



HAMILTON ISLAND REPLACEMENT FIRE STATION SUBMISSION 1

STATEMENT OF EVIDENCE
TO THE
PARLIAMENTARY STANDING COMMITTEE
ON PUBLIC WORKS

DECEMBER 2014

Table of Contents

1.	Project Title	4
2.	Introduction.....	4
3.	Identification of Need	5
3.1	Project Objectives	5
3.2	Historical Background	6
3.3	Need for the Work.....	6
3.4	Description of Proposal.....	7
3.5	Options Considered	8
3.5.1	Refurbishment Option	8
3.5.2	Scoping Options.....	8
3.6	Reasons for Adopting Proposed Works.....	8
3.7	Environmental Impact Assessment	9
3.8	Heritage Considerations	9
3.9	Consultation	9
3.10	Revenue.....	9
3.11	Related Works	9
4.	Technical Information	10
4.1	Project Location	10
4.2	Project Scope.....	10
4.3	Site Selection	10
4.4	Site Description.....	11
4.5	Zoning and Approvals	11
4.6	Land Acquisition.....	11
4.7	Applicable Codes and Standards	11
4.8	Planning and Design Concepts	11
4.9	Acoustics.....	11
4.10	Energy Conservation Measures	11
4.11	Master Planning and Site Planning Considerations	12
4.12	Provisions for the Disabled	12
4.13	Child-Care Provisions	12
4.14	Fire Protection and Security Measures.....	12
4.15	Landscaping.....	12
4.16	Consultation with Authorities	12
4.16.1	Public Impacts.....	12

4.17	Impact on Local Community	13
5.	Cost Effectiveness and Public Value.....	13
5.1	Cost Effectiveness	13
5.1.1	Project Delivery System.....	13
5.2	Public Value	13
6.	Associated Attachments.....	13
7.	Acronyms	13

1. Project Title

Hamilton Island Replacement Fire Station.

2. Introduction

Airservices is a Government owned organisation responsible under the *Air Services Act 1995 (the Act)* for the provision of air traffic management, air navigation support (communications infrastructure, radar and navigation aids) and aviation rescue and fire fighting services to the aviation industry. In providing these services, the Act requires Airservices to regard the safety of air navigation as the most important consideration.

Airservices is responsible for 11 percent of the world's total airspace.

Airservices revenue is derived from provision of services for air traffic control and aviation rescue and fire fighting services. This revenue funds our operating expenses and our investment in capital works and other projects on behalf of the Australian Government in the aviation industry. From our profits we return a dividend to Government each year.

We liaise directly with our airline customers to negotiate our long term pricing agreement which is endorsed by the Australian Competition and Consumer Commission (ACCC) and monitored by industry stakeholders through a Pricing Consultative Committee (PCC).

Capital expenditure remains in alignment with the Long Term Pricing Agreement (LTPA). The program remains balanced between rebuilding and maintaining core capabilities as well as the introduction of new services and initiatives to support forecast growth in the aviation industry.

The requirement to establish an Aviation Rescue Fire Fighting (ARFF) service at an airport is determined by International Civil Aviation Organisation (ICAO) Annex 14 and Civil Aviation Safety Regulation (CASR) Part 139H which requires establishment once the annual passenger numbers exceed 350,000 per annum. The scale of the service is based on the volume and type of aircraft movement as set out in the CASR 1998. This is termed 'category' and ranges for Airservices from Category 6 to Category 10.

Categories dictate the minimum number of vehicles to be available, the amount of extinguishing agent to be carried, the discharge rate of the extinguishing agent and the range of equipment that must be carried.

u

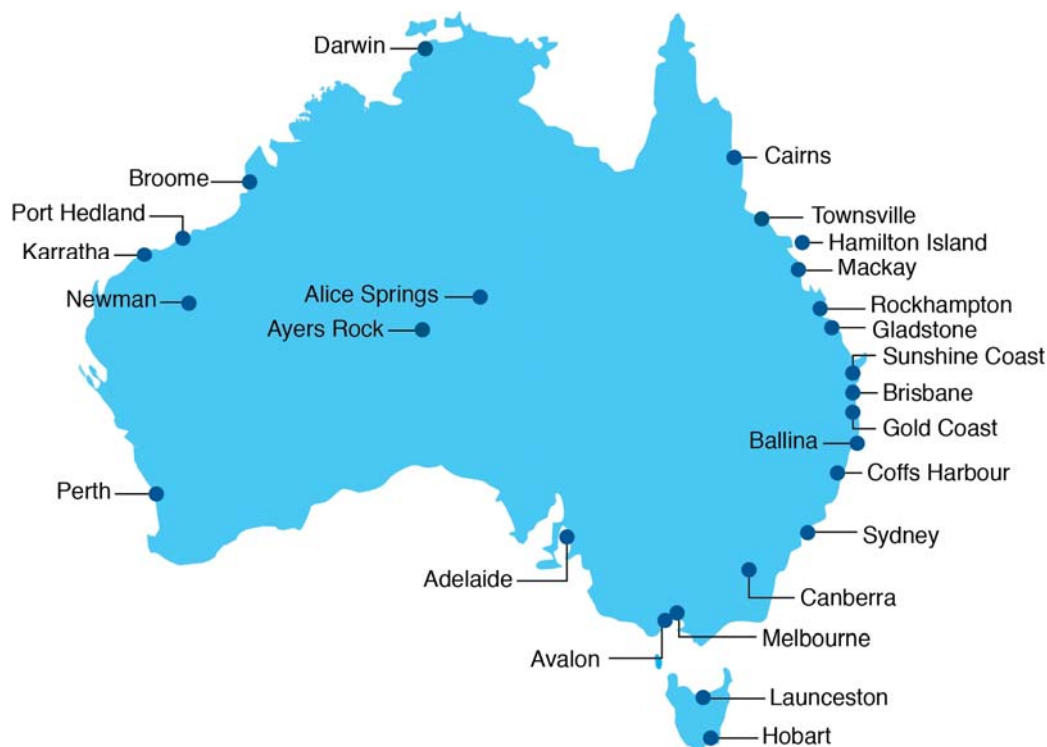


Figure 1: Airservices ARFF presence in Australia

The ARFF service currently operates at 24 airport locations around Australia. This will increase to 26 locations by early 2015 with new services currently being established at Ballina and Coffs Harbour. See Figure 1.

The core functions of ARFF are:

- to rescue persons and property from an aircraft that has crashed or caught fire during landing or take-off
- to control and extinguish and to protect persons and property threatened by fire at an aerodrome, whether or not in an aircraft.

To enable the rescue and fire fighting service, Airservices employs approximately 850 highly trained fire fighters who respond to fires and safety critical issues and provide rescue and first aid services for aircraft passengers in and around airport precincts.

ARFF responds to more than 9,000 incidents per year, including over three thousand first aid calls in providing this vital safety service to the aviation industry.

3. Identification of Need

3.1 Project Objectives

This project will provide a replacement Category 6 ARFF fire station at Hamilton Island Airport. The proposed works will contribute to the increased safety of aviation at Hamilton Island.

The existing ARFF fire station at Hamilton Island Airport is no longer fit-for-purpose. The temporary station and supporting facilities have reached their end of design life.

3.2 Historical Background

The existing ARFF fire station at Hamilton Island Airport was constructed during 2006-07 as a temporary building solution to allow for the introduction of the ARFF service at the Hamilton Island airport.

The existing fire station (see Figure 2 below) was designed as a temporary facility and consists of a series of stacked shipping containers with a flexible roof structure and a hard stand area for truck accommodation. Various additional temporary structures have been added to this facility over the years to accommodate increased requirements and equipment.



Figure 2 – Existing temporary ARFF facility at Hamilton Island

Airservices is required to construct a new ARFF fire station to replace the temporary facilities. The new facilities ensure the ability to continue the provision of critical safety related ARFF services.

3.3 Need for the Work

The existing ARFF facilities at Hamilton Island Airport are no longer fit-for-purpose, with the temporary fire station and supporting facilities having reached their end of design life.

Further, the fire vehicle bays and maintenance bays are open structures that are unable to be secured during storm events and expose the vehicles and equipment to weather.

The facilities and vehicles are exposed to coastal weather conditions which has led to significant corrosion issues and damage and increased rates of deterioration.

In accordance with a Civil Aviation Safety Authority (CASA) mandated requirement to provide an ARFF service at Hamilton Island, a new facility that meets current building code and current service requirements must be constructed to support the provision of service.



Figure 3: Examples of corrosion issues and damage at the existing temporary ARFF facility at Hamilton Island

3.4 Description of Proposal

The Hamilton Island Replacement Fire Station project will involve the construction of a new ARFF fire station comprising of the following:

- fire vehicles bays - sized to fit two (2) Mark9 Ultra Large Fire Vehicles
- a maintenance facility - capable of servicing the fire vehicles including an overhead crane, maintenance tools and equipment, and associated storage
- communications facilities
- training facilities
- storage facilities
- vehicle replenishment facilities
- Fire Control Centre
- administration and amenities facility.

The scope of these facilities must be compliant with CASA MOS139H.

The Hamilton Island Replacement Fire Station project will involve the decommissioning of the existing facilities and make good of the site.

The construction of the fire station will utilise the 'ARFF Standardised Modular Design – Cat 6/7'. This design is relocatable which addresses the risk of stranded assets (in the event passenger numbers drop below the dis-establishment threshold in the future). This delivery method also minimises the cost of design (as it is a standard design) and reduces the timeframes to construct and commission these facilities.

3.5 Options Considered

3.5.1 Refurbishment Option

Refurbishment of the existing facilities is not a viable option. The existing facilities were constructed as a temporary structure in 2006 using shipping containers, which are now four years beyond expected life, and have experienced significant corrosion.

3.5.2 Scoping Options

The proposed design for the facility is based on the Airservices Category 6/7 Standardised Design. The Standardised Design is based on a standard repeatable modular design/structure.

An internal project was established to develop the Standardised Design to provide cost efficiencies in building new ARFF fire stations. This project took the functional and operational requirements outlined in the CASRs, MOS 139H and the Airservices (ARFF) Enterprise Agreement 2013-2017 and developed a standardised design that can be repeated at locations across the country. This project involved consultation with subject matter experts, regulators, airport authorities, engineers, architects, and unions.

The overall standardised design is localised and modified to take into consideration any site specific geography, location, interaction with other airport users, critical aircraft volumes, and staff employment conditions.

The standardised design was first successfully applied to the newly constructed ARFF fire stations in Gladstone (Queensland) and Newman (Western Australia), and is currently being applied to fire stations under construction in Coffs Harbour (NSW) and Ballina (NSW).

The standardised design has been specifically adjusted for Hamilton Island to reduce overall footprint and floor space to 120m² due to the Fly-In-Fly-Out (FIFO) staffing arrangements in Hamilton Island and the feedback received from Hamilton Island Enterprises.

3.6 Reasons for Adopting Proposed Works

The existing facilities do not meet current standards and have been severely impacted by corrosion caused by the coastal environment.

CASR Part 139H regulates that an ARFF service must be provided at aerodromes where more than 350,000 passengers passed through on air transport flights during the previous financial year. Hamilton Island Airport passenger figures for August 2014 were 485,372. In the previous six years the lowest passenger numbers at Hamilton Island were 439,579 (January 2013) and current indications for Hamilton Island passenger

numbers are expected to remain at present levels and any movements will be in line with regional tourism. The construction of a replacement station is therefore justified.

3.7 Environmental Impact Assessment

An Environmental Assessment has been carried out for the site and a Construction Environmental Management Plan prepared for the works. See Attachment 2.

The key points identified in the Environmental Assessment are:

- the site is reclaimed, cleared exotic grassland frequently disturbed (mowed)
- no Matters of National Environmental Significance identified
- no anticipated adverse effects on overall vegetation community
- no anticipated adverse impacts on overall flora values
- the site is considered to be of low fauna habitat value.

3.8 Heritage Considerations

No Aboriginal Cultural Heritage was identified during the study of the site or during the site investigation. The site is comprised of reclaimed land therefore it is unlikely that any Aboriginal or Torres Strait Islander Cultural Heritage will be affected by the project.

3.9 Consultation

Extensive consultation has been undertaken with Hamilton Island Enterprises on the location, size and visual aspect of the new facilities. Due to the facilities being located on a privately leased island and remote from any public developments, no public consultation has been undertaken. The site has been identified and agreed to by Hamilton Island Enterprise. See Attachment 3.

3.10 Revenue

Airservices currently receives revenue for the provision of ARFF services at Hamilton Island. The revenue arrangements will not change as a result of the Hamilton Island Replacement Fire Station project.

Airservices charges airlines and aircraft operators for the use of its services and this revenue funds its operating and capital expenditure requirements. Both the capital expenditure and prices are subject to extensive consultation with these customers and with other affected stakeholders (airport owners). The prices for these services are regulated by the Australian Competition and Consumer Commission (ACCC) under the Prices Surveillance sections of the Competition and Consumer Act 2010. Under this regulatory arrangement, the ACCC also consult with Airservices customers and stakeholders to assess whether Airservices capital expenditure is at an appropriate level (i.e. fit-for-purpose with no excess).

3.11 Related Works

Each new ARFF facility is initiated as a unique, independent project once the CASA mandated establishment threshold for annual passenger numbers using the airport is reached. While Airservices monitors airport passenger numbers which are approaching

the establishment threshold in order to anticipate when new ARFF facilities will be required, a project cannot be initiated until the threshold has been exceeded as passenger numbers can fluctuate rapidly, particularly at regional airports where mining is generating significant FIFO passenger traffic.

4. Technical Information

4.1 Project Location

The location of the new ARFF facility will be at the existing Hamilton Island Airport on a greenfield site approximately 50m from the existing facilities, see Figure 3.



Figure 3: Proposed site location of the new ARFF facility in comparison to the current facility.

4.2 Project Scope

The scope of the proposed works includes:

- establishment of a sub-lease over a new parcel of land for the new facility
- investigation of the new site including geotechnical, environmental, contamination and topographic investigations
- design of new facilities based on the Airservices Category 6/7 Standardised Design and site specific functional room data sheets
- construction of the new facilities
- transition and commissioning of ARFF services from the existing to new facilities
- demolition, removal from site and remediation of existing facilities.

4.3 Site Selection

CASA MOS 139H specifies the criteria to be used for determining the location of an ARFF facility. In responding to an incident, the ARFF must reach the incident site within 3 minutes. An independent site assessment study was commissioned into the possible

locations for the ARFF fire station with the final site agreed between Airservices and Hamilton Island Enterprises.

4.4 Site Description

The site of the proposed replacement fire station is on reclaimed, cleared and mown grass land south of the runway. The area was previously occupied by a navigational beacon and was also used as a shooting range in the past.

4.5 Zoning and Approvals

Hamilton Island Enterprises have advised that they will manage all zoning and Development Planning procedures on behalf of Airservices due to their familiarity with the site.

4.6 Land Acquisition

The land this facility will be built on has been leased from Hamilton Island Enterprises on a 'peppercorn' basis.

4.7 Applicable Codes and Standards

The design of the new facilities will conform to the relevant sections of the Building Code of Australia and relevant current Australian Standards and Codes.

4.8 Planning and Design Concepts

The Airservices Category 6/7 Standardised Design, and the subsequent site specific amendments made for this project, incorporates the following considerations:

- design Life of 25 years
- location and layout to comply with CASA MOS 139H visibility and response time requirements
- consideration and implementation of best available and appropriate Work Health and Safety design features
- consideration and implementation of best available and appropriate workplace design and amenity
- consideration and implementation of concepts for the long term maintenance and upgrade of plant and major building components
- durability and maintainability in terms of low life cycle costing
- environmental sustainable design.

4.9 Acoustics

The facilities will include an appropriate level of acoustic treatment consistent with the provision of a suitable working environment on an operational airfield.

4.10 Energy Conservation Measures

The facilities will be designed to achieve a 4.5 star ESD rating.

4.11 Master Planning and Site Planning Considerations

The site is located in accordance with the approved Airport Master Plan.

4.12 Provisions for the Disabled

Provision for the disabled (such as disabled toilets and wheelchair ramps to the main entrance) are provided on the ground floor of the facility. Lift access to the first floor of the facility is not provided due to the operational nature of the building.

The Hamilton Island design is utilising a standardised design that has been used for similar Airservices projects (Gladstone and Newman). These designs incorporated disabled access to the ground floor only and were approved by the relevant building authorities.

4.13 Child-Care Provisions

The Hamilton Island ARFF fire service is staffed by personnel on a two week FIFO basis, and as such, no child care provision has been included in the project.

4.14 Fire Protection and Security Measures

Fire protection will be designed in accordance with Building Code of Australia requirements.

The *Aviation Security Act 2004* provides a framework for security of Airport facilities. The facilities will be designed to comply with these requirements.

4.15 Landscaping

The scope of the project includes landscaping to provide attractive and maintainable surrounds that do not interfere with the operations of the airport, (prevent loose material being introduced to the runway) and in particular will be designed to not attract bird life which can be a hazard to aircraft. Landscaping will be design to be low maintenance and low water use.

4.16 Consultation with Authorities

Extensive consultation has been undertaken with Hamilton Island Enterprises on the location, size and visual aspect of the new facilities. Due to the facilities being located on a privately leased island and remote from any public developments, no public consultation has been undertaken. Local authority and Council approvals, and consultation with the Queensland government were obtained through Hamilton Island Enterprises.

4.16.1 Public Impacts

As noted above, the facilities are located on a privately leased island within the boundary of the airport, and remote from any areas accessible by the public. As a result it is not anticipated that the proposed development will have any adverse impacts on the public.

The ARFF service is an essential service which must be maintained if Hamilton Island Enterprises is to continue to operate the airport at its current passenger volume. If the proposed development were not to proceed there would be a negative public and aviation industry impact due to current building code permit and potential WHS exposures.

4.17 Impact on Local Community

The replacement station is located on the airport, south of the runway and remote from any public access areas. It is not anticipated that the construction of the new facility or the ongoing provision of the ARFF service from the facility will have any impact on the local community.

5. Cost Effectiveness and Public Value

5.1 Cost Effectiveness

The overall budget of the proposed works is estimated to be \$13,387,282, including a costed risk and contingency provision.

5.1.1 Project Delivery System

The project will be delivered using a design and construct project delivery system. In addition to the main Design and Construct contract Airservices will engage independent consultants to review the contractor's designs and progress of the works.

5.2 Public Value

The proposed works contribute to the increased safety of aviation at Hamilton Island. The value to the public will be provided through the role of ARFF which includes aviation rescue, property protection in the event of an air crash, fire management of aircraft during take-off and landing.

6. Associated Attachments

Attachment 1 – Environmental Assessment Plan
Attachment 2 – HM ARFF Site Master Plan – Part 1
Attachment 3 – HM ARFF Site Master Plan – Part 2
Attachment 4 – Floor Plan, Ground and First Floor

7. Acronyms

Acronym	Description
ARFF	Aviation Rescue Fire Fighting
CASA	Civil Aviation Safety Authority
CASR	Civil Aviation Safety Regulations
EBA	Enterprise Bargaining Agreement
FIFO	Fly-In Fly-Out
ICAO	International Civil Aviation Organisation
MOS	Manual of Standards
SME	Subject Matter Experts



HAMILTON ISLAND REPLACEMENT FIRE STATION

SUBMISSION 1

Attachment 1 – Environmental Assessment Plan

AIRSERVICES AUSTRALIA
CANBERRA ACT
2014



Air Services Australia
PRN 8681 Hamilton Island ARFFS Site Assessments
Ecological Assessment Report

May 2014

Table of contents

1.	Introduction.....	3
1.1	Project Description	3
1.2	Purpose of the Environmental Assessment Report	3
1.1	Scope and Limitations.....	3
2.	Methodology.....	5
2.1	Desktop.....	5
2.2	Site investigation.....	6
2.3	Reporting	6
3.	Site Characteristics	7
3.1	Site Zoning and Land Use	7
3.2	Land Tenure.....	7
3.3	Environmental Management Register/Contaminated Land Register	7
4.	Desktop Environmental Assessment	8
4.1	Topography	8
4.2	Acid Sulfate Soils	8
4.3	Coastal Areas	8
4.4	Wetlands	8
4.5	Regulated Vegetation	8
4.6	Matters of National Environmental Significance	9
4.7	Wildlife Online	11
4.8	Heritage	11
5.	Site Investigation	12
5.1	Site Condition.....	12
5.2	Flora	16
5.3	Fauna.....	20
5.4	Aboriginal Cultural Heritage	22
5.5	Non-Aboriginal Cultural Heritage	22
6.	Potential Impacts.....	23
6.1	Matters of National Environmental Significance	23
6.2	Vegetation Community Impacts	23
6.3	Flora Impacts	23
6.4	Fauna Impacts	24
6.5	Water Quality	24
6.6	Management to reduce impacts	24
7.	Legislation	25
7.1	Commonwealth	25
7.2	State.....	26

7.3	Local.....	29
8.	Recommendations and Conclusions	30
8.1	Impacts of project activities.....	30
8.2	Recommendations	30
9.	References	31

Table index

Table 1	Layout of the Environmental Assessment Report	3
Table 2	Listed threatened species on EPBC Protected Matter Search Tool.....	9
Table 3	Vegetation Communities Observed at the Project Site	17
Table 4	Identified Habitat Types and Assessment	20
Table 5	Matters of National Environmental Significance Impact Assessment	23

Figure index

Figure 1	Locality Map of Study Area and proposed ARFFS.....	13
Figure 2	Map of proposed ARFFS Facility	14
Figure 3	Ecological Features of Study Area	15

Appendices

- Appendix A – Database Search Results
- Appendix B – Flora Species List
- Appendix C – Fauna Species List
- Appendix D – Likelihood of Occurrence Assessment

1. Introduction

1.1 Project Description

Airservices Australia (Airservices) is in the process of negotiating a lease agreement with Hamilton Island Airport to upgrade the Aviation Rescue and Fire Fighting Services (ARFFS) on Lot 8 CP861993. The upgrade is a requirement of the *Civil Aviation Safety Regulation 1998*, specifically Part 139H (139.755(2) (b)), which requires the establishment of an Aviation Rescue and Fire Fighting Service where passenger numbers exceed 350,000 people per annum. Due to forecasted increases in passenger numbers for the airport the proposed upgrade is required to comply with the regulation. The existing temporary ARFFS facility is to be decommissioned following the establishment of the upgraded ARFFS facility.

1.2 Purpose of the Environmental Assessment Report

The purpose of this Environmental Assessment Report (EAR) is to describe the environmental values of the site and assess the potential for impacts from project activities on those values. The report identifies any environmental issues that are required to be considered during the planning, design and construction phase of the project. The layout of the report is identified in Table 1

Table 1 Layout of the Environmental Assessment Report

Section	Page
Methodology	5
Site characteristics	7
Desktop environmental characteristics	8
Site investigations	12
Potential impacts	23
Legislation	25
Recommendations and Conclusions	30

1.1 Scope and Limitations

GHD has been commissioned to undertake a range of environmental related works required to support the lease negotiations. These works are:

- Environmental Assessment Report (EAR) (this report)
- Additional components of the Environmental Investigation
 - Environmental Management Plan (EMP)
 - Site Contamination Due Diligence Phase 1 Assessment Report
 - Site Contamination Due Diligence Phase 2 Assessment Report

This report has been prepared by GHD for Air Services Australia and may only be used and relied on by Air Services Australia for the purpose agreed between GHD and the Air Services Australia as set out this section (section 1.1) of the report. 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. This EAR is relevant to the condition of the site at the time this report was written.

2. Methodology

To identify the environmental matters relevant to the proposal GHD has undertaken a three-step process that involves desktop review, site investigation and reporting. This section outlines the methodology used by GHD to complete the EAR.

2.1 Desktop

A desktop review of all available background information including searches of Commonwealth and State (QLD) environmental maps and databases has been undertaken including:

- Protected Matters Search Tool under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- Department of Natural Resource Management and Mines (DNRM) and Department of Environment and Heritage Protection (EHP) searches, registers and mapping including:
 - Queensland Heritage Register
 - Coastal Hazard Mapping (Storm Tide and Erosion Prone Areas)
 - Environmentally Sensitive Area Mapping
 - Regulated Vegetation Mapping (Remnant vegetation, High-value regrowth vegetation, Regional Ecosystem mapping)
 - Property Maps of Assessable Vegetation (PMAVs)
 - Referrable Wetland Mapping
 - Wildlife Online database search
- Department of Transport and Main Roads (DTMR) – Road Region Maps and IDAS Trigger Mapping
- Department of State Development, Infrastructure and Planning (DSDIP) State Assessment and Referral Agency (SARA) mapping
- CITEC Title Searches and Search of Contaminated Land Register (CLR) and Environmental Management Register (EMR)

A review of relevant Commonwealth and State environmental and planning legislation with respect to the proposed project was also undertaken, including:

- EPBC Act
- *Airport Act 1996* and *Airport (Environmental Protection) Regulations 1997*
- *Air Services Act 1995* and *Air Services Regulations 1995*
- *Sustainable Planning Act 2009* (S. PA)
- *Sustainable Planning Regulation 2009* (SPR)
- *Vegetation Management Act 1999* (VMA)
- *Environmental Protection Act 1994* (EP Act)
- *Nature Conservation Act 1992* (NCA)
- *Coastal Protection and Management Act 1995* (CPMA)
- *Land Protection (Pest and Stock Route Management) Act 2002*
- Review of current State Planning Policies

- Review of the Local Government planning scheme, the Whitsunday Planning Scheme (2009)

2.2 Site investigation

A site investigation was undertaken during an environmental survey on 31st March to the 1st April 2014 by two environmental scientists to assess:

- Vegetation type and condition, including ground-truthing of desktop review data.
- Opportunistic collection and identification of species present within the study area.
- Identification of habitats potentially suitable for listed threatened species under Commonwealth and State legislation.
- Opportunistic diurnal visual and aural searches for birds, mammals and amphibians.

The ecological survey included areas that will be directly impacted by the project (project area) and areas of bushland adjacent to the study area (adjacent bushland).

2.3 Reporting

Documentation of all of the outcomes of the above has been consolidated into this EAR. Any approvals identified within this Report will be subject to further liaison with relevant agencies and no information regarding the development assessment process or the preparation of supporting information for a development application has been included in this assessment.

3. Site Characteristics

3.1 Site Zoning and Land Use

The current zoning of the site is classified as 'tourism' under the Whitsunday Town Planning Scheme (2009). The project area is currently part of the Hamilton Island Airport land parcel and is immediately adjacent to the north western side of the runway (refer Figure 2). The airport development is geographically constrained by the geomorphology of Hamilton Island itself, such that both ends of the single runway are located immediately adjacent to the coastline. Land use to the west of the project area comprises a wastewater treatment facility with a vegetated buffer of approximately 150 metres width immediately adjacent to the coastline. The land parcel immediately to the south of the project area is a vacant disturbed (grassed) land parcel formally used for clay pigeon shooting. Freshwater lagoons used within the islands water treatment system are located on both sides of the runway, to the immediate south and south-east of the project area accordingly. Land use to the east of the project area comprises the airport runway and beyond that, the airport terminal infrastructure and road network connecting the airport to the rest of the island.

3.2 Land Tenure

A title search was carried out for the Lot 8 CP861993 (refer Appendix A) on which the project area is located. The land is owned by the Whitsunday Regional Council and is leased to Hamilton Island Enterprises. The lot is also subject to four easements, two covenants, two sub-leases, two transfers and two mortgage agreements (refer Appendix A for details).

3.3 Environmental Management Register/Contaminated Land Register

A search of the Environmental Management Register (EMR) and Contaminated Land Register (CLR) was undertaken for Lot 8 CP861993 on 11th April 2014 where the proposed ARFFS is to be located (refer Appendix A). The Lot is listed on the EMR for the Notifiable Activity of Petroleum Product or Oil Storage. The area where petroleum products are currently stored is to the north of the project area adjacent to the airport terminal infrastructure and is therefore not associated with the proposed ARFFS facility. The Lot is not listed on the CLR.

For more information please refer to the Site Contamination Assessment Report associated with this project (GHD, 2014).

4. Desktop Environmental Assessment

4.1 Topography

The topography of the whole airport site is fairly flat throughout, with a gentle inclination from the centre of the project area to the western boundary of the airport. The site elevation is approximately 15m AHD. There is an inclination (representing the western boundary of the airport) located to the immediate south-west of the project area. This ridge lies between the western boundary of the project area and the coastline and comprises bushland.

4.2 Acid Sulfate Soils

The project area is not identified as being underlain by Acid Sulfate Soils (ASS) according to the specific ASS overlay for the Whitsunday Shire Planning Scheme (2009). The CSIRO Australian Soil Resource Information System¹ indicates that site is classified as C4 Extremely Low Probability / Very Low Confidence under the National Acid Sulphate Soil Atlas. The project area is within the 5m Australian Height Datum (AHD) range however is comprised of fill material as the airport site was constructed on reclaimed land. It is very unlikely the proposed development will disturb any ASS or PASS. For more details please refer to the accompanying Site Contamination Assessment Report (GHD, 2014) for this project.

4.3 Coastal Areas

The project area is not identified as occurring within an area that may be inundated by a flood on the Whitsunday Shire Planning Scheme (2009).

The project area is not located within a Coastal Management District however it is located within an Indicative Erosion Prone Area (erosion and permanent tidal inundation due to sea level rise) as identified by the Department of Environment and Heritage Protection (EHP) coastal hazard mapping (refer Appendix A). The project area is also located within a medium hazard area for storm tide inundation (including projected climate change impacts to 2100- refer to Appendix A).

4.4 Wetlands

The EHP Map of Referrable Wetlands search tool identifies that Lot 8 CP861993 does not contain any designated Wetland Protection Areas designated under the *Environmental Protection Regulation 2008*, however there are wetland areas of designated 'High Ecological Significance' (HES) and 'General Ecological Significance' (GES) identified within the lot and close to the project area. The HES designated area constitutes the bushland area to the west of the project area and the GES designated area constitutes a large proportion of the airport site including the freshwater lagoon areas identified in Appendix A. The Wetlands are considered either GES or HES for the purposes of designating environmental values for wetlands under section 81A of the *Environmental Protection Regulation 2008*.

Refer to Appendix A for a copy of the wetland mapping.

4.5 Regulated Vegetation

Regulated vegetation mapping from EHP (refer to Appendix A) identifies remnant and least concern vegetation is located west of the project area. This Regional Ecosystem is mapped as RE 8.1.1 and described as mangrove closed forest of marine clay plains and estuaries.

¹ <http://www.asris.csiro.au/mapping/viewer.htm57>

However the field investigation has identified that the vegetation present at this location does not reflect the current RE mapping for this location. The vegetation and geology aligns with the attributes of RE 8.12.26 which is described as modified *Corymbia tessellaris* and/or *Eucalyptus tereticornis* open forest on hill slopes of islands and near coastal areas, on Mesozoic to Proterozoic igneous rocks, and Tertiary acid to intermediate volcanics. Refer to section 5.2 for additional details.

Essential habitat for the coastal sheath-tail bat (*Taphozous australis*) is identified on regulated vegetation mapping administered by the EHP (refer Appendix A) as occurring within the same area identified as RE 8.1.1 above, i.e. the bushland adjacent to the project area.

No high value regrowth is mapped as occurring within the project area or in adjacent areas. Requirements for clearing of native vegetation are outlined in section 7.2.3.

4.6 Matters of National Environmental Significance

An EPBC Act Protected Matters search was undertaken for the project area (refer to coordinates in Appendix A) with a buffer zone of 2 km.

The search results indicated the following:

- potential for 15 listed threatened species to utilise the search area (summarised below in Table 2)
- potential for 24 listed migratory species to utilise the search area
- one World Heritage Area/National Heritage Place (the Great Barrier Reef World Heritage Area/Marine Park)
- No listed threatened ecological communities
- No wetlands of international importance.

Table 2 Listed threatened species on EPBC Protected Matter Search Tool

Name	Status	Type of Presence	Comment
Listed Threatened Species			
Birds			
<i>Erythrotriorchis radiatus</i> Red Goshawk	Vulnerable	Species or species habitat likely to occur within area	Species habitat not identified as present in the Project Area
<i>Fregetta grallaria grallaria</i> White-bellied Storm-Petrel (Tasman Sea),	Vulnerable	Species or species habitat likely to occur within area	Species habitat not identified as present in the Project Area
<i>Macronectes giganteus</i> Southern Giant-Petrel	Endangered	Species or species habitat may occur within area	Species habitat not identified as present in the Project Area
<i>Pterodroma neglecta neglecta</i> Kermadec Petrel (western)	Vulnerable	Foraging, feeding or related behaviour may occur within area	Species habitat not identified as present in the Project Area

Mammals			
<i>Megaptera novaeangliae</i> Humpback Whale	Vulnerable	Congregation or aggregation known to occur within area	NA – Project area is terrestrial
<i>Xeromys myoides</i> Water Mouse, False Water Rat	Vulnerable	Species or species habitat likely to occur within area	Species habitat not identified as present in the Project Area
Plants			
<i>Phaius australis</i> Lesser Swamp-orchid [5872]	Endangered	Species or species habitat may occur within area	Species habitat not identified as present in the Project Area
Reptiles			
<i>Caretta caretta</i> Loggerhead Turtle	Endangered	Species or species habitat known to occur within area	Species habitat not identified as present in the Project Area
<i>Chelonia mydas</i> Green Turtle	Vulnerable	Breeding known to occur within area	Species not identified as present in the Project Area
<i>Dermochelys coriacea</i> Leatherback Turtle,	Endangered	Breeding likely to occur within area	Species not identified as present in the Project Area
<i>Eretmochelys imbricata</i> Hawksbill Turtle	Vulnerable	Foraging, feeding or related behaviour known to occur within area	Species habitat not identified as present in the Project Area
<i>Lepidochelys olivacea</i> Olive Ridley Turtle,	Endangered	Breeding likely to occur within area	Species not identified as present in the Project Area
<i>Natator depressus</i> Flatback Turtle	Vulnerable	Breeding known to occur within area	Species not identified as present in the Project Area
Sharks			
<i>Pristis zijsron</i> Green Sawfish, <i>Dindagubba</i> , Narrow snout Sawfish	Vulnerable	Species or species habitat may occur within area	NA – Project area is terrestrial
<i>Rhincodon typus</i> Whale Shark	Vulnerable	Species or species habitat may occur within area	NA – Project area is terrestrial

4.7 Wildlife Online

The Queensland government wildlife database (Wildlife Online) contains recorded wildlife sightings and listings of plants, fungi, protists, mammals, birds, reptiles, amphibians, freshwater fish, marine and cartilaginous fish, butterflies and other priority invertebrates in Queensland.

A search of Wildlife Online was undertaken for the project area defined by coordinates (refer Appendix A) and a 2 km buffer. The results identified 46 records of species. Of these the majority were identified as *least concern* under the *Nature Conservation Act 1992* (NCA). The estuarine crocodile was the only species listed as *vulnerable* under the NCA, with three listed instances of this species occurring within the search area. Two plant species (crownbeard and the tree tobacco) were listed as introduced species recorded in the search area.

No species recorded are listed under the EPBC Act.

4.8 Heritage

A search of the Queensland Heritage Register indicates that the area of proposed works is not a Queensland heritage place and does not share a common boundary with a Queensland heritage place under the *Queensland Heritage Act 1992*.

A search of the Aboriginal and Torres Strait Islander Cultural Heritage Database was requested on 10 April 2014 and official response was received on 17th April 2014. No record of any Aboriginal or Torres Strait Islander Cultural Heritage was recorded in the Cultural Heritage Database and Register for Lot 8 CP861993.

It is probable that the absence of recorded Aboriginal cultural heritage places reflects a lack of previous cultural heritage surveys of the area. Therefore it is possible that cultural heritage items that have the potential to exist are not listed on the register. Under the *Aboriginal Cultural Heritage Act (2003)* and the *Torres Strait Islander Cultural Heritage Act (2003)* anyone who carries out a land-use activity is required to exercise a duty of care. Land users must take all reasonable and practicable measures to ensure their activity does not harm Aboriginal or Torres Strait Islander cultural heritage, including cultural heritage located on freehold land and regardless of whether or not it has been identified or recorded in a database. These Duty of Care guidelines should be adhered to during all construction works.

5. Site Investigation

The purpose of the site investigation was to locate and identify any environmental values present on site, as well as assess vegetation type and condition and threatened flora/fauna habitats within and adjacent to the project area.

Photographs of the condition of the site were taken, including any features to note within the surrounding environment. Figure 1 shows the location of the proposed ARFFS facility (the project area) in relation to the study area (project area including adjacent bushland) and the wider airport site. Figure 2 demonstrates the location of the proposed ARFFS in terms of the area of disturbance/construction footprint.

5.1 Site Condition

Material identified across the northern and north-eastern area of the project area (refer Figure 1) comprising road base gravel and other fill material implies the area has been subject to previous clearing, excavation and filling. The area to the south and south-west of the project area comprises a grassed area which has established after previous clearing activities were undertaken for the airport development (visible in Photo 2). There is a drainage ditch/stormwater pit running toward the western boundary fence of the cleared area, visible in Photo 1.

Outside the western edge of the project area, behind a double fence lies a ridge of bushland vegetation leading into the wastewater treatment infrastructure (refer Figure 1).

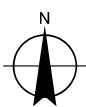


LEGEND

- Populated Place
- Secondary Road
- Highway
- Local Road
- Main Road

Based on or contains data provided by the State of QLD [2010]. 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.

1:10,000 (@ A4)
0 100 200 300 400
Metres
Map Projection: Universal Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

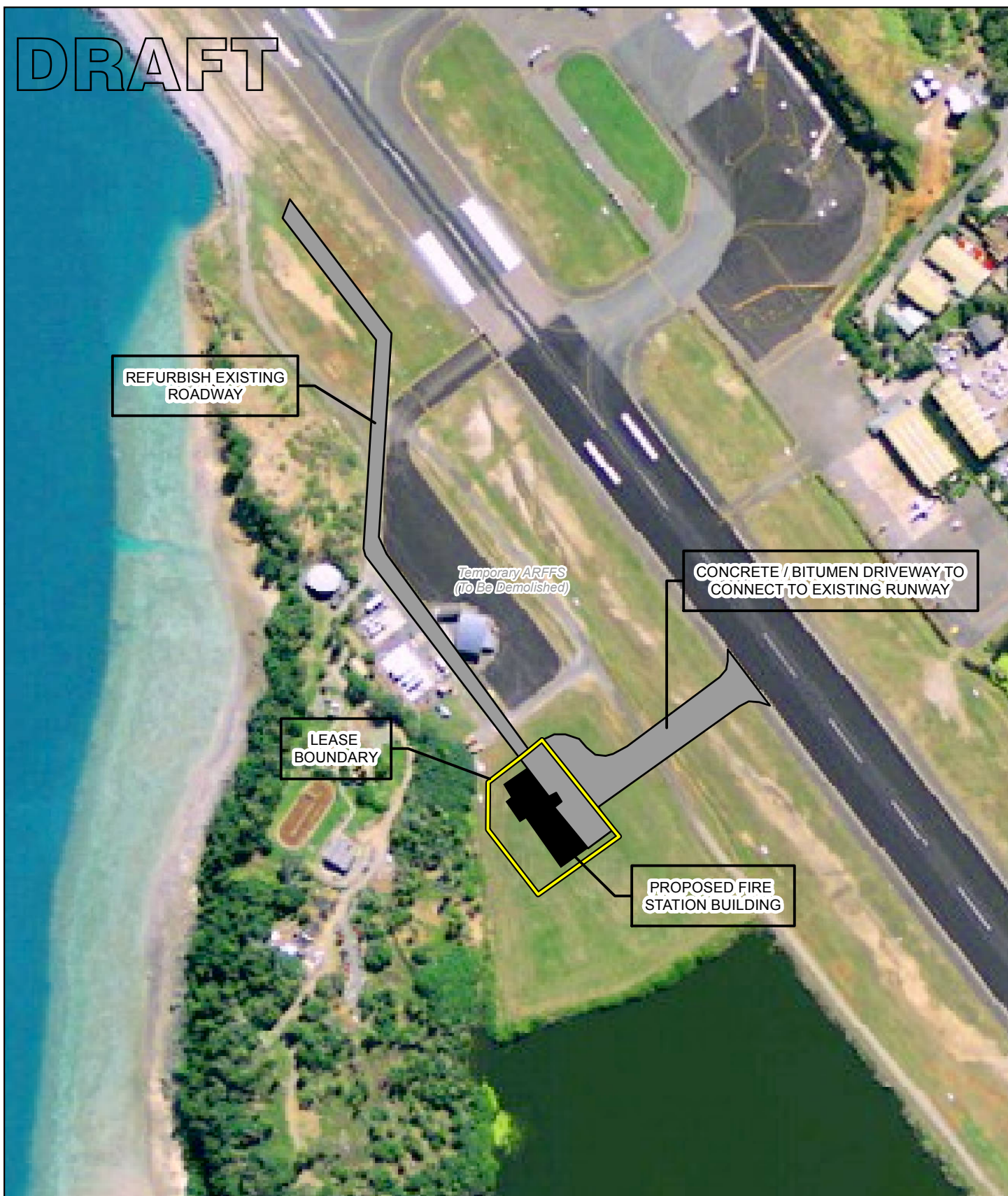


Airservices Australia
PRN 8681 ARFFS Hamilton Island
Site Investigations

Job Number 23-15190
Revision A
Date 17 Apr 2014

Locality Overview

Figure 1

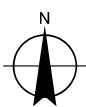


LEGEND

- Lease Boundary
- Proposed Fire Station Building

Proposed Development has been digitised from the Preliminary Airport Site Plan
7970-DG AR-0100 - Rev C (McVeigh 17/03/2014)

1:3,000 (@ A4)
0 20 40 60 80
Metres
Map Projection: Universal Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55










Airservices Australia
PRN 8681 ARFFS Hamilton Island
Site Investigations

Job Number | 23-15190
Revision | A
Date | 17 Apr 2014

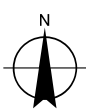
Proposed ARFFS Facility Figure 2



LEGEND

-  Water Point
-  Survey Extent
-  Of concern regional ecosystems
-  Proposed Fire Station Building
-  Drainage Line Track
-  Lease Boundary
-  Least concern regional ecosystems

1:2,000 (@ A4)
0 20 40 60
Metres
Map Projection: Universal Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



Airservices Australia
PRN 8681 ARFFS Hamilton Island
Site Investigations

Job Number | 23-15190
Revision | A
Date | 17 Apr 2014

Ecological Features of Study Area **Figure 3**



Photo 1 Southern extent of study area showing drainage ditch running to boundary fence

5.2 Flora

Flora surveys were undertaken as 'quaternary' level survey sites using the CORVEG methodology developed by the Queensland Herbarium (Neldner et al. 2012). The habitat potentially suitable for the presence of listed species was assessed.

Vegetation communities

Two vegetation communities were identified (Table 3) and mapped (Figure 3). These include a grassland area dominated by exotic species and an adjoining bushland area.

Flora species

Nineteen (19) flora species were recorded within the project area, of which three are native, 12 are exotic and four could only be identified to genus. An additional 25 flora species were recorded within the adjacent bushland, of which of which 15 are native, five are exotic and five could only be identified to genus or their status of introduced/native is uncertain. See Appendix B for a complete flora species list.

Table 3 Vegetation Communities Observed at the Project Site

Vegetation community	Conservation status	Location	Condition
Exotic grassland	Nil	Dominant vegetation type throughout the entire project area	Poor condition, dominated by exotic grasses and forbs including <i>Bothriochloa pertusa</i> (Indian bluegrass), <i>Chloris virgata</i> (feathertop rhodes grass), <i>Portulaca pilosa</i> (pigweed), <i>Mimosa pudica</i> (sensitive weed), <i>Gomphrena celosioides</i> (gomphrena weed), <i>Emilia sonchifolia</i> , <i>Crotalaria pallida</i> (streaked rattlegod), <i>Stylosanthes hamate</i> (Caribbean stylo) and <i>Macroptilium lathyroides</i> (phasey bean).
Modified <i>Corymbia tessellaris</i> and/or <i>Eucalyptus tereticornis</i> open forest on hill slopes of islands and near coastal areas, on Mesozoic to Proterozoic igneous rocks, and Tertiary acid to intermediate volcanics (RE 8.12.26)	VMA Class: Of concern; Biodiversity status: Endangered	Adjacent bushland to the west of the project area	<p>Poor condition, highly disturbed site. Previous eucalypt dominated canopy has died off. Reasons for canopy species death were unclear. Remaining native vegetation include <i>Livistona decora</i> (weeping cabbage palm), <i>Timonius timon</i> (timonius), <i>Pittosporum ferrugineum</i> (rusty pittosporum), <i>Alphitonia excelsa</i> (soap tree), <i>Alphitonia petriei</i> (white ash), <i>Pavetta australiensis</i> (butterfly bush), <i>Ficus opposita</i> (sandpaper fig), <i>Stephania japonica</i> (tape vine), <i>Smilax australis</i> (barbed-wire vine), <i>Alchornea illicifolia</i> (native holly) and <i>Cycas media</i> (tree cycad).</p> <p>The ground story and lower shrub layer was dominated by exotic species throughout most of this vegetation community. Exotic species include <i>Xanthium occidentale</i> (noogoora burr), <i>Asclepias curassavica</i> (red-head cottonbush), <i>Seena occidentalis</i> (coffee seena), <i>Crotalaria pallida</i> (streaked rattlegod) and <i>Lantana camara</i> (lantana).</p>

Cleared Area

The entire project area (Figure 1) has been filled and previously cleared for activities associated with the airport. The ground cover is dominated by exotic grassland that is frequently mown as part of routine maintenance. A low abundance of native species, none of which are listed under

the NC Act or EPBC Act, were observed during the field survey, including *Ipomoea plebia* (bell vine), *Chloris lobata* and *Eragrostis spartinoides* (lovegrass). However the presence of these species will not impede any future development at this location.

Vegetation Communities

The adjoining bushland that is outside of the area to be developed for the ARFFS facility is mapped by the Department of Natural Resources and Mines certified regional ecosystem mapping (version 8) as least concern RE 8.1.1 which is described as mangrove closed forest of marine clay plains and estuaries (Appendix A). The vegetation attributes observed however during the field survey at this location confirms that the RE polygon classification is incorrect. The adjoining bushland occurs on a hill slope with underlying igneous rocks and there are no mangroves present. The RE that most closely describes the attributes of the vegetation present is of-concern RE 8.12.26 (see Table 3). This area is highly disturbed with significant edge effects present and the ground layer and mid-strata composition dominated by exotic species, such as *Xanthium occidentale* (noogoora burr), *Asclepias curassavica* (red-head cottonbush) and *Seena occidentalis* (coffee seena). A number of Eucalypt, most likely *Eucalyptus tereticornis*, mortalities (from unknown causes) were observed in this area and it appears that *E. tereticornis* would have been the dominant canopy species at this location, which is consistent with the floristic composition of RE 8.12.26.



Photo 2 Exotic grassland in project area. The fenced area and bushland to the west of the project area is visible.



Photo 3 Adjoining bushland with dead canopy trees

Threatened flora

The database searches indicate that one threatened flora species, *Phaius australis* (lesser swamp orchid), may occur in or near the project area. *Phaius. australis* is listed as endangered in the NC Act and EPBC Act. *Phaius australis* was deemed unlikely to occur due to degradation of suitable habitat and was not observed including during a targeted search of wetland habitat in the adjacent bushland.

Weed species

The grassland of the project area is dominated by exotic species. One declared noxious weed, *Lantana camara* (lantana) was observed in the adjacent bushland. *Lantana camara* is listed as a Weed of National Environmental Significance and as a Class 3 pest plant in the *Land Protection Act 2002*.

Under the *Land Protection (Pest and Stock Route Management Act) 2002*, landholders are required to control Class 3 pest plants if a pest control notice has been issued by local government. The Whitsunday Regional Council may issue a pest control notice if the pest plant has the potential to cause a negative impact on an adjacent environmentally significant area (Department of Agriculture, Fisheries and Forestry 2013). Environmentally significant areas are deemed in the Whitsunday Regional Council Pest Management Plan 2009 – 2014 (2009) to include:

- National Parks, State Forest, Nature reserves
- waterways with remnant vegetation
- waterways with vegetation regrowth
- Proserpine Rock Wallaby habitat
- Wetland areas mapped by the Queensland Environmental Protection Agency
- Coastal dune systems with remnant vegetation

- Remnant vegetation – Endangered
- Remnant vegetation – Of Concern
- Remnant vegetation – Not Of Concern

The presence of remnant vegetation and wetlands adjacent to the project area may allow the Whitsunday Regional Council to issue a pest control notice. However, unless a pest control notice has been issued by the Whitsunday Regional council, no weed control is legally required.

5.3 Fauna

Fauna habitats

The project area generally has low fauna habitat values, due to previous large scale clearing, routine maintenance which includes slashing of regrowth native vegetation, and the presence of the airfield (which results in regular noise and disturbance from aviation and related vehicles).

Bushland and a freshwater dam adjacent to the project area have moderate fauna values, with the presence of habitat suitable for terrestrial bushland species, waterbirds and aquatic species.

The main habitat types are discussed in Table 4.

Table 4 Identified Habitat Types and Assessment

Habitat types	Habitat characteristics
Exotic grassland	Land at the project site has been previously cleared and is routinely slashed to minimise the occurrence of fauna adjacent to the airfield. It is unlikely the project site would contain any significant fauna habitat value. However there is the potential for species to opportunistically forage. One species, the Torresian Crow (<i>Corvus orru</i>), was observed within the project area and five bird species were observed flying over the project area (these are listed in Appendix C).
Modified <i>Corymbia tessellaris</i> and/or <i>Eucalyptus tereticornis</i> open forest on hill slopes of islands and near coastal areas, on Mesozoic to Proterozoic igneous rocks, and Tertiary acid to intermediate volcanics RE 8.12.26 (currently mapped as RE 8.1.1)	<p>Adjoining bushland habitat with eucalypt canopy cover that has died off. The secondary tree layer and upper shrub layer is dominated by rainforest species. Ground layer and lower shrub layer is dominated by exotic species, most notably <i>Xanthium occidentale</i> (noogoora burr). See Table 3 for more information on vegetation characteristics.</p> <p>Occasional hollows provide potential habitat for arboreal mammals and hollow nesting birds. A moderate amount of leaf litter, frequent stones and the presence of some rocky crevices provides potential habitat for ground dwelling reptiles. A dense secondary tree layer and the presence of dead canopy trees provides potential roosting habitat for owls, birds of prey other bird species. The habitat contains forage resources for macropods and terrestrial birds.</p> <p>This RE was identified as essential habitat for the coastal sheath-tail bat (<i>Taphozous australis</i>) in the EHP Regulated Vegetation Mapping tool (refer Appendix A). No evidence of this species was observed during the field survey.</p> <p>Ten species of birds were observed within the adjacent</p>

Habitat types	Habitat characteristics
	bushland, including the freshwater wetland (Appendix C).

Habitat and wildlife corridors

Bushland adjoining the project area is linked to approximately 18 ha of bushland, mainly to the southeast of the project area (Figure 3). This bushland is not within the direct footprint of the proposed project and will therefore remain connected to adjoining bushland and provide a function as a wildlife corridor.

Threatened fauna

No threatened fauna were recorded during the field survey.

An assessment of the likelihood of occurrence of threatened fauna species (Appendix D) determined that one threatened species, the estuarine crocodile (*Crocodylus porosus*), may occur near the study area. Previous records of estuarine crocodiles exist near the study area and suitable freshwater habitat exists near the study area (approximately 50 m from project area).

No other threatened fauna are considered likely to occur within the study area.

Migratory species

The database searches indicate that ten migratory species listed under the EPBC Act have the potential to occur in the study area.

- One species, the white-bellied sea eagle (*Haliaeetus leucogaster*), was confirmed present (Appendix C)
- Two species were considered to likely occur near the study area (Appendix D). These species have been previously recorded in or near the study area and suitable habitat exists near the study area. These species are:
 - Eastern osprey (*Pandion cristatus*)
 - Great Egret (*Ardea alba*)
- Six species may occur over or near the study area (Appendix D). Potential habitat exists for these species over or near the study area, however the species have not been recorded near the study area or, if the species has been recorded near the study area, the habitat is only somewhat suitable for the species. These species are:
 - Estuarine crocodile (*Crocodylus porosus*)
 - Fork-tailed swift (*Apus pacificus*)
 - Barn swallow (*Hirundo rustica*)
 - Black-faced monarch (*Monarcha melanopsis*)
 - Spectacled monarch (*Monarcha trivirgatus*)
 - Latham's snipe (*Gallinago hardwickii*)
- One species, the southern giant petrel (*Macronectes giganteus*), was considered unlikely to occur (Appendix D)

An additional migratory species, the eastern reef egret (*Egretta sacra*), was recorded near the study area during field surveys (Appendix C).

Aquatic habitats/Listed Marine Species

A freshwater dam occurs approximately 50 m south of the project area. The desktop assessments did not identify any threatened aquatic species with the potential to occur in freshwater habitats. Numerous threatened species that live exclusively in marine environments (including sea turtles, whales, dugong, fish, dolphins and sea snakes- identified as Listed Marine Species in the *EPBC* Protected Matter Search Tool results) were identified as having the potential to occur near the study area (Appendix A), however habitat for these species is located off-shore and not within the project area or likely to be impacted.

Matters of National Environmental Significance

The Great Barrier Reef World Heritage Area/Great Barrier Reef Marine Park surrounds Hamilton Island, and is a Matter of National Environmental Significance. The project area is not designated as part of the Marine Park or World Heritage Area however, and is already a highly disturbed area.

5.4 Aboriginal Cultural Heritage

No Aboriginal Cultural Heritage was identified during the field survey. Under the *Aboriginal Cultural Heritage Act (2003)* and the *Torres Strait Islander Cultural Heritage Act (2003)* anyone who carries out a land-use activity is required to exercise a duty of care. Land users must take all reasonable and practicable measures to ensure their activity does not harm Aboriginal or Torres Strait Islander cultural heritage, including cultural heritage located on freehold land and regardless of whether or not it has been identified or recorded in a database. Given the site has already been extensively disturbed and is comprised of reclaimed land; it is unlikely that any Aboriginal or Torres Strait Islander Cultural Heritage will be disturbed or adversely affected by the project. The Duty of Care guidelines associated with the aforementioned Acts must however be followed during the construction and operation of the proposed development.

5.5 Non-Aboriginal Cultural Heritage

No Non-Aboriginal Cultural Heritage was identified on the Queensland Heritage Register or during the site investigation.

6. Potential Impacts

6.1 Matters of National Environmental Significance

Under the environmental assessment provisions of the EPBC Act the following Matters of National Environmental Significance (MNES) and impacts on Commonwealth land are required to be considered to assist in the determining whether the proposed project should be referred to the Department of the Environment. Specific impact criteria are addressed below in Table 5.

Table 5 Matters of National Environmental Significance Impact Assessment

Factor	Impact
Any environmental impact on a World Heritage property? Although the GBRWHA boundary is located approximately 100 metres to the west of the project area, the topography of the site is such that a vegetated ridge is located in-between the project area and the coastline. It is therefore very unlikely the proposed project will have any impact to the GBRWHA.	Nil
Any environmental impact on wetlands of international importance?	N/A
Any environmental impact on Commonwealth listed threatened species or ecological communities? The project would not involve the clearing of any listed threatened ecological communities.	Nil
Any environmental impact on Commonwealth listed migratory species? The proposal would not impact on any Commonwealth listed migratory species.	Nil
Does any part of the proposal involve a nuclear action? The proposal does not involve a nuclear action.	NA
Any environmental impact on a Commonwealth marine area? The proposal would not impact on a Commonwealth marine area.	NA
Any environmental impact on an item of national heritage significance? The proposal would not impact on any item of national heritage significance.	Nil
Additionally, any impact (direct or indirect) on Commonwealth land? No Commonwealth land would be impacted by the proposal.	NA

6.2 Vegetation Community Impacts

The project would result in the permanent removal of approximately 0.11 ha of already disturbed exotic grassland described in section 5.2. As this area has already been extensively cleared and is disturbed frequently (mowed) it is not anticipated the project will adversely affect the overall vegetation community values of the study area.

6.3 Flora Impacts

The area to be cleared (exotic grassland) contains introduced species and a low abundance of native species, none of which are listed under the NC or EPBC Act. The project is therefore not expected to adversely impact the overall flora values of the study area.

6.4 Fauna Impacts

The area to be cleared occurs on the edge of the existing airfield, has been invaded by exotic grasses and is considered low fauna habitat value.

One listed threatened species was determined as potentially occurring near the study area (refer section 5.3 and Appendix D), the estuarine crocodile (*Crocodylus porosus*). Previous records from Wildlife online of estuarine crocodiles exist near the study area and suitable freshwater habitat exists near the study area (approximately 50 m from project area). Given the area to be cleared is terrestrial and already highly disturbed it is unlikely the project will cause any adverse impacts to this species.

The adjacent bushland to the west of the project area was identified during the desktop assessment as being essential habitat for the coastal sheath-tail bat (*Taphozous australis*). Evidence of this species was not recorded during the field study and it is not expected that the project will cause any adverse impacts to this species or essential habitat for this species.

6.5 Water Quality

As AFFF can drift and become airborne there is potential for localised water quality impacts to arise from the construction and operation of the proposed ARFFS facility. Water quality impacts are to be managed via the implementation of the associated CEMP for this project (GHD, 2014).

6.6 Management to reduce impacts

The impacts identified in this section will be identified in the Environmental Management Plan (GHD, 2014) to be implemented for the construction phase of the project. This will address a range of measures for matters including but not limited to flora and fauna, waste, cultural heritage, water quality and contamination.

7. Legislation

This section outlines legislation that may be relevant to the proposed development at Hamilton Island Airport. It is outside the scope of this EAR to determine whether the proposed development will trigger State Planning mechanisms (such as a Material Change of Use application under the SPA) however environmental legislation considerations are discussed in the following section.

7.1 Commonwealth

7.1.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act is the Commonwealth's principal piece of environmental protection legislation. It provides a national framework for the protection of the Australian environment and its unique biodiversity. Specifically, the EPBC Act aims to protect the environment by reducing significant impacts to matters of national environmental significance (MNES), these being:

- World heritage properties
- National heritage places
- Wetlands of international importance (listed under the Ramsar Convention)
- Listed threatened species and ecological communities
- Migratory species (protected under international agreements)
- Commonwealth marine areas
- Great Barrier Reef Marine Park
- Nuclear actions (including uranium mines)
- A water resource, in relation to coal seam gas development and large coal mining development.

The project is not expected to impact on any identified MNES in the study area and as such a referral under the EPBC Act is not considered to be required. Presence of identified MNES in the Study Area is discussed in section 4.6 and impacts to MNES in the study area are discussed in section 6.1.

7.1.2 Airport Act 1996 and Airports (Environment Protection) Regulations 1997

Part 14 of the *Airport Act 1996* sets out the provisions for air traffic services and aerodrome rescue and firefighting services. This states air traffic services, and aerodrome rescue and firefighting services, must not be provided at airports without the approval of the Civil Aviation Safety Authority (CASA). Specifically, an airport-lessee company for an airport must not provide or cause to permit aerodrome rescue and firefighting services to be provided unless the services are provided by a person approved or licensed, by the CASA under regulations made under section 98 of the *Civil Aviation Act 1988*, to provide the services; or the Australian Defence Force.

The objects of these Regulations are to establish, in conjunction with national environment protection measures made under section 14 of the *National Environment Protection Council Act 1994*, a Commonwealth system of regulation of, and accountability for, activities at airports that

generate, or have potential to generate pollution; or excessive noise; and to promote improving environmental management practices for activities carried out at airport sites.

The Regulation sets out duty of operators and should be incorporated into any site based management planning for the proposed ARFFS.

The Branch's primary responsibility is the regulation of 21 leased federal airports on Commonwealth land. The Branch administers the *Airports Act 1996*, its associated regulations and the airport head leases.

These leased airports are regulated under the Commonwealth *Airports Act 1996*, and therefore are not subject to state/territory or local government planning and building laws. Hamilton Island is not identified as a leased federal airport and as such the provisions of the *Airports Act 1996* and environmental management controls outlined in the *Airports (Environment Protection) Regulations 1997* are not applicable in this instance.

7.1.3 Air Services Act 1995 and Air Services Regulations 1995

Airservices is a Commonwealth statutory authority responsible for providing safe and efficient management of Australia's airspace. This includes the provision of air traffic and navigational services and associated aeronautical information essential to both the domestic and international aviation industries.

The *Air Services Regulations 1995* set out the functions of the ARFFS. These are:

- To conduct operations to rescue persons and property from an aircraft that, as the result of an incident at, or in the vicinity of an aerodrome, has crashed or caught fire; and
- To conduct operations to control and extinguish, and to protect persons and property threatened by:
 - A fire at an aerodrome, whether in an aircraft or elsewhere
 - A fire in the vicinity of an aerodrome that is in, or that started in, an aircraft.

The *Air Services Act 1995* is an Act specific to the functions and powers of Airservices in carrying out its operations across Australia. Section 19 of the *Air Services Act 1995* relates to immunity of Airservices from State and Territory land use laws. This sets out that a land use law does not apply in relation to Airservices, the property or transactions of Airservices or any act or thing done by or on behalf of Airservices. Under Section 19 (4) of the *Air Services Act 1995*, Land use law means a law of a State or Territory, to the extent that the law relates to:

- a. the use or proposed use of land or premises or
- b. the environmental consequences of the use of land or premises.

It can be concluded therefore that the *Air Services Act 1995* and the *Air Services Regulations 1995* dictate that local land laws do not apply to Airservices in the context of the proposed development.

7.2 State

7.2.1 Nature Conservation Act 1992

The *Nature Conservation Act 1992* (NC Act) provides for the conservation of nature through protection of all native plants and animals in Queensland. Protection is provided under the NC Act through conservation of land as protected areas and wildlife protection outside of protected areas. The Queensland *Nature Conservation (Wildlife) Regulation 2006* (NC Regulations) lists flora and fauna species considered to be extinct in the wild, endangered, vulnerable, near threatened or least concern in Queensland.

A clearing permit is required for the removal of least concern plants, as well as plants of higher conservation status. Exemptions apply under the *Nature Conservation (Protected Plants) Conservation Plan 2000* (section 41) for clearing a least concern plant on private land where the person taking the plant is the landholder.

With regards to fauna, the *Nature Conservation (Wildlife Management) Regulation 2006* specifies that a Species Management Program (SMP) is required for activities that may involve tampering with an animal breeding place. As no fauna species of conservation significance are considered likely to breed within the Project Area (refer Section 5.3), a project-specific Significant Species Management Program will not be required.

7.2.2 Coastal Protection and Management Act 1995

Work within a coastal management district (CMD) or involving development on land under tidal water requires a development permit for tidal works under the *Coastal Protection and Management Act 1995 (Coastal Act)*. Land under tidal water (tidal land) includes land lying below the level of mean high water at spring tide (MHWS), also referred to as the high-water mark (HWM), within the sea or the waters of any harbour, including any navigable river up to the upstream limit of influence of the spring tide on the river.

The project area is within a coastal area but does not extend into a Coastal Management District and is not classified as tidal land. Therefore the proposal does not trigger assessment under the Coastal Act in this regard.

7.2.3 Vegetation Management Act 1999

The *Vegetation Management Act 1999* (VM Act) provides a framework for the regulation of woody, terrestrial native vegetation located outside of protected areas. The stated purpose of the Act is to regulate the clearing of native vegetation in a way that:

- Conserves remnant vegetation that is an endangered, of concern or least concern Regional Ecosystem (RE)
- Conserves vegetation in declared areas
- Ensures clearing does not cause land degradation
- Prevents biodiversity loss
- Maintains ecological processes
- Manages the environmental effects of the clearing to ensure the above purposes are obtained.

The VM Act provides for the establishment and mapping of REs that encompass vegetation community descriptions within a geological and bioregional context and for the creation and use of clearing codes (among other things). In addition, it provides a process for RE mapping changes by the public, and for the investigation and prosecution of clearing offences.

The project area is located in an area comprising non-remnant vegetation (refer to section 5.2) and is therefore not subject to a vegetation clearing permit under the VMA.

7.2.4 Sustainable Planning Act 2009

The purpose of the *Sustainable Planning Act 2009* (SPA) is to achieve ecological sustainability by:

- Managing the process by which development takes place, including ensuring that the process is accountable, effective and efficient and delivers sustainable outcomes
- Managing the effects of development on the environment

- Providing for the coordination and integration of planning at the local, regional and state levels

GHD have not been engaged as part of this project to determine whether the proposed ARFFS will constitute assessable development for a Material Change of Use, Operational Work or Building Work under the SPA. However, section 19 of the *Air Services Act (1995)* states that land use laws do not apply to Airservices or to the organisations property or transactions.

7.2.5 Land Protection (Pest and Stock Route Management) Act 2002

The *Land Protection (Pest and Stock Route Management) Act 2002* (LP Act) identifies declared pest plant and animal species, and provides for their control. The LP Act imposes a legal responsibility on all landowners to control declared species on their land (subject to certain conditions). Specific management actions are required by landholders depending on the classification of declared pests under the Act, with three separate categories of declared pest prescribed including Class 1, Class 2 and Class 3. Landowners are required to remove Class 1 and Class 2 pests from their property and prevent them spreading to other areas. Class 3 pests cannot be sold or traded but are required to be controlled only if growing adjacent to an environmentally sensitive area (as declared by local councils).

As there is no assessment or approval process, the onus is on the proponent to implement appropriate management measures during construction works. GHD have included a Pest Management section within the Environmental Management Plan (EMP) developed for this project. Any contractors used as part of the development process and Airservices is to adhere to any actions outlined in the EMP.

7.2.6 Environmental Protection Act 1994

The aim of the *Environmental Protection Act 1994* (EP Act) is to protect Queensland's environment while allowing for development that improves the quality of life as well as maintaining the ecological processes on which it depends.

The EP Act also imposes a general environmental duty on all persons (including corporations) such that they must not conduct any activity that causes, or is likely to cause, environmental harm, unless they take all reasonable and practicable measures to prevent or minimise the harm. Airservices will need to demonstrate a commitment to abiding by their duty of care by developing and implementing an Environmental Management Plan, which GHD have prepared in conjunction with this EAR. This EMP should be updated to reflect existing policies or systems that Airservices will require to be implemented in addition to the management recommendations.

7.2.7 Queensland Government Environmental Offsets Policy

The Queensland Government Environmental Offsets Policy (QGEOP) provides a framework for the use of environmental offsets in Queensland, in order to counterbalance unavoidable, negative environmental impacts that result from an activity or a development. This policy is based on the premise that offsets are used consistently and transparently across the State, and are only considered after all environmental impacts have been avoided and minimised and all other government environmental standards have been met.

Based on the project area footprint (Figure 2) no clearing of Essential Habitat or 'of concern' Regional Ecosystems will take place and therefore no offsets will be required under the Queensland Government Environmental Offsets Policy.

7.2.8 Transport Planning and Coordination Act 1994

The objectives of this Act are, within the government's overall policy agenda, to improve—

- (a) the economic, trade and regional development performance of Queensland
- (b) the quality of life of Queenslanders

by achieving overall transport effectiveness and efficiency through strategic planning and management of transport resources. The *Transport Planning and Coordination Act 1994* is administered by DTMR.

DTMR is identified as a concurrence agency to any material change of use application regarding airports where any of the following apply:

- carried out within the obstacle limitation surface of an airport; and at least 12m high; or
- any part of the land is—
 - within an airport's public safety area; or
 - within the 25 ANEF contour for an airport and the development proposed is an accommodation activity (other than a single house on a vacant residential lot, short term accommodation or hostel), a residential care facility, hospital, health care service, educational establishment or child care centre; or
 - within the 30 ANEF contour for an airport and the development proposed is an accommodation activity, a residential care facility, hospital, health care service, educational establishment, child care centre or community use.

GHD have not been engaged as part of this project to determine whether the proposed ARFFS will constitute a Material Change of Use under the SPA, and therefore whether the above provisions apply. In addition, section 19 of the Air Services Act (1995) states that land use laws do not apply to Airservices or to the organisations property or transactions.

7.3 Local

7.3.1 Whitsunday Regional Plan 2009

Hamilton Island Airport is zoned as 'tourism' under the Whitsunday Regional Plan 2009 (Planning Scheme). Under the Planning Scheme, the proposed development best conforms to the definition of 'Special Purpose', meaning any premises used or intended for use for any of the following purposes or any like purpose:

- Ambulance station;
- Fire brigade;
- Local government purposes;
- Police Service;
- Public purposes not otherwise herein defined;
- State Emergency Services.

The Tourism Zone Code and General Development Code assessment criterion identifies development for a 'Special Purpose' within the tourism zone as self-assessable.

In addition, section 19 of the Air Services Act (1995) states that land use laws do not apply to Airservices or to the organisations property or transactions. Land use laws are defined as including the laws of State or Territory to the extent that the law related to the use of proposed use of land or premises. The proposed ARFFS facility to be constructed at Hamilton Island Airport is essential for Airservices to perform and maintain safe air traffic control for the surrounding airspace. Accordingly there is no requirement for Airservices to comply with normal planning processes.

8. Recommendations and Conclusions

The purpose of this EAR is to describe the environmental values of the site and assesses the impact of all project activities on those values. This study has taken into account issues from desktop environmental analysis, site investigation and legislative requirements.

8.1 Impacts of project activities

The site of the proposed ARFFS is described as highly disturbed, subject to previous ground clearing activities and subject to no previous or current land uses.

There are not expected to be any significant impacts as a result of the project to any MNES identified during the desktop assessment. The project would result in the permanent removal of a small area (approx. 0.11 ha) of already disturbed exotic grassland described in section 5.2. As this area has already been extensively cleared and is disturbed frequently (mowed) it is not anticipated the project will adversely affect the overall vegetation community values of the study area.

No listed threatened flora species under the EPBC Act or NC Act were observed during the site investigation. The project is therefore not expected to adversely impact the overall flora values of the study area.

The area to be cleared occurs on the edge of the existing airfield and is considered low fauna habitat value. One listed threatened species was determined was potentially occurring near the study area but was not sighted during the field investigation (the estuarine crocodile -*Crocodylus porosus*). Given the area to be cleared is terrestrial and already highly disturbed it is unlikely the project will cause any adverse impacts to this species.

The adjacent bushland to the west of the project area was identified during the desktop assessment as being essential habitat for the coastal sheath-tail bat (*Taphozous australis*). Evidence of this species was not recorded during the field study and it is not expected that the project will cause any adverse impacts to this species or essential habitat for this species.

Overall it is considered the proposed ARFFS in its current proposed location is suitable for a facility of this nature and would not impact upon any environmental values that exist at the site providing the management measures identified in the EMP are implemented.

Further, as the site is an existing operational airport, monitoring of bird species is required and records maintained on site for this purpose. The construction and operation of the proposed ARFFS is not considered to adversely impact upon fauna movements or behaviours beyond the current environment at the Hamilton Island Airport.

8.2 Recommendations

Mitigation measures to minimise ecological impacts are primarily related to limiting unnecessary clearing and reducing impacts to the adjacent bushland to the project area. The accompanying Construction Environmental Management Plan to this report should be referred for environmental management measures are to be implemented during the construction and operational period of the project.

9. References

- Department of Agriculture, Fisheries and Forestry, 2013. Declared pest plants fact sheet.
- Department of the Environment, 2014. EPBC Act Protected Matters Search Tool Report.
- Department of Environment and Heritage Protection, 2014. EMR/CLR Search Results.
- Department of Environment and Heritage Protection, 2014. Current State Tenure Search.
- Department of Environment and Heritage Protection, 2014. Environmentally Sensitive Areas Mapping.
- Department of Environment and Heritage Protection, 2014. Wildlife Online Database.
- Department of Environment and Heritage Protection, 2014. Coastal Hazard Areas Mapping and Storm Tide inundation Areas.
- Department of Environment and Heritage Protection, 2014. Map of Referable Wetlands, Wetland Protection Areas and Map of Referable Wetlands for the *Environmental Protection Act 1994*
- Department of Environment and Heritage Protection, 2014. Regulated Vegetation Management Map and Vegetation Management Supporting Map.
- Queensland Government
- Department of Aboriginal and Torres Strait Islander and Multicultural Affairs, 2014. Aboriginal Cultural Heritage Database Search Results.
- GHD, 2014. PRN8681 Hamilton Island ARFFS Site Assessments: Environmental Management Plan. Prepared for Airservices Australia.
- Neldner, V.J., Wilson, B.A., Thompson, E.J. and Dillewaard, H.A. (2012), *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland Version 3.2*, Brisbane, Australia.
- Whitsunday Regional Council, 2012. Whitsunday Town Planning Scheme.

Appendices

Appendix A – Database Search Results



Department of Environment and Heritage Protection (EHP)
ABN 46 640 294 485
400 George St Brisbane, Queensland 4000
GPO Box 2454 Brisbane QLD 4001 AUSTRALIA
www.ehp.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49691460 EMR Site Id: 22253 11 April 2014
This response relates to a search request received for the site:
Lot: 8 Plan: CP861993

This response relates to a search request received for the site:
The site you have searched has been subdivided from the following site, which is included on the EMR.
Subdivided new parcels will remain on the EMR unless it can be shown that they are not located near the
contaminating activity.

Lot: 8 Plan: HR1923
Address: HAMILTON ISLAND
QLD 4803

The site has been subject to the following Notifiable Activity pursuant to section 374 of the
Environmental Protection Act 1994.

PETROLEUM PRODUCT OR OIL STORAGE - storing petroleum products or oil -

(a) in underground tanks with more than 200L capacity; or

(b) in above ground tanks with -

(i) for petroleum products or oil in class 3 in packaging groups 1 and 2 of the dangerous goods code - more than 2, 500L capacity; or

(ii) for petroleum products or oil in class 3 in packaging groups 3 of the dangerous goods code - more than 5, 000L capacity; or

(iii) for petroleum products that are combustible liquids in class C1 or C2 in Australian Standard AS1940, 'The storage and handling of flammable and combustible liquids' published by Standards Australia - more than 25, 000L capacity.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

If you have any queries in relation to this search please phone 13QGOV (13 74 68)

Registrar
Administering Authority

Hamilton Island Replacement Fire Station Project
Submission 1
CURRENT STATE TENURE SEARCH

DEPT OF NATURAL RESOURCES AND MINES, QUEENSLAND

Request No: 18260054

Search Date: 28/03/2014 14:23

Title Reference: 17660077

Date Created: 03/11/1995

DESCRIPTION OF LAND

NOTE

For ease of use and the efficiency of the Register this Tenure Instrument has been divided into separate tenure Instruments each containing details of a particular Lot description.

For searching these tenures you must enter the Lot/Plan or the Sub Lease Dealing Number.

Tenure Reference: NCL 5/2803

LOT 8 CROWN PLAN 861993
 County of HERBERT Parish of WHITSUNDAY
 Local Government: WHITSUNDAY

Area: 674.776300 Ha. (SURVEYED)

No Land Description

No Forestry Entitlement Area

No Future Conservation Area

Purpose for which granted:
NO PURPOSE DEFINED

TERM OF LEASE

Day of beginning of lease

Lease in perpetuity commencing on 01/04/1981

REGISTERED LESSEE

Dealing No: 705609860 10/05/2002

HAMILTON ISLAND ENTERPRISES LIMITED A.C.N. 009 946 909

CONDITIONS

- K1 The lessee shall maintain the leased land free from noxious plants.
- M76 The Lessee shall within five (5) years from the commencement of the term of the lease and to the satisfaction of the Minister, effect improvements on the leased land in the nature of tourist accommodation buildings and recreation facilities and an Airstrip of a value of not less than \$15 000 000.00 with at least \$5 000 000.00 being spent in the first three (3) years of the lease.

Hamilton Island Replacement Fire Station Project
Submission 1
CURRENT STATE TENURE SEARCH

DEPT OF NATURAL RESOURCES AND MINES, QUEENSLAND

Request No: 18260054

Search Date: 28/03/2014 14:23

Title Reference: 17660077

Date Created: 03/11/1995

CONDITIONS

- M76 The Lessee shall within six (6) months from the commencement of the term of the lease, enter into an Agreement with the General Manager, The Queensland Tourist and Travel Corporation, regarding conduct of a resort on the leased land and the provision and maintenance of a suitable transport service to and from the resort. The Lessee shall thereafter comply in every respect with the requirements of the Agreement.
- M76 Before commencement of construction of revetment or of any other works on Crown Land below High Water Mark abutting the leased land, the Lessee shall lodge plans of the proposed works with the Marine Board of Queensland and shall obtain the sanction of the Governor-in-Council to those plans, pursuant to Section 86 of the Harbours Act 1955-1980.
- M76 If it is proposed to obtain material for filling from Crown Land below High Water Mark, the Lessee shall before commencing removal of any material, obtain an authority in writing from the Marine Board of Queensland as required by the Queensland Marine Act 1958-1979.
- M76 If the Lessee proposes to construct a canal as defined by the Canals Act 1958-1979, within the boundaries of the leased land, it shall, before commencement of construction, apply for and obtain the provisional approval and subject to obtaining that provisional approval, the final approval prescribed by the Canals Act 1958-1979.
- M76 All development on the leased land shall be in accordance with the Town Planning, By-Laws and requirements of the Council of the Shire of Proserpine. All plans of proposed development shall be required to be lodged for the approval of both the Council and the Minister and any other relevant Authorities.
- M76 The Lessee shall comply with any requirements of the Department of Transport.
- M76 The Lessee shall comply with any requirements of the Queensland Fisheries Service. All relevant approvals for the disturbance of Coral or Marine plants are to be obtained from the Service prior to work commencing.
- M76 Neither the Crown or the Local Authority shall be responsible in the event of erosion causing damage to the leased land or to improvements located thereon.
- M76 The edges of all reclamation works shall be adequately protected from scour and erosion by weather or wave action by means of revetments or walls constructed by the Lessee after first obtaining the necessary approvals under Section 86 of the Harbours Act 1955-1980.

Hamilton Island Replacement Fire Station Project
Submission 1
CURRENT STATE TENURE SEARCH

DEPT OF NATURAL RESOURCES AND MINES, QUEENSLAND

Request No: 18260054

Search Date: 28/03/2014 14:23

Title Reference: 17660077

Date Created: 03/11/1995

CONDITIONS

- M76 The Lessee shall take all necessary steps to protect adjacent coral reefs and other marine areas from siltation or water pollution arising from the construction or subsequent operation of any area of reclamation or other works within the lease area.
- M76 On completion of the reclamation and after construction of revetments and all other works required under the conditions of lease, the Lessee shall arrange for a licensed surveyor to determine the levels of the reclaimed land at points spaced not less than fifty metres from the nearest neighbouring point and located at the changes of grade and other wise at the intersection of a right angled grid.
- M76 On completion of the reclamation and after construction of revetments and all other works required under the conditions of lease, the Lessee shall arrange for a licensed surveyor to accurately determine the final position of the completed works. Such survey shall be carried out after first determining the requirements of the Surveyor-General. The original plans of survey shall be lodged, together with field notes, in the Office of the Surveyor-General.

ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Lease No. 17660077
2. EASEMENT No 602817038 (K468404H) 21/11/1990
EASEMENT IN PURSUANCE OF AN AGREEMENT DATED THE 23RD DAY OF
AUGUST 1990 BETWEEN THE LESSEE OF THE WITHIN DESCRIBED
HOLDING AND
HAMILTON AIRPORT PTY LTD
FOR PURPOSES AS DEFINED IN SUCH AGREEMENT
3. EASEMENT No 602817039 (K468409W) 21/11/1990
EASEMENT IN PURSUANCE OF AN AGREEMENT DATED THE 23RD DAY OF
AUGUST 1990 BETWEEN THE LESSEE OF THE WITHIN DESCRIBED
HOLDING AND
HAMILTON AIRPORT PTY LTD
FOR PURPOSES AS DEFINED IN SUCH AGREEMENT
4. SUB LEASE No 702711826 03/06/1998 at 14:47
to
OPTUS MOBILE PTY LIMITED A.C.N. 054 365 696
OF PART OF THE LAND
5. TRANSFER No 704977977 20/08/2001 at 15:07
SUB LEASE: 702711826
CROWN CASTLE AUSTRALIA PTY LTD A.C.N. 090 873 019

Hamilton Island Replacement Fire Station Project
Submission 1
CURRENT STATE TENURE SEARCH

DEPT OF NATURAL RESOURCES AND MINES, QUEENSLAND

Request No: 18260054

Search Date: 28/03/2014 14:23

Title Reference: 17660077

Date Created: 03/11/1995

ENCUMBRANCES AND INTERESTS

6. EASEMENT No 704949497 07/08/2001 at 14:52
Benefiting
THE WITHIN LAND AND BURDENING
LOT HQ ON CP887044 OVER
EASEMENT A ON CP904589
7. EASEMENT No 705191368 15/11/2001 at 15:37
Benefiting
THE WITHIN LAND AND BURDENING LEASE FA ON SP141159
OVER EASEMENT A ON SP141159
8. COVENANT No 709946505 19/09/2006 at 10:26
restricts dealings over
LOTS 8 AND 11 ON CP861993
9. SUB LEASE No 710992336 12/09/2007 at 15:33
JOHN RYAN NOMINEES PTY LTD A.C.N. 008 801 125 TRUSTEE
UNDER INSTRUMENT NO.710992336
OF LEASE V ON HR1863
TERM: 12.09.2007 TO 31.03.2078 OPTION NIL
10. SUB LEASE No 711286527 19/12/2007 at 09:39
LESLIE JOSEF BOSS
DEBORAH ANN OWEN TRUSTEE
UNDER DEALING 711286527
LEASE J ON CROWN PLAN HR1863
TERM: 12/09/2007 TO 31 MARCH 2078 OPTION NIL
11. TRANSFER No 712059306 20/11/2008 at 11:46
SUB LEASE: 711286527
NORTHAUST LEISURE PTY LTD A.C.N. 070 139 070
12. MORTGAGE No 715174357 28/06/2013 at 14:34
KAINTON LIMITED
over
SUB LEASE: 711286527
13. MORTGAGE No 713929469 28/06/2011 at 16:07
WESTPAC BANKING CORPORATION A.B.N. 33 007 457 141
14. COVENANT No 714328897 23/02/2012 at 12:27
restricts dealings over
LOT 8 ON CP861993 AND
LOT 1 ON RL7889

Hamilton Island Replacement Fire Station Project
Submission 1
CURRENT STATE TENURE SEARCH

DEPT OF NATURAL RESOURCES AND MINES, QUEENSLAND

Request No: 18260054

Search Date: 28/03/2014 14:23

Title Reference: 17660077

Date Created: 03/11/1995

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
713902513	DSI/OFFSET LAND VALUATION ACT 2010	14/06/2011 08:54	CURRENT

UNREGISTERED DEALINGS - NIL

Corrections have occurred - Refer to Historical Search

Caution - Charges do not necessarily appear in order of priority

**** End of Current State Tenure Search ****

Information provided under section 34 Land Title Act(1994) or
section 281 Land Act(1994)

COPYRIGHT THE STATE OF QUEENSLAND (DEPT OF NATURAL RESOURCES AND MINES) [2014]
Requested By: D APPLICATIONS CITEC CONFIRM



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: 28/03/14 15:09:55

[Summary](#)

[Details](#)

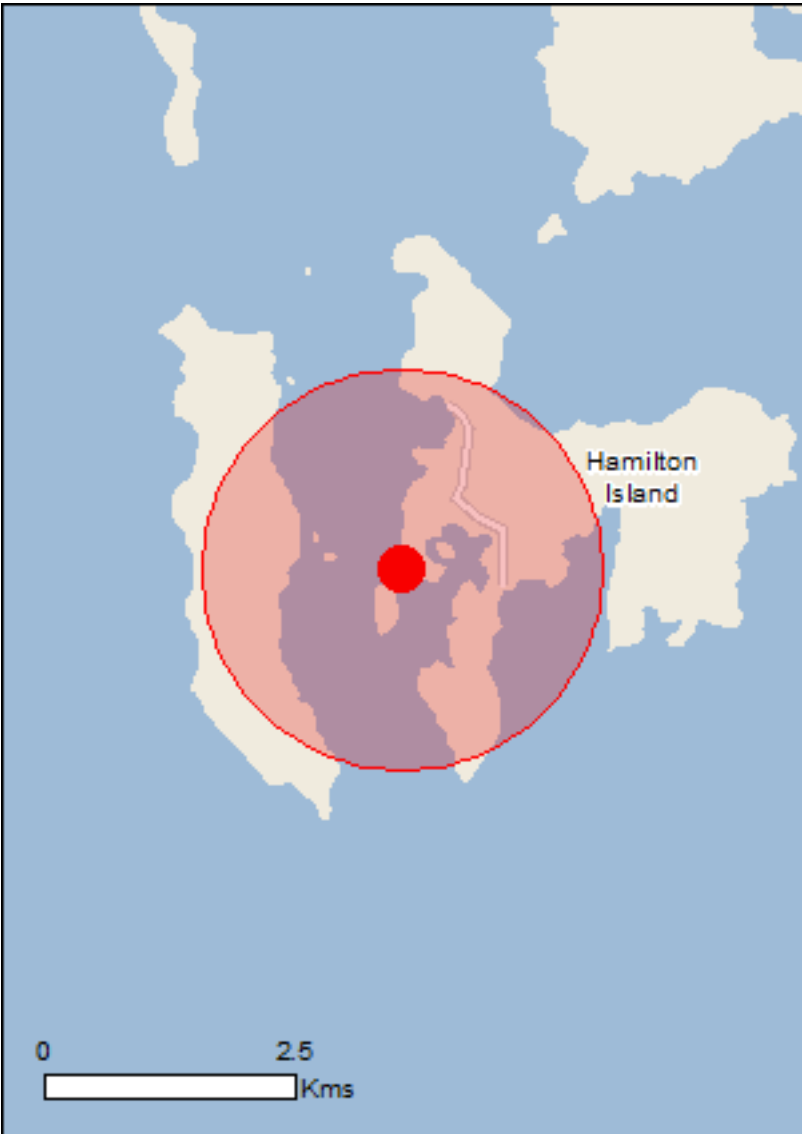
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

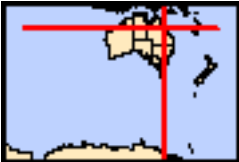
[Acknowledgements](#)



This map may contain data which are
©Commonwealth of Australia
(Geoscience Australia), ©PSMA 2010

[Coordinates](#)

[Buffer: 2.0Km](#)



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](#).

World Heritage Properties:	1
National Heritage Places:	1
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	4
Commonwealth Marine Areas:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	15
Listed Migratory Species:	24

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 and the heritage values of a place on the Register of the National Estate.

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.

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.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	66
Whales and Other Cetaceans:	11
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine	None

This part of the report provides information that may also be relevant to the area you have nominated.

Place on the RNE:	1
State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	3
Nationally Important Wetlands:	1
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

World Heritage Properties		[Resource Information]
Name	State	Status
Great Barrier Reef	QLD	Declared property
National Heritage Properties		[Resource Information]
Name	State	Status
Natural		
Great Barrier Reef	QLD	Listed place
Great Barrier Reef Marine Park		[Resource Information]
Type	Zone	IUCN
Commonwealth Island (GBRMPA)	Dent Island (22058103)	VI
Conservation Park	CP-20-4081	IV
Habitat Protection	HP-20-5197	VI
Habitat Protection	HP-19-5165	VI
Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Erythrotriorchis radiatus		
Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Fregetta grallaria grallaria		
White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438]	Vulnerable	Species or species habitat likely to occur within area
Macronectes giganteus		
Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
Pterodroma neglecta neglecta		
Kermadec Petrel (western) [64450]	Vulnerable	Foraging, feeding or related behaviour may occur within area
Mammals		
Megaptera novaeangliae		
Humpback Whale [38]	Vulnerable	Congregation or aggregation known to occur within area
Xeromys myoides		
Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat likely to occur within area
Plants		

Name	Status	Type of Presence
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat may occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Sharks		
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat may occur within area
Rhincodon typus 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
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Macronectes giganteus Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
Migratory Marine Species		
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Dugong dugon Dugong [28]		Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or

Name	Threatened	Type of Presence
Lamna nasus Porbeagle, Mackerel Shark [83288]		related behaviour known to occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat may occur within area
Manta birostris Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Breeding likely to occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat likely to occur within area
Natator depressus Flatback Turtle [59257]		Congregation or aggregation known to occur within area
Orcaella brevirostris Irrawaddy Dolphin [45]	Vulnerable	Breeding known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat likely to occur within area
Rhincodon typus Whale Shark [66680]		Species or species habitat may occur within area
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Vulnerable	Species or species habitat may occur within area
Migratory Terrestrial Species		
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Ardea alba Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat likely to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Fish		
Acentronura tentaculata Shortpouch Pygmy Pipehorse [66187]		Species or species habitat may occur within area
Campichthys tryoni Tryon's Pipefish [66193]		Species or species habitat may occur within area
Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Corythoichthys amplexus Fijian Banded Pipefish, Brown-banded Pipefish [66199]		Species or species habitat may occur within area
Corythoichthys flavofasciatus Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Corythoichthys intestinalis Australian Messmate Pipefish, Banded Pipefish [66202]		Species or species habitat may occur within area
Corythoichthys ocellatus Orange-spotted Pipefish, Ocellated Pipefish [66203]		Species or species habitat may occur within area
Corythoichthys paxtoni Paxton's Pipefish [66204]		Species or species habitat may occur within area
Corythoichthys schultzi Schultz's Pipefish [66205]		Species or species habitat may occur within area
Cosmocampus darrosanus D'Arros Pipefish [66207]		Species or species habitat may occur within area
Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		Species or species habitat may occur within area
Festucalex cinctus Girdled Pipefish [66214]		Species or species habitat may occur within area
Halicampus dunckeri Red-hair Pipefish, Duncker's Pipefish [66220]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus nitidus Glittering Pipefish [66224]		Species or species habitat may occur within area
Halicampus spinirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Hippichthys cyanospilos Blue-speckled Pipefish, Blue-spotted Pipefish [66228]		Species or species habitat may occur within area
Hippichthys heptagonus Madura Pipefish, Reticulated Freshwater Pipefish [66229]		Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
Hippocampus bargibanti Pygmy Seahorse [66721]		Species or species habitat may occur within area
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area
Hippocampus zebra Zebra Seahorse [66241]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Micrognathus andersonii Anderson's Pipefish, Shortnose Pipefish [66253]		Species or species habitat may occur within area
Micrognathus brevirostris thorntail Pipefish, Thorn-tailed Pipefish [66254]		Species or species habitat may occur within area
Nannocampus pictus Painted Pipefish, Reef Pipefish [66263]		Species or species habitat may occur within area
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
Solenostomus paegnius Rough-snout Ghost Pipefish [68425]		Species or species habitat may occur within area
Solenostomus paradoxus Ornate Ghostpipefish, Harlequin Ghost Pipefish, Ornate Ghost Pipefish [66184]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
Trachyrhamphus longirostris Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Mammals		
Dugong dugon Dugong [28]		Species or species habitat known to occur within area
Reptiles		
Acalyptophis peronii Horned Seasnake [1114]		Species or species habitat may occur within area
Aipysurus duboisii Dubois' Seasnake [1116]		Species or species habitat may occur within area
Aipysurus eydouxii Spine-tailed Seasnake [1117]		Species or species habitat may occur within area
Aipysurus laevis Olive Seasnake [1120]		Species or species habitat may occur within area
Astrotia stokesii Stokes' Seasnake [1122]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area

Name	Threatened	Type of Presence
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Disteira kingii Spectacled Seasnake [1123]		Species or species habitat may occur within area
Disteira major Olive-headed Seasnake [1124]		Species or species habitat may occur within area
Enhydrina schistosa Beaked Seasnake [1126]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Hydrophis elegans Elegant Seasnake [1104]		Species or species habitat may occur within area
Hydrophis mcdowelli null [25926]		Species or species habitat may occur within area
Hydrophis ornatus a seasnake [1111]		Species or species habitat may occur within area
Lapemis hardwickii Spine-bellied Seasnake [1113]		Species or species habitat may occur within area
Laticauda colubrina a sea krait [1092]		Species or species habitat may occur within area
Laticauda laticaudata a sea krait [1093]		Species or species habitat may occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Pelamis platurus Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area

Whales and other Cetaceans		[Resource Information]
Name	Status	Type of Presence
Mammals		
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area

Name	Status	Type of Presence
Grampus griseus Risso's Dolphin, Grampus [64]	Vulnerable	Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]		Congregation or aggregation known to occur within area
Orcaella brevirostris Irrawaddy Dolphin [45]		Species or species habitat likely to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Sousa chinensis Indo-Pacific Humpback Dolphin [50]		Breeding known to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Extra Information

Places on the RNE	[Resource Information]
-------------------	--------------------------

Note that not all Indigenous sites may be listed.

Name	State	Status
Natural		
Great Barrier Reef Region	QLD	Registered

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 Resouces Audit, 2001.

Name	Status	Type of Presence
Mammals		
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Reptiles		
Lepidodactylus lugubris Mourning Gecko [1712]		Species or species habitat likely to occur

Name		Status	Type of Presence within area
Nationally Important Wetlands			[Resource Information]
Name			State
Great Barrier Reef Marine Park			QLD

Coordinates

-20.35954 148.94713

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 Heritage and Register of National Estate properties, Wetlands of International 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.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

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.

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:

- [Department of Environment, Climate Change and Water, New South Wales](#)
- [Department of Sustainability and Environment, Victoria](#)
- [Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [Department of Environment and Natural Resources, South Australia](#)
- [Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts](#)
- [Environmental and Resource Management, Queensland](#)
- [Department of Environment and Conservation, Western Australia](#)
- [Department of the Environment, Climate Change, Energy and Water](#)
- [Birds Australia](#)
- [Australian Bird and Bat Banding Scheme](#)
- [Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [Museum Victoria](#)
- [Australian Museum](#)
- [SA 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, Atherton and Canberra](#)
- [University of New England](#)
- [Ocean Biogeographic Information System](#)
- [Australian Government, Department of Defence](#)
- [State Forests of NSW](#)
- [Geoscience Australia](#)
- [CSIRO](#)
- 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.

[© Commonwealth of Australia](#)
[Department of the Environment](#)
GPO Box 787
Canberra ACT 2601 Australia
+61 2 6274 1111



Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point

Species: All

Type: All

Status: All

Records: All

Date: All

Latitude: 20.3595

Longitude: 148.9471

Distance: 2

Email: rebecca.peardon@ghd.com

Date submitted: Friday 28 Mar 2014 14:12:45

Date extracted: Friday 28 Mar 2014 14:20:06

The number of records retrieved = 46

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	Submission 1	Common Name	I	Q	A	Records
animals	birds	Accipitridae	<i>Haliastur indus</i>		brahminy kite		C		3
animals	birds	Accipitridae	<i>Pandion cristatus</i>		eastern osprey		C		1
animals	birds	Accipitridae	<i>Haliaeetus leucogaster</i>		white-bellied sea-eagle		C		1
animals	birds	Anatidae	<i>Anas superciliosa</i>		Pacific black duck		C		1
animals	birds	Ardeidae	<i>Ardea modesta</i>		eastern great egret		C		1
animals	birds	Ardeidae	<i>Egretta sacra</i>		eastern reef egret		C		3
animals	birds	Ardeidae	<i>Egretta novaehollandiae</i>		white-faced heron		C		1
animals	birds	Artamidae	<i>Strepera graculina</i>		pieb currawong		C		2
animals	birds	Burhinidae	<i>Burhinus grallarius</i>		bush stone-curlew		C		1
animals	birds	Cacatuidae	<i>Cacatua galerita</i>		sulphur-crested cockatoo		C		4
animals	birds	Corvidae	<i>Corvus orru</i>		Torresian crow		C		3
animals	birds	Cuculidae	<i>Centropus phasianinus</i>		pheasant coucal		C		2
animals	birds	Cuculidae	<i>Chalcites lucidus</i>		shining bronze-cuckoo		C		1
animals	birds	Haematopodidae	<i>Haematopus longirostris</i>		Australian pied oystercatcher		C		4
animals	birds	Halcyonidae	<i>Dacelo novaeguineae</i>		laughing kookaburra		C		2
animals	birds	Hirundinidae	<i>Hirundo neoxena</i>		welcome swallow		C		1
animals	birds	Laridae	<i>Thalasseus bergii</i>		crested tern		C		5
animals	birds	Laridae	<i>Chroicocephalus novaehollandiae</i>		silver gull		C		4
animals	birds	Maluridae	<i>Malurus melanocephalus</i>		red-backed fairy-wren		C		1
animals	birds	Meliphagidae	<i>Philemon corniculatus</i>		noisy friarbird		C		1
animals	birds	Monarchidae	<i>Grallina cyanoleuca</i>		magpie-lark		C		1
animals	birds	Nectariniidae	<i>Nectarinia jugularis</i>		olive-backed sunbird		C		3
animals	birds	Phalacrocoracidae	<i>Phalacrocorax varius</i>		pied cormorant		C		1
animals	birds	Psittacidae	<i>Trichoglossus haematodus moluccanus</i>		rainbow lorikeet		C		3
animals	mammals	Muridae	<i>Rattus sordidus</i>		canefield rat		C		1/1
animals	mammals	Vespertilionidae	<i>Vespadelus troughtoni</i>		eastern cave bat		C		1
animals	reptiles	Boidae	<i>Morelia spilota</i>		carpet python		C		1
animals	reptiles	Crocodylidae	<i>Crocodylus porosus</i>		estuarine crocodile		V		3
plants	higher dicots	Asteraceae	<i>Apowollastonia spilanthesoides</i>				C		1/1
plants	higher dicots	Asteraceae	<i>Sigesbeckia orientalis</i>		Indian weed		C		1/1
plants	higher dicots	Asteraceae	<i>Verbesina encelioides</i>		crownbeard	Y			1/1
plants	higher dicots	Asteraceae	<i>Coronidium rupicola</i>				C		1/1
plants	higher dicots	Bignoniaceae	<i>Pandorea pandorana</i>		wonga vine		C		1/1
plants	higher dicots	Fabaceae	<i>Dendrolobium umbellatum</i> var. <i>umbellatum</i>				C		1/1
plants	higher dicots	Myrtaceae	<i>Lophostemon confertus</i>		brush box		C		1/1
plants	higher dicots	Rubiaceae	<i>Timonius timon</i> var. <i>timon</i>				C		1/1
plants	higher dicots	Solanaceae	<i>Nicotiana glauca</i>		tree tobacco	Y			1/1
plants	liverworts	Frullaniaceae	<i>Frullania</i>				C		1/1
plants	liverworts	Geocalycaceae	<i>Chiloscyphus</i>				C		1/1
plants	mosses	Calympereaceae	<i>Syrrhopodon</i>				C		1/1
plants	mosses	Orthotrichaceae	<i>Macromitrium repandum</i>				C		1/1
protists	brown algae	Phaeophyceae	<i>Sporochnus comosus</i>				C		1/1
protists	green algae	Chlorophyceae	<i>Rhizoclonium tortuosum</i>				C		1/1
protists	red algae	Rhodophyceae	<i>Chondria rainfordi</i>				C		1/1
protists	red algae	Rhodophyceae	<i>Bostrychia radicans</i>				C		1/1
protists	red algae	Rhodophyceae	<i>Bostrychia calliptera</i>				C		1/1

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

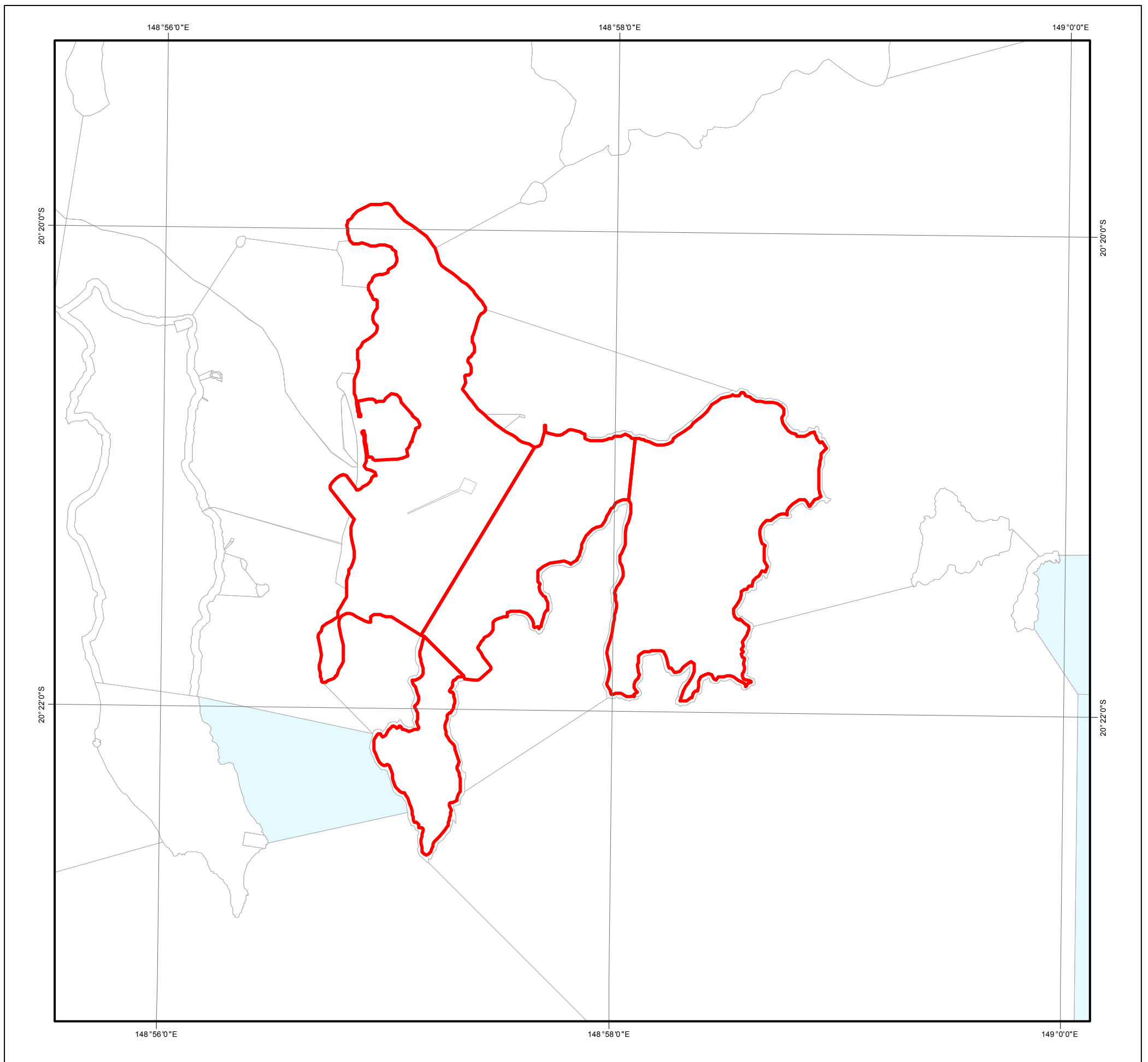
Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992*. The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ().

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.





Map of Referable Wetlands Wetland Protection Areas

Requested By: REBECCA.PEARDON@GHD.COM

Date: 28 Mar 14 Time: 13.57.50

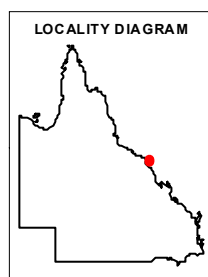
**Centred on Lot on Plan:
8 CP861993**



-  **Selected Land Parcel**
-  **Cadastral Boundary**

Wetland Protection Areas

-  **HES Wetland**
-  **Trigger Area**



This product is projected into GDA 1994 MGA Zone 55

Note:

This map shows the location of wetland protection areas which are defined under the Environmental Protection Regulation 2008.

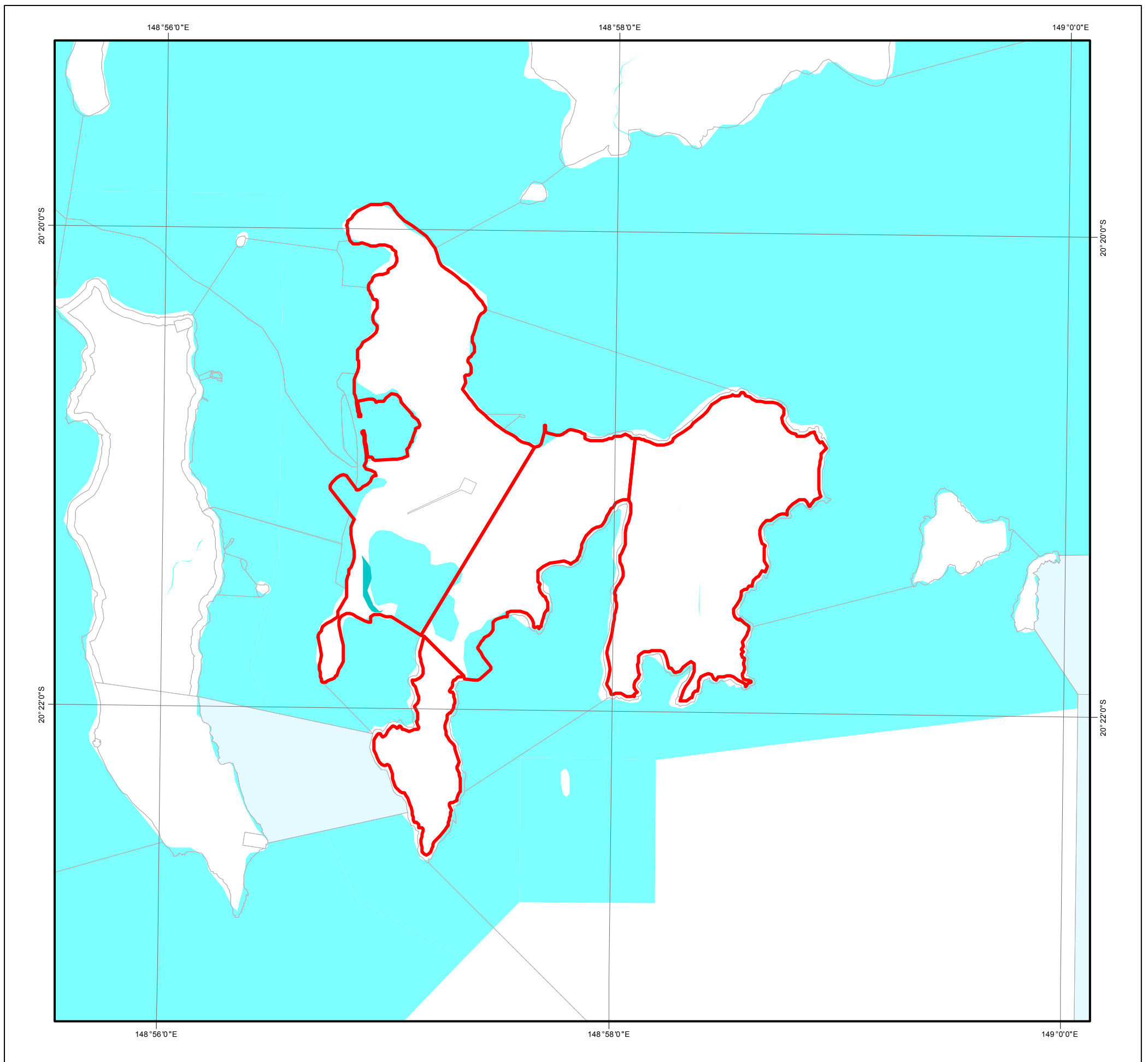
Within wetland protection areas, certain types of development involving high impact earthworks are made assessable under Schedule 3 of the Sustainable Planning Regulation 2009.

The Department of Environment and Heritage Protection has been made a concurrence agency under Schedule 7 of the Sustainable Planning Regulation 2009 for assessable development involving high impact earthworks within wetland protection areas.

The policy outcome and assessment criteria for assessing these applications are described in the State Planning Policy 4/11: Protecting Wetlands of High Ecological Significance in Great Barrier Reef Catchments.

This map is produced at a scale relevant to the size of the lot on plan identified and should be printed at A4 size in portrait orientation. Consideration of the effects of mapped scale is necessary when interpreting data at a large scale.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Heritage Protection at www.ehp.qld.gov.au or email planning.support@ehp.qld.gov.au.



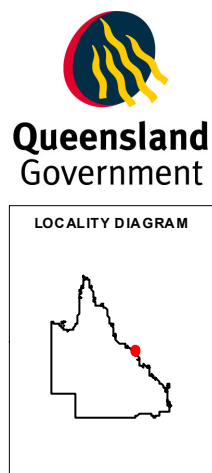
Map of Referable Wetlands for the Environmental Protection Act 1994

Requested By: REBECCA.PEARDON@GHD.COM

Date: 28 Mar 14 Time: 13.57.53

Centred on Lot on Plan:
8 CP861993

-  Selected Land Parcel
-  Cadastral Boundary
-  HES Wetland GBR Catchments
-  HES Wetland
-  GES Wetland



0 430 860 1290 1720 2150 m

Note:

This map shows the location of wetlands on the Map of Referable Wetlands which are defined under the Environmental Protection Regulation 2008.

Wetlands are assessed for ecological significance using the environmental values for wetlands in section 81A of the Environmental Protection Regulation 2008. Wetlands are considered either High Ecological Significance (HES) or of General Ecological Significance (GES) for the purposes of the environmental values.

This map is produced at a scale relevant to the size of the lot on plan identified and should be printed at A4 size in portrait orientation. Consideration of the effects of mapped scale is necessary when interpreting data at a large scale.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Heritage Protection at <www.ehp.qld.gov.au> or email <planning.support@ehp.qld.gov.au>

CATEGORY A

- Mining Leases
- National Parks
- Conservation Parks
- Forest Reserves
- Wet Tropics World Heritage Area
- Great Barrier Reef Marine Park Area
- Marine Parks other than General Use Zones

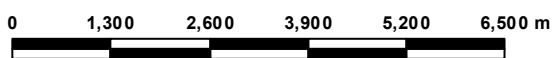
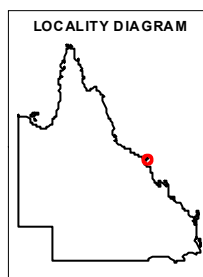
CATEGORY B

- World Heritage Areas
- Queensland Heritage Register Places
- Ramsar Sites
- Cultural Heritage Registered Areas and DLA's other than Stanbrooke
- Special Forestry Areas
- Fish Habitat Areas
- Koala Plan
- Coordinated Conservation Areas
- Endangered Regional Ecosystems (Biodiversity Status)
- Marine Parks other than General Use Zones
- Marine Plants

OTHERS

- Nature Refuges
- Resources Reserves
- Declared Catchment Areas
- Declared Irrigation Areas
- Drainage Areas
- River Improvement Areas
- Stanbrooke DLA
- State Forests
- Timber Reserves
- Coastal Management Control Districts
- Dams and Weirs
- Roads
- Towns
- Wild River Nominated Waterways
- Wild River High Preservation Areas
- Wild River Preservation Areas
- Mahogany Glider Habitat
- Directory of Important Wetlands
- Queensland

Centred on point position:
Latitude: -20.3595 Longitude: 148.9471
as
(decimal degrees)



Information presented on this product is distributed by the Queensland Government as an information source only. While every care is taken to ensure the accuracy of this data, Pitney Bowes Software and the State of Queensland makes no statements, representations or warranties about the accuracy, reliability, completeness or suitability of any information contained in this product.

The State of Queensland disclaims all responsibility for information contained in this product 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.

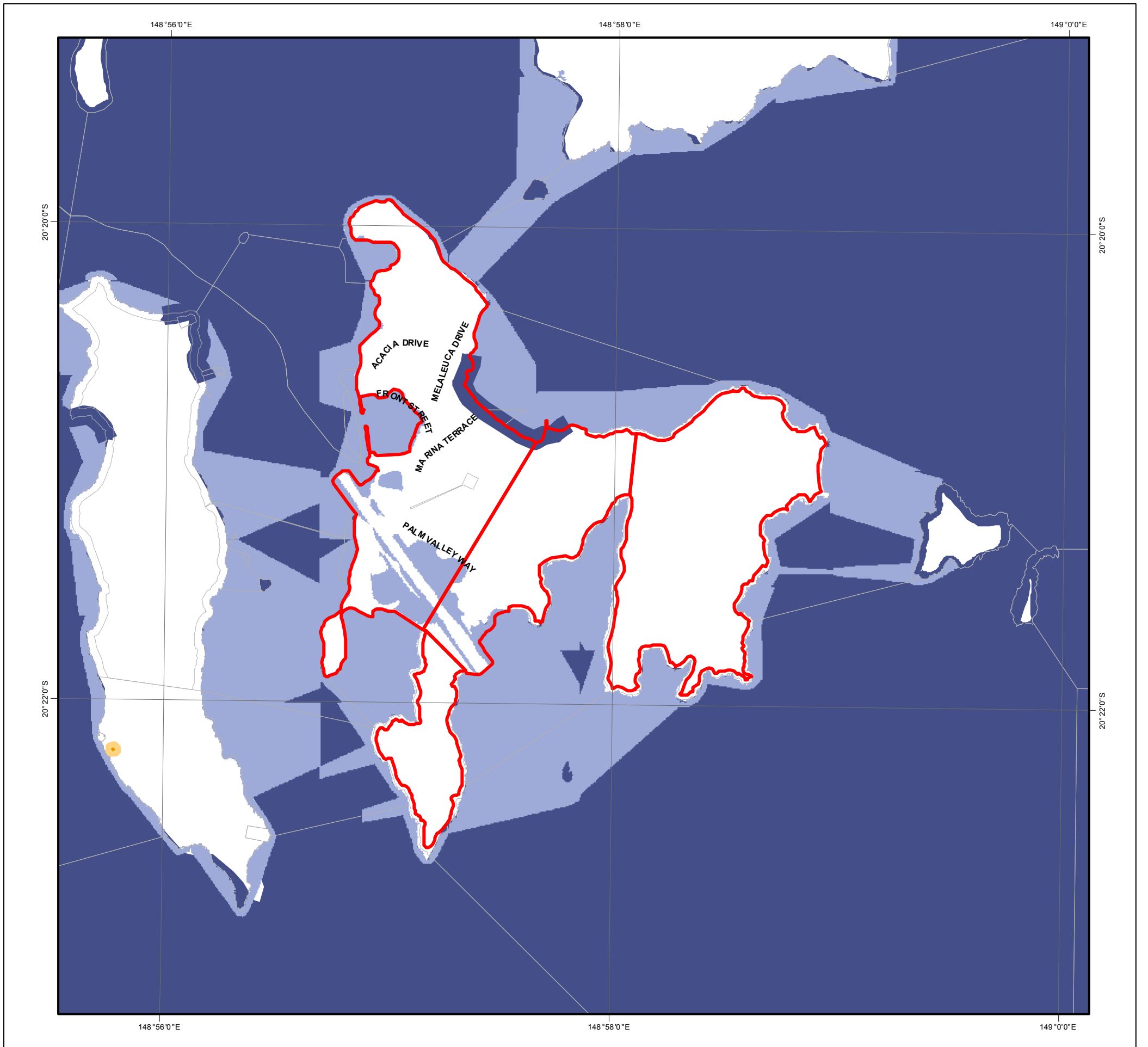
External contributors (non-government parties) of the data for this product are: Great Barrier Reef Marine Park Authority and Pitney Bowes Software

Regional ecosystem mapping (remnant biodiversity status) may incorporate amendments, resulting from property level assessments, to the release version of the mapping available on QGIS.

NOTE TO USER: Themes presented in this map are indicative only. Field survey may be required to verify the 'true' spatial extent and value. Not all environmentally sensitive areas are presented in this map. A user should refer to the particular circumstances relevant to their situation to assess the 'completeness' of themes provided.

The user should note that some boundaries and indicated values are ambient and may change over time (e.g. regional ecosystem boundaries and conservation status, watercourse mapping etc).

The user should be aware that due to multiple overlapping themes/ layers present, some themes/layers may be obscured by others. Ordering in the Legend does not accurately reflect the order by which themes/layers are displayed.



Coastal Hazard Areas Map

Erosion Prone Area

Requested By: REBECCA.PEARDON@GHD.COM

Date: 28 Mar 14 Time: 13.54.41

Centred on Lot on Plan:
8 CP861993



Selected Land Parcel

Indicative Erosion Prone Area (including projected climate change impacts to 2100) *



Erosion due to storm impact and long term trends of sediment loss and channel migration



Erosion and permanent tidal inundation due to sea level rise

* The erosion prone areas shown on this map are indicative of the erosion and tidal inundation extent that may occur with projected sea level rise and increased storm intensity at 2100.



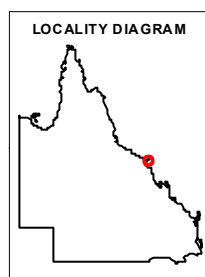
Coastal Management District



**Coastal hazard data not available in this area
Refer to notes 1 and 2 to determine**



Queensland
Government



N



0 430 860 1290 1720 2150 m

This product is projected into GDA 1994 MGA Zone 55

Notes

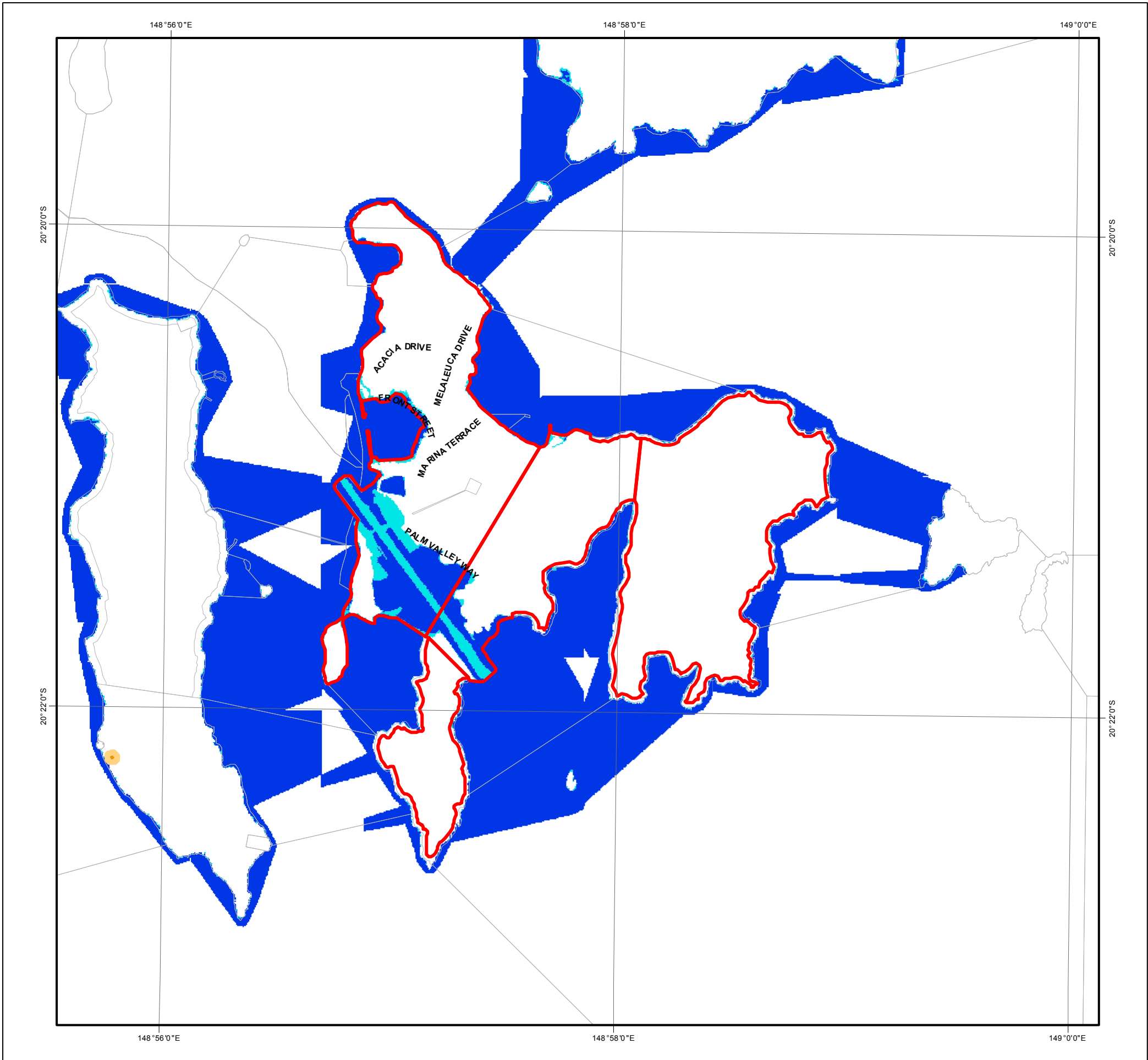
1. The areas shown on this map are indicative of the extent of erosion and permanent inundation defined by erosion prone area plans declared under the Coastal Protection and Management Act 1995. Only the declared erosion prone area plans should be used for development assessment. To determine the actual position of the erosion prone area a registered surveyor or geotechnical consultant may be required if there is any doubt.

2. Erosion prone area plans for each local government area and a comprehensive description of their determination are available from the Department of Environment and Heritage Protection website at www.ehp.qld.gov.au

Version 2 - Feb 2013

Disclaimer

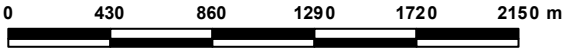
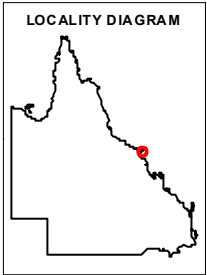
Whilst every care is taken to ensure the accuracy of this product, the Department of Environment and Heritage Protection makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you may incur as a result of the product being inaccurate or incomplete in any way and for any reason. This map is intended to be printed on an A4 page.



Coastal Hazard Areas Map
Storm Tide Inundation Area

Requested By: REBECCA.PEARDON@GHD.COM
Date: 28 Mar 14 Time: 13.55.00

Centred on Lot on Plan:
8 CP861993



This product is projected into GDA 1994 MGA Zone 55

Notes

1. A default storm tide inundation level of 1.5 m HAT in South East Queensland regional planning area and 2.0 m HAT for the remainder of Queensland is used where projected storm tide inundation levels have not been determined locally. The default level uses a sea level rise factor of 0.8m to 2100.
2. The high hazard area may be also subject to permanent inundation by sea level rise - refer to the Erosion Prone Area map.
3. The map should be used as a guide only. Field surveys are recommended to verify feature boundaries.

Version 2 - Feb 2013

Disclaimer

Whilst every care is taken to ensure the accuracy of this product, the Department of Environment and Heritage Protection makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you may incur as a result of the product being inaccurate or incomplete in any way and for any reason. This map is intended to be printed on an A4 page.



Selected Land Parcel

Storm Tide Inundation Area
(including projected climate change impacts to 2100)

High hazard area (greater than 1.0m water depth)

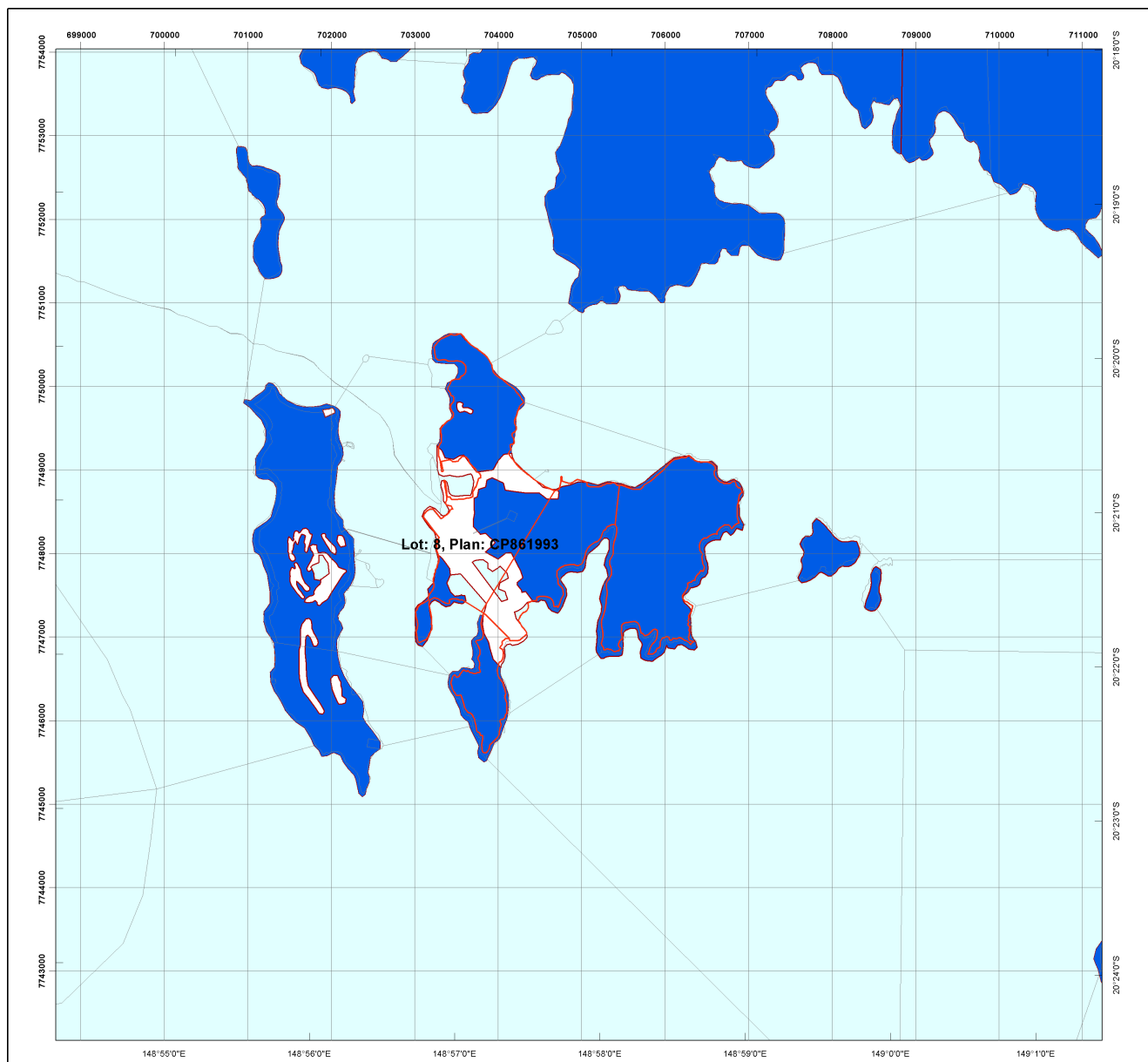
Medium hazard area (less than 1.0m water depth)

Coastal Management District

Coastal hazard data not available in this area
Refer to notes 1 and 2 to determine

28/03/2014 13:57:23

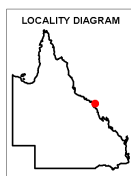
Lot: '8' Plan: 'CP861993'



Regulated Vegetation Management Map

Legend

- Lot and Plan
- Category A area (Vegetation offsets/compliance notices/VDecs)
- Category B area (Remnant vegetation)
- Category C area (High-value regrowth vegetation)
- Category R area (Reef regrowth watercourse vegetation)
- Category X area (Vegetation not regulated under the VMA)
- Water
- Area not categorised
- Cadastral line
- Property boundaries shown are provided as a locational aid only



0 680 1,360 2,040 2,720 3,400 m

This product is projected into:
GDA 1994 MGA Zone 55

Disclaimer:

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

Additional information required for the assessment of vegetation values is provided in the accompanying "Vegetation Management Supporting map". For further information go to the web site: www.dnrm.qld.gov.au or contact the Department of Natural Resources and Mines.

Digital data for the regulated vegetation management map is available from the Queensland Spatial Portal at <http://www.information.qld.gov.au/>

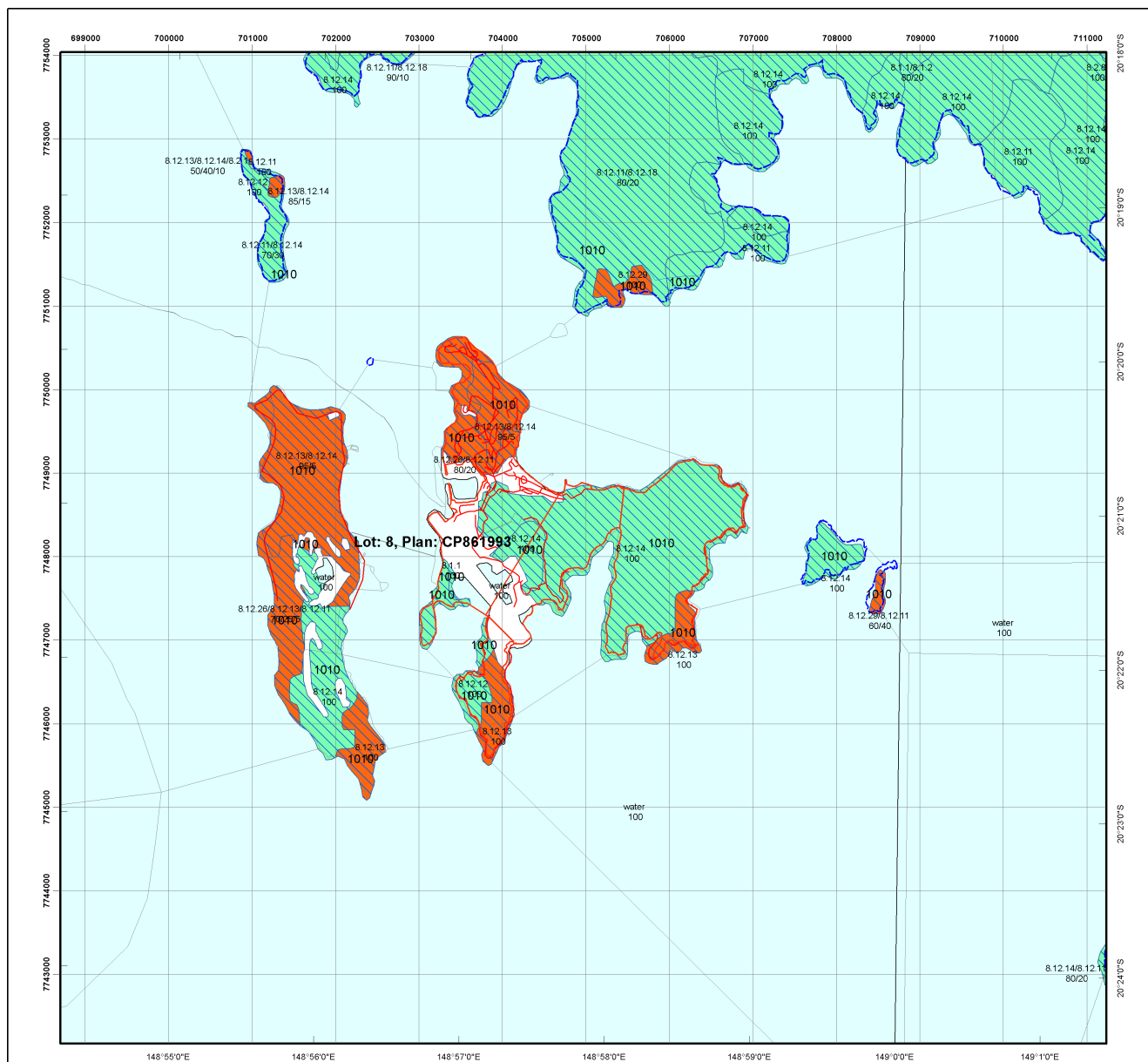
This map is updated on a monthly basis to ensure new PMAVs are included as they are approved.



© The State of Queensland (Department of Natural Resources and Mines), 2014

28/03/2014 13:57:24

Lot: '8' Plan: 'CP861993'



Vegetation Management Supporting Map

Legend

- Lot and Plan
- 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 a least concern regional ecosystem
- Category A or B area containing remnant vegetation
- Category A or B area under Section 20AH
These areas are edged in yellow and filled with the remnant RE Status
- Category C area containing endangered regional ecosystems
- Category C area containing of concern regional ecosystems
- Category C area that is a least concern regional ecosystem
- Category C area containing high value regrowth vegetation
- Category C area under Section 20AI
These areas are edged in purple and filled with the remnant RE Status
- Non Remnant
- Water
- Wetland on the vegetation management wetlands map
- Essential habitat on the essential habitat map
- Essential habitat species record
- Watercourse on the vegetation management watercourse map
(Stream order shown as black number against stream where available)
- Roads
- © Pitney Bowes Software Pty Ltd
- National Parks, State Forest and other reserves
- Cadastral line
- Property boundaries shown are provided as a locational aid only



0 490 980 1,470 1,960 2,450 m

This product is projected into:
GDA 1994 MGA Zone 55

Labels for Essential Habitat are centred on the area of enquiry.

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/- 100 metres.

Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Natural Resources and Mines and Pitney Bowes Software, makes no representations or warranties about its accuracy, reliability, completeness or suitability or any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason.

Additional information may be required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: www.dnrm.qld.gov.au or contact the Department of Natural Resources and Mines.

Digital data for the vegetation management watercourse map, vegetation management wetlands map, essential habitat map and the vegetation management remnant and regional ecosystem map are available from the Queensland Spatial Portal at <http://www.information.qld.gov.au/>



© The State of Queensland (Department of Natural Resources and Mines), 2014

28/03/2014 13:57:25

Lot: '8' Plan: 'CP861993'

Vegetation Management Act 1999 - Extract from the essential habitat database - version 4.0

Essential habitat is required for assessment under the:

- State Development Assessment Provisions - Module 8: Native vegetation clearing which sets out the matters of interest to the state for development assessment under the *Sustainable Planning Act 2009*; and
- Self-assessable vegetation clearing codes made under the *Vegetation Management Act 1999*

Essential habitat for one or more of the following species is found on and within 1.1 km of the identified subject lot/s or on and within 2.2 km of an identified coordinate on the accompanying essential habitat map.

This report identifies essential habitat in Category A, B and Category C areas.

The numeric labels on the essential habitat map can be cross referenced with the database below to determine which essential habitat factors might exist for a particular species.

Essential habitat is compiled from a combination of species habitat models and buffered species records.

The Department of Natural Resources and Mines website (<http://www.dnrm.qld.gov.au>) has more information on how the layer is applied under the State Development Assessment Provisions - Module 8: Native vegetation clearing and the *Vegetation Management Act 1999*.

Regional ecosystem is a mandatory essential habitat factor, unless otherwise stated.

Essential habitat, for protected wildlife, means a category A area, a category B area or category C area shown on the regulated vegetation management map-

- 1) (a) that has at least 3 essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database; or
- 2) (b) in which the protected wildlife, at any stage of its life cycle, is located.

Essential habitat identifies endangered or vulnerable native wildlife prescribed under the *Nature Conservation Act 1994*.

Essential habitat in Category A and B (Remnant vegetation species record) areas:1100m Species Information - (no results)

Essential habitat in Category A and B (Remnant vegetation species record) areas:1100m Regional Ecosystems Information - (no results)

Essential habitat in Category A and B (Remnant vegetation) areas:1100m Species Information

Label	Scientific Name	Common Name	NCA Status	Vegetation Community	Altitude	Soils	Position in Landscape
1010	Taphozous australis	Coastal Sheathtail Bat	V	All habitats within a few kilometres of coast, e.g. dune mesophyll/sclerophyll scrub, mangroves (Rhizophora, Bruguiera), heath, open forest/woodland, rainforest/monsoon forest and Melaleuca/sedge swamp, rocky escarpments ± low shrubfield.	Sea level to 150m.	no soil information	None

Essential habitat in Category A and B (Remnant vegetation) areas:1100m Regional Ecosystems Information

Label	Regional Ecosystem (this is a mandatory essential habitat factor, unless otherwise stated)
1010	3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.2.10, 3.2.11, 3.2.12, 3.2.13, 3.2.14, 3.2.15, 3.2.16, 3.2.17, 3.2.18, 3.2.19, 3.2.20, 3.2.21, 3.2.22, 3.2.28, 3.2.29, 3.2.30, 3.2.31, 3.3.1, 3.3.2, 3.3.4, 3.3.5, 3.3.6, 3.3.7, 3.3.8, 3.3.9, 3.3.10, 3.3.11, 3.3.12, 3.3.13, 3.3.14, 3.3.15, 3.3.16, 3.3.17, 3.3.18, 3.3.19, 3.3.20, 3.3.21, 3.3.22, 3.3.23, 3.3.24, 3.3.25, 3.3.26, 3.3.27, 3.3.28, 3.3.29, 3.3.30, 3.3.31, 3.3.32, 3.3.33, 3.3.34, 3.3.35, 3.3.36, 3.3.37, 3.3.38, 3.3.39, 3.3.40, 3.3.41, 3.3.42, 3.3.43, 3.3.44, 3.3.45, 3.3.46, 3.3.47, 3.3.48, 3.3.49, 3.3.50, 3.3.51, 3.3.52, 3.3.53, 3.3.54, 3.3.55, 3.3.56, 3.3.57, 3.3.58, 3.3.59, 3.3.60, 3.3.61, 3.3.62, 3.3.63, 3.3.64, 3.3.65, 3.3.66, 3.3.67, 3.3.68, 3.3.69, 3.3.70, 3.3.71, 3.3.72, 3.3.73, 3.3.74, 3.3.75, 3.3.76, 3.3.77, 3.3.78, 3.3.79, 3.3.80, 3.3.81, 3.3.82, 3.3.83, 3.3.84, 3.3.85, 3.3.86, 3.3.87, 3.3.88, 3.3.89, 3.3.90, 3.3.91, 3.3.92, 3.3.93, 3.3.94, 3.3.95, 3.3.96, 3.3.97, 3.3.98, 3.3.99, 3.4.1, 3.4.2, 3.4.3, 3.4.4, 3.4.5, 3.4.6, 3.4.7, 3.4.8, 3.4.9, 3.4.10, 3.4.11, 3.4.12, 3.4.13, 3.4.14, 3.4.15, 3.4.16, 3.4.17, 3.4.18, 3.4.19, 3.4.20, 3.4.21, 3.4.22, 3.4.23, 3.4.24, 3.4.25, 3.4.26, 3.4.27, 3.4.28, 3.4.29, 3.4.30, 3.4.31, 3.4.32, 3.4.33, 3.4.34, 3.4.35, 3.4.36, 3.4.37, 3.4.38, 3.4.39, 3.4.40, 3.4.41, 3.4.42, 3.4.43, 3.4.44, 3.4.45, 3.4.46, 3.4.47, 3.4.48, 3.4.49, 3.4.50, 3.4.51, 3.4.52, 3.4.53, 3.4.54, 3.4.55, 3.4.56, 3.4.57, 3.4.58, 3.4.59, 3.4.60, 3.4.61, 3.4.62, 3.4.63, 3.4.64, 3.4.65, 3.4.66, 3.4.67, 3.4.68, 3.4.69, 3.4.70, 3.4.71, 3.4.72, 3.4.73, 3.4.74, 3.4.75, 3.4.76, 3.4.77, 3.4.78, 3.4.79, 3.4.80, 3.4.81, 3.4.82, 3.4.83, 3.4.84, 3.4.85, 3.4.86, 3.4.87, 3.4.88, 3.4.89, 3.4.90, 3.4.91, 3.4.92, 3.4.93, 3.4.94, 3.4.95, 3.4.96, 3.4.97, 3.4.98, 3.4.99, 3.5.1, 3.5.2, 3.5.3, 3.5.4, 3.5.5, 3.5.6, 3.5.7, 3.5.8, 3.5.9, 3.5.10, 3.5.11, 3.5.12, 3.5.13, 3.5.14, 3.5.15, 3.5.16, 3.5.17, 3.5.18, 3.5.19, 3.5.20, 3.5.21, 3.5.22, 3.5.23, 3.5.24, 3.5.25, 3.5.26, 3.5.27, 3.5.28, 3.5.29, 3.5.30, 3.5.31, 3.5.32, 3.5.33, 3.5.34, 3.5.35, 3.5.36, 3.5.37, 3.5.38, 3.5.39, 3.5.40, 3.5.41, 3.5.42, 3.5.43, 3.5.44, 3.5.45, 3.5.46, 3.5.47, 3.5.48, 3.5.49, 3.5.50, 3.5.51, 3.5.52, 3.5.53, 3.5.54, 3.5.55, 3.5.56, 3.5.57, 3.5.58, 3.5.59, 3.5.60, 3.5.61, 3.5.62, 3.5.63, 3.5.64, 3.5.65, 3.5.66, 3.5.67, 3.5.68, 3.5.69, 3.5.70, 3.5.71, 3.5.72, 3.5.73, 3.5.74, 3.5.75, 3.5.76, 3.5.77, 3.5.78, 3.5.79, 3.5.80, 3.5.81, 3.5.82, 3.5.83, 3.5.84, 3.5.85, 3.5.86, 3.5.87, 3.5.88, 3.5.89, 3.5.90, 3.5.91, 3.5.92, 3.5.93, 3.5.94, 3.5.95, 3.5.96, 3.5.97, 3.5.98, 3.5.99, 3.6.1, 3.6.2, 3.6.3, 3.6.4, 3.6.5, 3.6.6, 3.6.7, 3.6.8, 3.6.9, 3.6.10, 3.6.11, 3.6.12, 3.6.13, 3.6.14, 3.6.15, 3.6.16, 3.6.17, 3.6.18, 3.6.19, 3.6.20, 3.6.21, 3.6.22, 3.6.23, 3.6.24, 3.6.25, 3.6.26, 3.6.27, 3.6.28, 3.6.29, 3.6.30, 3.6.31, 3.6.32, 3.6.33, 3.6.34, 3.6.35, 3.6.36, 3.6.37, 3.6.38, 3.6.39, 3.6.40, 3.6.41, 3.6.42, 3.6.43, 3.6.44, 3.6.45, 3.6.46, 3.6.47, 3.6.48, 3.6.49, 3.6.50, 3.6.51, 3.6.52, 3.6.53, 3.6.54, 3.6.55, 3.6.56, 3.6.57, 3.6.58, 3.6.59, 3.6.60, 3.6.61, 3.6.62, 3.6.63, 3.6.64, 3.6.65, 3.6.66, 3.6.67, 3.6.68, 3.6.69, 3.6.70, 3.6.71, 3.6.72, 3.6.73, 3.6.74, 3.6.75, 3.6.76, 3.6.77, 3.6.78, 3.6.79, 3.6.80, 3.6.81, 3.6.82, 3.6.83, 3.6.84, 3.6.85, 3.6.86, 3.6.87, 3.6.88, 3.6.89, 3.6.90, 3.6.91, 3.6.92, 3.6.93, 3.6.94, 3.6.95, 3.6.96, 3.6.97, 3.6.98, 3.6.99, 3.7.1, 3.7.2, 3.7.3, 3.7.4, 3.7.5, 3.7.6, 3.7.7, 3.7.8, 3.7.9, 3.7.10, 3.7.11, 3.7.12, 3.7.13, 3.7.14, 3.7.15, 3.7.16, 3.7.17, 3.7.18, 3.7.19, 3.7.20, 3.7.21, 3.7.22, 3.7.23, 3.7.24, 3.7.25, 3.7.26, 3.7.27, 3.7.28, 3.7.29, 3.7.30, 3.7.31, 3.7.32, 3.7.33, 3.7.34, 3.7.35, 3.7.36, 3.7.37, 3.7.38, 3.7.39, 3.7.40, 3.7.41, 3.7.42, 3.7.43, 3.7.44, 3.7.45, 3.7.46, 3.7.47, 3.7.48, 3.7.49, 3.7.50, 3.7.51, 3.7.52, 3.7.53, 3.7.54, 3.7.55, 3.7.56, 3.7.57, 3.7.58, 3.7.59, 3.7.60, 3.7.61, 3.7.62, 3.7.63, 3.7.64, 3.7.65, 3.7.66, 3.7.67, 3.7.68, 3.7.69, 3.7.70, 3.7.71, 3.7.72, 3.7.73, 3.7.74, 3.7.75, 3.7.76, 3.7.77, 3.7.78, 3.7.79, 3.7.80, 3.7.81, 3.7.82, 3.7.83, 3.7.84, 3.7.85, 3.7.86, 3.7.87, 3.7.88, 3.7.89, 3.7.90, 3.7.91, 3.7.92, 3.7.93, 3.7.94, 3.7.95, 3.7.96, 3.7.97, 3.7.98, 3.7.99, 3.8.1, 3.8.2, 3.8.3, 3.8.4, 3.8.5, 3.8.6, 3.8.7, 3.8.8, 3.8.9, 3.8.10, 3.8.11, 3.8.12, 3.8.13, 3.8.14, 3.8.15, 3.8.16, 3.8.17, 3.8.18, 3.8.19, 3.8.20, 3.8.21, 3.8.22, 3.8.23, 3.8.24, 3.8.25, 3.8.26, 3.8.27, 3.8.28, 3.8.29, 3.8.30, 3.8.31, 3.8.32, 3.8.33, 3.8.34, 3.8.35, 3.8.36, 3.8.37, 3.8.38, 3.8.39, 3.8.40, 3.8.41, 3.8.42, 3.8.43, 3.8.44, 3.8.45, 3.8.46, 3.8.47, 3.8.48, 3.8.49, 3.8.50, 3.8.51, 3.8.52, 3.8.53, 3.8.54, 3.8.55, 3.8.56, 3.8.57, 3.8.58, 3.8.59, 3.8.60, 3.8.61, 3.8.62, 3.8.63, 3.8.64, 3.8.65, 3.8.66, 3.8.67, 3.8.68, 3.8.69, 3.8.70, 3.8.71, 3.8.72, 3.8.73, 3.8.74, 3.8.75, 3.8.76, 3.8.77, 3.8.78, 3.8.79, 3.8.80, 3.8.81, 3.8.82, 3.8.83, 3.8.84, 3.8.85, 3.8.86, 3.8.87, 3.8.88, 3.8.89, 3.8.90, 3.8.91, 3.8.92, 3.8.93, 3.8.94, 3.8.95, 3.8.96, 3.8.97, 3.8.98, 3.8.99, 3.9.1, 3.9.2, 3.9.3, 3.9.4, 3.9.5, 3.9.6, 3.9.7, 3.9.8, 3.9.9, 3.9.10, 3.9.11, 3.9.12, 3.9.13, 3.9.14, 3.9.15, 3.9.16, 3.9.17, 3.9.18, 3.9.19, 3.9.20, 3.9.21, 3.9.22, 3.9.23, 3.9.24, 3.9.25, 3.9.26, 3.9.27, 3.9.28, 3.9.29, 3.9.30, 3.9.31, 3.9.32, 3.9.33, 3.9.34, 3.9.35, 3.9.36, 3.9.37, 3.9.38, 3.9.39, 3.9.40, 3.9.41, 3.9.42, 3.9.43, 3.9.44, 3.9.45, 3.9.46, 3.9.47, 3.9.48, 3.9.49, 3.9.50, 3.9.51, 3.9.52, 3.9.53, 3.9.54, 3.9.55, 3.9.56, 3.9.57, 3.9.58, 3.9.59, 3.9.60, 3.9.61, 3.9.62, 3.9.63, 3.9.64, 3.9.65, 3.9.66, 3.9.67, 3.9.68, 3.9.69, 3.9.70, 3.9.71, 3.9.72, 3.9.73, 3.9.74, 3.9.75, 3.9.76, 3.9.77, 3.9.78, 3.9.79, 3.9.80, 3.9.81, 3.9.82, 3.9.83, 3.9.84, 3.9.85, 3.9.86, 3.9.87, 3.9.88, 3.9.89, 3.9.90, 3.9.91, 3.9.92, 3.9.93, 3.9.94, 3.9.95, 3.9.96, 3.9.97, 3.9.98, 3.9.99, 4.0.1, 4.0.2, 4.0.3, 4.0.4, 4.0.5, 4.0.6, 4.0.7, 4.0.8, 4.0.9, 4.0.10, 4.0.11, 4.0.12, 4.0.13, 4.0.14, 4.0.15, 4.0.16, 4.0.17, 4.0.18, 4.0.19, 4.0.20, 4.0.21, 4.0.22, 4.0.23, 4.0.24, 4.0.25, 4.0.26, 4.0.27, 4.0.28, 4.0.29, 4.0.30, 4.0.31, 4.0.32, 4.0.33, 4.0.34, 4.0.35, 4.0.36, 4.0.37, 4.0.38, 4.0.39, 4.0.40, 4.0.41, 4.0.42, 4.0.43, 4.0.44, 4.0.45, 4.0.46, 4.0.47, 4.0.48, 4.0.49, 4.0.50, 4.0.51, 4.0.52, 4.0.53, 4.0.54, 4.0.55, 4.0.56, 4.0.57, 4.0.58, 4.0.59, 4.0.60, 4.0.61, 4.0.62, 4.0.63, 4.0.64, 4.0.65, 4.0.66, 4.0.67, 4.0.68, 4.0.69, 4.0.70, 4.0.71, 4.0.72, 4.0.73, 4.0.74, 4.0.75, 4.0.76, 4.0.77, 4.0.78, 4.0.79, 4.0.80, 4.0.81, 4.0.82, 4.0.83, 4.0.84, 4.0.85, 4.0.86, 4.0.87, 4.0.88, 4.0.89, 4.0.90, 4.0.91, 4.0.92, 4.0.93, 4.0.94, 4.0.95, 4.0.96, 4.0.97, 4.0.98, 4.0.99, 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.1.6, 4.1.7, 4.1.8, 4.1.9, 4.1.10, 4.1.11, 4.1.12, 4.1.13, 4.1.14, 4.1.15, 4.1.16, 4.1.17, 4.1.18, 4.1.19, 4.1.20, 4.1.21, 4.1.22, 4.1.23, 4.1.24, 4.1.25, 4.1.26, 4.1.27, 4.1.28, 4.1.29, 4.1.30, 4.1.31, 4.1.32, 4.1.33, 4.1.34, 4.1.35, 4.1.36, 4.1.37, 4.1.38, 4.1.39, 4.1.40, 4.1.41, 4.1.42, 4.1.43, 4.1.44, 4.1.45, 4.1.46, 4.1.47, 4.1.48, 4.1.49, 4.1.50, 4.1.51, 4.1.52, 4.1.53, 4.1.54, 4.1.55, 4.1.56, 4.1.57, 4.1.58, 4.1.59, 4.1.60, 4.1.61, 4.1.62, 4.1.63, 4.1.64, 4.1.65, 4.1.66, 4.1.67, 4.1.68, 4.1.69, 4.1.70, 4.1.71, 4.1.72, 4.1.73, 4.1.74, 4.1.75, 4.1.76, 4.1.77, 4.1.78, 4.1.79, 4.1.80, 4.1.81, 4.1.82, 4.1.83, 4.1.84, 4.1.85, 4.1.86, 4.1.87, 4.1.88, 4.1.89, 4.1.90, 4.1.91, 4.1.92, 4.1.93, 4.1.94, 4.1.95, 4.1.96, 4.1.97, 4.1.98, 4.1.99, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5, 4.2.6, 4.2.7, 4.2.8, 4.2.9, 4.2.10, 4.2.11, 4.2.12, 4.2.13, 4.2.14, 4.2.15, 4.2.16, 4.2.17, 4.2.18, 4.2.19, 4.2.20, 4.2.21, 4.2.22, 4.2.23, 4.2.24, 4.2.25, 4.2.26, 4.2.27, 4.2.28, 4.2.29, 4.2.30, 4.2.31, 4.2.32, 4.2.33, 4.2.34, 4.2.35, 4.2.36, 4.2.37, 4.2.38, 4.2.39, 4.2.40, 4.2.41, 4.2.42, 4.2.43, 4.2.44, 4.2.45, 4.2.46, 4.2.47, 4.2.48, 4.2.49, 4.2.50, 4.2.51, 4.2.52, 4.2.53, 4.2.54, 4.2.55, 4.2.56, 4.2.57, 4.2.58, 4.2.59, 4.2.60, 4.2.61, 4.2.62, 4.2.63, 4.2.64, 4.2.65, 4.2.66, 4.2.67, 4.2.68, 4.2.69, 4.2.70, 4.2.71, 4.2.72, 4.2.73, 4.2.74, 4.2.75, 4.2.76, 4.2.77, 4.2.78, 4.2.79, 4.2.80, 4.2.81, 4.2.82, 4.2.83, 4.2.84, 4.2.85, 4.2.86, 4.2.87, 4.2.88, 4.2.89, 4.2.90, 4.2.91, 4.2.92, 4.2.93, 4.2.94, 4.2.95, 4.2.96, 4.2.97, 4.2.98, 4.2.99, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, 4.3.7, 4.3.8, 4.3.9, 4.3.10, 4.3.11, 4.3.12, 4.3.13, 4.3.14, 4.3.15, 4.3.16, 4.3.17, 4.3.18, 4.3.19, 4.3.20, 4.3.21, 4.3.22, 4.3.23, 4.3.24, 4.3.25, 4.3.26, 4.3.27, 4.3.28, 4.3.29, 4.3.30, 4.3.31, 4.3.32, 4.3.33, 4.3.34, 4.3.35, 4.3.36, 4.3.37, 4.3.38, 4.3.39, 4.3.40, 4.3.41, 4.3.42, 4.3.43, 4.3.44, 4.3.45, 4.3.46, 4.3.47, 4.3.48, 4.3.49, 4.3.50, 4.3.51, 4.3.52, 4.3.53, 4.3.54, 4.3.55, 4.3.56, 4.3.57, 4.3.58, 4.3.59, 4.3.60, 4.3.61, 4.3.62, 4.3.63, 4.3.64, 4.3.65, 4.3.66, 4.3.67, 4.3.68, 4.3.69, 4.3.70, 4.3.71, 4.3.72, 4.3.73, 4.3.74, 4.3.75, 4.3.76, 4.3.77, 4.3.78, 4.3.79, 4.3.80, 4.3.81, 4.3.82, 4.3.83, 4.3.84, 4.3.85, 4.3.86, 4.3.87, 4.3.88, 4.3.89, 4.3.90, 4.3.91, 4.3.92, 4.3.93, 4.3.94, 4.3.95, 4.3.96, 4.3.97, 4.3.98, 4.3.99, 4.4.1, 4.4.2, 4.4.3, 4.4.4, 4.4.5, 4.4.6, 4.4.7, 4.4.8, 4.4.9, 4.4.10, 4.4.11, 4.4.12, 4.4.13, 4.4.14, 4.4.15, 4.4.16, 4.4.17, 4.4.18, 4.4.19, 4.4.20, 4.4.21, 4.4.22, 4.4.23, 4.4.24, 4.4.25, 4.4.26, 4.4.27, 4.4.28, 4.4.29, 4.4.30, 4.4.31, 4.4.32, 4.4.33, 4.4.34, 4.4.35, 4.4.36, 4.4.37, 4.4.38, 4.4.39, 4.4.40, 4.4.41, 4.4.42, 4.4.43, 4.4.44, 4.4.45, 4.4.46, 4.4.47, 4.4.48, 4.4.49, 4.4.50, 4.4.51, 4.4.52, 4.4.53, 4.4.54, 4.4.55, 4.4.56, 4.4.57, 4.4.58, 4.4.59, 4.4.60, 4.4.61, 4.4.62, 4.4.63, 4.4.64, 4.4.65, 4.4.66, 4.4.67, 4.4.68, 4.4.69, 4.4.70, 4.4.71, 4.4.72, 4.4.73, 4.4.74, 4.4.75, 4.4.76, 4.4.77, 4.4.78, 4.4.79, 4.4.80, 4.4.81, 4.4.82, 4.4.83, 4.4.84, 4.4.85, 4.4.86, 4.4.87, 4.4.88, 4.4.89, 4.4.90, 4.4.91, 4.4.92, 4.4.93, 4.4.94, 4.4.95, 4.4.96, 4.4.97, 4.4.98, 4.4.99, 4.5.1, 4.5.2, 4.5.3, 4.5.4, 4.5.5, 4.5.6, 4.5.7, 4.5.8, 4.5.9, 4.5.10, 4.5.11, 4.5.12, 4.5.13, 4.5.14, 4.5.15, 4.5.16, 4.5.17, 4.5.18, 4.5.19, 4.5.20, 4.5.21, 4.5.22, 4.5.23, 4.5.24, 4.5.25, 4.5.26, 4.5.27, 4.5.28, 4.5.29, 4.5.30, 4.5.31, 4.5.32, 4.5.33, 4.5.34, 4.5.35, 4.5.36, 4.5.37, 4.5.38, 4.5.39, 4.5.40, 4.5.41, 4.5.42, 4.5.43, 4.5.44, 4.5.45, 4.5.46, 4.5.47, 4.5.48, 4.5.49, 4.5.50, 4.5.51, 4.5.52, 4.5.53, 4.5.54, 4.5.55, 4.5.56, 4.5.57, 4.5.58, 4.5.59, 4.5.60, 4.5.61, 4.5.62, 4.5.63, 4.5.64, 4.5.65, 4.5.66, 4.5.67, 4.5.68, 4.5.69, 4.5.70, 4.5.71, 4.5.72, 4.5.73, 4.5.74, 4.5.75, 4.5.76, 4.5.77, 4.5.78, 4.5.79, 4.5.80, 4.5.81, 4.5.82, 4.5.83, 4.5.84, 4.5.85, 4.5.86, 4.5.87, 4.5.88, 4.5.89, 4.5.90, 4.5.91, 4.5.92, 4.5.93, 4.5.94, 4.5.95, 4.5.96, 4.5.97, 4.5.98, 4.5.99, 4.6.1, 4.6.2, 4.6.3, 4.6.4, 4.6.5, 4.6.6, 4.6.7, 4.6.8, 4.6.9, 4.6.10, 4.6.11, 4.6.12, 4.6.13, 4.6.14, 4.6.15, 4.6.16, 4.6.17, 4.6.18, 4.6.19, 4.6.20, 4.6.21, 4.6.22, 4.6.23, 4.6.24, 4.6.25, 4.6.26, 4.6.27, 4.6.28, 4.6.29, 4.6.30, 4.6.31, 4.6.32, 4.6.33, 4.6.34, 4.6.35, 4.6.36, 4.6.37, 4.6.38, 4.6.39, 4.6.40, 4.6.41, 4.6.42, 4.6.43, 4.6.44, 4.6.45, 4.6.46, 4.6.47, 4.6.48, 4.6.49

Appendix B – Flora Species List

Family	Species	Common name	Status	Grassland	Adjacent bushland
Amaranthaceae	<i>Gomphrena celosioides</i>	Gomphrena weed	Introduced	✓	
Anacardiaceae	<i>Pleiogynium timorense</i>	Burdekin plum	Native, least concern		✓
Apocynaceae	<i>Asclepias curassavica</i>	Red-head cottonbush	Introduced		✓
Arecaceae	<i>Livistona decora</i>	Weeping cabbage palm	Native, least concern		✓
Asteraceae	<i>Emilia sonchifolia</i>		Introduced	✓	
Asteraceae	<i>Siegesbeckia orientalis</i>	Indian weed	Least Concern		✓
Asteraceae	<i>Xanthium occidentale</i>	Noogoora burr	Introduced		✓
Caesalpiniaceae	<i>Senna occidentalis</i>	Coffee senna	Introduced		✓
Commelinaceae	<i>Commelina diffusa</i>	Wandering jew	Native, least concern		✓
Convolvulaceae	<i>Ipomoea plebia</i>	Bell vine	Native, least concern	✓	
Convolvulaceae	<i>Ipomoea sp.</i>				✓
Cycadaceae	<i>Cycas media</i>	Tree cycad	Native, least concern		✓
Cyperaceae	<i>Cyperus sp</i>				✓
Cyperaceae	<i>Cyperus sp.</i>			✓	
Euphorbiaceae	<i>Alchornea ilicifolia</i>	Native holly	Native, least concern		✓
Fabaceae	<i>Crotalaria pallida</i>	Streaked rattlepod	Introduced	✓	✓
Fabaceae	<i>Crotalaria sp.</i>	Rattlepod		✓	
Fabaceae	<i>Macroptilium lathyroides</i>	Phasey bean	Introduced	✓	✓

Family	Species	Common name	Status	Grassland	Adjacent bushland
Fabaceae	<i>Stylosanthes hamata</i>	Caribbean stylo	Introduced	✓	
Fabaceae (Mimosoideae)	<i>Mimosa pudica</i>	Sensitive weed	Introduced	✓	
Lamiaceae	<i>Leucas lavandulifolia</i>	Leucas	Introduced		✓
Lamiaceae	<i>Vitex sp.</i>	Vitex			✓
Malvaceae	<i>Hibiscus tiliaceus</i>	Cottonwood	Native, least concern		✓
Malvaceae	<i>Sida sp.</i>				✓
Menispermaceae	<i>Stephania japonica</i>	Tape vine	Native, least concern		✓
Moraceae	<i>Ficus opposita</i>	Sandpaper fig	Native, least concern		✓
Pittosporaceae	<i>Pittosporum ferrugineum</i>	Rusty pittosporum	Native, least concern		✓
Poaceae	<i>Bothriochloa pertusa</i>	Indian bluegrass	Introduced	✓	
Poaceae	<i>Chloris inflata</i>	Purpletop chloris	Introduced	✓	
Poaceae	<i>Chloris lobata</i>		Native, least concern	✓	
Poaceae	<i>Chloris virgata</i>	Feathertop rhodes grass	Introduced	✓	
Poaceae	<i>Eragrostis spartinoides</i>	Lovegrass	Native, least concern	✓	
Poaceae	<i>Melinis repens</i>	Red natal grass	Introduced	✓	
Poaceae	<i>Paspalidium sp.</i>			✓	
Poaceae	<i>Sporobolus sp.</i>			✓	
Portulacaceae	<i>Portulaca pilosa</i>	Pigweed	Introduced	✓	
Rhamnaceae	<i>Alphitonia excelsa</i>	Soap tree	Native, least concern		✓

Family	Species	Common name	Status	Grassland	Adjacent bushland
Rhamnaceae	<i>Alphitonia petriei</i>	White ash	Native, least concern		✓
Rubiaceae	<i>Pavetta australiensis</i>	Butterfly bush	Native, least concern		✓
Rubiaceae	<i>Timonius timon</i>	Timonius	Native, least concern		✓
Rutaceae	<i>Acronychia laevis</i>	Hard aspen	Native, least concern		✓
Smilacaceae	<i>Smilax australis</i>	Barbed-wire vine	Native, least concern		✓
Verbenaceae	<i>Lantana camara</i>	Lantana	Introduced, WONS, class 3		✓
Verbenaceae	<i>Stachytarpheta jamaicensis</i>	Jamaica snakeweed	Introduced	✓	

Appendix C – Fauna Species List

Family	Species	Common name	Status	Within Project Area	Adjacent to Project Area
Accipitridae	<i>Aquila audax</i>	Wedge-tailed eagle	Least concern		✓
Accipitridae	<i>Haliaeetus leucogaster</i>	White-bellied sea eagle	Least concern; marine, migratory		✓
Ardeidae	<i>Butorides striata</i>	Striated heron	Least concern		✓
Ardeidae	<i>Egretta sacra</i>	Eastern reef egret	Least concern; marine, migratory		✓
Artamidae	<i>Strepera graculina</i>	Pied currawong	Least concern		✓
Burhinidae	<i>Burhinus grallarius</i>	Bush stone curlew	Least concern		✓
Cacatuidae	<i>Cacatua galerita</i>	Sulphur-crested cockatoo	Least concern		✓
Corvidae	<i>Corvus orru</i>	Torresian crow	Least concern	✓	✓
Halcyonidae	<i>Dacelo novaeguineae</i>	Laughing kookaburra	Least concern		✓
Hirundinidae	<i>Hirundo neoxena</i>	Welcome swallow	Least concern		
Monarchidae	<i>Myiagra rubecula</i>	Leaden flycatcher	Least concern		✓
Nectariniidae	<i>Cinnyris jugularis</i>	Olive-backed sunbird	Least concern		✓
Psittaculidae	<i>Trichoglossus haematodus</i>	Rainbow lorikeet	Least concern		
Rallidae	<i>Gallinula tenebrosa</i>	Dusky moorhen	Least concern		✓

Appendix D – Likelihood of Occurrence Assessment

Scientific name	Common name	EPBC Status	NCA/VMA status	Habitat requirements	Likelihood of occurrence on site
Flora					
<i>Phaius australis</i>	Lesser swamp-orchid	Endangered	Endangered	Found in swampy grassland or swampy forest including rainforest, eucalypt or paperbark forest, mostly in coastal areas. Occurs in Queensland and north-east NSW as far south as Coffs Harbour.	Unlikely to occur. Potential habitat near study area highly degraded.
Fauna					
<i>Crocodylus porosus</i>	Estuarine crocodile	Marine, migratory	Vulnerable	This species occurs from Rockhampton in Queensland, throughout coastal areas of the Northern Territory to near Broome in Western Australia and inhabits coastal waters, estuaries, freshwater sections of lakes, inland swamps and marshes.	May occur. Species previously recorded near study area and suitable freshwater lake occurs near study area.
<i>Xeromys myoides</i>	Water mouse	Vulnerable	Vulnerable	Although the water mouse had been documented in three distinct locations (Northern Territory, Central south Queensland, south-east Queensland) they require similar habitat including mangroves and the associated saltmarsh, sedgeland, clay pans, heathlands and freshwater wetlands. The main habitat difference at each location is the littoral, supralittoral and terrestrial vegetation which differs in structure and composition. These differences dictate the species' nesting behaviour.	Nil. No suitable habitat in study area.

Scientific name	Common name	EPBC Status	NCA/VMA status	Habitat requirements	Likelihood of occurrence on site
<i>Erythrotriorchis radiatus</i>	Red goshawk	Vulnerable	Endangered	The red goshawk occurs in coastal and sub-coastal areas in wooded and forested lands of tropical and warm-temperate Australia.	Unlikely to occur. Potential habitat near study area highly degraded.
<i>Fregetta grallaria grallaria</i>	White-bellied storm-petrel	Vulnerable		Found over the sub-tropical and tropical water over the Tasman Sea, Coral Sea and Pacific Ocean.	Nil. No suitable habitat in study area.
<i>Macronectes giganteus</i>	Southern giant petrel	Endangered; marine, migratory	Endangered	Nest in open vegetation on Antarctic and subantarctic islands.	Nil. No suitable habitat in study area.
<i>Pterodroma neglecta neglecta</i>	Kermadec petrel	Vulnerable		Marine areas. Breeds on islands along the South Pacific	Nil. No suitable habitat in study area.
Migratory Marine Birds					
<i>Apus pacificus</i>	Fork-tailed swift	Marine, migratory		The fork-tailed swift is almost exclusively aerial, flying from less than 1 m to at least 300 m above ground and probably much higher.	May occur. Possible flying above the study area.
Migratory Terrestrial Species					
<i>Haliaeetus leucogaster</i>	White-bellied sea eagle	Marine, migratory		Found in coastal habitats (especially those close to the sea-shore) and around terrestrial wetlands in tropical and temperate regions of mainland Australia and its offshore islands. The habitats occupied by the sea-eagle are characterised by the presence of large areas of open water (larger rivers, swamps, lakes,	Confirmed present flying above the study area

Scientific name	Common name	EPBC Status	NCA/VMA status	Habitat requirements	Likelihood of occurrence on site
				<p>the sea). Birds have been recorded in (or flying over) a variety of terrestrial habitats.</p> <p>The species is mostly recorded in coastal lowlands, but can occupy habitats up to 1400 m above sea level on the Northern Tablelands of NSW and up to 800 m above sea level in Tasmania and South Australia.</p>	
<i>Hirundo rustica</i>	Barn swallow	Marine, migratory		<p>The preferred habitat of the barn swallow is open country with low vegetation, such as pasture, meadows and farmland, preferably near water. This swallow avoids heavily wooded or precipitous areas and densely built-up locations. It feeds on insects, foraging in open country and over coastal and inland waters. Barn swallows are strongly migratory and their wintering grounds cover much of the Southern Hemisphere as far south as central Argentina, the Cape Province of South Africa, and northern Australia.</p>	May occur. Possible flying above the study area.
<i>Monarcha melanopsis</i>	Black-faced monarch	Marine, migratory		<p>The black-faced monarch is found along the coast of eastern Australia, becoming less common further south. The black-faced monarch is found in rainforests, eucalypt woodlands, coastal scrub and damp gullies. It may be found in more open woodland when migrating.</p>	May occur. Suitable habitat occurs near the study area.
<i>Monarcha trivirgatus</i>	Spectacled monarch	Marine,		<p>The spectacled monarch is found in coastal</p>	May occur. Suitable

Scientific name	Common name	EPBC Status	NCA/VMA status	Habitat requirements	Likelihood of occurrence on site
		migratory		north-eastern and eastern Australia, including coastal islands, from Cape York, Queensland to Port Stephens, New South Wales. It is much less common in the south. The spectacted monarch prefers thick understorey in rainforests, wet gullies and waterside vegetation, as well as mangroves	habitat occurs near the study area.
<i>Migratory Wetlands Species</i>					
<i>Ardea alba</i>	Great egret	Marine, migratory		Reported in a wide range of wetland habitats (for example inland and coastal, freshwater and saline, permanent and ephemeral, open and vegetated, large and small, natural and artificial). These include swamps and marshes; margins of rivers and lakes; damp or flooded grasslands, pastures or agricultural lands; reservoirs; sewage treatment ponds; drainage channels; salt pans and salt lakes; salt marshes; estuarine mudflats, tidal streams; mangrove swamps; coastal lagoons; and offshore reefs. The species usually frequents shallow waters.	Likely to occur. Species previously recorded near study area and suitable wetland habitat occurs near the study area.
<i>Gallinago hardwickii</i>	Latham's snipe	Marine, migratory		In Australia, Latham's snipe occurs in permanent and ephemeral wetlands up to 2000 m above sea level. They usually inhabit open, freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water	May occur. Suitable habitat occurs near the study area.

Scientific name	Common name	EPBC Status	NCA/VMA status	Habitat requirements	Likelihood of occurrence on site
				bodies)	
<i>Other Matters Protected by the EPBC Act</i>					
<i>Pandion cristatus</i>	Eastern osprey	Marine, migratory		Ospreys are found right around the Australian coast line, except for Victoria and Tasmania. They are common around the northern coast, especially on rocky shorelines, islands and reefs. The species is uncommon to rare or absent from closely settled parts of south-eastern Australia. There are a handful of records from inland areas	Likely to occur. Species previously recorded near study area and suitable wetland habitat occurs near the study area.

GHD

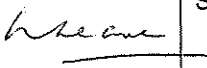
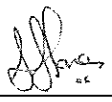
Level 1 42 Sturt Street Townsville QLD 4810
PO Box 930 Townsville QLD 4810 Australia
T: (07) 4720 0400 F: (07) 4772 6514 E: tsvmail@ghd.com.au

© GHD 2014

This document is and shall remain the property of GHD. The document may only be used for the purpose for which it was commissioned and in accordance with the Terms of Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

\\ghdnet\ghd\AU\Townsville\Projects\23\15190\WP\51076_KK.docx

Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
A	C. Morgan	K. Keane		S Keevil-Jones		09/05/2014

www.ghd.com





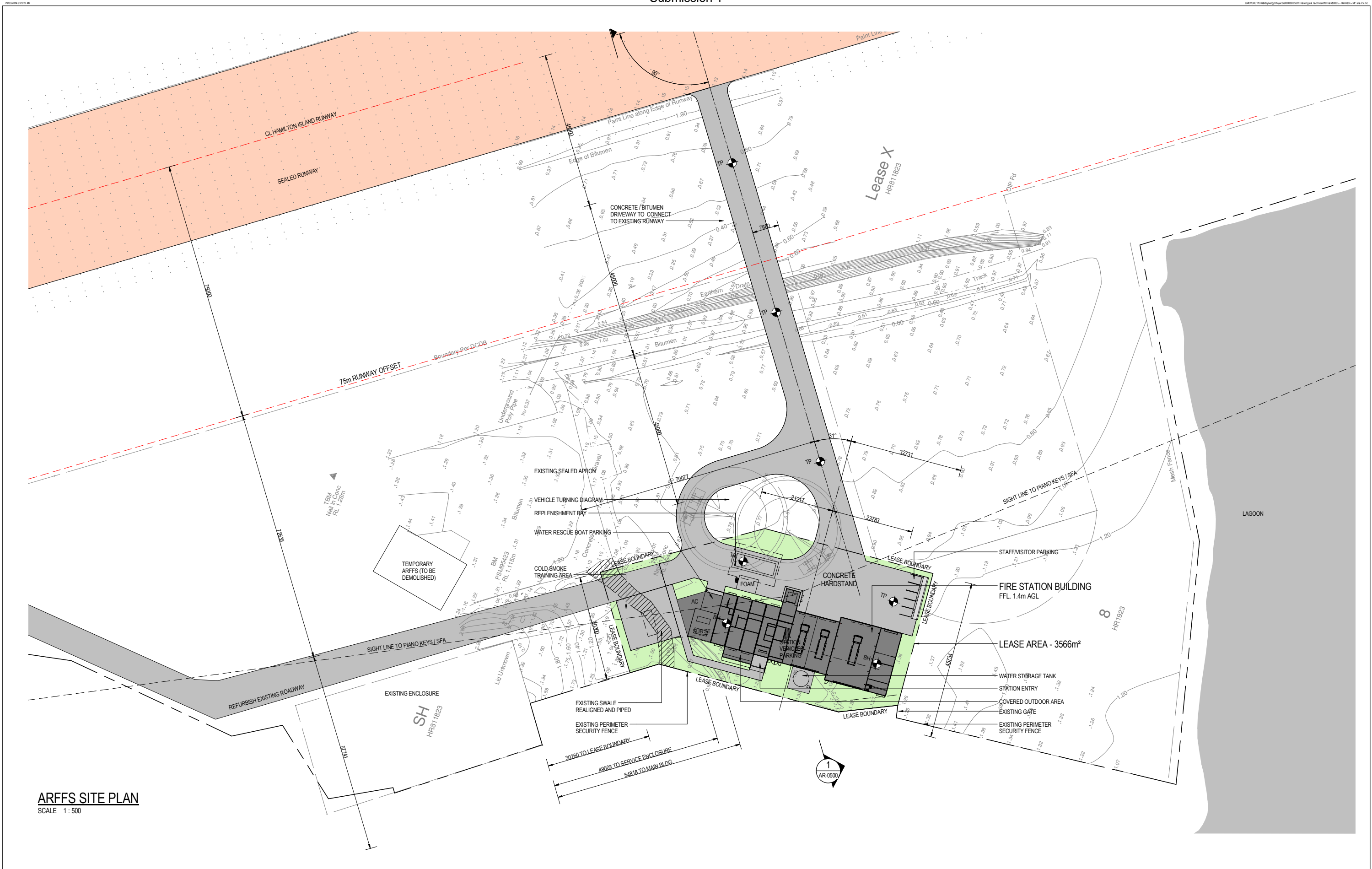
HAMILTON ISLAND REPLACEMENT FIRE STATION

SUBMISSION 1

Attachment 2 – HM ARFF Site Master Plan – Part 1

AIRSERVICES AUSTRALIA
CANBERRA ACT
0000T 000/2014

Hamilton Island Replacement Fire Station Project
Submission 1



ARFFS SITE PLAN
SCALE 1:500

DO NOT SCALE THIS DRAWING. IF IN DOUBT - ASK?		CLIENT		Revision		Issue Details		Issued	Date	PROJECT		PRELIMINARY	
			ABN: 50 096 803 922 PTY LTD ACN: 096 803 922 65 Doggett Street Newstead, Qld 4006	PO Box 2401 Fortitude Valley, Qld 4006	Ph 07 3252 0688 Fax 07 3252 0711	A	PRELIMINARY ISSUE	MT	03/02/14	HAMILTON ISLAND		ARFFS SITE PLAN	
						B	UPDATE ISSUE	MT	10/02/14	ARFF STATION			
						C	UPDATE ISSUE	MT	14/02/14	LOCAL AUTHORITY:			
						D	UPDATE ISSUE	MT	11/03/14	WHITSUNDAY REGIONAL COUNCIL			
						E	FINAL ISSUE	MT	17/03/14	Drawn: MT	Checked: PR		
						F	BOREHOLE / TESTPIT LOCATIONS ADDED	MT	24/03/14	Approved:			
						G	DETAILED SURVEY ADDED	MT	08/04/14	Michael McVeigh R.P.E.Q. 2129			
						H	LEASE BOUNDARY MODIFICATION	MT	16/04/14	On Behalf Of McVeigh Consultants			
						I	BUILDING REALIGNMENT	MT	06/05/14	SCALE 1 : 500 AT A1	REV: 7		
						J	CLIENT MODIFICATIONS	MT	08/05/14				
K	CLIENT MODIFICATIONS	MT	29/05/14	8005-DG AR-0101 K									

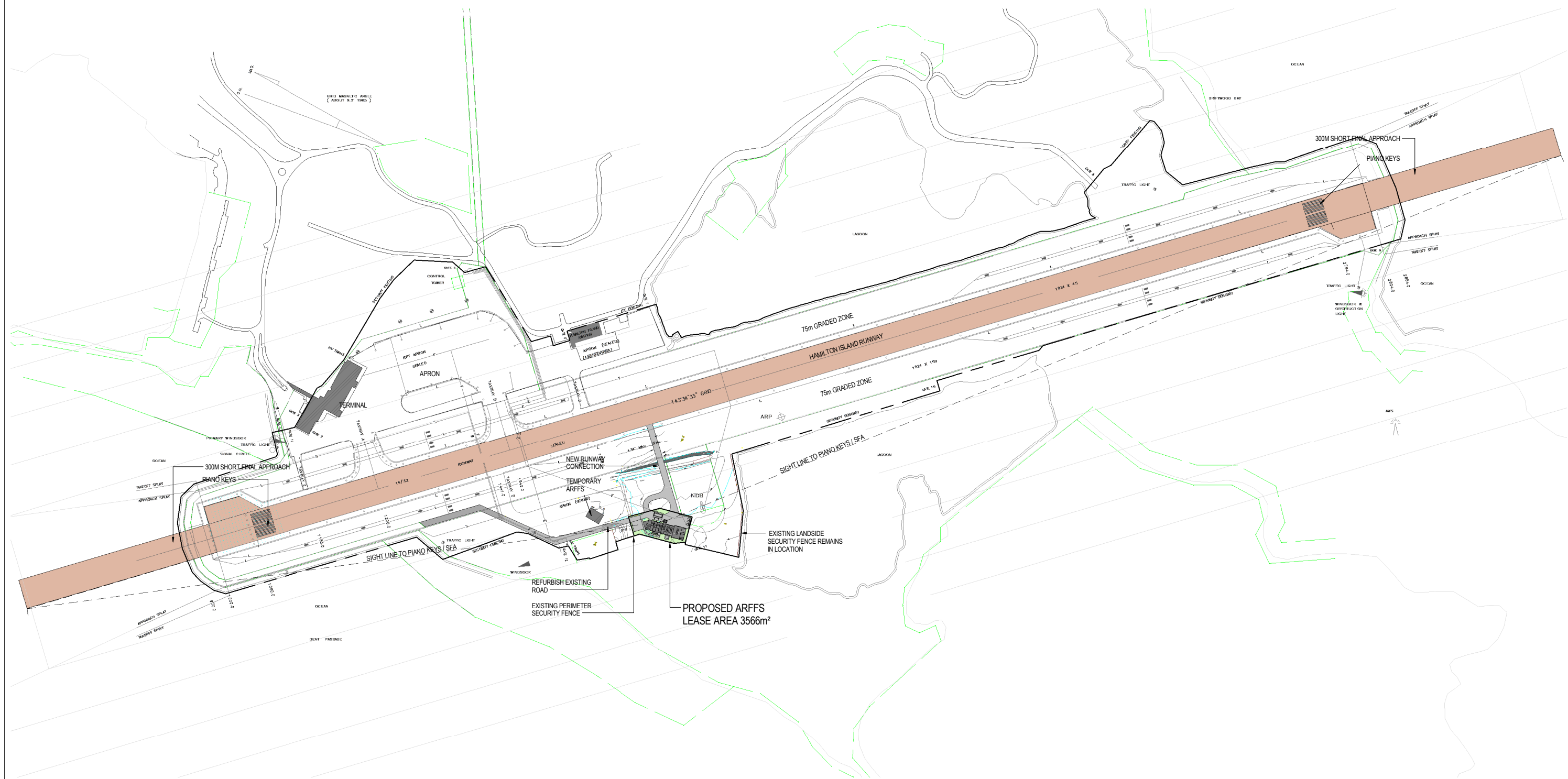


HAMILTON ISLAND REPLACEMENT FIRE STATION

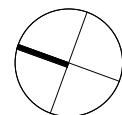
SUBMISSION 1

*Attachment 3 – HM ARFF Site
Plan – Part 2*

AIRSERVICES AUSTRALIA
CANBERRA ACT
DECEMBER 2014



DO NOT SCALE THIS DRAWING. IF IN DOUBT - ASK?



CLIENT

McVeigh

ABN: 50 096 803 922
PTY LTD ACN: 096 803 922
65 Doggett Street
Newstead, Qld 4006

PO Box 2401
Fortitude Valley, Qld 4006

Ph 07 3252 0688
Fax 07 3252 0711

Revision	Issue Details	Issued	Date
A	PRELIMINARY ISSUE	MT	03/02/14
B	UPDATE ISSUE	MT	10/02/14
C	FINAL ISSUE	MT	17/03/14
D	LEASE BOUNDARY MODIFICATION	MT	16/04/14
E	CLIENT MODIFICATIONS	MT	08/05/14
F	CLIENT MODIFICATIONS	MT	29/05/14

PROJECT	HAMILTON ISLAND ARFF STATION
LOCAL AUTHORITY:	WHITSUNDAY REGIONAL COUNCIL
Drawn:	MT
Checked:	PR
Approved:	Michael McVeigh R.P.E.Q. 2129 On Behalf Of McVeigh Consultants

PRELIMINARY

AIRPORT SITE PLAN

SCALE 1 : 3000 AT A1

REV:

8005-DG AR0100 F

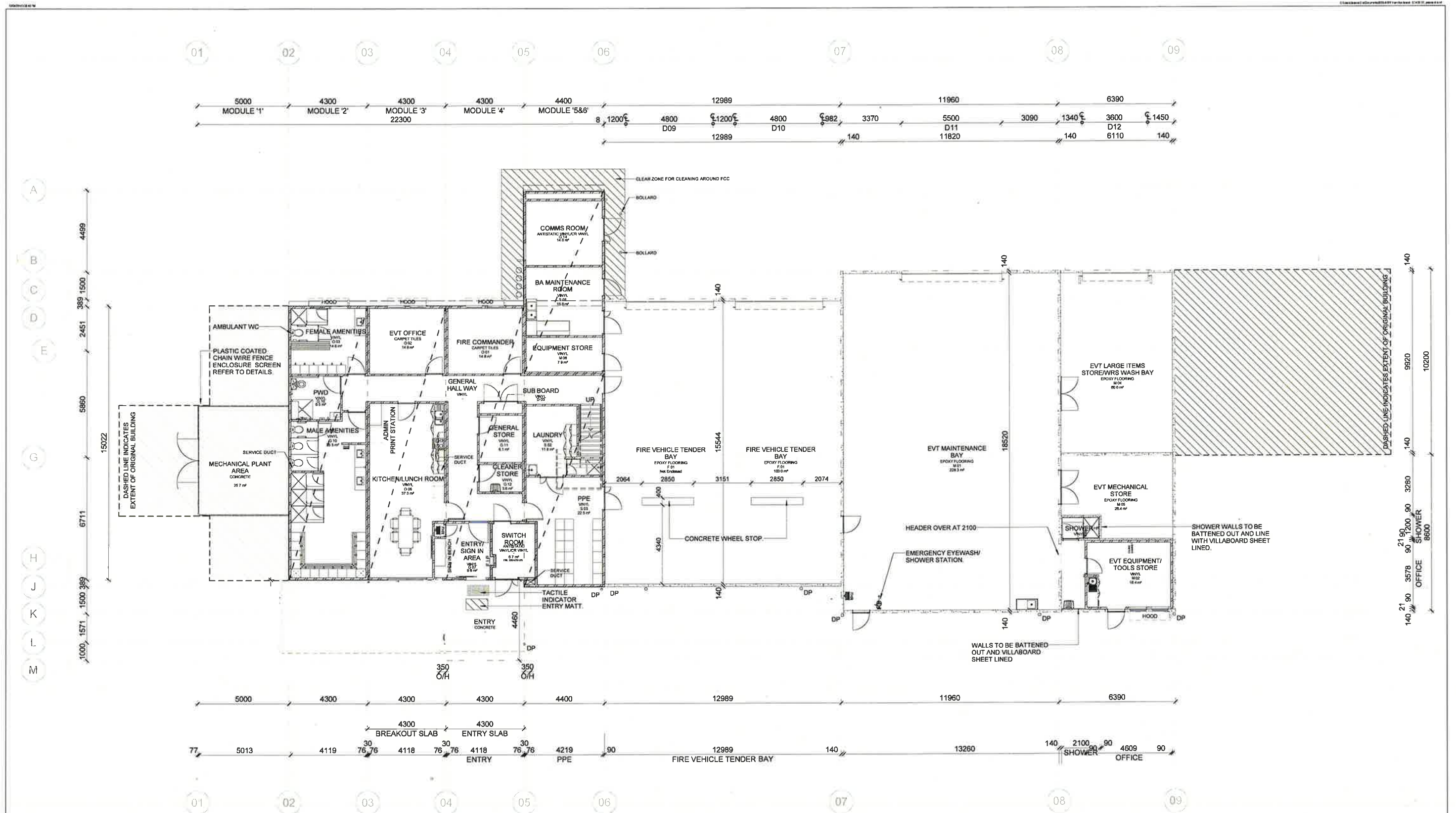


HAMILTON ISLAND REPLACEMENT FIRE STATION

SUBMISSION 1

Attachment 4 – Floor Plan, First Floor

AIRSERVICES AUSTRALIA
CANBERRA ACT
DECEMBER 2014



1 GROUND FLOOR - FLOOR PLAN
1: 100 @ A1

AREA SCHEDULE	
Name	Area
LEVEL 1 OFFICE AREA	284.6 m²
LEVEL 2 OFFICE AREA	280.7 m²
WORKSHOP AREA	549.8 m²
Grand Total	1115.1 m²

DO NOT SCALE THIS DRAWING IF IN DOUBT - ASK!

PRELIMINARY

airservices

CLIENT

McVeigh

AS/NZS 9000:2008
PIT LTD ACN 096 803 922
55 Doggett Street
Newstead, Qld 4006

PO Box 2401
Fortitude Valley, Qld 4008

Ph 07 3252 0668
Fax 07 3252 0711

Revision	Issue Details	Issued	Date
A	PRELIMINARY ISSUE	JE	04.09.14
B	PRELIMINARY ISSUE	JE	05.09.14
C	PRELIMINARY STAGE 01	JE	10.09.14

PROJECT: 8005
ARFF FIRE STATION HAMILTON ISLAND
AIRPORT - STAGE 01
HAMILTON ISLAND - QLD

LOCAL AUTHORITY:

Drawn: JE Checked: PR

Approved:
Michael McVeigh R.P.E.Q. 2129
On Behalf Of McVeigh Consultants

PRELIMINARY

GROUND FLOOR - FLOOR PLAN

SCALE 1: 100 @ A1

8005-SK-01-01

REV: C



PRELIMINARY	
LEVEL 1 - FLOOR PLAN	
SCALE 1 : 100 AT A1	REV:
8005 SK-01-02	B

