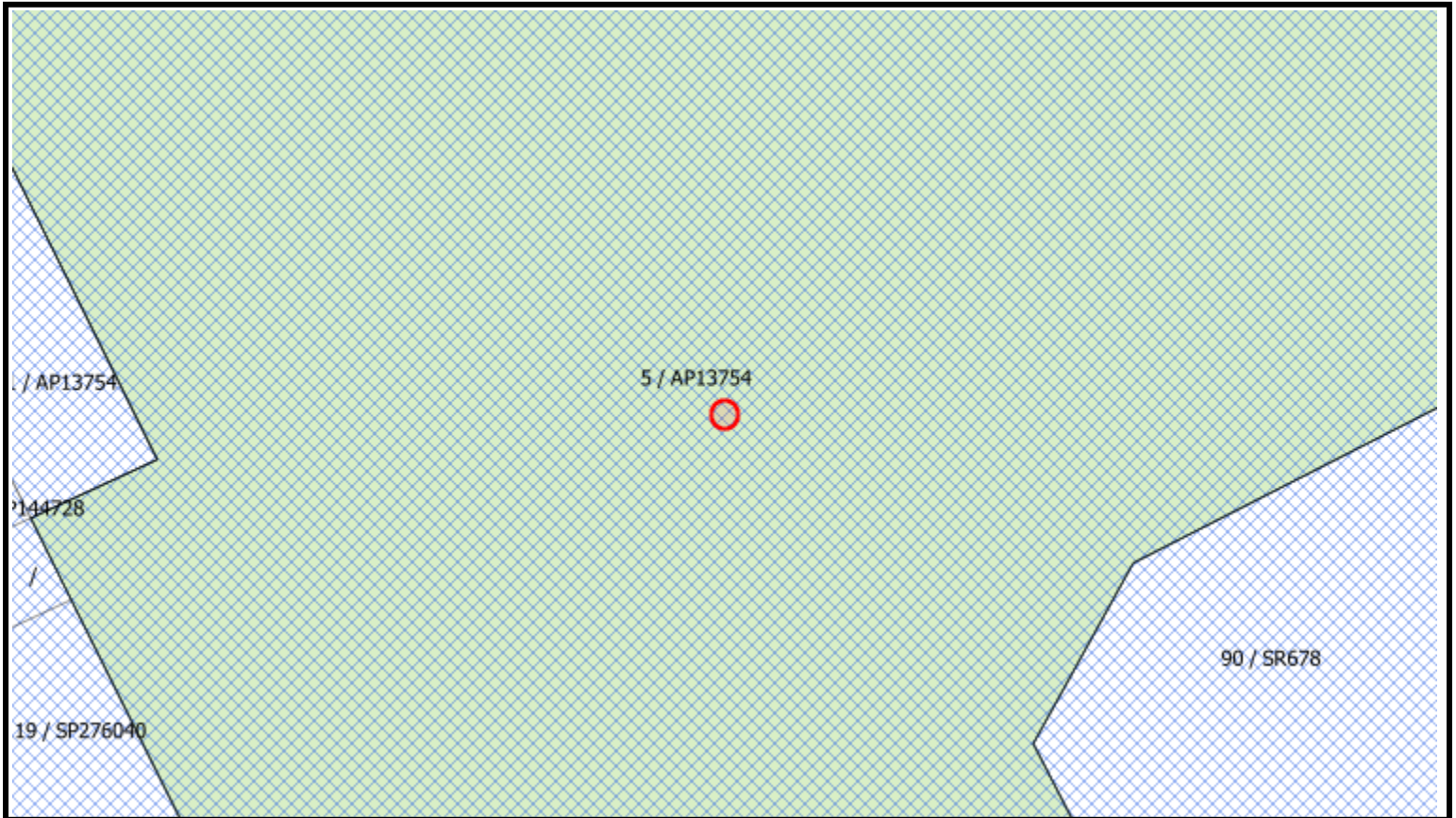
- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

### Latitude/Longitude Search

|                   |            |
|-------------------|------------|
| Reference Number: | 48860      |
| Latitude:         | -16.536210 |
| Longitude:        | 145.476620 |
| Buffer Distance:  | 3 metres   |



There are no Aboriginal or Torres Strait Islander cultural heritage site points recorded in your specific search area.

There are no Aboriginal or Torres Strait Islander cultural heritage site polygons recorded in your specific search area.

## Latitude/Longitude Search

Cultural heritage party for the area is:

| QC Ref Number | QUD Ref Number | Party Name                     | Contact Details  |
|---------------|----------------|--------------------------------|--|
| QC2012/015    | QUD602/2012    | Yirrganydji (Irukandji) People | Yirrganydji Gurabana Aboriginal Corporation<br>c/- Ms Jeanette Singleton<br>PO Box 717<br>MANUNDA QLD 4870<br><br>Phone: (07) 4032 4854<br>Fax: (07) 4032 1890<br>Email: yirrganydjigurabana@gmail.com |

Cultural heritage body for the area is:

| Name  | Contact Details  |
|---|--|
| Yirrganydji Gurabana Aboriginal Corporation | Ms Jeanette Singleton<br>Chairperson<br>PO Box 717<br>Manunda QLD 4870<br><br>Phone: (07) 4032 4854<br>Fax: (07) 4032 1890<br>Email: yirrganydjigurabana@gmail.com |

There are no cultural heritage management plans recorded in your specific search area.

There are no Designated Landscape Areas (DLA) recorded in your specific search area.

There are no Registered Cultural Heritage Study Areas in your specific search area.

Regional Coordinator:

| Name          | Position                                   | Phone        | Mobile       | Email                          |
|---------------|--|--------------|--------------|--------------------------------|
| Leigh Preston | Cultural Heritage Coordinator North Region | 07 4799 7562 | 0427 142 782 | Leigh.Preston@atsip.qld.gov.au |

**Disclaimer:** Department of Aboriginal and Torres Strait Islander Partnerships is the custodian of spatial data provided by various third parties for inclusion in the Aboriginal and Torres Strait Islander cultural heritage online portal. This includes spatial data provided by the National Native Title Tribunal and Aboriginal and Torres Strait Islander parties. Department of Aboriginal and Torres Strait Islander Partnerships is not responsible for the accuracy of information





## Latitude/Longitude Search

provided by third parties or any errors in this search report arising from such information.

## Latitude/Longitude Search

I refer to your submission in which you requested advice regarding Aboriginal or Torres Strait Islander cultural heritage recorded at your nominated location.

The Cultural Heritage Database and Register have been searched in accordance with the location description provided, and the results are set out in the above report.

Aboriginal or Torres Strait Islander cultural heritage which may exist within the search area is protected under the terms of the *Aboriginal Cultural Heritage Act 2003* and the *Torres Strait Islander Cultural Heritage Act 2003*, even if the Department of Aboriginal and Torres Strait Islander Partnerships has no records relating to it.

Under the legislation a person carrying out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal or Torres Strait Islander cultural heritage. This applies whether or not such places are recorded in an official register and whether or not they are located on private land.

Please refer to our website <https://www.datsip.qld.gov.au/people-communities/aboriginal-torres-strait-islander-cultural-heritage> for a copy of the gazetted Cultural Heritage Duty of Care Guidelines, which set out reasonable and practicable measure for meeting the cultural heritage duty of care.

In order to meet your duty of care, any land-use activity within the vicinity of recorded cultural heritage should not proceed without the agreement of the Aboriginal or Torres Strait Islander Party for the area, or by developing a Cultural Heritage Management Plan under Part 7 of the legislation.

If your proposed activity is deemed a Category 5 activity pursuant to the Duty of Care Guidelines, there is generally a high risk that it may harm cultural heritage. In these circumstances, the activity should not proceed without cultural heritage assessment.

Where a category 5 activity is proposed, it is necessary to notify the Aboriginal or Torres Strait Islander Party and seek:

- a. Advice as to whether the area is culturally significant;
- b. If it is, agreement on how best the activity may be managed to avoid or minimise harm to any cultural heritage values.

The extent to which the person has complied with Cultural Heritage Duty of Care Guidelines and the extent the person consulted Aboriginal or Torres Strait Islander Parties about carrying out the activity – and the results of the consultation – are factors a court may consider when determining if a land user has complied with the cultural heritage duty of care.



## Latitude/Longitude Search

Should you have any further queries, please do not hesitate to contact the Search Approval Officer on 1300 378 401.

Kind regards

The Director  
Cultural Heritage | Community Participation | Department of Aboriginal and Torres Strait Islander Partnerships



# Queensland Government

## Wildlife Online Extract

Search Criteria: Species List for a Specified Point

Species: All

Type: All

Status: All

Records: All

Date: All

Latitude: -16.5362

Longitude: 145.4766

Distance: 3

Email: oscar.harvey@ghd.com

Date submitted: Tuesday 12 Feb 2019 11:19:44

Date extracted: Tuesday 12 Feb 2019 11:20:13

The number of records retrieved = 241

### **Disclaimer**

As the DSITIA is still in a process of collating and vetting data, it is possible the information given is not complete. The information provided should only be used for the project for which it was requested and it should be appropriately acknowledged as being derived from Wildlife Online when it is used.

The State of Queensland does not invite reliance upon, nor accept responsibility for this information. Persons should satisfy themselves through independent means as to the accuracy and completeness of this information.

No statements, representations or warranties are made about the accuracy or completeness of this information. The State of Queensland disclaims all responsibility for this information and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.

| Kingdom | Class | Family        | Scientific Name                  | Common Name                          | I | Q  | A | Records |
|---------|-------|---------------|----------------------------------|--------------------------------------|---|----|---|---------|
| animals | birds | Acanthizidae  | <i>Gerygone mouki</i>            | brown gerygone                       |   | C  |   | 1       |
| animals | birds | Acanthizidae  | <i>Gerygone palpebrosa</i>       | fairy gerygone                       |   | C  |   | 3       |
| animals | birds | Accipitridae  | <i>Haliastur indus</i>           | brahminy kite                        |   | C  |   | 6       |
| animals | birds | Accipitridae  | <i>Elanus axillaris</i>          | black-shouldered kite                |   | C  |   | 1       |
| animals | birds | Accipitridae  | <i>Pandion cristatus</i>         | eastern osprey                       |   | SL |   | 5       |
| animals | birds | Accipitridae  | <i>Milvus migrans</i>            | black kite                           |   | C  |   | 3       |
| animals | birds | Accipitridae  | <i>Aquila audax</i>              | wedge-tailed eagle                   |   | C  |   | 1       |
| animals | birds | Accipitridae  | <i>Accipiter fasciatus</i>       | brown goshawk                        |   | C  |   | 1       |
| animals | birds | Accipitridae  | <i>Accipiter novaehollandiae</i> | grey goshawk                         |   | C  |   | 1       |
| animals | birds | Accipitridae  | <i>Aviceda subcristata</i>       | Pacific baza                         |   | C  |   | 1       |
| animals | birds | Accipitridae  | <i>Haliastur sphenurus</i>       | whistling kite                       |   | C  |   | 2       |
| animals | birds | Accipitridae  | <i>Haliaeetus leucogaster</i>    | white-bellied sea-eagle              |   | C  |   | 5       |
| animals | birds | Accipitridae  | <i>Hamirostra melanosternon</i>  | black-breasted buzzard               |   | C  |   | 1       |
| animals | birds | Alaudidae     | <i>Mirafra javanica</i>          | Horsfield's bushlark                 |   | C  |   | 1       |
| animals | birds | Alcedinidae   | <i>Ceyx azureus</i>              | azure kingfisher                     |   | C  |   | 2       |
| animals | birds | Anatidae      | <i>Anas superciliosa</i>         | Pacific black duck                   |   | C  |   | 5       |
| animals | birds | Anatidae      | <i>Tadorna radjah</i>            | radjah shelduck                      |   | C  |   | 1       |
| animals | birds | Anatidae      | <i>Dendrocygna arcuata</i>       | wandering whistling-duck             |   | C  |   | 1       |
| animals | birds | Apodidae      | <i>Apus pacificus</i>            | fork-tailed swift                    |   | SL |   | 2       |
| animals | birds | Apodidae      | <i>Hirundapus caudacutus</i>     | white-throated needletail            |   | SL |   | 1       |
| animals | birds | Apodidae      | <i>Aerodramus terraereginae</i>  | Australian swiftlet                  |   | C  |   | 17      |
| animals | birds | Ardeidae      | <i>Butorides striata</i>         | striated heron                       |   | C  |   | 5       |
| animals | birds | Ardeidae      | <i>Ardea alba modesta</i>        | eastern great egret                  |   | C  |   | 5       |
| animals | birds | Ardeidae      | <i>Egretta garzetta</i>          | little egret                         |   | C  |   | 4       |
| animals | birds | Ardeidae      | <i>Ardea intermedia</i>          | intermediate egret                   |   | C  |   | 1       |
| animals | birds | Ardeidae      | <i>Egretta sacra</i>             | eastern reef egret                   |   | C  |   | 4       |
| animals | birds | Ardeidae      | <i>Egretta novaehollandiae</i>   | white-faced heron                    |   | C  |   | 9       |
| animals | birds | Artamidae     | <i>Artamus cinereus</i>          | black-faced woodswallow              |   | C  |   | 1       |
| animals | birds | Artamidae     | <i>Cracticus tibicen</i>         | Australian magpie                    |   | C  |   | 1       |
| animals | birds | Artamidae     | <i>Artamus leucorhynchus</i>     | white-breasted woodswallow           |   | C  |   | 15      |
| animals | birds | Artamidae     | <i>Cracticus nigrogularis</i>    | piebald butcherbird                  |   | C  |   | 1       |
| animals | birds | Artamidae     | <i>Cracticus quoyi</i>           | black butcherbird                    |   | C  |   | 8       |
| animals | birds | Burhinidae    | <i>Esacus magnirostris</i>       | beach stone-curlew                   |   | V  |   | 17      |
| animals | birds | Burhinidae    | <i>Burhinus grallarius</i>       | bush stone-curlew                    |   | C  |   | 1       |
| animals | birds | Cacatuidae    | <i>Eolophus roseicapilla</i>     | galah                                |   | C  |   | 1       |
| animals | birds | Cacatuidae    | <i>Cacatua galerita</i>          | sulphur-crested cockatoo             |   | C  |   | 4       |
| animals | birds | Campephagidae | <i>Coracina tenuirostris</i>     | cicadabird                           |   | C  |   | 1       |
| animals | birds | Campephagidae | <i>Coracina novaehollandiae</i>  | black-faced cuckoo-shrike            |   | C  |   | 3       |
| animals | birds | Campephagidae | <i>Coracina papuensis</i>        | white-bellied cuckoo-shrike          |   | C  |   | 12      |
| animals | birds | Campephagidae | <i>Lalage tricolor</i>           | white-winged triller                 |   | C  |   | 1       |
| animals | birds | Campephagidae | <i>Lalage leucomela</i>          | varied triller                       |   | C  |   | 25      |
| animals | birds | Charadriidae  | <i>Pluvialis fulva</i>           | Pacific golden plover                |   | SL |   | 9       |
| animals | birds | Charadriidae  | <i>Charadrius mongolus</i>       | lesser sand plover                   |   | E  | E | 8       |
| animals | birds | Charadriidae  | <i>Elseyornis melanops</i>       | black-fronted dotterel               |   | C  |   | 7       |
| animals | birds | Charadriidae  | <i>Pluvialis squatarola</i>      | grey plover                          |   | SL |   | 1       |
| animals | birds | Charadriidae  | <i>Vanellus miles miles</i>      | masked lapwing (northern subspecies) |   | C  |   | 6       |

| Kingdom | Class | Family         | Scientific Name                        | Common Name                           | I | Q  | A | Records |
|---------|-------|----------------|--|---------------------------------------|---|----|---|---------|
| animals | birds | Charadriidae   | <i>Vanellus miles</i>                  | masked lapwing                        |   | C  |   | 4       |
| animals | birds | Charadriidae   | <i>Charadrius leschenaultii</i>        | greater sand plover                   |   | V  | V | 7       |
| animals | birds | Charadriidae   | <i>Charadrius ruficapillus</i>         | red-capped plover                     |   | C  |   | 4       |
| animals | birds | Ciconiidae     | <i>Ephippiorhynchus asiaticus</i>      | black-necked stork                    |   | C  |   | 2       |
| animals | birds | Cisticolidae   | <i>Cisticola exilis</i>                | golden-headed cisticola               |   | C  |   | 1       |
| animals | birds | Climacteridae  | <i>Cormobates leucophaea minor</i>     | white-throated treecreeper (northern) |   | C  |   | 1       |
| animals | birds | Columbidae     | <i>Streptopelia chinensis</i>          | spotted dove                          | Y |    |   | 5       |
| animals | birds | Columbidae     | <i>Macropygia amboinensis</i>          | brown cuckoo-dove                     |   | C  |   | 1       |
| animals | birds | Columbidae     | <i>Ptilinopus magnificus</i>           | wompoo fruit-dove                     |   | C  |   | 1       |
| animals | birds | Columbidae     | <i>Ptilinopus superbus</i>             | superb fruit-dove                     |   | C  |   | 2       |
| animals | birds | Columbidae     | <i>Geopelia humeralis</i>              | bar-shouldered dove                   |   | C  |   | 30      |
| animals | birds | Columbidae     | <i>Chalcophaps indica</i>              | emerald dove                          |   | C  |   | 2       |
| animals | birds | Columbidae     | <i>Ptilinopus regina</i>               | rose-crowned fruit-dove               |   | C  |   | 7       |
| animals | birds | Columbidae     | <i>Columba leucomela</i>               | white-headed pigeon                   |   | C  |   | 1       |
| animals | birds | Columbidae     | <i>Geopelia striata</i>                | peaceful dove                         |   | C  |   | 12      |
| animals | birds | Columbidae     | <i>Ducula bicolor</i>                  | pie imperial-pigeon                   |   | C  |   | 16      |
| animals | birds | Coraciidae     | <i>Eurystomus orientalis</i>           | dollarbird                            |   | C  |   | 4       |
| animals | birds | Corvidae       | <i>Corvus orru</i>                     | Torresian crow                        |   | C  |   | 1       |
| animals | birds | Cuculidae      | <i>Cacomantis variolosus</i>           | brush cuckoo                          |   | C  |   | 4       |
| animals | birds | Cuculidae      | <i>Scythrops novaehollandiae</i>       | channel-billed cuckoo                 |   | C  |   | 3       |
| animals | birds | Cuculidae      | <i>Cacomantis flabelliformis</i>       | fan-tailed cuckoo                     |   | C  |   | 1       |
| animals | birds | Cuculidae      | <i>Centropus phasianinus</i>           | pheasant coucal                       |   | C  |   | 3       |
| animals | birds | Cuculidae      | <i>Eudynamys orientalis</i>            | eastern koel                          |   | C  |   | 3       |
| animals | birds | Cuculidae      | <i>Chalcites minutillus</i>            | little bronze-cuckoo                  |   | C  |   | 1       |
| animals | birds | Cuculidae      | <i>Chalcites minutillus russatus</i>   | Gould's bronze-cuckoo                 |   | C  |   | 2       |
| animals | birds | Dicruridae     | <i>Dicrurus bracteatus</i>             | spangled drongo                       |   | C  |   | 24      |
| animals | birds | Estrildidae    | <i>Lonchura punctulata</i>             | nutmeg mannikin                       | Y |    |   | 6       |
| animals | birds | Estrildidae    | <i>Lonchura castaneothorax</i>         | chestnut-breasted mannikin            |   | C  |   | 3       |
| animals | birds | Estrildidae    | <i>Neochmia temporalis</i>             | red-browed finch                      |   | C  |   | 1       |
| animals | birds | Falconidae     | <i>Falco berigora</i>                  | brown falcon                          |   | C  |   | 1       |
| animals | birds | Haematopodidae | <i>Haematopus longirostris</i>         | Australian pied oystercatcher         |   | C  |   | 1       |
| animals | birds | Halcyonidae    | <i>Dacelo novaeguineae</i>             | laughing kookaburra                   |   | C  |   | 7       |
| animals | birds | Halcyonidae    | <i>Dacelo leachii</i>                  | blue-winged kookaburra                |   | C  |   | 1       |
| animals | birds | Halcyonidae    | <i>Todiramphus sanctus</i>             | sacred kingfisher                     |   | C  |   | 15      |
| animals | birds | Halcyonidae    | <i>Todiramphus macleayii</i>           | forest kingfisher                     |   | C  |   | 6       |
| animals | birds | Halcyonidae    | <i>Todiramphus sordidus</i>            | Torresian kingfisher                  |   | C  |   | 2       |
| animals | birds | Hirundinidae   | <i>Hirundo neoxena</i>                 | welcome swallow                       |   | C  |   | 14      |
| animals | birds | Hirundinidae   | <i>Petrochelidon nigricans</i>         | tree martin                           |   | C  |   | 3       |
| animals | birds | Laridae        | <i>Sterna sumatrana</i>                | black-naped tern                      |   | SL |   | 1       |
| animals | birds | Laridae        | <i>Thalasseus bergii</i>               | crested tern                          |   | SL |   | 3       |
| animals | birds | Laridae        | <i>Hydroprogne caspia</i>              | Caspian tern                          |   | SL |   | 6       |
| animals | birds | Laridae        | <i>Chroicocephalus novaehollandiae</i> | silver gull                           |   | C  |   | 4       |
| animals | birds | Laridae        | <i>Gelochelidon nilotica</i>           | gull-billed tern                      |   | SL |   | 4       |
| animals | birds | Laridae        | <i>Thalasseus bengalensis</i>          | lesser crested tern                   |   | C  |   | 1       |
| animals | birds | Laridae        | <i>Sternula albifrons</i>              | little tern                           |   | SL |   | 2       |
| animals | birds | Maluridae      | <i>Malurus amabilis</i>                | lovely fairy-wren                     |   | C  |   | 3       |

| Kingdom | Class | Family            | Scientific Name                            | Common Name               | I | Q  | A | Records |
|---------|-------|-------------------|--|---------------------------|---|----|---|---------|
| animals | birds | Megapodiidae      | <i>Megapodius reinwardt</i>                | orange-footed scrubfowl   |   | C  |   | 16      |
| animals | birds | Meliphagidae      | <i>Meliphaga notata</i>                    | yellow-spotted honeyeater |   | C  |   | 44      |
| animals | birds | Meliphagidae      | <i>Myzomela obscura</i>                    | dusky honeyeater          |   | C  |   | 63      |
| animals | birds | Meliphagidae      | <i>Stomiopera flava</i>                    | yellow honeyeater         |   | C  |   | 2       |
| animals | birds | Meliphagidae      | <i>Meliphaga lewinii</i>                   | Lewin's honeyeater        |   | C  |   | 2       |
| animals | birds | Meliphagidae      | <i>Entomyzon cyanotis</i>                  | blue-faced honeyeater     |   | C  |   | 4       |
| animals | birds | Meliphagidae      | <i>Meliphaga gracilis</i>                  | graceful honeyeater       |   | C  |   | 27      |
| animals | birds | Meliphagidae      | <i>Philemon buceroides</i>                 | helmeted friarbird        |   | C  |   | 18      |
| animals | birds | Meliphagidae      | <i>Gavicalis versicolor</i>                | varied honeyeater         |   | C  |   | 21      |
| animals | birds | Meliphagidae      | <i>Lichmera indistincta</i>                | brown honeyeater          |   | C  |   | 11      |
| animals | birds | Meliphagidae      | <i>Melithreptus lunatus</i>                | white-naped honeyeater    |   | C  |   | 2       |
| animals | birds | Meliphagidae      | <i>Ramsayornis modestus</i>                | brown-backed honeyeater   |   | C  |   | 9       |
| animals | birds | Meliphagidae      | <i>Philemon corniculatus</i>               | noisy friarbird           |   | C  |   | 3       |
| animals | birds | Meliphagidae      | <i>Xanthotis macleayanus</i>               | Macleay's honeyeater      |   | C  |   | 16      |
| animals | birds | Meliphagidae      | <i>Philemon citreogularis</i>              | little friarbird          |   | C  |   | 1       |
| animals | birds | Meliphagidae      | <i>Melithreptus albogularis</i>            | white-throated honeyeater |   | C  |   | 2       |
| animals | birds | Meropidae         | <i>Merops ornatus</i>                      | rainbow bee-eater         |   | C  |   | 22      |
| animals | birds | Monarchidae       | <i>Grallina cyanoleuca</i>                 | magpie-lark               |   | C  |   | 10      |
| animals | birds | Monarchidae       | <i>Carterornis leucotis</i>                | white-eared monarch       |   | C  |   | 2       |
| animals | birds | Monarchidae       | <i>Monarcha melanopsis</i>                 | black-faced monarch       |   | SL |   | 1       |
| animals | birds | Monarchidae       | <i>Myiagra ruficollis</i>                  | broad-billed flycatcher   |   | C  |   | 1       |
| animals | birds | Monarchidae       | <i>Myiagra rubecula</i>                    | leaden flycatcher         |   | C  |   | 16      |
| animals | birds | Monarchidae       | <i>Myiagra alecto</i>                      | shining flycatcher        |   | C  |   | 5       |
| animals | birds | Monarchidae       | <i>Arses kaupi</i>                         | pieb monarch              |   | C  |   | 2       |
| animals | birds | Monarchidae       | <i>Symposiachrus trivirgatus</i>           | spectacled monarch        |   | SL |   | 6       |
| animals | birds | Monarchidae       | <i>Machaerirhynchus flaviventer</i>        | yellow-breasted boatbill  |   | C  |   | 1       |
| animals | birds | Motacillidae      | <i>Anthus novaeseelandiae</i>              | Australasian pipit        |   | C  |   | 1       |
| animals | birds | Nectariniidae     | <i>Nectarinia jugularis</i>                | olive-backed sunbird      |   | C  |   | 27      |
| animals | birds | Nectariniidae     | <i>Dicaeum hirundinaceum</i>               | mistletoebird             |   | C  |   | 22      |
| animals | birds | Oriolidae         | <i>Oriolus sagittatus</i>                  | olive-backed oriole       |   | C  |   | 3       |
| animals | birds | Oriolidae         | <i>Sphecotheres vieilloti</i>              | Australasian figbird      |   | C  |   | 17      |
| animals | birds | Oriolidae         | <i>Oriolus flavocinctus</i>                | yellow oriole             |   | C  |   | 12      |
| animals | birds | Pachycephalidae   | <i>Pachycephala simplex peninsulae</i>     | grey whistler             |   | C  |   | 3       |
| animals | birds | Pachycephalidae   | <i>Pachycephala pectoralis</i>             | golden whistler           |   | C  |   | 1       |
| animals | birds | Pachycephalidae   | <i>Pachycephala melanura</i>               | mangrove golden whistler  |   | C  |   | 1       |
| animals | birds | Pachycephalidae   | <i>Colluricincla megarrhyncha</i>          | little shrike-thrush      |   | C  |   | 8       |
| animals | birds | Paradisaeidae     | <i>Ptiloris victoriae</i>                  | Victoria's riflebird      |   | C  |   | 1       |
| animals | birds | Passeridae        | <i>Passer domesticus</i>                   | house sparrow             | Y |    |   | 1       |
| animals | birds | Petroicidae       | <i>Tregellasia capito</i>                  | pale-yellow robin         |   | C  |   | 1       |
| animals | birds | Petroicidae       | <i>Microeca flavigaster</i>                | lemon-bellied flycatcher  |   | C  |   | 1       |
| animals | birds | Phalacrocoracidae | <i>Microcarbo melanoleucos</i>             | little pied cormorant     |   | C  |   | 3       |
| animals | birds | Phasianidae       | <i>Coturnix ypsilophora</i>                | brown quail               |   | C  |   | 1       |
| animals | birds | Pittidae          | <i>Pitta versicolor</i>                    | noisy pitta               |   | C  |   | 1       |
| animals | birds | Podicipedidae     | <i>Tachybaptus novaehollandiae</i>         | Australasian grebe        |   | C  |   | 1       |
| animals | birds | Psittacidae       | <i>Cyclopsitta diophthalma macleayana</i>  | Macleay's fig-parrot      |   | V  |   | 6       |
| animals | birds | Psittacidae       | <i>Trichoglossus haematodus moluccanus</i> | rainbow lorikeet          |   | C  |   | 21      |

| Kingdom | Class             | Family            | Scientific Name                                     | Common Name                       | I | Q  | A  | Records |
|---------|-------------------|-------------------|---|-----------------------------------|---|----|----|---------|
| animals | birds             | Psophodidae       | <i>Psophodes olivaceus</i>                          | eastern whipbird                  |   | C  |    | 1       |
| animals | birds             | Ptilonorhynchidae | <i>Ailuroedus maculosus</i>                         | spotted catbird                   |   | C  |    | 2       |
| animals | birds             | Ptilonorhynchidae | <i>Ptilonorhynchus nuchalis</i>                     | great bowerbird                   |   | C  |    | 1       |
| animals | birds             | Recurvirostridae  | <i>Himantopus himantopus</i>                        | black-winged stilt                |   | C  |    | 1       |
| animals | birds             | Rhipiduridae      | <i>Rhipidura leucophrys</i>                         | willie wagtail                    |   | C  |    | 7       |
| animals | birds             | Rhipiduridae      | <i>Rhipidura rufiventris</i>                        | northern fantail                  |   | C  |    | 3       |
| animals | birds             | Rhipiduridae      | <i>Rhipidura albiscapa</i>                          | grey fantail                      |   | C  |    | 4       |
| animals | birds             | Rhipiduridae      | <i>Rhipidura rufifrons</i>                          | rufous fantail                    |   | SL |    | 5       |
| animals | birds             | Scolopacidae      | <i>Calidris ruficollis</i>                          | red-necked stint                  |   | SL |    | 6       |
| animals | birds             | Scolopacidae      | <i>Actitis hypoleucos</i>                           | common sandpiper                  |   | SL |    | 3       |
| animals | birds             | Scolopacidae      | <i>Numenius phaeopus</i>                            | whimbrel                          |   | SL |    | 19      |
| animals | birds             | Scolopacidae      | <i>Tringa nebularia</i>                             | common greenshank                 |   | SL |    | 6       |
| animals | birds             | Scolopacidae      | <i>Numenius madagascariensis</i>                    | eastern curlew                    |   | E  | CE | 17      |
| animals | birds             | Scolopacidae      | <i>Tringa brevipes</i>                              | grey-tailed tattler               |   | SL |    | 12      |
| animals | birds             | Scolopacidae      | <i>Xenus cinereus</i>                               | terek sandpiper                   |   | SL |    | 1       |
| animals | birds             | Scolopacidae      | <i>Limosa lapponica baueri</i>                      | Western Alaskan bar-tailed godwit |   | V  | V  | 18      |
| animals | birds             | Scolopacidae      | <i>Numenius minutus</i>                             | little curlew                     |   | SL |    | 1       |
| animals | birds             | Sturnidae         | <i>Acridotheres tristis</i>                         | common myna                       | Y |    |    | 14      |
| animals | birds             | Sturnidae         | <i>Aplonis metallica</i>                            | metallic starling                 |   | C  |    | 4       |
| animals | birds             | Threskiornithidae | <i>Threskiornis molucca</i>                         | Australian white ibis             |   | C  |    | 2       |
| animals | birds             | Threskiornithidae | <i>Platalea regia</i>                               | royal spoonbill                   |   | C  |    | 2       |
| animals | mammals           | Pteropodidae      | <i>Pteropus scapulatus</i>                          | little red flying-fox             |   | C  |    | 1       |
| animals | ray-finned fishes | Eleotridae        | <i>Giuris margaritacea</i>                          | snakehead gudgeon                 |   |    |    | 1       |
| animals | reptiles          | Crocodylidae      | <i>Crocodylus porosus</i>                           | estuarine crocodile               |   | V  |    | 4       |
| animals | reptiles          | Crocodylidae      | <i>Crocodylus sp.</i>                               |                                   |   |    |    | 1       |
| animals | uncertain         | Indeterminate     | <i>Indeterminate</i>                                | Unknown or Code Pending           |   | C  |    | 2       |
| fungi   | lecanoromycetes   | Pannariaceae      | <i>Parmeliella brisbanensis</i>                     |                                   |   | C  |    | 1/1     |
| fungi   | uncertain         | Fungus            | <i>Fungus</i>                                       |                                   |   | C  |    | 1/1     |
| plants  | higher dicots     | Acanthaceae       | <i>Hemigraphis alternata</i>                        |                                   | Y |    |    | 1/1     |
| plants  | higher dicots     | Acanthaceae       | <i>Avicennia marina subsp. australasica</i>         |                                   |   | C  |    | 1/1     |
| plants  | higher dicots     | Acanthaceae       | <i>Nelsonia campestris</i>                          |                                   |   | C  |    | 1/1     |
| plants  | higher dicots     | Aizoaceae         | <i>Trianthema portulacastrum</i>                    | black pigweed                     | Y |    |    | 1/1     |
| plants  | higher dicots     | Asteraceae        | <i>Ageratum conyzoides</i>                          | billygoat weed                    | Y |    |    | 1/1     |
| plants  | higher dicots     | Asteraceae        | <i>Sphagneticola trilobata</i>                      |                                   | Y |    |    | 1       |
| plants  | higher dicots     | Caesalpinaceae    | <i>Senna alata</i>                                  |                                   | Y |    |    | 1/1     |
| plants  | higher dicots     | Capparaceae       | <i>Capparis lucida</i>                              |                                   |   | C  |    | 2/2     |
| plants  | higher dicots     | Celastraceae      | <i>Elaeodendron melanocarpum</i>                    |                                   |   | C  |    | 1/1     |
| plants  | higher dicots     | Chenopodiaceae    | <i>Sarcocornia quinqueflora subsp. quinqueflora</i> |                                   |   | C  |    | 1/1     |
| plants  | higher dicots     | Chenopodiaceae    | <i>Tecticornia australasica</i>                     |                                   |   | C  |    | 1/1     |
| plants  | higher dicots     | Euphorbiaceae     | <i>Macaranga tanarius</i>                           | macaranga                         |   | C  |    | 2/2     |
| plants  | higher dicots     | Euphorbiaceae     | <i>Dimorphocalyx australiensis</i>                  |                                   |   | C  |    | 1/1     |
| plants  | higher dicots     | Euphorbiaceae     | <i>Euphorbia bifida</i>                             |                                   |   | C  |    | 1/1     |
| plants  | higher dicots     | Fabaceae          | <i>Desmodium scorpiurus</i>                         |                                   | Y |    |    | 1/1     |
| plants  | higher dicots     | Loranthaceae      | <i>Amyema sanguinea var. sanguinea</i>              |                                   |   | C  |    | 1/1     |
| plants  | higher dicots     | Loranthaceae      | <i>Decaisnina brittenii subsp. brittenii</i>        |                                   |   | C  |    | 1/1     |
| plants  | higher dicots     | Mimosaceae        | <i>Acacia oraria</i>                                |                                   |   | C  |    | 1/1     |



| Kingdom | Class         | Family           | Scientific Name                                 | Common Name    | I | Q | A | Records |
|---------|---------------|------------------|---|----------------|---|---|---|---------|
| plants  | higher dicots | Mimosaceae       | <i>Albizia procera</i>                          |                |   | C |   | 2/2     |
| plants  | higher dicots | Mimosaceae       | <i>Acacia flavescens</i>                        | toothed wattle |   | C |   | 1/1     |
| plants  | higher dicots | Moraceae         | <i>Trophis scandens subsp. scandens</i>         |                |   | C |   | 1/1     |
| plants  | higher dicots | Myrtaceae        | <i>Psidium guineense</i>                        | cherry guava   | Y |   |   | 1/1     |
| plants  | higher dicots | Nyctaginaceae    | <i>Boerhavia diffusa</i>                        |                | Y |   |   | 1/1     |
| plants  | higher dicots | Opiliaceae       | <i>Cansjera leptostachya</i>                    |                |   | C |   | 1/1     |
| plants  | higher dicots | Passifloraceae   | <i>Passiflora kuranda</i>                       |                |   | C |   | 1/1     |
| plants  | higher dicots | Phyllanthaceae   | <i>Glochidion benthamianum</i>                  |                |   | C |   | 2/2     |
| plants  | higher dicots | Phyllanthaceae   | <i>Phyllanthus novae-hollandiae</i>             |                |   | C |   | 1/1     |
| plants  | higher dicots | Phyllanthaceae   | <i>Glochidion harveyanum var. harveyanum</i>    |                |   | C |   | 1/1     |
| plants  | higher dicots | Proteaceae       | <i>Grevillea baileyana</i>                      |                |   | C |   | 1/1     |
| plants  | higher dicots | Rhizophoraceae   | <i>Ceriops australis</i>                        |                |   | C |   | 1/1     |
| plants  | higher dicots | Rubiaceae        | <i>Ixora timorensis</i>                         |                |   | C |   | 1/1     |
| plants  | higher dicots | Rubiaceae        | <i>Dentella repens</i>                          | dentella       |   | C |   | 1/1     |
| plants  | higher dicots | Salicaceae       | <i>Scolopia braunii</i>                         | flintwood      |   | C |   | 1/1     |
| plants  | higher dicots | Sapindaceae      | <i>Allophylus cobbe</i>                         |                |   | C |   | 1/1     |
| plants  | higher dicots | Sapindaceae      | <i>Guioa acutifolia</i>                         | northern guioa |   | C |   | 1/1     |
| plants  | higher dicots | Stylidiaceae     | <i>Stylidium alsinoides</i>                     |                |   | C |   | 1/1     |
| plants  | higher dicots | Symplocaceae     | <i>Symplocos puberula</i>                       |                |   | C |   | 1/1     |
| plants  | lower dicots  | Annonaceae       | <i>Polyalthia nitidissima</i>                   | polyalthia     |   | C |   | 1/1     |
| plants  | lower dicots  | Annonaceae       | <i>Miliusa brahei</i>                           |                |   | C |   | 1/1     |
| plants  | lower dicots  | Apocynaceae      | <i>Alyxia spicata</i>                           |                |   | C |   | 1/1     |
| plants  | lower dicots  | Apocynaceae      | <i>Tabernaemontana orientalis</i>               |                |   | C |   | 1/1     |
| plants  | lower dicots  | Boraginaceae     | <i>Heliotropium indicum</i>                     |                | Y |   |   | 1/1     |
| plants  | lower dicots  | Ceratophyllaceae | <i>Ceratophyllum demersum</i>                   | hornwort       |   | C |   | 1/1     |
| plants  | lower dicots  | Convolvulaceae   | <i>Lepistemon urceolatus</i>                    |                |   | C |   | 1/1     |
| plants  | lower dicots  | Convolvulaceae   | <i>Distimake quinquefolius</i>                  |                | Y |   |   | 1/1     |
| plants  | lower dicots  | Convolvulaceae   | <i>Ipomoea polymorpha</i>                       |                |   | C |   | 1/1     |
| plants  | monocots      | Aponogetonaceae  | <i>Aponogeton cuneatus</i>                      |                |   | C |   | 1/1     |
| plants  | monocots      | Araceae          | <i>Syngonium podophyllum</i>                    |                | Y |   |   | 1/1     |
| plants  | monocots      | Araceae          | <i>Aglaonema commutatum</i>                     |                | Y |   |   | 1/1     |
| plants  | monocots      | Arecaceae        | <i>Livistona muelleri</i>                       | dwarf fan palm |   | C |   | 1/1     |
| plants  | monocots      | Commelinaceae    | <i>Commelina diffusa</i>                        | wandering jew  |   | C |   | 1/1     |
| plants  | monocots      | Cyperaceae       | <i>Fimbristylis polytrichoides</i>              |                |   | C |   | 1/1     |
| plants  | monocots      | Cyperaceae       | <i>Schoenoplectus subulatus</i>                 |                |   | C |   | 1/1     |
| plants  | monocots      | Cyperaceae       | <i>Fimbristylis pubisquama</i>                  |                |   | C |   | 1/1     |
| plants  | monocots      | Cyperaceae       | <i>Fimbristylis acicularis</i>                  |                |   | C |   | 1/1     |
| plants  | monocots      | Cyperaceae       | <i>Fimbristylis ferruginea</i>                  |                |   | C |   | 1/1     |
| plants  | monocots      | Cyperaceae       | <i>Fimbristylis pauciflora</i>                  |                |   | C |   | 1/1     |
| plants  | monocots      | Cyperaceae       | <i>Fuirena ciliaris</i>                         |                |   | C |   | 1/1     |
| plants  | monocots      | Cyperaceae       | <i>Cyperus javanicus</i>                        |                |   | C |   | 1/1     |
| plants  | monocots      | Cyperaceae       | <i>Fuirena umbellata</i>                        |                |   | C |   | 1/1     |
| plants  | monocots      | Cyperaceae       | <i>Eleocharis equisetina</i>                    |                |   | C |   | 1/1     |
| plants  | monocots      | Dracaenaceae     | <i>Pleomele angustifolia</i>                    |                |   | C |   | 1/1     |
| plants  | monocots      | Dracaenaceae     | <i>Sansevieria trifasciata var. trifasciata</i> |                | Y |   |   | 1/1     |
| plants  | monocots      | Hydrocharitaceae | <i>Hydrilla verticillata</i>                    | hydrilla       |   | C |   | 1/1     |

| Kingdom  | Class       | Family       | Scientific Name                         | Common Name      | I | Q | A | Records |
|----------|-------------|--------------|---|------------------|---|---|---|---------|
| plants   | monocots    | Poaceae      | <i>Themeda quadrivalvis</i>             | grader grass     | Y |   |   | 1       |
| plants   | monocots    | Poaceae      | <i>Pseudoraphis jagonis</i>             |                  |   | C |   | 5/5     |
| plants   | monocots    | Poaceae      | <i>Leersia hexandra</i>                 | swamp rice grass |   | C |   | 1/1     |
| plants   | monocots    | Poaceae      | <i>Perotis rara</i>                     | comet grass      |   | C |   | 1/1     |
| plants   | monocots    | Poaceae      | <i>Eragrostis pubescens</i>             |                  |   | C |   | 1/1     |
| plants   | monocots    | Poaceae      | <i>Sporobolus jacquemontii</i>          |                  | Y |   |   | 2/2     |
| plants   | monocots    | Poaceae      | <i>Panicum seminudum var. seminudum</i> |                  |   | C |   | 1/1     |
| plants   | monocots    | Poaceae      | <i>Andropogon gayanus</i>               | gamba grass      | Y |   |   | 1/1     |
| plants   | monocots    | Poaceae      | <i>Eriochloa crebra</i>                 | spring grass     |   | C |   | 1/1     |
| protists | brown algae | Phaeophyceae | <i>Sargassum</i>                        |                  |   | C |   | 1/1     |
| protists | red algae   | Rhodophyceae | <i>Amphiroa foliacea</i>                |                  |   | C |   | 1/1     |

#### CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992*. The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999*. The values of EPBC are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V).

Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).

This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.

This number is output as 999 if it equals or exceeds this value.

# CMD

16°30'52"S 145°27'29"E

16°30'52"S 145°29'55"E



16°33'12"S 145°27'29"E

16°33'12"S 145°29'55"E

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500 metres

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Paper Size: A4

Imagery

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# Contours

16°31'8"S 145°27'40"E

16°31'8"S 145°29'59"E



16°33'21"S 145°27'40"E

16°33'21"S 145°29'59"E

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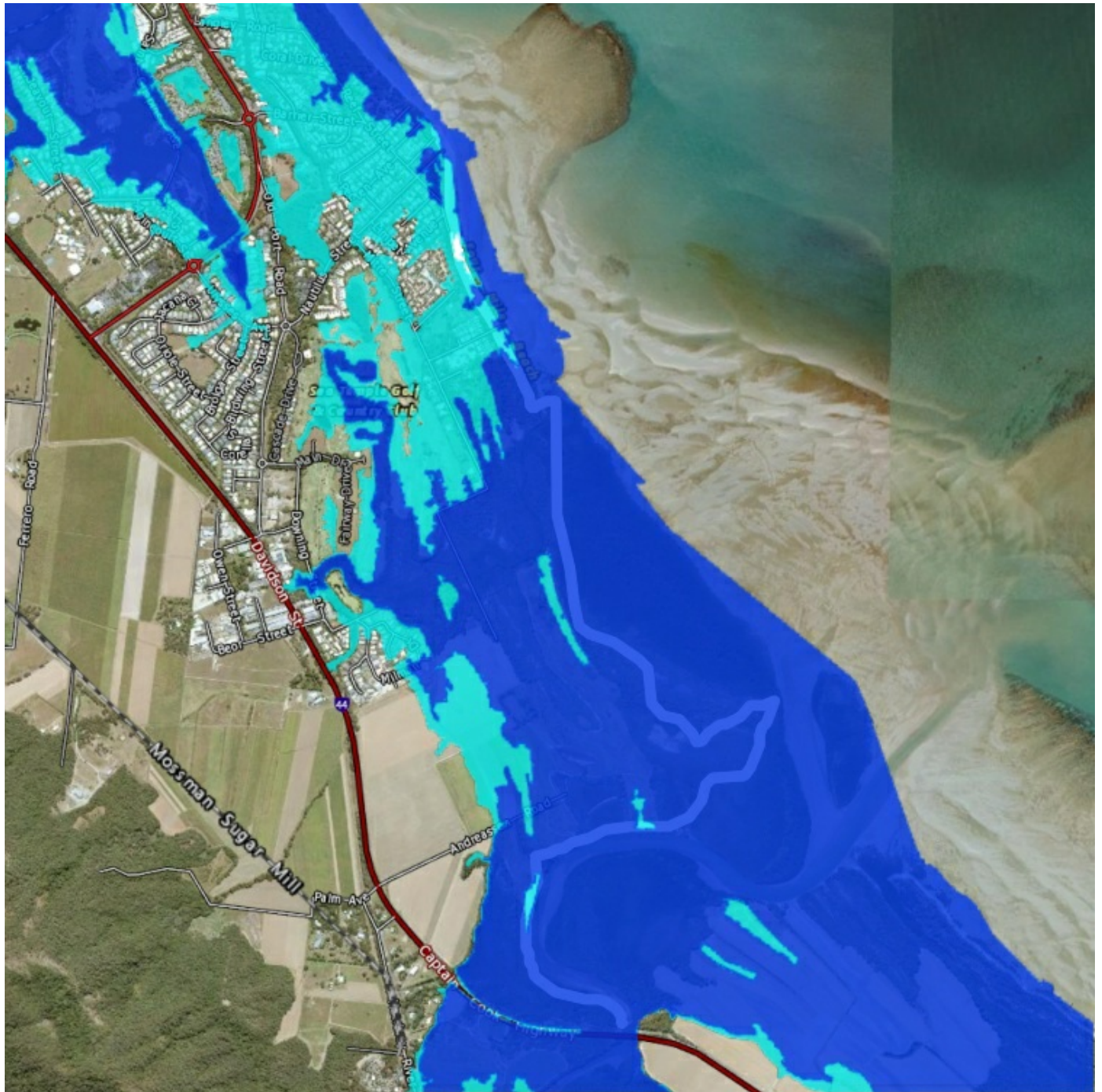
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# Flood Hazard

16°30'58"S 145°27'29"E

16°30'58"S 145°29'56"E



16°33'18"S 145°27'29"E

16°33'18"S 145°29'56"E

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# NC Act Flora Trigger Map

16°30'44"S 145°27'21"E

16°30'44"S 145°30'17"E



16°33'34"S 145°27'21"E

16°33'34"S 145°30'17"E

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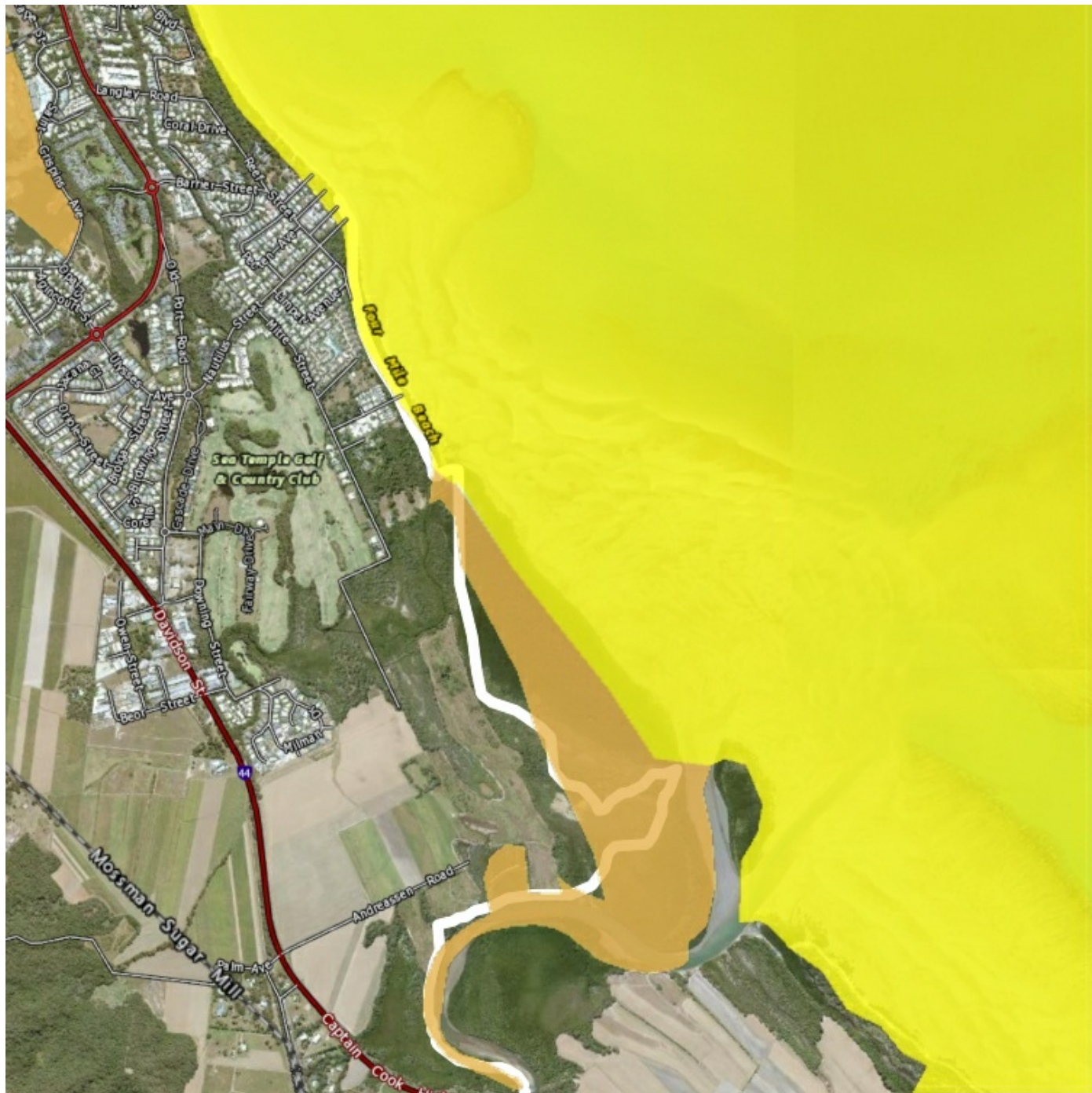
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# GBR Coastal Zoning

16°30'49"S 145°27'43"E

16°30'49"S 145°30'9"E



16°33'10"S 145°27'43"E

16°33'10"S 145°30'9"E

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500 metres

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# Koala Mapping

16°30'48"S 145°27'34"E

16°30'48"S 145°30'30"E



16°33'37"S 145°27'34"E

16°33'37"S 145°30'30"E

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500 metres

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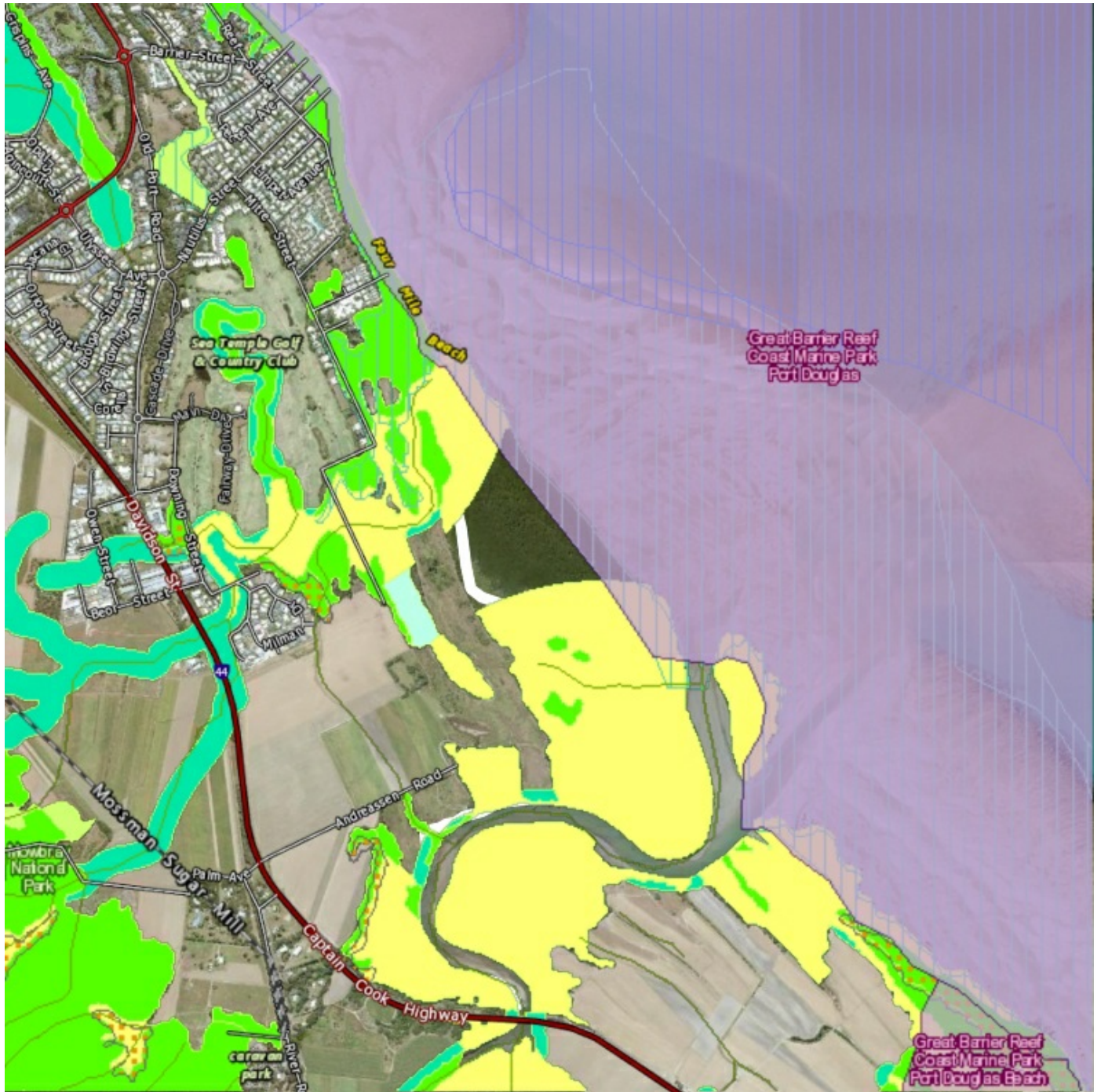
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# MSES

16°31'6"S 145°27'47"E

16°31'6"S 145°30'6"E



16°33'20"S 145°27'47"E

16°33'20"S 145°30'6"E

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500 metres

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# Native Title Claims

16°30'10"S 145°26'50"E

16°30'10"S 145°30'54"E



16°34'4"S 145°26'50"E

16°34'4"S 145°30'54"E



1 km

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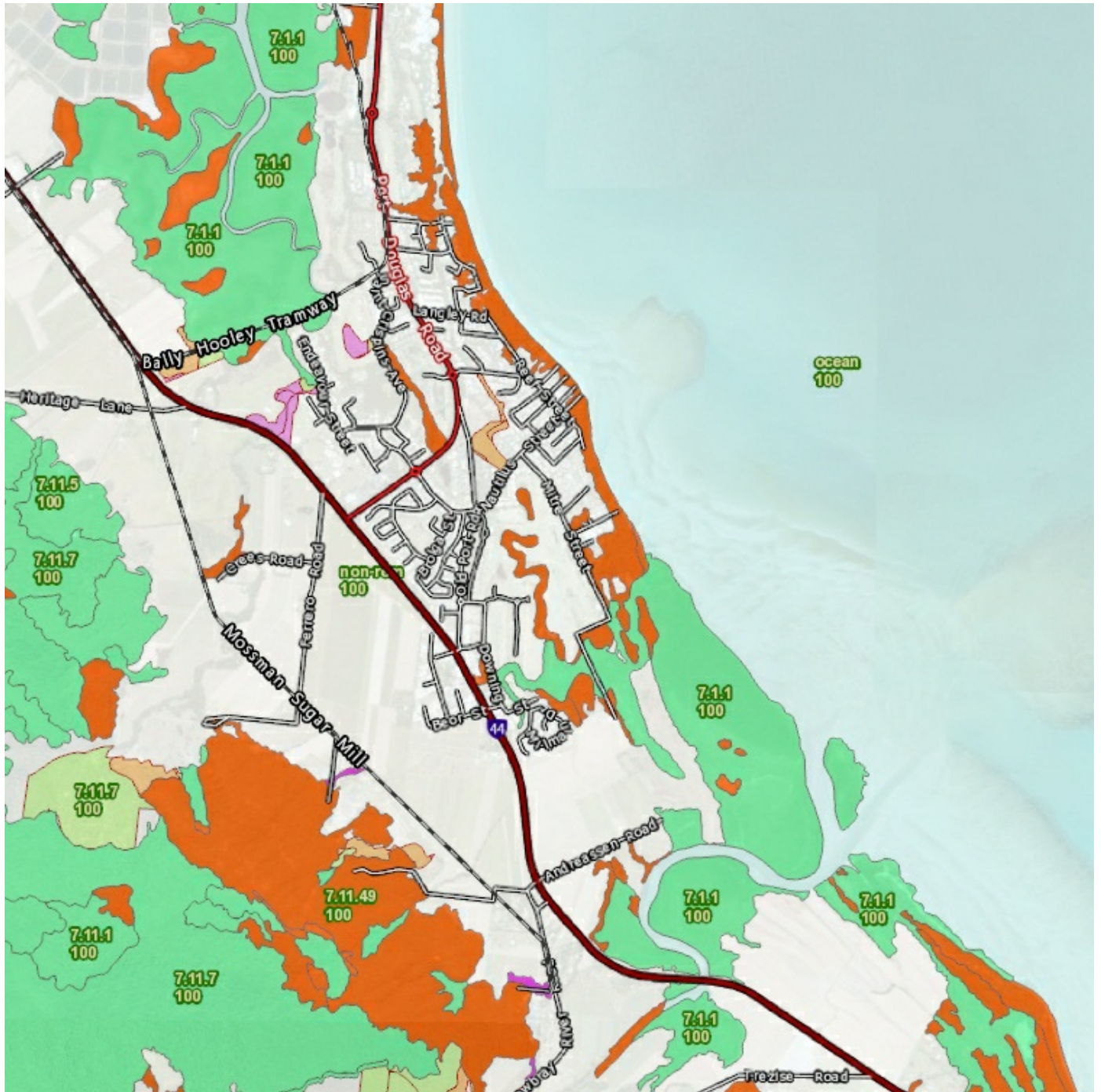
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1 km

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# Soil

16°30'59"S 145°27'50"E

16°30'59"S 145°30'9"E



16°33'12"S 145°27'50"E

16°33'12"S 145°30'9"E



500 metres

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# Strategic Environmental Areas

16°30'56"S 145°27'38"E

16°30'56"S 145°30'4"E



16°33'17"S 145°27'38"E

16°33'17"S 145°30'4"E

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500 metres

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# Tenure

16°30'40"S 145°27'12"E

16°30'40"S 145°30'12"E



16°33'32"S 145°27'12"E

16°33'32"S 145°30'12"E

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500 metres

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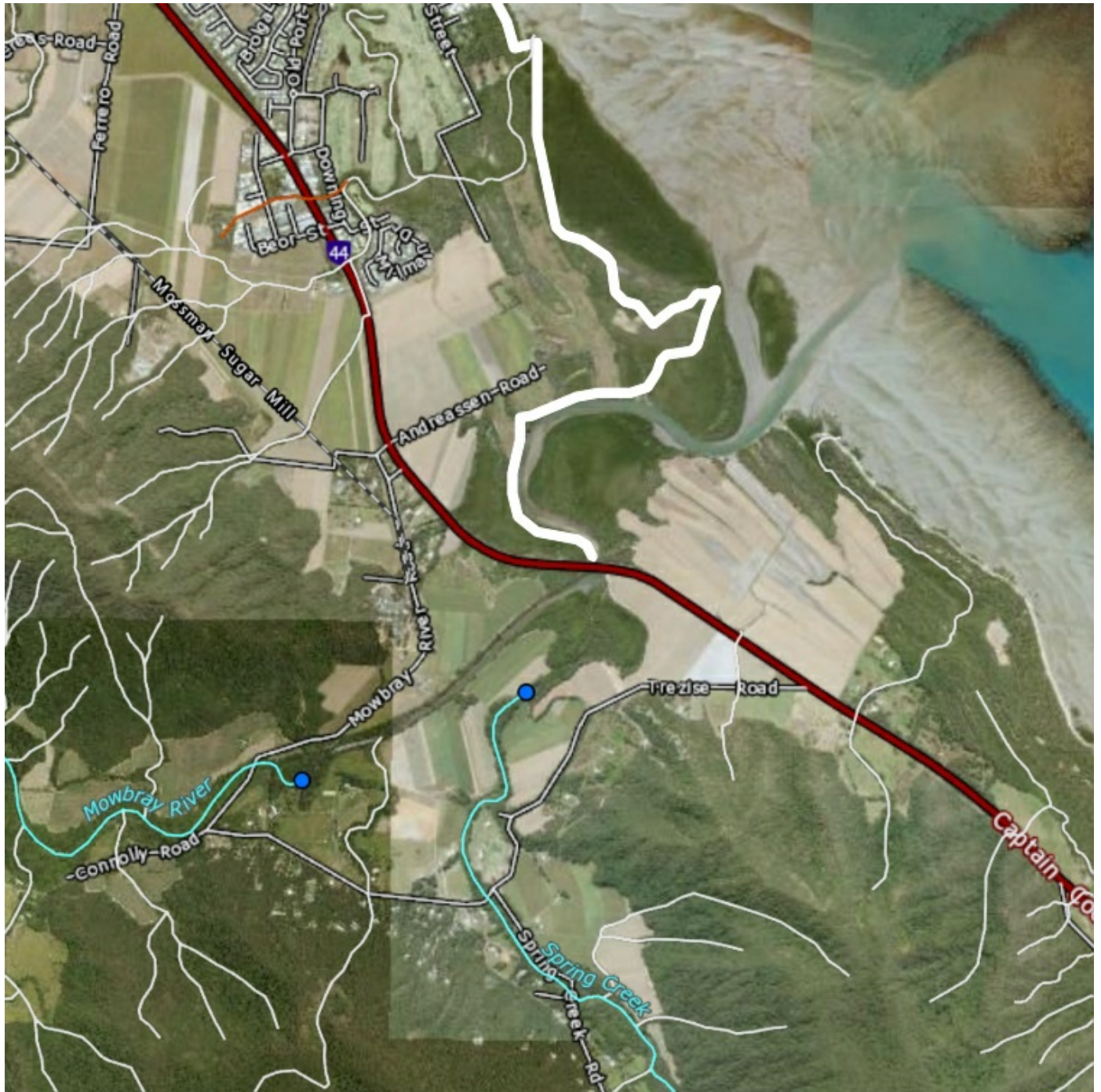
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# Waterways (Water Act 2000)

16°31'43"S 145°27'17"E

16°31'43"S 145°30'14"E



16°34'32"S 145°27'17"E

16°34'32"S 145°30'14"E

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500 metres

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# Wetlands

16°30'44"S 145°27'34"E

16°30'44"S 145°30'0"E



16°33'4"S 145°27'34"E

16°33'4"S 145°30'0"E

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500 metres

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## Legend

## Attribution

### Road

-  Highway
-  Main
-  Local
-  Private

### Railway



### Register of native title claims



### Soil associations of Batavia Downs BAT



### Soils of the Cape York Peninsula CYP



### Soils and land use survey of part of the Dawson Valley DAW



### Soils land resources of the Dalrymple Shire DLR



### Soils land inventory of the granite and traprock areas southeast Queensland GRT SOIL



### Soils of the Inglewood Talwood Tara Glenmorgan region ITTG



### Soils and vegetation of the Mayvale Land System Gulf of Carpentaria Region MVL





### Soils land resources of the Einasleigh Atherton dry tropics SAT






### Cities and Towns






### Contour

-  Index
-  Intermediate






### Bushland habitat [SEQ]

-  High value bushland
-  Medium value bushland
-  Low value bushland

### Suitable for rehabilitation [SEQ]

-  High value rehabilitation
-  Medium value rehabilitation
-  Low value rehabilitation

### Other areas of value [SEQ]

-  High value other
-  Medium value other
-  Low value other
-  Generally not suitable
-  Water

### DigitalGlobe

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 **Legend**

---

Vegetation management regional ecosystem map labels

Category A or B area containing endangered regional ecosystems



Category A or B area containing of concern regional ecosystems



Category A or B area that is least concern regional ecosystems



Category A or B area containing endangered and is S20AH



Category A or B area containing of concern and is S20AH



Category A or B area that is least concern and S20AH



Category C area containing endangered regional ecosystems



Category C area containing of concern regional ecosystems



Water



Non-remnant



Protected plants trigger map



Great Barrier Reef coast zoning



General use



Habitat protection



Conservation park



Buffer



Scientific research



Marine national park



Preservation



Estuarine conservation

Wetlands of high ecological significance



MSES protected area [estates]



MSES protected area [nature refuges]



 **Legend**

---

**Tenure**

-  Below the Depth Plans
-  Boat Harbours
-  Carbon Abatement Interest
-  Commonwealth Acquisition
-  Covenant
-  Easement
-  Forest Reserve
-  Freehold
-  Housing Land
-  Industrial Estates
-  Lands Lease
-  Main Road
-  Mines Tenure
-  National Park
-  Port and Harbours Boards
-  Profit à Prendre
-  Railway
-  Reserve
-  State Forest
-  State Land
-  Timber Reserve
-  Water Resource

MSES legally secured offset area [offset register]



MSES legally secured offset area [vegetation offsets]



MSES regulated vegetation [defined watercourse]



MSES declared high ecological value waters [watercourse]



MSES declared high ecological value waters [wetland]



MSES high ecological significance wetlands



MSES strategic environmental area [designated precinct]



MSES marine park [highly protected]



MSES wildlife habitat [threatened and special least concern animal]



MSES declared fish habitat area [A and B areas]



MSES regulated vegetation [category B - endangered or of concern]



MSES regulated vegetation

 **Legend**

---

MSES regulated vegetation  
[category R- GBR riverine]



Coastal management district



MSES regulated vegetation  
[essential habitat]



High hazard area



MSES regulated vegetation  
[100m from wetland]



Medium hazard area



Lake [defined by Water Act  
2000]



Non-riverine wetlands -  
conservation significance



Very High



High



Medium



Low

Downstream limit [defined by  
Water Act 2000]



Very Low

Watercourse [defined by  
Water Act 2000]



Drainage feature [defined by  
Water Act 2000]



Unmapped



Strategic Environmental Area



Strategic Environmental  
Area



Strategic Environmental  
Area - Designated  
Precinct



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| Revision | Author       | Reviewer  |           | Approved for Issue |           |            |
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|          |              |           |           |                    |           |            |
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