

Initial Advice Statement

Toolakea, North Queensland
Landmark Projects Pty Ltd

April 2019



North Queensland
Country Club
Resort &
Equestrian Centre

CONTENTS

EXECUTIVE SUMMARY	6
MASTER PLAN & KEY FEATURES.....	6
THE PURPOSE AND SCOPE OF THIS INITIAL ADVICE STATEMENT.....	7
THE PROPONENT.....	7
NATURE & SCOPE OF THE PROPOSAL.....	7
KEY ENVIRONMENTAL CONSIDERATIONS.....	7
REQUIRED APPROVALS.....	8
KEY ECONOMIC BENEFITS.....	8
SUMMARY	8
1. INTRODUCTION	9
1.1. BACKGROUND	9
PROJECT NEED:.....	9
KEY REASONS FOR SEEKING COORDINATED PROJECT DECLARATION:	10
IS AN EIS OR IAR MORE APPROPRIATE?.....	10
1.2. PURPOSE AND SCOPE OF INITIAL ADVICE STATEMENT	10
2. THE PROPONENT	12
PRINCIPAL CONSULTANTS:.....	12
ENVIRONMENTAL EXPERIENCE:	13
CAPABILITY TO COMPLETE AN EIS OR IAR:.....	13
PARTNERSHIPS:	13
3. NATURE OF THE PROPOSAL	14
3.1. NATURE AND SCOPE OF THE PROJECT	14
PROJECT SCOPE:.....	14
3.2. LAND USE.....	14
LAND USE (EXISTING):	14
LAND USE (PROPOSED):	14
3.3. PROJECT JUSTIFICATION AND ALTERNATIVES CONSIDERED	15
PRE-FEASIBILITY ASSESSMENT:.....	15
ALIGNMENT WITH THE OBJECTIVES AND PRIORITIES OF GOVERNMENT POLICIES AND STRATEGIES:.....	15
DEVELOPMENT OPTIONS (PREFERRED AND ALTERNATIVES):.....	19
ALTERNATIVES TO THE PROJECT AND ALTERNATIVE ACTIVITIES:.....	19
ALTERNATIVE SITES:.....	19
‘DO NOTHING’ APPROACH:.....	19
3.4. COMPONENTS ACTIVITIES & INFRASTRUCTURE THAT CONSTITUTE THE PROJECT TO BE DECLARED CO-ORDINATED. 19	
3.5. EXTERNAL INFRASTRUCTURE REQUIREMENTS	20
3.6. TIMEFRAMES FOR THE PROJECT.....	20
PROGRAMME OF DELIVERY:	20
TIMING:	21
3.7. CONSTRUCTION AND OPERATIONAL PROCESSES.....	22
CONSTRUCTION ELEMENTS:	22
OPERATIONAL ELEMENTS:.....	22
3.8. WORKFORCE REQUIREMENTS	23

	CONSTRUCTION PHASE:.....	23
	OPERATIONAL PHASE:.....	23
3.9.	ECONOMIC INDICATORS	23
	DEVELOPMENT - CONSTRUCTION PHASE:.....	23
	DEVELOPMENT - OPERATIONAL PHASE:.....	23
	BENEFITS TO THE LOCAL ECONOMY:	24
3.10.	FINANCING REQUIREMENTS AND IMPLICATIONS.....	24
4.	LOCATION.....	25
4.1.	DESCRIPTION OF SITE.....	25
	URBAN CENTRES:.....	25
	ACCESS ARRANGEMENTS	25
4.2.	TENURE	25
	EXISTING.....	25
	PROPOSED	25
5.	DESCRIPTION OF THE EXISTING ENVIRONMENT	26
5.1.	NATURAL ENVIRONMENT	26
	CURRENT LAND USE:.....	26
	CLIMATE:.....	26
	TOPOGRAPHY:.....	26
	VEGETATION:	26
	GEOLOGY:.....	27
	SOILS:	27
	VISUAL AMENITY:	27
	PROTECTED AREAS:	27
	WATER AND WATERCOURSES:.....	28
	FLOODING	28
	AIR.....	29
	REGIONAL ECOSYSTEM FRAMEWORK - BIOREGION AND LAND ZONE.....	29
	ECOSYSTEMS, FLORA & FAUNA – DESKTOP ASSESSMENT	29
	ECOSYSTEMS, FLORA & FAUNA – FINDINGS:	31
	PLANT SPECIES:.....	31
	WEEDS:	31
	VEGETATION COMMUNITIES:	31
	ECOLOGICAL COMMUNITIES:	32
	FAUNA SPECIES:	32
5.2.	SOCIAL AND ECONOMIC ENVIRONMENT	33
	ECONOMIC AND DEMOGRAPHIC PROFILE:.....	33
	TOWNSVILLE CITY LOCAL GOVERNMENT AREA AND TOOLAKEA STATE SUBURB:.....	33
	ACCOMMODATION AND HOUSING:.....	36
	CONSTRUCTION:.....	36
	OPERATION:	36
	CULTURAL HERITAGE:	36
	NON-INDIGENOUS CULTURAL HERITAGE:.....	36
	INDIGENOUS CULTURAL HERITAGE:	36

5.3.	BUILT ENVIRONMENT.....	36
	EXISTING INFRASTRUCTURE:	36
	OTHER DECLARED CO-ORDINATED PROJECTS IN REGION:.....	37
	ELLA BAY:.....	37
	TOWNSVILLE PORT EXPANSION PROJECT:.....	37
5.4.	TRAFFIC AND TRANSPORT	37
5.5.	LAND USES	38
	KEY LOCAL AND REGIONAL LAND USES:.....	38
	COASTAL MANAGEMENT DISTRICTS:.....	38
	PROTECTED AREAS & WORLD HERITAGE AREAS:.....	38
	STATE DEVELOPMENT AREAS:	38
	COMMONWEALTH LAND:	39
	NATIVE TITLE:.....	39
	PLANNING INSTRUMENTS:	39
	LOCAL GOVERNMENT:	39
	STATE GOVERNMENT:	40
	NORTH QUEENSLAND REGIONAL PLAN:.....	40
	STATE PLANNING POLICY:.....	40
	ENVIRONMENTAL PROTECTION POLICES	41
6.	POTENTIAL PROJECT IMPACTS.....	42
6.1.	NATURAL ENVIRONMENT	42
	WATERCOURSES:	42
	FLORA:	42
	FAUNA:	42
6.2.	AMENITY.....	42
	GENERAL:.....	42
	VISUAL:.....	42
	GREENHOUSE GASES:	42
6.3.	SOCIAL ENVIRONMENT	43
6.4.	BUILT ENVIRONMENT.....	44
	INFRASTRUCTURE, TRAFFIC & TRANSPORT:.....	44
	COMMUNITY AMENITIES:	45
	TOWNSVILLE AIRPORT	45
7.	ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURES.....	46
7.1.	NATURAL ENVIRONMENT	46
	FLORA:	46
	FAUNA:	46
7.2.	BUILT ENVIRONMENT.....	47
7.3.	ENVIRONMENTAL MANAGEMENT	47
8.	APPROVALS REQUIRED FOR THE PROJECT	48
8.1.	COMMONWEALTH GOVERNMENT	48
	STATE GOVERNMENT:	48
	LAND PROTECTION (PEST AND STOCK ROUTE MANAGEMENT) ACT 2002:	50
	BUILDING ACT 1975:.....	50

LOCAL GOVERNMENT LEVEL:.....	51
TOWNSVILLE CITY PLAN:.....	51
9. COSTS AND BENEFITS SUMMARY.....	52
9.1. LOCAL, STATE AND NATIONAL ECONOMIES.....	52
9.2. NATURAL AND SOCIAL ENVIRONMENTS.....	52
10. COMMUNITY AND STAKEHOLDER CONSULTATION.....	53

FIGURES

FIGURE 1: SITE DIAGRAM.....	25
FIGURE 2: CONTOURS AND LEVELS ACROSS THE SITE.....	26
FIGURE 3: SITE LOCATION ADJACENT TO PROTECTED AREAS.....	27
FIGURE 4: WATERWAYS (IN BLUE).....	28
FIGURE 5: IDENTIFIED EXTENT OF THE 1% AEP STORM SURGE FLOOD EVENT.....	29
FIGURE 6: IDENTIFIED EXTENT OF THE 1% AEP RAINFALL FLOOD EVENT.....	29
FIGURE 7: LOCATION OF VEGETATION COMMUNITIES.....	32
FIGURE 8: LOCATION OF NEARBY COORDINATED PROJECTS.....	37
FIGURE 9: EXTENT OF COASTAL MANAGEMENT DISTRICT.....	38
FIGURE 10: LOCATION OF TSDA.....	39
FIGURE 11: CURRENT ZONING OF THE SITE.....	40

TABLES

TABLE 1: ESTIMATED PROJECT TIMEFRAMES.....	21
TABLE 2: DESKTOP SEARCH RESULTS SUMMARY.....	30
TABLE 3: POPULATION BREAKDOWN OF TOWNSVILLE AND TOOLAKEA.....	34
TABLE 4: DEMOGRAPHIC PROFILE SUMMARY OF TOWNSVILLE AND TOOLAKEA.....	34
TABLE 5: PRELIMINARY ASSESSMENT AGAINST THE STATE PLANNING POLICY.....	41
TABLE 6: SUMMARY OF SOCIAL IMPACTS ASSOCIATED WITH THE PROJECT.....	43
TABLE 7: APPLICABLE COMMONWEALTH LEGISLATION.....	48
TABLE 8: APPLICABLE STATE LEGISLATION AND POLICIES.....	48

EXECUTIVE SUMMARY

This Initial Advice Statement (IAS) has been prepared by Urban Sync Pty Ltd (Urban Sync) on behalf of Landmark Projects Pty Ltd part of the RH Group of companies (the Proponent) and forms part of an 'application for declaration' seeking a proposed world-class integrated country club resort and equestrian centre to be declared a 'Coordinated Project' by the Coordinator-General.

The project will be known as the 'North Queensland Country Club Resort and Equestrian Centre' and be located on a 440ha parcel of land at 189 John Brewer Drive, north-west of the Toolakea township in the suburb of Bluewater, some 30 kilometers north-west of the city of Townsville in North Queensland (NQ).

MASTER PLAN & KEY FEATURES

The initial design of the 'North Queensland Country Club Resort and Equestrian Centre' has been informed by extensive site assessment and specialist investigations that focus on working with the site's natural environmental values. A 'concept' master plan has been prepared by Place Design Group which establishes three (3) key precincts and a pattern of development that will be delivered over the next 20-25 years, or sooner subject to market conditions (refer to **Attachment A**). Final built form outcomes and architectural styling will be better defined through the approvals process and will be supported by detailed onsite investigation and design and controlled by an overall body corporate arrangement. The 'North Queensland Country Club Resort and Equestrian Centre' will include the following general land uses as commonly understood in planning terms:

- Camping Area;
- Country Club Main Centre Premises (limited to a maximum 1,500m² of Gross Floor Area (GFA)), comprising:
 - Arts and Craft Centre (limited to a maximum 200m² of GFA);
 - Bottle shop;
 - Educational Facilities;
 - Medical Centre;
 - Restaurant;
 - Shop; and
 - Tourism Booking and Guide Service.
- Function Room;
- Indoor Entertainment;
- Indoor Recreation;
- Major Resort Accommodation;
- Outdoor Entertainment including equestrian facilities and camping areas for events;
- Service and Rural Industries;
- Sports and Recreation Area;
- Transport Depot (Only for vehicles used in connection with the Country Club); and
- Veterinary Clinic.

Subject to some specific restrictions for location, size and intent of each of the following three (3) land use precincts key features of each precinct will include:

Accommodation Precinct:

This precinct will consist of several, five (5) storey (maximum) high-end luxury accommodation buildings containing approximately 2,800 accommodation rooms and units. Subject to market, it is intended to be built over five (5) major stages and an approximate 20-25 year construction period. Other resort facilities which are consistent with a development of this nature such as small scale retailing, conference and function facilities, art gallery, restaurants etc., will also be included.

Sport and Recreation Precinct:

The sport and recreation precinct will include the development and construction of key regional infrastructure incorporating a world class equestrian centre, ultimately inclusive of indoor and outdoor training arenas, training areas, yards and stalls, horse stabling, cross country trails and polo/polocrosse fields, tennis courts, putting green, space for horse floats, glamping or event camping sites, and veterinarian services. The intent is to both train for and host large and small scale equestrian-based events such as polo, dressage, endurance, show jumping, barrel racing, rodeo, just to name a few.

Environmental and Open Space Precinct:

This precinct will comprise all remaining areas on the site and are to be retained as predominately natural areas subject to natural processes and will include managed activities such as bushwalking, birdwatching, horse trails, bike trails, use of interpretive/educational infrastructure and low-impact activities.

THE PURPOSE AND SCOPE OF THIS INITIAL ADVICE STATEMENT

This IAS forms part of an 'Application for Declaration' to the Coordinator-General seeking to have the 'North Queensland Country Club Resort and Equestrian Centre' declared a 'Coordinated Project' under Section 26(1)(a) of the *State Development and Public Works Organisation Act 1971* (SDPWO Act). This declaration is being sought to allow a coordinated, whole-of-government approach to the approvals required for the project. The purpose and scope of this IAS is to:

- Ensure all procedural requirements in accordance with the SDPWO Act are complied with;
- Provide all relevant information on the project to assist the Coordinator-General in determining whether the project can be considered a 'coordinated project' and to decide if an Environmental Impact Assessment (EIS) or Impact Assessment Report (IAR) is the most appropriate level of assessment;
- Seek to communicate the scale and benefits of the project to all government stakeholders and the general public and, in doing so, assist in the preparation of the Terms of Reference (ToR) for the EIS; and
- Communicate the project to all non-government stakeholders and the general public.

The submission will also seek to demonstrate the substantial investigations completed into the site's constraints and opportunities, and that the design of the project has been informed by these investigations.

THE PROPONENT

The landowner is Landmark Projects Pty Ltd (Landmark Projects) a company have owned the site for over 25 years and are part of the of Rimbunan Hijau Group (the RH Group) are the Proponents of this project. The RH Group is a family run conglomerate founded by the Tiong family, now predominately based in Malaysia and Hong Kong. The RH Group's activities span eight (8) countries, with projects and businesses in Australia, New Zealand, Papua New Guinea, Malaysia, Singapore, Hong Kong, China; and North America, including tourism, hospitality, hotel and media interests.

NATURE & SCOPE OF THE PROPOSAL

The project seeks to establish:

"A world class, dry tropics country club and equestrian centre responsibly integrating luxury accommodation and facilities within the natural environment"

At completion, the project will deliver a combination of short-term accommodation options, equestrian and rural experiences.

KEY ENVIRONMENTAL CONSIDERATIONS

The proponent acknowledges the project has the potential to impact on important environmental flora and fauna that inhabit, or are thought to inhabit, the site. Initial assessments identify that impacts on the following ecological community and species of Matters of National Environmental Significance (MNES) and/or Matters of State Environmental Significance (MSES) may occur:

- Broad leaf tea-tree Woodlands in high rainfall coastal north Queensland, listed as Endangered under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act);
- Cotton Pygmy-goose (*Nattapus coromandelianus*), listed as 'Near Threatened' under the *Nature Conservation Act 1992* (NC Act);

- Rainbow Bee-eater (*Merops Ornatus*) listed as migratory under the EPBC Act;
- Several other fauna species listed as threatened under the NC Act and/or the EPBC Act; and
- Several other migratory species listed under the EPBC Act.

REQUIRED APPROVALS

The project will require complex assessment and involves regulation at Local, State, and Commonwealth levels, which supports the consideration and acceptance of the project as a 'Coordinated Project' under Part 4 of the SDPWO Act. The specific components relevant to these approvals are to be determined as part of the ToR for the EIS, although are expected to include:

- At a Commonwealth level, the project will require approval under the EPBC Act;
- At a State level and as part of the assessment under the SDPWO Act, approval is being sought under the *Aboriginal Cultural Heritage Act 2003* (ACH Act), *Environmental Offsets Act 2014* (EO Act), *Environmental Protection Act 1994* (EP Act), *Nature Conservation Act 1992* (NC Act), the *Vegetation Management Act 1999* (VM Act), *Coastal Protection and Management Act 1995* (CPM Act), the *Fisheries Act 1994* (FA), the *Transport Infrastructure Act 1994* (TIA) and the *Planning Act 2016* (PA); and finally
- At the local level, approvals will be required from Townsville City Council (TCC) under the Townsville City Plan 2014 (TCP). Other subsequent approvals prior to construction and commencement of the use will also be triggered i.e., Operational Works, Building approvals etc.

KEY ECONOMIC BENEFITS

It is anticipated that the construction and operational phases of the project will have a substantial economic benefit on not only Townsville, but the wider NQ economy. The key direct economic benefits are summarised below.

- An estimated construction cost of \$1 billion and a total of \$2.1 billion in total economic activity as a result of the initial capital investment (spread over 20-25 years);
- Approximately \$350 million per annum injected into the Townsville regional economy through direct spending at the resort and equestrian centre;
- Approximately \$955.9 million in wage/salary income will be added to the broader community both directly from construction and from flow on multiplier effects during the construction phase of the project;
- Approximately \$366.8 million in direct (4200 jobs) and indirect (+3986 jobs) employment income annually once fully operational; and
- Approximately \$52.1 million per annum added to the broader community from equestrian events related visitors.

SUMMARY

The project is expected to generate significant benefits to the region. However, the proponent recognises the complexity of the likely assessment protocols and the sensitive environmental nature of the site and is therefore seeking to have the project declared a 'coordinated project' under section 26(1)(a) of the SDPWO Act to ensure these sensitive environmental matters can be suitably addressed via a whole-of-government, coordinated approvals process.

The Proponent is also cognisant that its vision is a unique one, being the first of its kind in Australia to integrate experiential tourism, international partnerships from the equestrian industry and outdoor travel sector, and world class resort accommodation at this scale. The opportunity to educate and consult with the community at a local, State and national scale is sought via this process.

1. INTRODUCTION

1.1. BACKGROUND

Project Need:

Despite a relatively flat past few years, tourism now plays a significant role in the Townsville economy, with a total of 2.7 million visitors and an output of \$1.04 billion in 2017, with Townsville now accounting for 5% of all international visitors to Queensland. There has recently also been a sustained, rapid growth in the Chinese outbound tourism market. For example, in 2016/2017, 1.3 million Chinese travelled to Australia with Tourism Australia forecasting this to increase to 3.9 million by 2026/2027¹. This expected, continued growth is supported by several key factors:

- The decline of the Australian dollar;
- Australia is considered 'safe to visit';
- Relatively low travel costs;
- Softening of travel controls over Chinese residents; and
- Rising Chinese household income²

Chinese tourists are also moving away from the 'mass tourism' groups and instead, now seek opportunities to experience the 'great outdoors' with more nature based and authentic experiences, albeit with accommodation options that will meet their needs. Natural areas underpin Townsville's tourism appeal with few, if any, regions in Australia boasting such a diversity of experiences (The Great Barrier Reef; Magnetic Island; the Hinchinbrook district; Wallaman Falls; the Whitsundays; and Charters Towers) within a highly convenient 'arc' of an established urban centre. With the above in mind, the NQ region requires a vision for a large-scale, internationally recognised resort that will provide convenient access to numerous natural areas and attractions and in doing so, take advantage of the growing number and changing preferences of, in particular, the Pan Asian tourism market.

The project also looks to diversify away from a single market or economic driver and in doing so, develop 'niche' experience-based infrastructure. One such niche is equestrian tourism. The Chinese equestrian industry has grown significantly since the Beijing Olympics in 2008, with Chinese equestrian clubs actively seeking international partnerships and collaboration to develop the sport both within mainland China and internationally. By the end of 2017, there were approximately 1,452 Equestrian Clubs in China with an estimated 400,000 – 450,000 registered amateur riders in China^{3,4}. This growth in equestrian activities establishes a strong platform and a significant opportunity for the project to further assist in capturing and catering for the burgeoning worldwide and Chinese equestrian market.

Whilst the target market is mainly the Chinese traveler, the multitude of activities and experiences on offer, along with what is likely to be a variety of different accommodation styles, means the project will appeal to a wide range of market sectors and will generate a substantial amount of international and domestic tourist attention from not only the well-established markets, but also new markets that currently do not visit the region which will assist Townsville's and NQ's tourism sector in becoming more resilient to fluctuations. Accordingly, the project is expected to be a catalyst project for the region and is likely to have the added effect of kick-starting further confidence in the region's economy, which has in recent years, suffered somewhat of a decline.

In September 2018, after an extensive re-design to align to these objectives, Landmark formally amended the development application it submitted to Townsville City Council in 2014 (undecided) to progress with the current proposal. Recognising the significance of the proposal also to the State, this process under the SDPWO Act this IAS has also been submitted.

In addition, there exists several other factors that point to the overall 'need' for the project including:

- There are currently no major equestrian resorts within Australia;
- There are no significant 'country club style resorts within the NQ region with the distinct characteristics evident in the project which appeal to the domestic and international tourist;

¹ (North Queensland Country Club Resort and Equestrian Centre – Economic Feasibility Assessment, 2018, page 2)

² (North Queensland Country Club Resort and Equestrian Centre – Economic Feasibility Assessment, 2018, page 15)

³ (North Queensland Country Club Resort and Equestrian Centre – Strategic Tourism Feasibility of State and Pan Asia Significance, page 17)

⁴ (North Queensland Country Club Resort and Equestrian Centre – Economic Feasibility Assessment, 2018, page 17)

- The Townsville region is well positioned to capture the growing Chinese visitor market due to its proximity to China (travel time and 2 hour time difference) and the fact it has 320 sunny days a year;
- Townsville has the capacity and support industries to accommodate a large-scale resort in a staged development including airport capacity and expansion;
- Future direct flights from China and South East Asia to Townsville would facilitate the success of the project and are being pursued by the proponent⁵; and
- Townsville has the land availability to accommodate a significant equestrian facility with regular quality weather (blue sky, clean air).

In summary, the project seeks to adopt several elements which are likely to attract the growing Chinese tourism and international equestrian market. With the world class facilities to be provided and the leverage available of nearby wonderful natural assets already available, the proponent is confident that the 'North Queensland Country Club and Equestrian Resort' will be an internationally recognised destination that will address a clear, current and growing market need.

Key Reasons for Seeking Coordinated Project Declaration:

The proponent is seeking that the project be declared a 'Coordinated Project' as this is the most suitable process for ensuring the importance of the project is recognised and the necessary approvals are obtained in an integrated and coordinated way in a transparent manner. The project also clearly falls within the prerequisites listed in section 27(2)(b)(ii) of the SDPWO Act, namely:

- The project will be a 'controlled action' under the EPBC Act and will require approval under up to eight (8) separate pieces of State legislation. As a result, the project will involve complex approval requirements at both the State and Federal level. Using the EIS process and the bilateral agreement between the Australian and Queensland Government's is in this instance, the most efficient method to obtain these approvals.
- Even upon the approval of any future EIS, approvals will also be required at the local level. Due to the size of the project, these approvals are likely to be very complex. To minimise the complexity at the local level, it will be essential that all high-level issues are suitably addressed through an EIS prior to any local approvals being sought;
- The project is of a high strategic significance to Townsville, the wider NQ region and the State of Queensland due to its capital investment, substantial employment opportunities (both through construction and operation) and economic benefits that are anticipated over the next 20-25 years;
- If not managed adequately, the project has the potential to result in environmental impacts on MNES and MSES; and
- The project will require significant infrastructure requirements both on site i.e., on-site effluent and stormwater and off-site such as road, rail crossing and other network upgrades and extensions.

Is an EIS or IAR More Appropriate?

Due to the size of the project and nature of some of the environmental issues present on the site, the proponent believes an EIS under Section 26(1)(a) of the SDPWO Act is more appropriate for the project than an IAR. The reasons for this will be outlined in more detail throughout this IAS.

1.2. PURPOSE AND SCOPE OF INITIAL ADVICE STATEMENT

This IAS forms part of an 'Application for Declaration' to the Coordinator-General seeking to have the project declared a 'Coordinated Project' under Section 26(1)(a) of the SDPWO Act. This declaration is being sought to allow a coordinated, whole-of-government approach to the approvals required for the project. The purpose and scope of this IAS is to:

- Ensure all procedural requirements in accordance with the SDPWO Act are complied with;
- Provide all relevant information on the project to assist the Coordinator-General in determining whether the project can be considered a 'coordinated project' and to decide if an Environmental Impact Assessment (EIS) or Impact Assessment Report (IAR) is the most appropriate level of assessment;

⁵ (North Queensland Country Club Resort and Equestrian Centre – Economic Feasibility Assessment, 2018, pages 21 and 22)

- Seek to communicate the scale and benefits of the project to all government stakeholders and the general public and, in doing so, assist in the preparation of the ToR for the EIS; and
- Communicate the project to all non-government stakeholders and the general public.

The submission will also seek to demonstrate the substantial investigations completed into the site's constraints and opportunities, and that the preliminary design of the project has been informed by these investigations.

2. THE PROPONENT

The 'North Queensland Country Club Resort and Equestrian Centre' will be developed by Landmark Projects Pty Ltd, part of the Rimbunan Hijau Group (the RH Group), a family owned conglomerate of companies founded by the Tiong family.

The RH Group, has corporate headquarters in Kuala Lumpur, Malaysia and Hong Kong⁶, but the Tiong family have a long history in North Queensland and Landmark Projects across the state. The family initially invested in agriculture and mango farming, aquaculture and property. One of the founding members had a particular interest in Townsville's Northern Beaches and Kiu King (known as 'Tom') Tiong purchased land holdings throughout Queensland for these purposes. It was Tom Tiong and his wife who initially created Landmark Projects in 1989 and purchased the site (among others) at Toolakea with the intent to develop it as a Tourism enterprise. Before his passing in 2013, land sales in the area occurred and options for development in accordance with the rezoning were considered. The current Director is Tom's daughter Sijia Tiong and Ms Tiong seeks to continue Tom's dream, as do other family member shareholders.

The RH Group employs approximately 30,000 people across the globe, with business activities in the following areas:

- Hospitality (hotel operations - specifically the RH Hotel and the Stanley Hotel & Suites);
- Tourism and Leisure (including the Travel company Charming Holidays);
- Restaurants and craft brewing;
- Media (focusing on its group of 19 Newspapers and Magazines);
- Education;
- Property Development and construction;
- Agribusiness and aquaculture, and commodities trading;
- Manufacturing (plastics and resins);
- Plantations and milling;
- Forestry (timber and re-forestation); and
- Information and Communications Technologies.

The RH Group's activities now span eight countries, with projects and businesses in Australia, New Zealand, Papua New Guinea, Malaysia, Singapore, Hong Kong, China and North America.

The proponent has substantial experience in operating tourism accommodation hotels and travel-related businesses in other areas of Asia, although they have no relevant/similar experience in Australia at this stage seeking approvals. Accordingly, the proponent has engaged an Australian based representative, Resources Capital International (RCI) and a reputable consultant team to manage the approvals process on its behalf.

Attachment B is a letter dated 19 March 2019 confirming RCI as the sole representative for the site and this purpose.

Principal Consultants:

The Proponent through RCI has appointed a project management team to ensure technical, legal and commercial inputs into the project are managed.

Urban Sync Pty Ltd (Urban Sync) are the Development Approvals Manager and lead consultant in managing the 'Application for Declaration' and the various specialist consultant inputs, including managing subsequent works required should the project be declared a 'coordinated project', with an extensive technical team in support.

Urban Sync is a town planning firm with over 17 years' experience in the North Queensland region and has established a reputable name within the development industry, particularly for tourism projects. Urban Sync are supported by several other consultants with relevant experience in:

- Architecture and urban design;
- Civil engineering;
- Traffic and access design and impact assessment;
- Environmental and ecological investigations;

⁶ (North Queensland Country Club Resort and Equestrian Centre – Strategic Tourism Feasibility of State and Pan Asia Significance, page 13)

- Flooding, stormwater management;
- Coastal processes and storm tide assessments;
- Visual impact and built form/character assessments;
- Economic impact assessment; and
- Tourism project feasibility and market research.

Urban Sync contact details for the project are:

Urban Sync Pty Ltd
PO Box 2970
CAIRNS QLD 4870
Ph: 07 4051 6946

Keir Steele Lawyers Principal/Director Moya Steele is retained by RCI to provide legal and development advisory services necessary for a project of this scale, including assistance with formal consultation, community engagement, corporate partnerships and operational structuring and body corporate requirements.

Keir Steele contact details for the project are:

Keir Steele Lawyers
PO Box 1015
TOWNSVILLE QLD 4810
Ph: 07 4722 0220

These three (3) entities represent the core project management team for the project.

Environmental Experience:

The proponent is not an established developer in Australia and hence, has no Australian 'environmental record' that can be clearly provided.

Capability to Complete an EIS or IAR:

The proponent and its affiliated companies and financiers in Hong Kong and South East Asia have the financial capacity to complete an EIS with the assistance of a highly experienced project team, which will ensure the required reporting is delivered in a timely and professional manner. To demonstrate this, the proponent has submitted a financial capability statement that forms part of this 'Application for Declaration' but is provided on a 'Commercial in Confidence' basis under separate cover.

Partnerships:

To date, the proponent has entered a variety of discussions with companies in Asia to develop relationships which would support the economic feasibility of the project. Currently these discussions remain in the early stages and 'commercial in confidence', although it is intended that several agreements with internationally recognised hotel operators and accommodation managers as well as equestrian and other leisure-related partnerships will be developed and can be presented in support of this project during the EIS.

3. NATURE OF THE PROPOSAL

3.1. NATURE AND SCOPE OF THE PROJECT

Project Scope:

The vision for 'North Queensland Country Club and Equestrian Resort' has been created following site assessments focusing on the environmental values of the land. The proponent has sought inputs from a variety of experts both locally and internationally with an end-focus on delivering a world class project to service both local and international travellers and the equestrian industry. While tourism is the key focus of the project, the proponent acknowledges that both critical mass and a diverse mix of land uses are required to provide a feasible project capable of operating year-round and this has informed the scale and inclusion of an additional specific, niche focus on equestrian activities.

These inputs have ultimately resulted in the project which seeks to establish:

"A world class dry tropics country club and equestrian centre responsibly integrating luxury accommodation and facilities within the natural environment"

The vision for the project is illustrated in the 'concept' masterplan vision included in **Attachment A**.

3.2. LAND USE

Land Use (Existing):

The site has historically been used for sporadic, low intensity cattle grazing though no agricultural activities have been undertaken on the land for some time. The site is not currently used for any form of land use activity.

Land Use (Proposed):

The 'North Queensland Country Club Resort and Equestrian Centre' will include the following land uses:

- Camping Area;
- Country Club Main Centre Premises (limited to a maximum 1,500m² of Gross Floor Area (GFA)), comprising:
 - Arts and Craft Centre (limited to a maximum 200m² of GFA);
 - Bottle shop;
 - Educational Facilities.
 - Medical centre;
 - Restaurant;
 - Shop; and
 - Tourism Booking and Guide Service.
- Function Room;
- Indoor Entertainment;
- Indoor Recreation;
- Major Resort Accommodation;
- Outdoor Entertainment including equestrian facilities and camping areas for events;
- Service and Rural Industries;
- Sports and Recreation Area;
- Transport Depot (Only for vehicles used in connection with the Country Club); and
- Veterinary Clinic.

The design of the project is structured around several 'concept' design plans which will regulate the position and types of land uses and activities that can take place on the site. The overall development is guided by several key principles and three (3) precincts that will define the land uses and development footprint (see **Attachment A**). These precincts and the specific features of each precinct are summarised below.

Accommodation Precinct:

This precinct will consist of several, five (5) storey (maximum) high-end luxury accommodation buildings containing approximately 2,800 accommodation rooms and dwelling units over five (5) major stages and an approximate 20-25 year construction period subject to market forces. Other resort facilities which are consistent with a development of this nature such as small scale retailing, conference and function facilities, art gallery, restaurants etc., will also be included.

Individual buildings and ancillary resort areas will be delivered in a multi-operator structure giving a critical mass to operate the substantial outdoor offerings and experiences. As a result, it is intended that the development will operate via an overarching body corporate structure (Principal/Subsidiary Scheme) to ensure the delivery of infrastructure and services can be appropriately programmed along with the development commitments that will be established with future operators as subsequent hotels are constructed and additional facilities provided.

The Accommodation Precinct will also include ancillary services including staff accommodation areas, executive/business centre, function and conference facilities, art gallery, restaurants, a shuttle bus pick up/drop off point, a formal main country club reception and guest services facility, back of house and major infrastructure area.

Once fully operational and completed, the resort is expected to employ up to 600 staff, drawing personnel with local and international experience to service the needs of guests. At completion the staff will be provided with on-site living options, for up to 300 persons in a variety of rooming accommodation styles.

Sport and Recreation Precinct:

This precinct will include the development and construction of key regional infrastructure incorporating a world class equestrian centre ultimately, inclusive of indoor and outdoor training arenas, training areas, yards and stalls, horse stabling, cross country trails and polo/polorosse fields, tennis courts, putting green, space for horse floats, glamping or event camping sites, veterinarian services. The intent is to both train for and host large and small scale equestrian based events such as polo, dressage, endurance, show jumping, barrel racing, rodeo, just to name a few.

Environmental and Open Space Precinct:

The Environmental and Open Space precinct will comprise of all remaining areas subject to natural processes on the site and are to be retained as predominately natural areas and will include managed activities such as bushwalking, birdwatching, horse trails, bike trails, use of interpretive/educational infrastructure and low-impact activities.

3.3. PROJECT JUSTIFICATION AND ALTERNATIVES CONSIDERED

Pre-Feasibility Assessment:

The proponent believes the project is feasible based on the 'Economic Feasibility Assessment' prepared by LOCATIONIQ (see **Attachment C**). This information has informed a Business Case which is based on a longer-term approach and will be modified to meet market requirements over the project lifetime.

Alignment with the Objectives and Priorities of Government Policies and Strategies:

Tourism industry development is a key initiative to drive regional economic development and this has been identified at all levels of government through a variety of strategies.

State:

The Queensland Government lists Tourism as one of the four pillars of the Queensland economy and a significant contributor to employment and economic prosperity across the State and in doing so, have made major commitments to increasing the expenditure of tourists in Queensland and to growing the reputation of tourism both domestically and internationally.

Destination Q is a partnership between the Queensland Government and the tourism industry to: *"invest, excel and grow Queensland's visitor economy"*⁷. Destination Q published a 20-year plan in 2014 for Queensland Tourism entitled, 'Destination Success'. Recently, Destination Success has been complimented by *Advancing Tourism 2016-2020*.

⁷ (State of Queensland (Department of Tourism, Major Events, Small Business, and the Commonwealth Games, 2013, p. 2)

Destination Success:

At a high level, *Destination Success* establishes a goal being: “Queensland is Australia leading tourism destination” and a target to achieve this goal, being: “Increase visitor expenditure to \$30 billion by 2020”.

Project Alignment:

Once fully operational, the project is expected to result in approximately \$350 million in direct expenditure. Whilst this will not occur by 2020, it still aligns with the State Governments long term overarching goal of increasing tourism and tourism expenditure within the State.

Advancing Tourism 2016-2020:

Advancing Tourism 2016-2020 is the Queensland Governments plan to grow Tourism and jobs and it seeks to achieve this by targeting four priority areas being:

- **“Grow quality products, events and experiences:** Build on Queensland’s reputation for the variety, quality and safety of its destinations and its unique and niche world class products and experiences”:

Project Alignment:

The project seeks to leverage off the nearby wonderful natural assets already available within the NQ region AND seeks to introduce a niche world class equestrian based product and experience.

- **“Invest in infrastructure and access:** Ensure that modern, high quality infrastructure is in place and visitors can enjoy seamless travel to and around Queensland”:

Project Alignment:

Townsville is supported by an international airport, with direct connections to Queensland domestic locations such as Cairns, Brisbane, Gold Coast and the Outback and a growing list of intended international destinations including Singapore.

- **“Build and skilled workforce and business capabilities:** Match tourism growth potential with a skilled workforce providing high quality service and building skills to meet future demand”:

Project Alignment:

The project will generate 5,348 direct jobs during construction and 600 jobs once fully operational. Given this large number of jobs and the somewhat small pool of experience available in NQ, it is reasonable to assume that that some upskilling will be required in various areas. It is expected that partnerships with local TAFE colleges could be established to suitably further upskill the local workforce.

Project timing could leverage off current large scale construction projects being completed, providing a long term supply chain of work to local contractors and suppliers. The project’s 5 storey height limits and intended development controls will also allow improved local business tendering opportunities.

- **“Seize the opportunity in Asia:** Deliver an accelerated and targeted approach to maximise the opportunities in high-yield, rapid growth Asian markets”:

Project Alignment:

The project’s key target market is China and the wider pan-Asian region (South-East and North Asia).

Queensland Plan:

The main purpose of the Queensland Plan is to establish a long-term vision for the future growth and prosperity of Queensland, and reflect the aspirations of the community, business and industry for the future of Queensland. Many of the key targets established in the Queensland Plan are mirrored and/or reflected in the North Queensland Regional Economic Plan 2014-2031 (see below) and as a result, won’t be discussed further here.

North Queensland:

Tourism plays a critical long-term role in the sustainable economic growth of a region by way of new product and infrastructure. Recently, both the North Queensland Regional Economic Plan 2014-2031 (NQREP) and the Townsville North Queensland Destination Tourism Plan 2014 have identified the key role tourism plays in the Townsville economy and set various targets, goals and strategies aimed at increasing tourism within Townsville and the wider NQ region.

North Queensland Regional Economic Plan 2014-2031:

The NQREP was published in March 2014 and was instigated to foster a greater level of regional unity and collaboration to drive economic development in NQ between the City of Townsville, Charters Towers Regional Council, Burdekin Shire Council, Hinchinbrook Shire Council and Palm Island Aboriginal Shire Council.

The plan discusses five (5) key regional themes that have been identified as the critically important drivers of development for the region and include⁸:

- Growing Agriculture;
- Unlocking Resources Wealth;
- Energy Resilience;
- Commercial Hub for Northern Australia and the Asia Pacific;
- Building a Knowledge and Services Economy.

One of these themes, 'Commercial Hub for Northern Australia and the Asia Pacific', identifies Townsville as serving as an important urban regional hub within Queensland. It also suggests outstanding opportunities are available to enhance the region's position as a commercial hub that is well integrated with the broader Asia Pacific region, with the project being able to contribute towards this key driver.

It is acknowledged that further development of tourism as an event within the region can also serve as a catalyst with benefits in terms of contribution to the local economy and quality of life for residents. The NQREP list several projects one of which is – *Establish North Queensland as a tourism and events destination of choice*, with the following actions proposed to achieve the outcome of this project:

- Execute tourism brand usage for North Queensland and investigate brand use across sectors; and
- Develop a regional events strategy to maximise visitation and expenditure from events across the region.

These actions will be enhanced and benefit from the project and its operations within Townsville North Queensland⁹, indirect benefits to equine animal husbandry and medicine are also not unforeseeable.

Townsville North Queensland Destination Tourism Plan 2014:

The Townsville North Queensland Destination Tourism Plan (the plan) was developed in consultation with industry, Government and the community, and highlights the short, medium and long-term strategy for the NQ Region. The 2020 vision of the plan is:

"Townsville North Queensland is recognised as the thriving heart of Northern Australia, where visitors are immersed in leisure, learning, business and cultural experiences and events in the tropics".

The plan identifies that this vision will be achieved by¹⁰:

1. *"Increasing the value of overnight expenditure to \$1.04B by 2020":*

Project Alignment:

The project will increase direct visitor expenditure by \$363.5 million per annum once fully operational.

2. *"Positioning the destination as a leader in learning experiences in nature (known as eco-tourism)":*

Project Alignment:

The project will offer several eco-tourism activities such as bushwalking, horse riding and bird watching. The project will also provide convenient access to numerous other attractions which offer eco-tourism opportunities and experiences.

3. *"Leveraging the destinations strengths in business, education, arts and culture and sports tourism":*

Project Alignment:

The project will include hotel executive/business centres (business tourism), eco-tourism activities (learning tourism) and a world class equestrian centre (sports tourism).

⁸ (North Queensland Regional Economic Development Plan 2014-2031, p6)

⁹ (North Queensland Country Club Resort and Equestrian Centre – Strategic Tourism Feasibility of State and Pan Asia Significance, page 4)

¹⁰ (Townsville North Queensland Destination Tourism Plan, 2014, p. 2)

4. *"Growing awareness and preference of the destination through promotion of the region's hero experiences under the new brand positioning":*

Project Alignment:

RH Group (Landmark's parent company) has an existing media footprint which includes most of Malaysia, Hong Kong and Singapore and into the Chinese speaking populations of Indonesia and the Philippines that includes five (5) newspaper dailies with thirteen (13) editions and three (3) free newspapers with a total circulation of over 1 million copies. This provide direct promotional access through the Pan-Asian region which will champion NQ's regional assets and hero experiences in association with the accommodation and equestrian options on offer within the project itself.

5. *"Ensuring that the growth of the visitor economy is in harmony with the community, the environment and the destination's commitment to responsible tourism":*

Project Alignment:

Alignment with this statement will be achieved through the EIS process where environmental and social impacts will be addressed, and transparency through the community consultation processes required.

The plan also sets a target of increasing expenditure from \$662m in 2013 to \$1.04B by 2020¹¹ with several strategies outlined to achieve this target. The project directly aligns with several of these targets as is summarised below:

- *"Assist in increasing Queensland's market share of sports tourism by growing our share by 4%".*

Project Alignment:

The project will assist in achieving this strategy via the events to be held at the equestrian centre (polo, dressage, endurance, show jumping, barrel racing, rodeo etc.).

- *"Assist in increasing Queensland's market share of interstate visitors by growing our share by 0.25% (VIC and NSW) and 0.1% for other states (with remainder of interstate leisure growth at 0.1%)".*

The project will primarily target the Chinese and Pan-Asian region, although given the scale of the project, it is an essential component of the feasibility that visitors from all parts of Australia and the globe visit. Given what is being proposed, the proponents are confident this will occur particularly with the use of the equestrian facilities for events and in doing so, contribute significantly to achieving this strategy.

- *"Assist in increasing Queensland's market share of Europe and UK visitors by growing our share by 0.5%".*

As above.

In addition to the above, the plan also identifies seven (7) megatrends which will shape tourism over the next twenty (20) years. Two of these mega trends align with the vision, targets and goals set within the project, being:

- 'The Orient Express', which is summarised as:

"Major growth opportunities are associated with attracting new tourists from the developing Asia region and ensuring Queensland is a differentiated and aspirational destination for domestic and international travellers"

- 'On the Move', summarised as:

"People are becoming increasingly mobile. While leisure remains a strong motivator for travel, people are traveling further and more frequently for many reasons including trade, business, events, conferences, education and health care"

These mega trends are underpinned by the rapid growth in the Asian tourism sector and in particular, characterised by an unprecedented scale or volume never before seen in NQ¹².

Reef 2050:

The Reef 2050 plan is the overarching framework for the protection and management of the Great Barrier Reef until 2050. The project will discharge all wastewater on site AND all stormwater will be treated to the required quality targets before being discharged to a downstream lawful point of discharge. This will ensure the project will not have an unacceptable, negative impact on the Great Barrier Reef or any marine species residing in the waters adjacent to the site. Further evidence that the project will not conflict with the outcomes sought by Reef 2050 can be provided as part of the EIS.

¹¹ (Townsville North Queensland Destination Tourism Plan 2014-2020, page 2)

¹² (North Queensland Country Club Resort and Equestrian Centre – Strategic Tourism Feasibility of State and Pan Asia Significance, page 2)

Development Options (Preferred and Alternatives):

Alternatives to the Project and Alternative Activities:

Development approvals have been in place on the site for tourism-based activities since the mid 1980's. The approvals allowed for a combination of development activities including, but not necessarily limited to: permanent residential development; major resort accommodation; function room; holiday units; caravan park; marina; condominium units; commercial centre; golf course; and theme park.

More recently, the design has evolved to include several concepts around eco-tourism and residential style accommodation options (short and long) stay. The current master plan represents the proponent's 'final' development approach to the site based on critical assessment of the likely constraints and opportunities affecting future infrastructure provision and the economic needs-based assessment which supports destination tourism with a focus on nature-based activities.

These activities will be supported by the domestic and international market and can be rolled out in an efficient and manageable way with the support of government and tourist operators.

Alternative Sites:

As outlined above in the project need, Townsville is perfectly positioned to cater for both domestic tourists from throughout Australia and the increasing Chinese Tourism market by way of its proximity to China and numerous natural areas/experiences that are now being sought by many Chinese travellers. To suitably cater for this and to allow 'critical mass' to be achieved, several site criteria are needed and there have been no other alternative sites that have recently presented themselves which could accommodate all the criteria currently available on the site.

'Do Nothing' Approach:

The 'do nothing' possibility has been considered by the proponent, and determined to be an underutilisation of the site, given its landscape/environmental values, potential economic opportunities, existing approvals in place and what is being proposed. Moreover, if the project is not able to proceed, there would be several significant economic implications to the region, including:

- Loss of financial investment and associated benefits to the immediate area and more broadly to NQ;
- Loss of investment reputation;
- Negative impacts on the region's marketability (i.e. no 'iconic' developments and an inability to broaden target markets);
- Loss of opportunity to create and promote new activities to the region, which in turn inhibits the tourism sector's ability to widen its scope;
- Negative impact on the region and State as a whole to achieve the lofty goals associated with increasing tourism related expenditure by the end of the decade and beyond;
- Loss of the potential for a more sustainable and reliable tourism sector; and
- Loss of opportunity for the State to develop substantial tourism infrastructure as a result of private investment in equestrian based event infrastructure.

3.4. COMPONENTS ACTIVITIES AND INFRASTRUCTURE THAT CONSTITUTE THE PROJECT TO BE DECLARED CO-ORDINATED

In accordance with section 27(2)(b)(ii) of the SDPWO Act, the key aspects of the project that require it to be declared 'coordinated' include:

- The project will be a 'controlled action' under the EPBC Act and will require approval under up to eight (8) separate pieces of State legislation. As a result, the project will involve complex approval requirements at both the State and Federal level. Using the EIS process and the bilateral agreement between the Australian and Queensland Government's is in this instance, the most efficient method to obtain these approvals.
- Even upon the approval of any future EIS, approvals will also be required at the local level. Due to the size of the project, these approvals are likely to be very complex. To minimise the complexity at the local level, it will be essential that all high-level issues are suitably addressed through an EIS prior to any local approvals being sought;
- The project is of a high strategic significance to Townsville, the wider NQ region and the State of Queensland due to its capital investment, substantial employment opportunities (both through construction and operation) and economic benefits that are anticipated over the next 20-25 years;

- If not managed adequately, the project has the potential to result in environmental impacts on MNES and MSES; and
- The project will require significant infrastructure requirements both on site i.e., on-site effluent and stormwater and off-site such as road, rail crossing and other network upgrades and extensions.

3.5. EXTERNAL INFRASTRUCTURE REQUIREMENTS

A 'preliminary' assessment of the required infrastructure services needed to support the 'North Queensland Country Club and Equestrian Centre' has been undertaken, although will be updated as required, and as refinement of the location elements and construction constraints become more evident. Further details will be provided as part of the EIS, although the key external upgrades associated with the project are expected to include:

- **Water Supply:** The reticulated water connection to service the project will be extended via a new 300mm water main parallel to John Brewer Drive and connect, via a Pressure Reducing Valve, to the existing 600mm 'Mount Spec Pipe Line' trunk main that runs adjacent to the Bruce Highway. All initial connections works will be completed as part of Stage 1 allowing for future capacity to be provided as later development sites are taken up and construction works proceed.
- **Sewerage Treatment Scheme:** Nil, all sewerage requirements are intended to be accommodated internally and treated via industry best practice and utilised in landscaping and recycling systems.
- **Electricity and Telecommunications:** Connections to the existing electricity and telecommunications infrastructure will be provided. An assessment of the demand and any possible upgrades will be completed prior to the detailed design stage and in consultation with the relevant asset owners. Onsite renewable energy supply will be part of the detailed design work to be undertaken.
- **Stormwater:** Nil, all stormwater works will be dealt with on site; and
- **Roads:** Preliminary discussions with the Department of Transport and Main Roads (DTMR) have identified that the Bruce Highway/Forestry Road intersection currently operates within capacity but would exceed the available capacity at 2024. This would ultimately lead to the intersection being upgraded in approximately 2024, even without the traffic impacts from the project. Future planning by DTMR has indicated a plan to convert the existing 4-leg intersection into a staggered 'T-intersection' arrangement to accommodate increased traffic volumes. This intersection upgrade will be coordinated with DTMR. Other upgrades to local roads will also be required and will improve existing access for the public.

3.6. TIMEFRAMES FOR THE PROJECT

Programme of Delivery:

It is expected that the project will be developed over the next 25 years in up to 5 major stages, although the timing will be dependent on several factors. Stage 1 will be delivered by the proponent, reflecting a substantial commitment to the project and set the tone for marketing internationally.

Stage 1 will at least include the following:

- The first hotel in the accommodation precinct (approximately 560 rooms);
- Resort amenities (pool, beachfront facilities etc.) as required;
- Resort Reception and arrival 'gateway';
- Resort back of house and major infrastructure (as required);
- The equestrian centre (of proportionate scale, enabling staged expansion as the overall resort develops);
- Grazing paddocks and fields as required;
- Natural area upgrades (walking tracks etc.) as required;
- Staff accommodation as required;
- All external upgrades (timing of intersection upgrade is to be confirmed); and
- On-site infrastructure necessary to service the project (car parking, on-site effluent etc.) as required.

Stages 2-5 will generally occur in intervals of approximately (5 years). In the event other operators seek to come 'on-line' earlier, this will be accommodated, subject to economic impact assessment and include several new hotel/hotels (approximately 560 rooms per stage), as well as upgrades to amenities, staff accommodation and infrastructure upgrades (stormwater, sewerage, car parking etc.) as required.

In all cases it is anticipated that the proponent will have control over the development themes through the principal body corporate structure and arrangements as individual stages are absorbed into the overall project.

Timing:

There are several uncertainties that can dramatically affect the timing and delivery of the project. **Table 1** below provides the current, indicative timeframe associated with Stage 1. This will be updated as the project progresses and the timeframes for each stage, particularly in relation to local, State and Commonwealth approval timeframes, are better understood. Excluding the IAS/EIS process, Stages 2-5 will follow a similar approval and construction process and timeframe to Stage 1 and are anticipated to each be approximately five (5) years long.

Table 1: Estimated Project Timeframes

Project Component	Estimated Timeframe	Description of Works
IAS	March 2019	Approval of IAS
EIS	March 2019	Referral – Bilateral Agreement Process Draft ToR for EIS released for public consultation
	April 2019 November 2019	ToR released Submission of EIS and supporting documents to Coordinator General
	December 2019	EIS public consultation
	January 2020	Sup EIS process
	June 2020	Approval of EIS process
	September 2020	EPBC Act approved
Completion of process and Material Change of Use - Development Permit (Stage 1 works)	December 2020	Completion of the Material Change of Use (MCU) and supporting information to Townsville City Council (TCC)
	March 2021	Approval of MCU by TCC
Operational Works – Stage 1 Works	August 2021	Submission of Operational Works (OW) application and supporting information to TCC
	December 2021	Approval of OW by TCC
Construction – Stage 1	2022	Construction to start
	2024	Stage 1 complete
Stage 2	2025	Stage 2 to commence
	2029	Stage 2 complete

Stage 3	2030	Stage 3 to commence
	2034	Stage 3 complete
Stage 4	2035	Stage 4 to commence
	2039	Stage 4 complete
Stage 5	2040	Stage 5 to commence
	2044	Stage 5 complete

3.7. CONSTRUCTION AND OPERATIONAL PROCESSES

Construction Elements:

The key construction processes that will need to be considered are:

- Environmental Management Plan and Operational Plan;
- Flood and stormwater management;
- Erosion and sediment control;
- Water quality monitoring;
- Access to water for civil construction;
- Daily transport and parking for construction work force;
- Logistics of transportation of construction materials;
- Waste management and disposal;
- Effluent disposal;
- Site access (including emergency services); and
- Emergency site management (rainfall, cyclones, etc.).

All the above will be outlined in more detail as part of the EIS.

Operational Elements:

The key operational processes that will need to be considered are:

- Environmental Management Plan and Operational Plan;
- Potable water supply and firefighting;
- Sewerage and waste disposal;
- Flood/stormwater/water quality;
- Power mains and back up supply;
- Transport and delivery of goods and produce;
- Transport and parking for guests and work forces; and
- Emergency services access/disaster evacuation.

All the above will be outlined in more detail as part of the EIS.

3.8. WORKFORCE REQUIREMENTS

The project will generate a significant need for workers with specialist skills during both the construction and operational phases.

Construction Phase:

Most workers will be sourced from Townsville and the surrounding region. Subject to approval timing, the commencement of this project may occur at the completion of other major infrastructure works and allow for the long-term retention of the skilled workforce from those projects. Other workers may move to Townsville on a temporary basis, or could potentially be engaged by sub-contractors on a fly-in-fly-out roster, as required. However, it is the proponent's hope that the region has more than adequate capacity, dependent on the level of other construction activity at the time, to absorb the expected construction workforce without causing any undue stress to the region's economy. The intended design controls will seek to achieve that outcome also in how construction is packaged for tender.

Based on an estimated cost of construction of \$1 billion, the project is expected to generate a total of 5,348 direct full time equivalent of jobs per year and 8,568 indirect jobs during the entire construction period¹³, on national industry benchmarking. On average, this will equate to 300 construction jobs per year over 18 years.

Operational Phase:

Townsville and the surrounding region will provide for most of the operational workers associated with the project. However, it is also likely that others will move to the region permanently in order to gain employment. As the project will cater for a range of international visitors, it should also be expected that opportunities for employment dedicated to this style of service may be necessary and hotel operators also transition staff through their facilities internationally as part of career development.

Once fully operational, the project will employ approximately 4200 people and generate an approximate 3,750 full-time equivalent direct jobs; and a further 3,986 full time equivalent 'flow-on' jobs. Unlike other sectors which experience a 'let down' after construction, the employment levels associated with the project, inclusive of flow-on jobs, are expected to experience a steady increase from the start of construction right through to when the project is fully operational¹⁴.

3.9. ECONOMIC INDICATORS

The project is expected to deliver broad economic benefits during both the construction and operational phase of works. A preliminary economic feasibility assessment has been completed by LOCATIONIQ on behalf of the proponents and is submitted for consideration as part of the IAS document (**Attachment C**). Findings of the economic feasibility assessment are provided below:

Development - Construction Phase:

The estimated construction cost of the project is in the order of \$1 billion and a total of \$2.1 billion in total economic activity as a result of the ongoing capital investment given the ultimate development strategy¹⁵. This will not be a 'once off' hit given the staged timing of the project.

Development - Operational Phase:

Due to the proposed staging of the project, the full economic benefits will not ultimately be realised until the completion of the final stage in 2040-2045. However, some of the economic indicators estimated to arise from the project include:

- Approximately 1.2 million visitors annually (once full developed and at an average of 65% occupancy) which will account for approximately 2.2% - 4% of total international tourist visitation to Queensland¹⁶;
- Approximately \$307.2 million spent per annum by resort patrons¹⁷; and
- Assumed \$45 - \$50 million spent annually at the Equestrian Centre¹⁸.

¹³ (North Queensland Country Club Resort and Equestrian Centre – Economic Feasibility Assessment, 2018, page 26)

¹⁴ (North Queensland Country Club Resort and Equestrian Centre – Economic Feasibility Assessment, 2018, Table 17)

¹⁵ (North Queensland Country Club Resort and Equestrian Centre – Economic Feasibility Assessment, 2018, page 26)

¹⁶ (North Queensland Country Club Resort and Equestrian Centre – Economic Feasibility Assessment, 2018, pages 19 and 20)

¹⁷ (North Queensland Country Club Resort and Equestrian Centre – Economic Feasibility Assessment, 2018, page 23)

¹⁸ (North Queensland Country Club Resort and Equestrian Centre – Economic Feasibility Assessment, 2018, page 24)

Benefits to the Local Economy:

The 'North Queensland Country Club and Equestrian Centre' will also result in significant 'flow on' benefits to Townsville and the surrounding region, of which are summarised below:

- Approximately \$955.9 million in wage/salary income will be directly added to the broader community both directly from construction and from flow on multiplier effects during the construction phase of the project;
- Approximately \$366.8 million in direct and indirect employment income annually once fully operational;
- Approximately \$52.1 million per annum added to the broader community from equestrian events related visitors¹⁹; and
- Because of the above, the need to generate additional services and improvements for the Townsville region i.e., education, health facilities, community infrastructure and transport options.

3.10. FINANCING REQUIREMENTS AND IMPLICATIONS

The project is expected to generate a total capital investment of \$1 billion. The proponent, as part of the RH Group of companies and financiers, has the financial capacity to undertake the IAS and EIS process. The RH Group also have access to the funds necessary to proceed with the construction of Stage 1 of the project with latter stages to be constructed by themselves or by others. However, until the approvals are received, and further certainty provided, more completed finance agreements can only be anticipated.

¹⁹ (North Queensland Country Club Resort and Equestrian Centre – Economic Feasibility Assessment, 2018, page 25)

4. LOCATION

4.1. DESCRIPTION OF SITE

The site is 440ha in area and located at 189 John Brewer Drive, more formally described as Lot 4 on RP743792 which is generally north-west of the Toolakea township in the suburb of Bluewater (see **Figure 1**).



Figure 1: Site Diagram²⁰

Urban Centres:

Townsville is the closest major centre, located some 30km south-east (as the crow flies) of the site with a resident population of approximately 192,000²¹, while Ingham is the closest 'secondary' centre and is located some 87km to the north-west (as the crow flies).

Access Arrangements

Access to the project will be available via the Bruce Highway, Forestry Road and John Brewer Drive, north from Townsville.

4.2. TENURE

Existing

The site is held in freehold title.

Proposed

The site will continue to remain in freehold title, although will be strata-titled and governed via an overarching body corporate structure to be managed by the proponent.

²⁰ (State of Queensland (Queensland Globe), 2018)

²¹ (The State of Queensland (Queensland Treasury), 2018)

5. DESCRIPTION OF THE EXISTING ENVIRONMENT

5.1. NATURAL ENVIRONMENT

Current Land Use:

The site has historically been used for low intensity cattle farming, although at present, it is vacant rural land with no current active use. It is improved with sporadically located infrastructure associated with the previous cattle farming use such as holding pens, fences, structures, sheds and access tracks. Several, unlawful 'beach shacks' are also present along the eastern portions of the site (or on adjoining State Land).

Climate:

Townsville lies in the Burdekin Dry Tropics Region where the northern and southern tropics of the at coast of Australia meet²². The area has a tropical climate, but due to its geographical location, rainfall is not as high as elsewhere in the tropics. The winter months are dominated by south-easterly trade winds and mostly fine weather with temperatures ranging from 14 degrees to 24 degrees. In contrast, the summer months are hot and humid with temperatures ranging from 25 degrees to 31 degrees and characterised by bursts of monsoon rains from late December through until early April²³.

Topography:

Detailed surveys of the site and the surrounding areas have been undertaken by LIDAR technology sourced from the Queensland Department of Natural Resources and Management (DNRM). The data was resampled in the TUFLOW model based on the 10m grid resolution. This information has been used for the concept design stage, and to inform the infrastructure assessments as part of this project. The topography of the site varies but is predominantly flat and low-lying, with ground levels ranging from less than RL 1m AHD at the coast and in watercourses, up to approximately RL 8.5m AHD along the south-western boundary (see **Figure 2**).

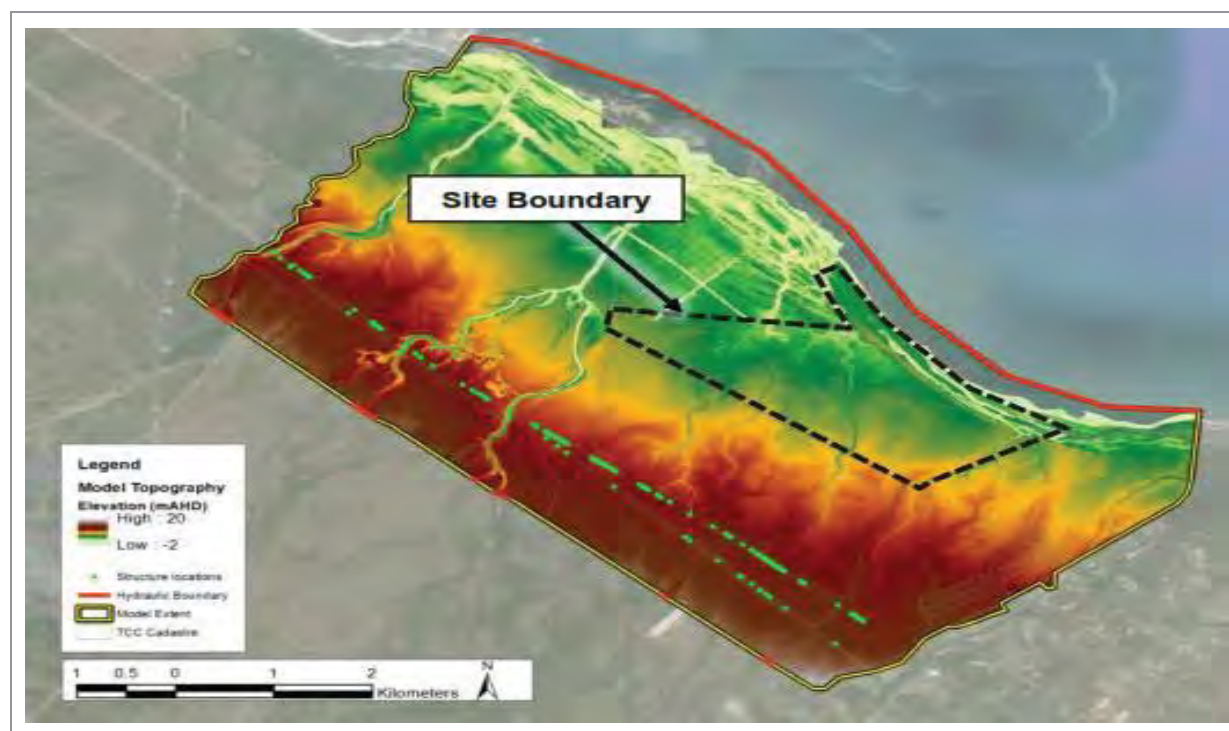


Figure 2: Contours and Levels across the Site²⁴

Vegetation:

The site is dominated by woodlands and open forests with closed forest occurring along riparian and beach fore-dune areas. There has been very little historical clearing in the general landscape and as such, habitat connectivity along the coastline (south-east) to north-west) and west towards the coastal ranges remains largely intact²⁵.

²² (City of Townsville – Living in Townsville, 2018)

²³ (Australian Bureau of Meteorology – Climate of Townsville, 2018)

²⁴ (Water Technology, Flooding, Storm Tide and Water Quality Assessment Report, 2018)

²⁵ (The State of Queensland (Department of Natural Resources and Mines) – Vegetation Report, 2018)

Geology:

The detailed surface geology is comprised of existing and infilled braided stream alluvial systems running northeast across the site to the coast, forming a series of several soil associations. The soils on the site present a complex mixture of profiles formed by the movement and infilling of old braided stream systems, grading away from the coast from sands into more clayey soils²⁶.

Soils:

Soils were generally comprised of bleached loams (sandy, clayey or silty), with clay subsoils and infilled channel alluvial material, with some areas identified with deep sands (the North-eastern section of the site). Most of these soils can be described as leached or bleached massive earths or compacted soils. Coarse sandy material and gravels were found across much of the site associated with the complex geology of the area²⁷.

Visual Amenity:

The visual setting of the site presents as a dense vegetated, flat and vacant parcel of rural land. The surrounding local area is also relatively flat, meaning there are no elevated viewpoints achieving clear views towards the site and the expansive and relatively dense tracts of vegetation that inhabit the site ensure views to surrounding areas from within the site are also not possible.

Protected Areas:

There are several protected areas within close vicinity to the site. These areas are shown in **Figure 3** and summarised below:

- Magnetic Island National Park (approximately 25km to the east);
- Paluma Range National Park (approximately 14km to the west);
- Clemant State Forest (approximately 6km to the north-west);
- Bowling Green Bay National Park (approximately 50km to the south-east);
- Cape Pallarenda Conservation Park (approximately 21km to the south-east);
- Townsville Town Common Conservation Park (approximately 20km to the south-east); and
- Great Barrier Reef (approximately 11km to the east)²⁸.

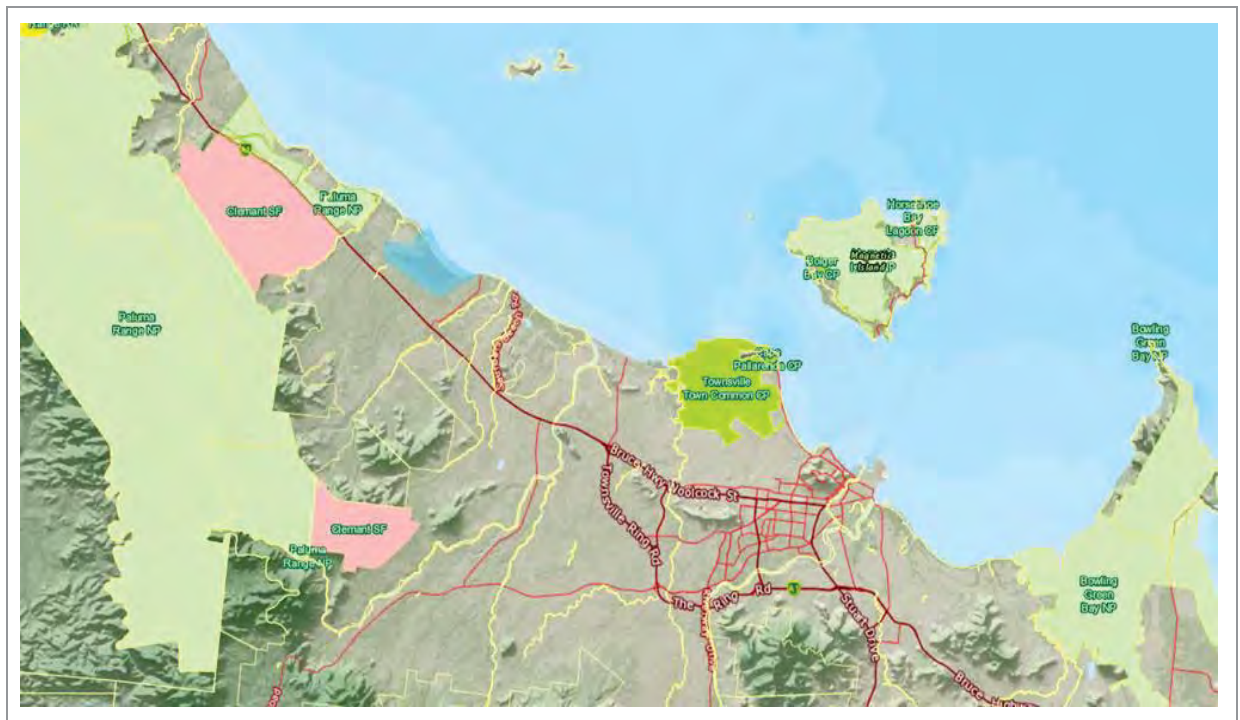


Figure 3: Site Location Adjacent to Protected Areas²⁹

²⁶ (North Queensland Country Club and Equestrian Centre – On-Site Sewerage Design Report, 2018, page 5)

²⁷ (North Queensland Country Club and Equestrian Centre – On-Site Sewerage Design Report, 2018, page 7)

²⁸ (Department of Environment and Science – Parks and Forests around Townsville, 2018)

²⁹ (The State of Queensland (Queensland Globe), 2018)

Water and Watercourses:

The site contains several watercourses and drainage features ranging from 5m to 15m in width all of which traverse the site in a generally north-east direction and discharge to the coastal frontage (see **Figure 4**). The headwaters of these watercourses originate in the mountain region some 14km to the south-west of the site.

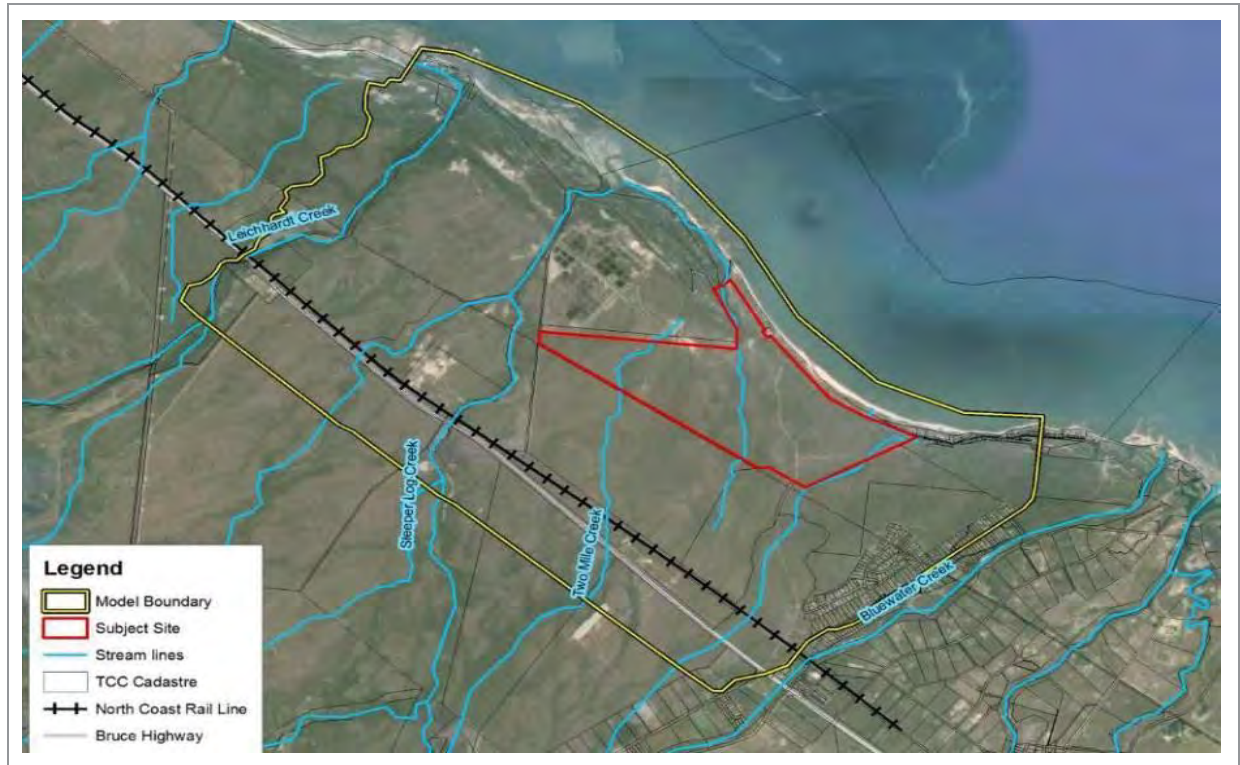


Figure 4: Waterways (in blue)³⁰

Flooding

The subject site mapped is subject to flooding during a 1% Annual Exceedance Probability (AEP) event from both storm surge (see **Figure 5**) and rainfall (see **Figure 6**). Recent unprecedented rainfall in the area however will allow the EIS project team to consider, in real terms (rather than modelled), the best approach design-wise for the development noting how it operated during this extreme event. Immediate post flood inspections however confirmed the site was relatively unaffected by the event, with little evidence of overland flow in general terrestrial areas and watercourses operating satisfactorily.

³⁰ (Water Technology – Flooding, Storm Tide and Water Quality Assessment, 2018, page 5)



Figure 5: Identified Extent of the 1% AEP storm surge flood event³¹

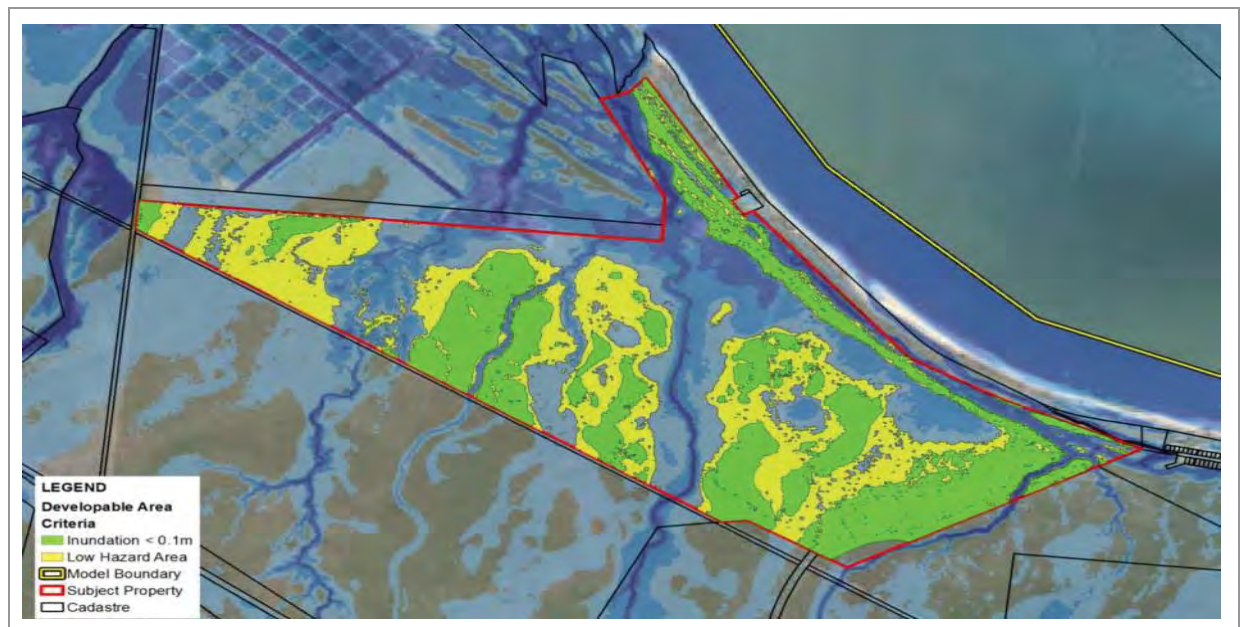


Figure 6: Identified Extent of the 1% AEP rainfall flood event³²

Air

The immediate air shed within the Toolakea locality is only partially developed by way of small amount of rural residential and holiday accommodation to the east and south-east of the site. Remaining areas generally comprises of large heavily vegetated, rural allotments which are either vacant or being utilised for rural farming activities.

Regional Ecosystem Framework - Bioregion and Land Zone

The site is located within the Wet Tropics Bioregion and due to its location on the coast, incuses a several land zones.

Ecosystems, Flora & Fauna – Desktop Assessment

Several desktop searches were undertaken to identify all ecosystems, flora and fauna that occur, or may occur on the site. These searches are included in **Attachment D** and summarised below in **Table 2**.

³¹ (Water Technology – Flooding, Storm Tide and Water Quality Assessment, 2018, page 13)

³² (Water Technology – Flooding, Storm Tide and Water Quality Assessment, 2018, page 14)

Table 2: Desktop Search Results Summary

Database	Findings
Commonwealth	
Protected Matters Search for Matter of National Environmental Significance (MNES) under the <i>Environmental Protection and Biodiversity Conservation Act 1999</i> (EPBC) using a 5km radius around the site	<p>World Heritage Properties: 1</p> <p>National Heritage Places: 1</p> <p>Wetlands of International Importance: None</p> <p>Great Barrier Reef Marine Park: 2</p> <p>Commonwealth Marine Area: None</p> <p>Listed Threatened Ecological Communities: 3</p> <p>Listed Threatened Species: 47</p> <p>Listed Migratory Species: 57</p>
State	
Wildlife Online Database Search for listed species under the <i>Nature Conservation Act 1992</i> (NC Act) using a 5km radius around the site	313 listed species
Vegetation Management Report	<p>The eco-systems found on the subject site are outlined below:</p> <ul style="list-style-type: none"> ▪ <u>Regional Ecosystem 7.1.1 (9.28ha):</u> A Category B 'least concern' regional ecosystem that consists of dense mangrove closed scrub to open forest of areas subject to regular tidal inundation. ▪ <u>Regional Ecosystem 7.1.2 (5.94ha):</u> A Category B 'of Concern' regional ecosystem that consists of grassland <i>Sporobolus virginicus</i> grassland, samphire open forbland to sparse forbland and bare salt pans on plains adjacent to mangroves. ▪ <u>Regional Ecosystem 7.2.3 (39.43ha):</u> A Category B 'Of Concern' regional ecosystem that consists of mid-dense <i>Corymbia tessellaris</i> and/or <i>Acacia crassicarpa</i> and/or <i>C. intermedia</i> and/or <i>C. clarksoniana</i> woodland to closed forest on beach ridges (predominantly Holocene). ▪ <u>Regional Ecosystem 7.2.7 (3.50ha):</u> A Category B 'Of Concern' regional ecosystem that consists of mid-dense <i>Casuarina equisetifolia</i> +/- <i>Corymbia tessellaris</i> open forest +/- groved vine forest shrublands on strand and foredunes. ▪ <u>Regional Ecosystem 7.3.25 (7.42ha):</u> A Category B 'Of Concern' regional ecosystem that consists of mid-dense <i>Melaleuca leucadendra</i> +/- vine forest species open forest to closed forest on alluvium fringing streams. ▪ <u>Regional Ecosystem 7.3.45 (111.21ha):</u> A Category B 'Least Concern' regional ecosystem that consists of mid-dense <i>Corymbia clarksoniana</i> +/- <i>C. tessellaris</i> +/- <i>E. drepanophylla</i> open forest to open woodland on alluvial plains. ▪ <u>Regional Ecosystem 7.3.8 (253.20ha):</u> A Category B 'Least Concern' regional ecosystem that consists of sparse <i>Melaleuca</i>

	<p>viridiflora +/- Eucalyptus spp. +/- Lophostemon suaveolens open forest to open woodland on poorly drained alluvial plains.</p> <ul style="list-style-type: none"> ▪ Regional Ecosystem 7.3.8 (1.45ha): A Category C 'Least Concern' regional ecosystem that consists of sparse Melaleuca viridiflora +/- Eucalyptus spp. +/- Lophostemon suaveolens open forest to open woodland on poorly drained alluvial plains.
Essential Habitat	<p>The site contains several mapped areas of Essential Habitat for:</p> <ul style="list-style-type: none"> ▪ <i>Casuarium Casuarium Johnsonii</i> (Southern Cassowary (southern population)), listed as 'endangered' under the NC Act & EPBC Act; ▪ <i>Crocodylus Prorokus</i> (Estuarine Crocodile) listed as 'vulnerable' under the NC Act.
Wetlands	<p>There are no vegetation management wetlands present on this property.</p>

Ecosystems, Flora & Fauna – Findings:

A field survey was conducted from 12 March to 14 March 2014 by Valerie Bares, Dr. Andrew Daniel and Peter Buosi to collect ecological data from the site. The purpose of the survey was to establish base data for the initial design works for the project and identify the vegetation communities on the site and identify separate flora/fauna items. The summary of these findings is included in the sections below.

Note: Some of the findings may have changed and/or be outdated. Further ecological works are already being undertaken to confirm these findings and/or identify other changes that have occurred since that time.

Since the site is presently unused, a recent 2018 bushfire was allowed to burn through the site, in priority to emergency services protecting existing homes and infrastructure in Toolakea village. This and recent rains will require re-assessment of the site's existing values and ecosystems in the EIS however recent, post flood inspections have indicated that the site's characteristics remain substantially unchanged to the finding in the 2014 analysis and that the site's values were not impacted by that rainfall event.

Plant Species:

Of the three (3) threatened plant species listed in the Protected Matters Search, only two (2) have been assessed with any likelihood of occurrence on the site:

- *Phaius australis* listed as Endangered under the EPBC Act; and
- *Tephrosia Levelillei* listed as Vulnerable under the EPBC Act.

Neither of these species were identified during the field surveys.

Weeds:

Two-hundred vascular plant species were identified on the site. Of these, 21 (10%) are listed as weeds, with one (1) Class 2 and three (3) Class 3 declared under the *Land Protection (Pest and Stock Route Management) Act 2002*. Generally, the undisturbed remnant vegetation areas showed few weeds, whilst disturbed areas (i.e. where grazing has occurred) had the most. All vegetation communities are weed affected although more prevalent in RE 7.3.25 and 7.3.45 than the others³³.

Vegetation Communities:

The field survey confirmed the presence of the following vegetation communities:

- Regional Ecosystem 7.1.1. (Least Concern). Biodiversity Status: No concern at present;
- Regional Ecosystem 7.2.3 (Of Concern). Biodiversity Status: Of Concern;
- Regional Ecosystem 7.3.8 (Least Concern). Biodiversity Status: Endangered;

³³ (Place Design Group – Baseline Ecological Assessment Report, 2018, page 13)

- Regional Ecosystem 7.3.25 (Of Concern). Biodiversity Status: Endangered; and
- Regional Ecosystem 7.3.45 (Least Concern). Biodiversity Status: Of Concern³⁴.

The location of these vegetation types is depicted below in **Figure 7**. This highlights that the vegetation on the site generally reflects the current vegetation mapping.

The mapped vegetation communities that were not found on site during the field survey included:

- Regional Ecosystem 7.1.2 (Of Concern); and
- Regional Ecosystem 7.2.7 (Of Concern) ore in the south-eastern corner of the site. This community was not encountered.

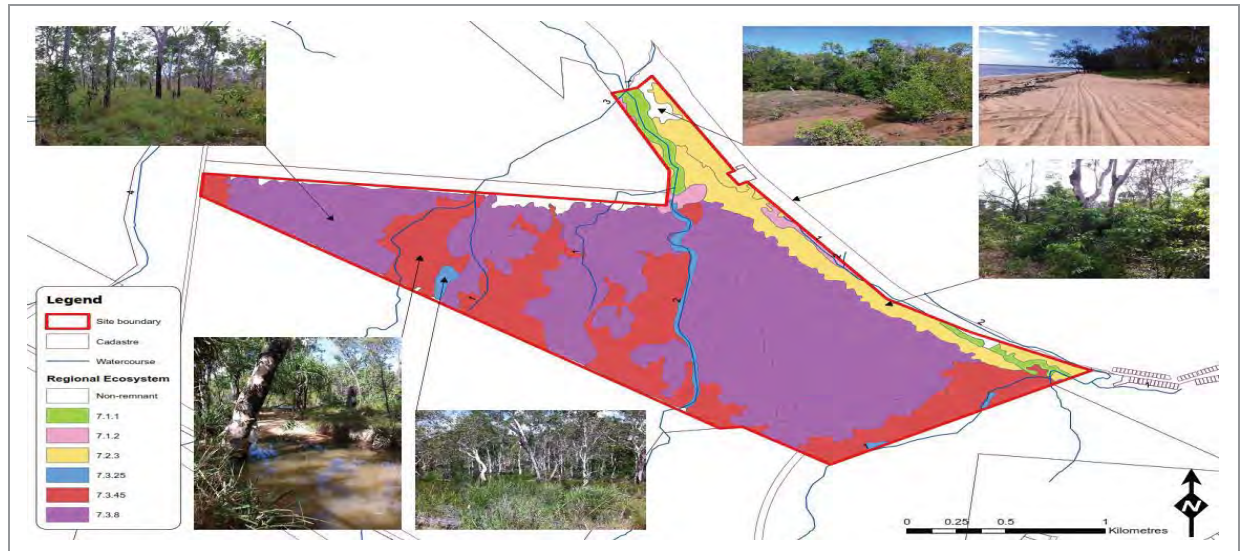


Figure 7: Location of Vegetation Communities³⁵

Ecological Communities:

The EPBC protected matters search listed three (3) threatened ecological communities as occurring possibly on or within 5km of the subject site. These included:

- Broad leaf tea-tree Woodlands in high rainfall coastal north Queensland (Endangered);
- Littoral Rainforest and Coastal Vine Thickets of Eastern Australia (Critically Endangered); and
- Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nadewar Bioregions (Endangered).

The latter two communities were not found on the site.

Fauna Species:

61 species of fauna were identified during the felid survey including the following species of note:

- Cotton Pygmy-goose (*Nattapus coromandelianus*), listed as 'Near Threatened' under the NC Act;
- Rainbow Bee-eater (*Merops Ornatus*) Migratory under the EPBC Act.

Whilst not seen on the site, based on an assessment of the likelihood of occurrence and the vegetation communities that inhabit the site, it is considered that the following species utilise or may have a high likelihood of utilising the site. We also note that several of the below listed species have been previously recorded on the site or within the immediate surrounds (see the Wildlife Online Database Search in **Attachment D**):

- *Nettapus coromandelianus* (Cotton Pygmy-goose): Near-Threatened under the NC Act;
- *Accipiter novahollandiae* (Grey Goshawk): Near-Threatened under the NC Act;
- *Lophoictinia isura* (Square-tailed Kite): Near-Threatened under the NC Act;
- *Tadorna radjah* (Radjah Shelduck);

³⁴ (Place Design Group – Baseline Ecological Assessment Report, 2018, page 11)

³⁵ (Place Design Group – Baseline Ecological Assessment Report, 2018, page 12)

- *Aerodramus terraereginae* (Australian Swiftlet): Near-Threatened under the NC Act;
- *Esacus magnirostris* (Beach Stone-curlew): Vulnerable under the NC Act;
- *Ephippiorhynchus asiaticus* (Black-necked Stork): Near-Threatened under the NC Act;
- *Ninox rufa queenslandica* (Rufous Owl (Northern Subspecies)): Vulnerable under the NC Act;
- *Tyto novaehollandiae kimberli* (Masked Owl (Northern Subspecies)): Vulnerable under the EPBC Act;
- *Saccolaimus saccolaimus nudiclunatus* (Bare-rumped Sheath-tail Bat): Critically Endangered under the EPBC Act;
- *Taphozous australis* (Northern Sheath-tail Bat);
- *Hipposideros diadema reginae* (Diadem Lead-nosed Bat);
- *Rhinolophus philippinensis* (Greater Large-eared Horseshoe Bat): Vulnerable under the NC Act;
- *Kerivoula papuensis* (Golden-tipped Bat);
- *Crocodylus porosus* (Estuarine Crocodile): Vulnerable under the NC Act;
- *Antairoserpens warro* (North-eastern Plain-nosed Burrowing Snake);
- *Delma labialis* (Single-striped Delma);
- *Sternula albifrons* (Little tern): Endangered under the NC Act; and
- *Melithreptus gularis* (Black-chinned honeyeater): Near-Threatened under the NC Act³⁶.

In addition, the following migratory species have habitat that is likely to occur on the site and in turn, may also utilise the site:

- *Merops ornatus* (Rainbow Bee-eater);
- *Haliaeetus leucogaster* (White-bellied Sea-eagle);
- *Pandion cristatus* (Eastern Osprey);
- *Apus pacificus* (Fork-tailed Swift);
- *Hirundapus caudacutus* (White-throated Needletail);
- *Ardea ibis* (Cattle Egret);
- *Ardea modesta* (Eastern Great Egret);
- *Monarcha melanopsis* (Black-faced Monarch);
- *Symposiachrus trivirgatus* (Spectacled Monarch); and
- *Rhipidura rufifrons* (Rufous Fantail)³⁷.

5.2. SOCIAL AND ECONOMIC ENVIRONMENT

Economic and Demographic Profile:

The site is located adjacent to the suburb of Toolakea. It is expected that significant numbers of persons associated with both the construction and operational phases of the project will utilise the nearby centre of Townsville. As a result, we anticipate that any social or economic issues attributed to the project are likely to occur in these areas and surrounding beachside suburbs. Accordingly, a brief assessment of the demographics and social structures of these areas are provided below. Additional investigations into the potential for social or economic impacts will be undertaken as part of the EIS.

Townsville City Local Government Area and Toolakea State Suburb:

On 30 June 2016, Townsville had a population of 192,988 with a median age of 34, whereas Toolakea had a population of 205 and a median age of 50³⁸. Townsville is expected to grow at approximately 1.6% per annum which will result in a population of approximately 282,281 by 2041. The population of Toolakea, given its small base, is not expected to increase dramatically. **Table 3** below shows the breakdown of age groups in the region.

³⁶ (Place Design Group – Baseline Ecological Assessment Report, 2018, page 18)

³⁷ (Place Design Group – Baseline Ecological Assessment Report, 2018, page 19)

³⁸ (The State of Queensland (Queensland Treasury) Queensland Regional Profiles – Townsville Local Government Area, 2018)

Table 3: Population Breakdown of Townsville and Toolakea.

Centre	Age Group					Average Annual Growth Rate (%) Last 5 Years
	0-14	15-24	25-44	45-64	65+	
Townsville	20.3%	15.8%	28.3%	23.6%	11.9%	1.71%
Toolakea	16.5%	5.6%	24.1%	30.1%	23.6%	-

The summary of some basic, key demographic indicators of both Townsville and Toolakea areas are provided below in **Table 4**.

Table 4: Demographic Profile Summary of Townsville and Toolakea.

Demographic Indicator	Townsville	Toolakea
Social		
Child Care Services (August 2018)	142	-
Long Day Care Centres (August 2018)	82	-
Aged Care Services (June 2018)	37	-
Aged Care Services Operational Places (June 2018)	1,173	-
Schools (June 2018)	60	-
Hospitals (June 2018)	9	-
Average Household Size	2.6	2.2
Education		
Educated to Year 11 and 12 Equivalent	58.4%	15.9%
Non School Qualification (Trade, Bachelor Degree, etc.)	58%	44.7%
Economic		
Median Personal Income (weekly)	\$703.00	\$587.00
Median Personal Income (yearly)	\$36,556.00	\$30,524.00

Median Family Income (weekly)	\$1,705.00	\$1,375.00
Median Family Income (yearly)	\$88,660.00	\$71,500.00
Median Mortgage Payment (monthly)	\$1,733.00	\$1,733.00
Median Rent – 2 Bedroom Unit (weekly)	\$240.00	-
Median Rent – 3 Bedroom House (weekly)	\$300.00	\$328.00
Persons who earn over \$156,000 per annum	13.6%	5.3%
Unemployment (June 2018)	8.8%	11.7%
Most Populous Employment Sectors	Health Care and Social Assistance Industry, and Public Administration and Safety Industry.	Solid Waste Collection Services, Pubs, Taverns and Bars, and Engineering Design and Engineering Consulting Services.
Industry and Development		
New Homes Approved (12 Months ending 30 September 2018)	551	-
Value of Residential Building Approvals (12 Months ending 30 September 2018)	\$409,688,000.00	-
Residential Dwelling Sales (12 Months ending 30 September 2018)	2,819	-
Median Sale Price	\$324,000.00	-
New House Sales (12 Months ending 30 September 2018)	2,819	-
New House Sales Median Price	\$385,000.00	-
Vacant Land Sales (12 Months ending 30 September 2018)	393	-
Vacant Land Sale Median Price	\$160,000.00	-
New Lot Registrations (12 Months ending 30 September 2018)	440	-
New Urban Residential Lot Registrations (12 Months ending 30 September 2018)	413	-

Accommodation and Housing:

Construction:

The majority of the construction workforce will be sourced from local companies in Townsville and more broadly within NQ. Local workers are expected to utilise their current place of residence and travel to/from the site each day.

If, however, the current market cannot meet the required labour demands, labour will be sourced from other areas of Queensland/Australia as required, likely as part of arrangements where companies may, for example, rent house/s/units in Townsville or the surrounding areas for their workers for the duration of their contract. It is considered that there will be sufficient rental space within the region to accommodate this type of accommodation and that such an option is affordable given the average rent in Townsville for a three-bedroom dwelling (\$300 per week) is lower than the Queensland average of \$350³⁹.

Operation:

During the operational phase, it is again expected that workers will be sourced from Townsville and the surrounding region. However, it is also likely that other persons will move to the region permanently in order to gain employment. Combined with the steady increase in employment numbers over the course of the operational phase (due to the significant staging proposed) will ensure that persons moving to the region to gain employment will not 'all happen at once' and in turn, will not place any negative impacts on the housing/rental markets within the region.

Cultural Heritage:

Non-Indigenous Cultural Heritage:

The site is not identified as being either of local or state heritage place (see **Attachment D**). Accordingly, it is not expected the project poses any significant threat to non-indigenous cultural heritage. This will, however, be further refined during the EIS process.

Indigenous Cultural Heritage:

The site is home to the Gurambilbarra Wulgurukaba People. The ACH Act provides for the recognition, management, and protection of indigenous cultural heritage. A Cultural Heritage Register is managed by the Department of Aboriginal and Torres Strait Islanders Partnerships (DATSIP). A search of this register has been undertaken which confirmed there are no Aboriginal or Torres Strait islander cultural heritage areas, sites or objects within the project area (see **Attachment D**).

In accordance with the requirements of Section 87(1) of the ACH Act, a Cultural Heritage Management Plan will be developed as part of the EIS process.

5.3. BUILT ENVIRONMENT

Existing Infrastructure:

The site is not serviced with any form of network infrastructure, although legal and practical road access is available. Moreover, due to the size and location of the project, infrastructure capable of servicing the project has not been planned, or catered for, in Council's strategic infrastructure planning.

There will be capacity constraints with some infrastructure networks needed to service the project. It is anticipated that these constraints will be dealt with in the following ways:

- **Reticulated Water, Roads, Electricity and Telecommunications:** Provide extensions and connect to all existing adjacent infrastructure systems/services external to the site allowing for upgrades to these pieces of infrastructure to cater for the demands presented by the project.
- **Sewerage and Stormwater:** No upgrades will be required as all sewerage and stormwater will be dealt with on site through design and management of systems.

Discussions on these matters will continue with further detailed information to be provided as part of the EIS.

³⁹ (The State of Queensland (Queensland Treasury) Queensland Regional Profiles – Townsville Local Government Area, 2018)

Other Declared Co-ordinated Projects in Region:

Ella Bay:

Ella Bay is a 'proposed' integrated resort located approximately 10 km north east of Innisfail and some 200km north (as the crow flies) of the site (see **Figure 8**).

The project seeks to create three resort precincts comprising 860 units, four residential precincts, a village community precinct, research and education precincts and residential and communal facilities. The project remains unconstructed⁴⁰.

Townsville Port Expansion Project:

The Townsville Port Expansion Project is located approximately 32km from the site (see **Figure 8**). The project involves the expansion of the Port of Townsville to meet forecasted growth in trade at the port and address current capacity constraints. The project is proposed to include:

- Capital dredging of 11.48 million cubic metres of sediment to widen and deepen the Sea and Platypus Channels;
- An expanded harbour basin;
- The establishment of a 152-hectare reclamation area;
- Construction of 4km of rock revetment wall and a 700m western breakwater (subject to need); and
- The construction of six (6) new berths.

The project was approved by the Commonwealth Minister for the Environment as a controlled action on 5 February 2018⁴¹.

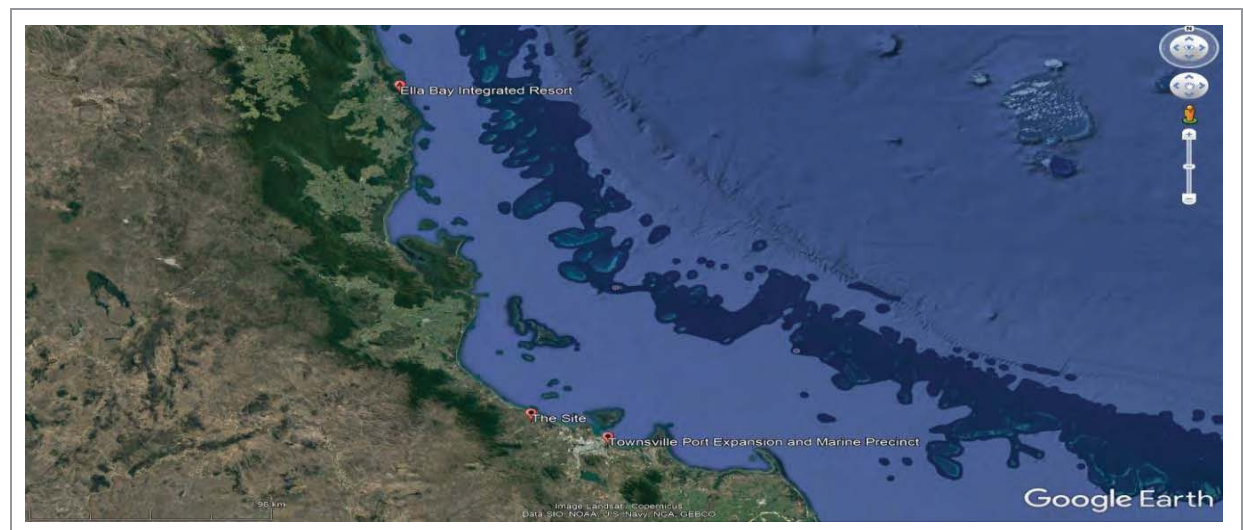


Figure 8: Location of Nearby Coordinated Projects⁴²

5.4. TRAFFIC AND TRANSPORT

Provision of access is via the Bruce Highway north of Townsville. The site is currently directly accessed from John Brewer Drive via Forestry Road. It is noted that current access arrangements require the crossing of a rail level crossing.

John Brewer Drive will be upgraded from its current configuration with Forestry Road. A future upgrade and re-alignment are proposed as a 'staggered T' intersection at the existing Bruce Highway/Forestry Road intersection regardless of whether or not the project proceeds.

Townsville Airport will service the project and guests will be transported to the project via bus or coach in most circumstances. This will result in several local roads and the Bruce Highway between the airport and the site being impacted upon (at varying degrees of impact). To reduce the impact on the road network, the overall transport strategy seeks to reduce the impact on this external road network by providing a shuttle bus services to/from Townsville Airport.

⁴⁰ (Department of State Development, Manufacturing, Infrastructure and Planning, Ella Bay Integrated Resort, 2018)

⁴¹ (Department of State Development, Manufacturing, Infrastructure and Planning, Townsville Port Expansion Project, 2018)

⁴² (The State of Queensland (Queensland Globe), 2018)

Further traffic analysis/studies will be undertaken as part of the EIS and these will determine the specifics of upgrades required.

5.5. LAND USES

Key Local and Regional Land Uses:

Coastal Management Districts:

The site is located within the Coastal Management District (see **Figure 9**).



Figure 9: Extent of Coastal Management District⁴³

Protected Areas & World Heritage Areas:

These have been outlined in section **6.1**.

State Development Areas:

The Townville State Development Area (TSDA) is located approximately 36km south-east (as the crow flies) of the site (see **Figure 10**). The TSDA is a 4,915 hectare area dedicated for industrial development.

⁴³ (The State of Queensland (Department of State Development, Manufacturing, Infrastructure and Planning), SPP Interactive Mapping System, 2018)

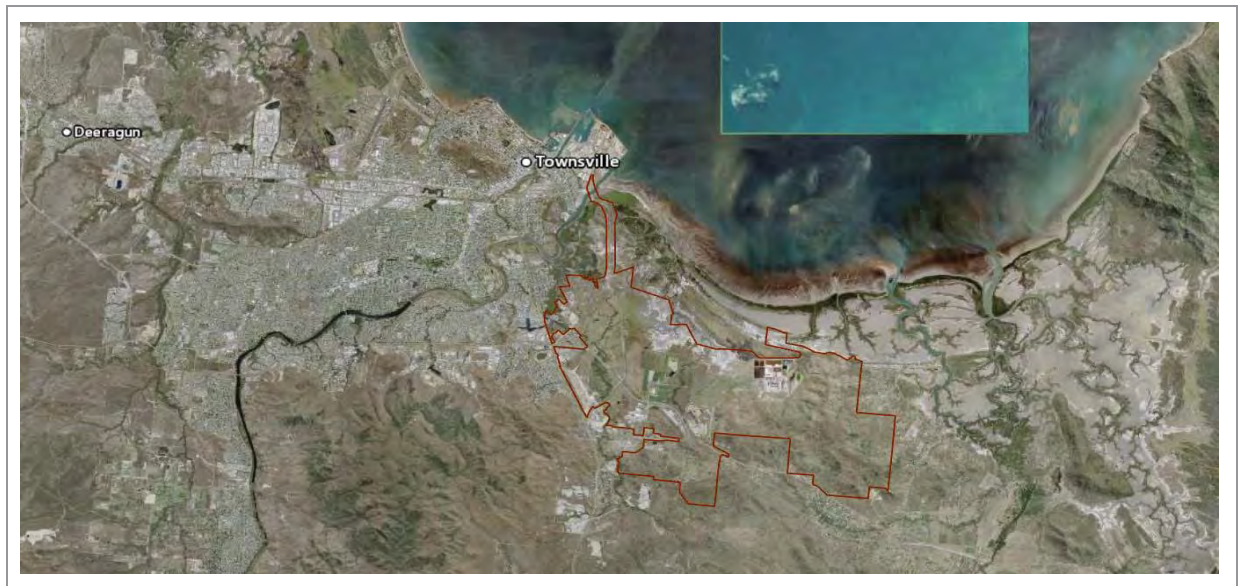


Figure 10: Location of TSDA⁴⁴

Commonwealth Land:

The site is located approximately 30km north-west of a large expanse of Commonwealth land (Lot 146 on RP729415) which is used for defence purposes or more specifically, the Lavarack Barracks and training area.

Native Title:

The site is located on freehold title and as a result, Native Title has been extinguished.

Planning Instruments:

Local Government:

The site is located within the Townsville Local Government Area. The current Planning Scheme is the *Townsville City Plan 2014* (Planning Scheme). Under the Planning Scheme, the site is located within the 'Rural' zone (see **Figure 11**). The Planning Scheme also recognises that the site presents several physical constraints to urban development and accordingly, the following Planning Scheme overlays affect the site:

- Bushfire Hazard Area (Medium Bushfire Hazard area);
- Environment Coastal Hazard Areas (Medium and High Storm Tide Inundation Areas and Erosion Prone Area);
- Flood Hazard (Low, Medium and High Hazard Area and Medium Hazard further investigation area); and
- Natural Assets Environmental Importance (High and Very High).

⁴⁴ (The State of Queensland (Queensland Globe), 2018)



Figure 11: Current Zoning of the Site⁴⁵

The proposal however is already subject to an 'undecided' development application [Council Ref: MC14/0110] lodged in 2014 under the superseded Thuringowa Shire Council Scheme 2006. That superseded Scheme held particular provision enabling the owner to protect former rezoning of the site for 'Tourist Facility' uses.

State Government:

North Queensland Regional Plan:

The first North Queensland Regional Plan is being prepared by the Queensland Government. However, there is no timeline for its adoption. Accordingly, it is unclear whether the NQRP will be in effect during any part of the statutory approvals process for the project.

State Planning Policy:

The site/project is subject to the following State interests of the July 2017 State Planning Policy:

- Water Quality
 - Climatic Regions – Stormwater Management Design.
- Agriculture
 - Agricultural land classification – Class A and B.
- Biodiversity
 - MSES – Regulated Vegetation (Category B);
 - MSES – Regulated Vegetation (Category R);
 - MSES – Regulated Vegetation (Essential Habitat); and
 - MSES – Regulated Vegetation (Intersecting a Watercourse)
- Coastal Environment
 - Coastal Management District.

⁴⁵ (City of Townsville, Townsville City Plan 2014, 2018)

- Natural Hazards Risk and Resilience
 - Flood Hazard Area – Level 1 – Queensland Floodplain Assessment Overlay;
 - Bushfire Prone Area;
 - Erosion Prone Area; and
 - Medium & High Storm Tide Inundation Area.

A brief assessment of the project against the relevant State interests included in Part E of the July 2017 State Planning Policy is provided below in the attempt to identify at a high level, areas of both alignment and conflict. The areas of conflict will be addressed in more detail as part of the EIS.

Table 5: Preliminary Assessment Against the State Planning Policy

State Interests	Comment
Water Quality	No conflicts are expected as stormwater will be treated on site via various forms of bio-retention. This will ensure all stormwater being discharged from the project into the downstream environment will meet the assessment benchmarks included in the State Planning Policy.
Agriculture	No conflicts are expected as the project will not result in the removal of any mapped areas of Class A and B agricultural land (the small area of mapped Class A and B agricultural land in the north-western corner of the site will be retained via its inclusion in the Environmental and Open Space precinct).
Biodiversity	A conflict with this State interest is expected as the project will likely result in significant residual impacts on matters of national environmental significance. This conflict will need to be resolved via the bilateral agreement process as part of the EIS.
Coastal Environment	Whilst the project has some conflicts with this State interest, it is expected that they can be suitably addressed as part of the EIS through appropriate design, building locations and where required, conditions of approval.
Natural Hazards, Risk and Resilience	As above.

Environmental Protection Policies

All three (3) of the Environmental Protection Policies (Air, Noise and Water) are applicable and will be addressed through the EIS process.

6. POTENTIAL PROJECT IMPACTS

6.1. NATURAL ENVIRONMENT

Watercourses:

The project seeks to retain all watercourses in their natural state subject to flood modelling and therefore, will not present any impacts on the watercourses that traverse the site that can't be suitably controlled. However, any potential impacts (construction and operation) will be documented and addressed in more detail in an environmental report to be provided as part of the EIS.

Flora:

The project will include clearing of Broad leaf tea-tree Woodlands and therefore, the project will have an impact on this vegetation community.

We anticipate that the project will then be considered a 'Controlled Action' by the Commonwealth Minister for the Environment requiring assessment and approval under the EPBC Act. A referral to the Department of Environment to confirm this expectation will be undertaken in association with the submission of this IAS.

Any impacts, inclusive of the exact location, amount and type of vegetation proposed to be cleared during the construction phase will be documented and addressed in an environmental report to be provided as part of the EIS.

Fauna:

There is the potential for the project to have impacts on several migratory species. However, any potential impacts during the construction and operational phases will be documented and addressed in more detail in an environmental report to be provided as part of the EIS.

6.2. AMENITY

General:

Overall, the 'North Queensland Country Club and Equestrian Resort' will involve a significant construction programme which will result in built form across an area internal to the site to provide an integrated accommodation precinct. However, there is acknowledgment the project may result in some amenity impacts on the Toolakea locality and more broadly to the Northern Beach Suburbs. These amenity impacts are expected to be associated with dust and traffic during construction primarily. A more detailed assessment of these potential amenity impacts will be provided as part of the EIS, however the significant buffer of the 440ha site to surrounding landholdings is a relevant mitigator.

Visual:

The site is a substantial landholding and does not present visually from any significant public locations or from many adjoining premises. Preliminary visual assessments have identified that, due to the presence of existing vegetation and the location the maximum heights imposed on the built form mean, that the project will not be obvious from viewpoints near the site. A full visual impact assessment will be provided as part of the EIS.

Greenhouse Gases:

While the project will generate greenhouse gases during operation, these are not expected to be at levels significant enough to affect the air quality of the locality.

6.3. SOCIAL ENVIRONMENT

A social impact assessment is intended as part of the EIS. This process will, in accordance with the requirements identified in the Social Impact Assessment (SIA) Guideline, focus on and include:

- A definition of the stakeholder and impacted community/area;
- A social baseline assessment of the impacted community/area;
- An overview of State Government legislation and policies complementing the mitigation measures for social impacts directly related to the project;
- An explanation of the methods used to gather information including a description of how the communities of interest were engaged during the development of the SIA;
- An analysis of direct, indirect and cumulative impacts (both positive and negative) and benefit realisation and impact mitigation measures; and
- A monitoring and reporting framework to manage and communicate to stakeholders progress on benefits realisation and impact mitigation measures.

A brief list of some of the expected social impacts, both positive and negative, are described in **Table 6** below:

Table 6: Summary of Social Impacts Associated with the Project.

Category	Potential Positive Impacts		Potential Negative Impacts	
	Construction	Operations	Construction	Operations
Employment/ Workforce Management	<ul style="list-style-type: none"> ▪ Increased local employment opportunities; ▪ Decrease in regional unemployment level. 	<ul style="list-style-type: none"> ▪ Increased local employment opportunities ▪ Decrease in regional unemployment level ▪ Opportunity for new partnerships with local training providers. 	<ul style="list-style-type: none"> ▪ Increased competition for labour and contractors; ▪ Increased building/construction costs. 	<ul style="list-style-type: none"> ▪ Increased competition with other accommodation/hospitality based operators for highly skilled staff; ▪ Balance between local and non-local staff.
Housing and Accommodation	<ul style="list-style-type: none"> ▪ Increased opportunities for local contractors (construction and materials based) ▪ Encourages investment in new rental stock. 	<ul style="list-style-type: none"> ▪ Increased opportunities for local contractors (tourism and hospitality based) ▪ Encourages investment in new rental stock. 	<ul style="list-style-type: none"> ▪ Potential increases in rental and housing affordability; ▪ Reduction in rental and housing availability. 	<ul style="list-style-type: none"> ▪ Potential increases in rental and housing affordability; ▪ Reduction in rental and housing availability; ▪ Potential rate increases for locals.
Economic and Local Business Development	<ul style="list-style-type: none"> ▪ Increases in use of local hotels/motels to house workers; ▪ Increased opportunities for local businesses; ▪ Increased opportunities for 	<ul style="list-style-type: none"> ▪ Increased opportunities for local businesses (tourism, hospitality, training and education, suppliers) ▪ Increased economic resilience based on 		<ul style="list-style-type: none"> ▪ Reduced reliance of some existing businesses ▪ Increased competition among existing businesses.

	skills development (i.e., apprentices etc.)	expansion of tourism and events industry <ul style="list-style-type: none"> ▪ Increased opportunities for skills development through TAFE ▪ Increased recognition of Townsville, and North Queensland as an events, tourism and experience destination. 		
Health and Community well-being		<ul style="list-style-type: none"> ▪ Improved services and community development potential; ▪ Enhancement of recreational and leisure options for locals; ▪ Possible lifestyle/culture changes for Toolakea/Northern beaches residents. 	<ul style="list-style-type: none"> ▪ Impacts from construction noise, traffic, dust etc.; ▪ Increased traffic; ▪ Increased number of persons to the area which may not be in line with some locals' preferences (loss of sense of place/increased alienation). 	<ul style="list-style-type: none"> ▪ Increased number of persons to the area which may not be in line with some locals preferences (loss of sense of place); ▪ Loss of Toolakea 'community character'; ▪ Increased reliance of social infrastructure (i.e. hospitals, schools etc.); ▪ Possible lifestyle/cultural changes/interruptions for Toolakea/Northern beaches residents.

6.4. BUILT ENVIRONMENT

Infrastructure, Traffic & Transport:

The project will be delivered in several stages and may involve changes to the following infrastructure:

- The intersection at the Bruce Highway and Forestry Road;
- The existing rail crossing on Forestry Road;
- The Bruce Highway, Forestry Road, Toolakea Beach Road and John Brewer Drive, as well as other, potential and lesser impacts, at other intersections/roads between the Townsville Airport and the site;
- The existing Council reticulated water storage capacity; and
- The capacity and existing high voltage electrical infrastructure in the vicinity of the site.

Sewerage and stormwater will be dealt with entirely on site and hence, no impact on existing Council/built infrastructure is intended.

Where necessary, the proponent will proceed with upgrades and construction of improvements to the existing networks to facilitate the project. Further information on the required infrastructure upgrades triggered by the project will be provided as part of the EIS.

Community Amenities:

The project is located on private property that has historically been used for cattle grazing. The approval of the project will not result in the loss or displacement of any lawful, existing community amenities.

Instead, the project may add to the existing community amenities through the Equestrian Centre, emergency disaster management improvements to the area and other opportunities that will come with such on-site management of this large significant site for the locality. Community consultation during the preparation of the EIS may raise additional opportunities for improved social benefits, integration and opportunities for the local area. For example, the community may identify specific facilities/programs/infrastructure or employment skills needed which the project can provide.

In order to have the community engaged and identifying such issues, it is expected a program of stakeholder and community consultation will commence shortly after the lodgement of the IAS (see section 11).

Townsville Airport

The project will create the need for additional flights into and out of the Townsville International Airport. The ability of the airport to accommodate an increase in flight traffic as a result of the project has been discussed in a preliminary manner with its operators who indicate normal commercial arrangements would apply to provide capacity as needed. Substantial upgrades to this airport have been recently announced. Further details and consultation with the operators will be addressed as part of the EIS.

7. ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURES

7.1. NATURAL ENVIRONMENT

Flora:

The project will seek to be responsive, where possible, in relation to any potential impacts on protected flora through both the construction and operational phases by:

- Establishment of an Environmental Management Plan (EMP);
- Education programme for construction workers and employees;
- Restrict the removal of remnant vegetation to those areas associated with the accommodation precinct and equestrian facilities and where the removal of remnant vegetation cannot be avoided in these areas, minimise the amount of clearing wherever possible;
- Where activities are proposed within areas of remnant vegetation, these activities are to be low impact activities only (i.e. walking, hiking, horse riding, etc.);
- A weed control programme focusing on a reduction of the threat/introduction of weed species;
- Using locally occurring native species for landscaping and plantings in gardens; and
- Appropriate conditions of approval attached to all necessary approvals/permits required to be obtained for the project.

Where clearing areas of the Broad leaf tea-tree Woodlands is necessary, the proponent acknowledges that an 'offset' may be required. Further details of these mitigation measures, inclusive of any necessary offset requirements, will be outlined as part of the EIS process.

Fauna:

The project will seek to be responsive, where possible, in relation to any potential impacts on protected flora through both the construction and operational phases by:

- Establishment of an Environmental Management Plan (EMP);
- Education programme for construction workers and employees;
- Where possible, avoid locating built infrastructure in areas of essential habitat;
- Where possible, avoid clearing of vegetation used by specific, threatened fauna known to utilise the site;
- Where activities are proposed within areas of essential habitat, these activities are to be low impact activities only (i.e. walking, hiking, horse riding, etc.);
- Incorporating possible signage and educational information to raise awareness of potential human/fauna interactions;
- A weed control programme that focuses on reducing the threat/introduction of weed species that may harm fauna; and
- Appropriate conditions of approval attached to all necessary approvals/permits required to be obtained for the proposed development.

Further details of these mitigation measures, inclusive of any necessary offset requirements, will be outlined as part of the EIS process.

7.2. BUILT ENVIRONMENT

The project envisages a combination of modern building designs that are sensitive to the vision being promoted through the development and to the built character that is reflected through Townsville and Tropical NQ. That is, low to medium rise (5 storeys) and use of a mixture of materials that can blend into the surroundings will be given priority. This will be controlled by the body corporate scheme.

Based on preliminary visual assessments, the accommodation and sport and recreation precincts have been located AND the height of buildings within them limited, to ensure the scale and position of buildings meet the expectations of Council, stakeholders and residents to be in keeping with the overall character of the locality.

7.3. ENVIRONMENTAL MANAGEMENT

The critical environmental values of the land will be maintained, preserved where possible and enhanced, via a combination of environmental best practice design and an EMP. The EMP will be prepared as part of the EIS process and will identify all elements of work that have a potential for adverse impacts and will include, although not be limited to:

- Reporting (i.e., what reports need to be prepared?);
- Monitoring (i.e., what monitoring needs to be undertaken to determine if a problem exists, what is the magnitude of the problem and how effective are the employed mitigation measures);
- Mitigation (i.e., what measures need to be undertaken to rectify the problem);
- Hazards, Risk and Safety Management;
- Amenity (air, noise, vibration, visual etc.) Management;
- Management of Social Impacts;
- Erosion and Sediment Control;
- Pest and Animal Control;
- Flora and Fauna Management;
- Potable Water Management;
- Water Quality;
- Effluent Disposal and Treatment;
- Waste Management;
- Site Contamination; and
- Irrigation Management.

8. APPROVALS REQUIRED FOR THE PROJECT

8.1. COMMONWEALTH GOVERNMENT

The approval required at the Commonwealth Government level are summarised below in **Table 7**.

Table 7: Applicable Commonwealth Legislation

Legislation	Administering Authority	Approval Trigger	Relevance to the Project
<i>Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)</i>	Commonwealth Department of Environment	Sections 18 and 20	See Section 6.1.

*The project will be referred to the Commonwealth Minister for the Environment to confirm that approval under the EPBC Act is required. If the project is declared 'a controlled action', the State EIS process is an accredited process under the Bilateral Agreement between the Commonwealth Government and State of Queensland. This process involves public consultation of the draft ToR as well as the EIS. The ToR will dictate the scope of the EIS and will be finalised by the Coordinator-General and Commonwealth Minister for the Environment.

State Government:

The project seeks to be declared a 'coordinated project' under Section 26(1)(a) of the SDPWO Act which will trigger the need for an EIS. In addition, the following approvals outlined below in **Table 8** are likely to be required as part of the EIS process.

Table 8: Applicable State Legislation and Policies

Legislation	Administering Authority	Approval Trigger	Relevance to the Project
<i>Aboriginal Cultural Heritage Act 2003</i>	Aboriginal and Torres Strait Islander Partnerships	Section 87(1) of the ACH Act.	See Section 6.2. Conditions of approval are sought as part of the EIS.
<i>Environmental Offsets Act 2014 (EO Act)</i>	Department of Environment (Commonwealth)/Department of Environment and Science (State)	Section 14 of the EO Act	Environmental offsets may be required as a result of the projects impacts on the Broad leaf tea-tree Woodlands. It is noted here that the EO Act considers and is able to address offsets imposed from different agencies at state level, as well as across different levels of government. The need for offsets will be explored in more detail as part of the EIS. Conditions of approval are sought as part of the EIS.
<i>Environmental Protection Act 1994 (EP Act)</i>	Department of Environment and Science	Schedule 2 of the <i>Environmental Protection Regulation 2008</i>	Approvals for Environmentally Relevant Activities including, but not necessarily being limited to those required for on-site effluent disposal may be required under the EP Act. A detailed on-site sewerage design report will be provided as part of the EIS which will confirm all works required and approvals triggered

			under the TIA. In accordance with s47 of the SDPWOA, the proponent seeks stated conditions of approval for the Environment Authority as part of the EIS.
<i>Nature Conservation Act 1992 (NC Act)</i>	Department of Environment and Science	Sections 88 & 97 of the NC Act	The project has the potential to impact on several fauna species listed under the NC Act have been confirmed as present on the site or, are thought to either utilize or have a high likelihood to utilizing the site. A detailed environmental report will be provided as part of the EIS which will confirm all approvals triggered under the NC Act. Approvals under section 332 of the <i>Nature Conservation (Wildlife Management)</i> Regulation 2006) may also be required. Conditions of approval are sought as part of the EIS.
<i>Vegetation Management Act 1999 (VM Act)</i>	Department of Environment and Science	Section 22A of the VM Act	The project will require the removal of areas of mapped remnant vegetation and this clearing will not qualify for exemptions. A detailed environmental report which outlines the amount, type and location of remnant vegetation proposed to be cleared will be provided as part of the EIS and which will confirm all approvals triggered under the VM Act. Conditions of approval are sought as part of the EIS.
<i>Coastal Protection and Management Act 1995 (CPM Act)</i>	Department of Environment and Science	Section 59 of the CPM Act	The project involves development within the Coastal Management District which triggers approvals under the CPM Act. A detailed environmental report will be provided as part of the EIS which will confirm all approvals triggered under the CPM Act. Conditions of approval are sought as part of the EIS.

<i>Fisheries Act 1994 (FA)</i>	Department of Agriculture and Fisheries	Section 76E	The project will involve waterway barrier works which triggers approvals under the FA. A detailed environmental report will be provided as part of the EIS which will confirm all approvals triggered under the FA. Conditions of approval are sought as part of the EIS.
<i>Transport Infrastructure Act 1994 (TI Act)</i>	Department of Transport and Main Roads	Section 50 and 255 of the TI Act.	The project will involve upgrades to the Bruce Highway/Forestry Road intersection and the nearby rail level crossing, both of which may require approval under the TI Act. A detailed Traffic Impact Assessment will be provided as part of the EIS which will confirm all works required and approvals triggered under the TI Act. Conditions of approval are sought as part of the EIS.
<i>Planning Act 2016 (PA)</i>	Department of State Development, Manufacturing, Infrastructure and Planning	N/A	The PA will apply to all future Development Application's required to be lodged with TCC. An existing development application (undecided) lodged under the now repealed Sustainable Planning Act 2009, in 2014 is maintained by the proponent at this time. In accordance with s39 of the SDPWOA, the proponent seeks stated conditions of approval as part of the EIS that must be attached to any development approval i.e, from all relevant referral agencies that would normally be triggered as part of the development assessment process, as part of completing that process.

Further to the above, the following additional approvals are likely to be required outside/post the EIS process:

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

As a large number of weeds were found to be present on the site, several of which are listed as Class 2/3 weeds under the *Land Protection (Pest and Stock Route Management) Act 2002* (LP Act), a Pest Management Plan to manage pests and weeds during the construction and operation phases of the project will be provided as part of the EIS. No 'approvals' are required under the LP Act.

Building Act 1975:

The relevant approvals under the *Building Act 1975* will be required.

Local Government Level:

Townsville City Plan:

The site is located within the Townsville City Council LGA, Accordingly, the provisions of the Townsville City Council Planning Scheme 2014 is the current local planning instrument. However, it is noted that the superseded planning scheme is the applicable instrument for the existing development application. Should an approval of a future EIS under the SDPWOA be granted by the Coordinator-General for the project, further Development Applications will be triggered by the applicable planning requirements at that time for building and operational works.

In accordance with Section 36 and 37 of the SDPWO Act, the Coordinator-General's report on the EIS will be provided to the Assessment Manager as part of the development application process and is taken to be a Concurrence Agency response and negates the need to undertake Public Notification, although we note that a community consultation and a submission stage is included in the EIS process.

9. COSTS AND BENEFITS SUMMARY

9.1. LOCAL, STATE AND NATIONAL ECONOMIES

The project provides an opportunity for significant economic benefits across the NQ region and introduces the unique values of the site to the domestic and international tourism markets in a nationally unique manner. It will provide multiple opportunities in tourism, hospitality and the recreation/adventure market. The economic benefits associated with the project have been outlined at length throughout this IAS and as a result, will not be reiterated here. See also the Economic Impact Assessment Report prepared by LOCATIONIQ (see **Attachment C**).

One of the core operational philosophies of the project is to bring together, via the international equine community, a unique development in partnership with those interests.

The project will be privately funded and is not considered to have any adverse financial impacts on local, state or national economies. Finally, the project will not have any negative impacts on any of the Governments priority industries or areas.

9.2. NATURAL AND SOCIAL ENVIRONMENTS

The impacts associated with the project on the natural and social environment have been outlined at length throughout this IAS and as a result, will not be reiterated here. However, these impacts, both positive and negative will be further addressed during the EIS process.

10. COMMUNITY AND STAKEHOLDER CONSULTATION

The proponent and project team will action a consultation strategy inclusive of various local, regional, state, national and international stakeholders with an interest in the project and equestrian activities. Whilst no formal consultation has been undertaken to date (as it was not required for the current development application), a formal Communications and Engagement Strategy will be established and updated regularly. The key objectives of this strategy will be to:

- Engage with the local community and numerous stakeholders locally, state, nationally and internationally to inform and discuss the elements of the project and its benefits directly and indirectly. This will include impacts and management strategies proposed through the construction and operational phases;
- Engage with other areas of the region as required;
- Use feedback and information from the community and stakeholder consultation to prepare more complete information for stakeholders and inform the proposal;
- Outline the project and EIS processes and approvals required to the community and stakeholders;
- Be available to respond to queries and reasonable requests for further information in a timely manner; and
- Provide a range of accessible opportunities for community participation, taking into consideration different ways in which people may choose to engage.

A variety of tools will be used to engage and consult including website and social media, video presentation, fact sheets, and regular media releases distributed locally, state-wide, and nationally; along with the distribution of information via email database of stakeholders.

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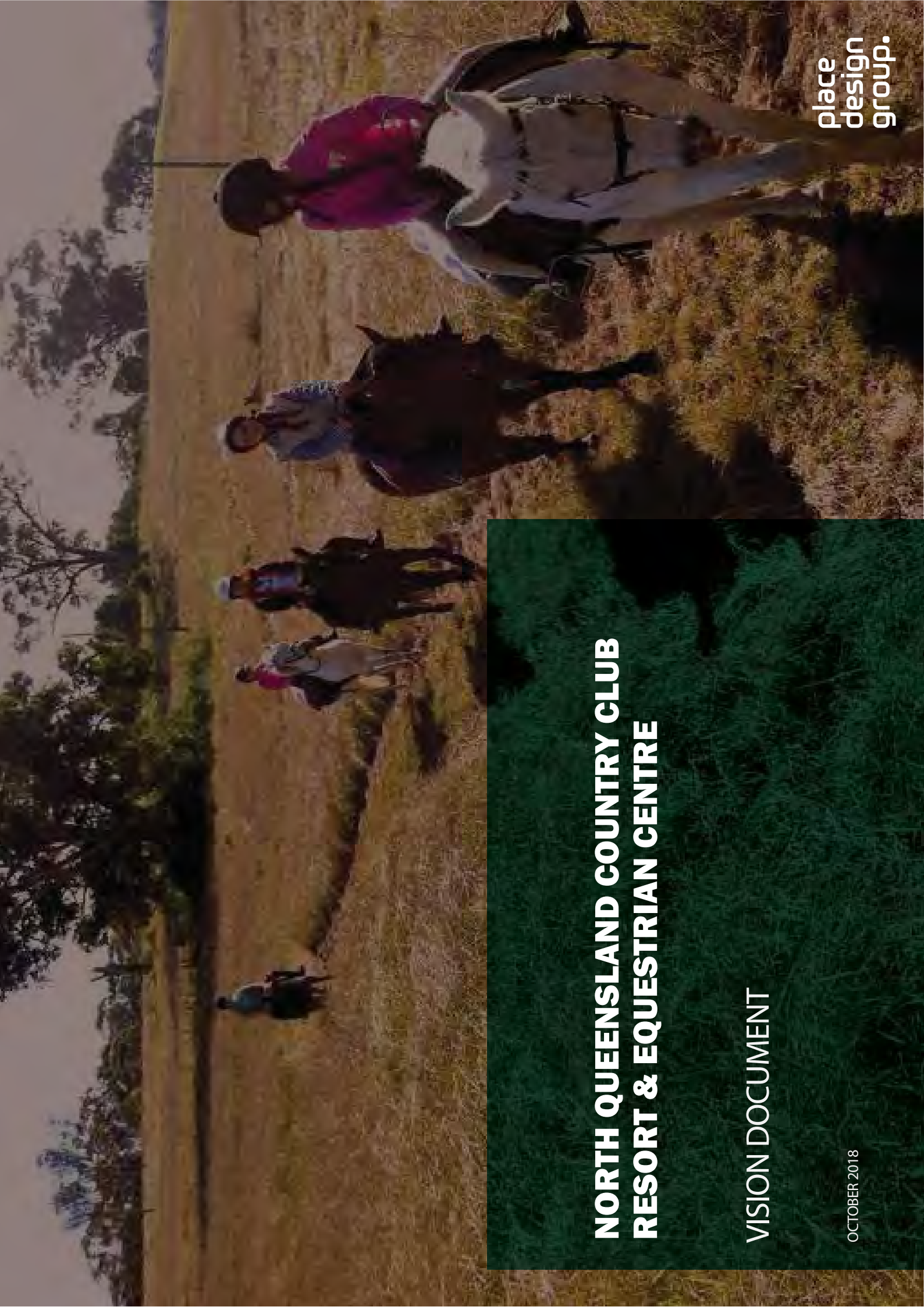
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GLOSSARY

Term	Meaning
ACH Act	<i>Aboriginal Cultural Heritage Act 2003 (Qld)</i>
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
CPMA	<i>Coastal Protection and Management Act 1995 (Qld)</i>
DATSIP	Department of Aboriginal and Torres Strait Islanders Partnership
DNRM	Department of Natural Resources and Management
DTMR	Department of Transport and Main Roads
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EO Act	<i>Environmental Offsets Act 2014 (Qld)</i>
EPA	<i>Environmental Protection Act 1994 (Qld)</i>
EPBC	<i>Environmental Protection and Biodiversity Conservation Act 1999 (Cth)</i>
FA	<i>Fisheries Act 1994</i>
IAR	Impact Assessment Report
IAS	Initial Advice Statement
LIDAR	Light Detection and Ranging
LPA	<i>Land Protection (Pest and Stock Route Management) Act 2002 (Qld)</i>
MCU	Material Change of Use
MNES	Matter of National Environmental Significance
NCA	<i>Nature Conservation Act 1992 (Qld)</i>

NQ	North Queensland
NQRP	North Queensland Regional Plan
OW	Operational Works
PA	<i>Planning Act 2016</i> (Qld)
RE	Regional Ecosystem
RH Group	Rimbunan Hijau Group of Companies
SDPWO	<i>State Development and Public Works Organisation Act 1971</i> (Qld)
SIA	Social Impact Assessment
TCC	Townsville City Council
TCP	Townsville City Plan 2014
TIA	<i>Transport Infrastructure Act 1994</i> (Qld)
ToR	Terms of Reference
TSDA	Townsville State Development Area
VMA	<i>Vegetation Management Act 1999</i> (Qld)

ATTACHMENT A
MASTERPLAN VISION DOCUMENT (PLACE DESIGN GROUP)



NORTH QUEENSLAND COUNTRY CLUB RESORT & EQUESTRIAN CENTRE

VISION DOCUMENT

OCTOBER 2018



LOCATIONS & ATTRACTIONS

WALLAMAN FALLS



PALUMA RANGE NATIONAL PARK



CHARTERTOWNS



NORTH QUEENSLAND COUNTRY CLUB & EQUESTRIAN RESORT



MAGNETIC ISLAND



TOWNSVILLE



THE STRAND



REEF HQ



CASTLE HILL



TOWN COMMON REGIONAL PARK



AIRLIE BEACH



WHITSUNDAY ISLANDS



OUTER GREAT BARRIER REEF



MASTERPLAN VISION + DESIGN PRINCIPLES

"A world class dry tropics country club & equestrian centre responsibly integrating luxury accommodation and facilities within the natural environment"



THE MASTERPLAN VISION



MASTERPLAN PRECINCTS

North Queensland Country Club & Equestrian Resort is made up of three precincts that define the land uses and development footprint.

ACCOMMODATION



The accommodation precinct supports buildings up to a maximum 5 storeys set within gardens, manicured grounds, pools and recreation spaces.

A central spine shared route connects the entry road through to the beach front, with resort clusters off either side overlooking the surrounding natural areas.

SPORT & RECREATION



The sport and recreation precinct includes formal and informal polo field and equestrian facilities, as well as holding yards and overland tracks and trails.

ENVIRONMENT & OPEN SPACE






Majority of the site is retained as natural areas, including waterways, vegetation clusters and natural grass areas.



-  Accommodation (incl. dining, retail etc)
-  & infrastructure



-  Equestrian Centre, including indoor & outdoor arenas, track, training yards, horse stabling & cross country trails
-  Horse holding yards
-  Overland tracks & trails



-  Natural areas

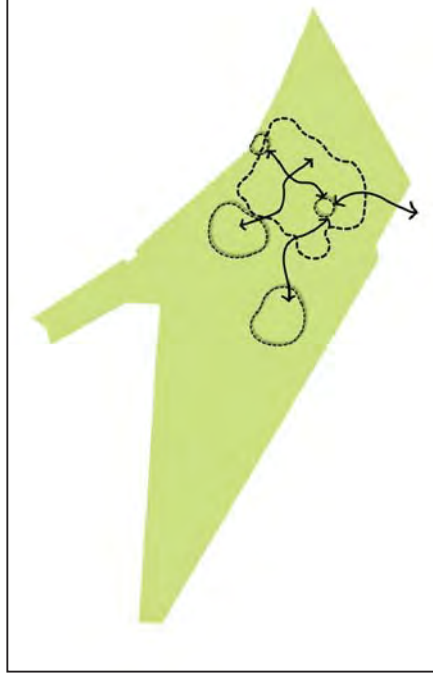
MASTERPLAN VISION & DESIGN PRINCIPLES

Future buildings and their position with the site has yet to be defined and will be dependant on the need and requirements of hotel operators. Each development will however be obligated to meet the built-form provisions enshrined into the development by-laws and will be grounded under a set of key principles as follows:

principle 1 - connected

The accommodation precinct will be a compact node with connectivity via the main entry road arriving at a key landmark point. A central shared use spine will connect the entry landmark through to a beach front landmark node, providing high levels of wayfinding and legibility for guests and visitors.

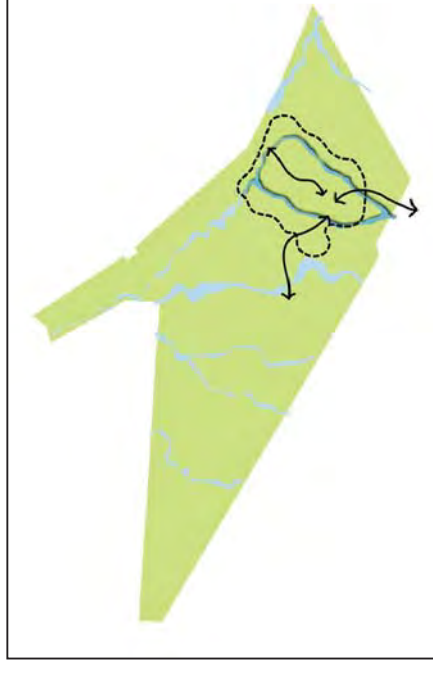
principle 1 connected



principle 2 - water story

Natural waterways will thread through the entire site, providing amenity, ecological function and resilience. The rural beach side location will be responded to effectively with building typologies controlled through the development by-laws. Pools and landscaped gardens will provide amenity and recreation facilities for resort guests.

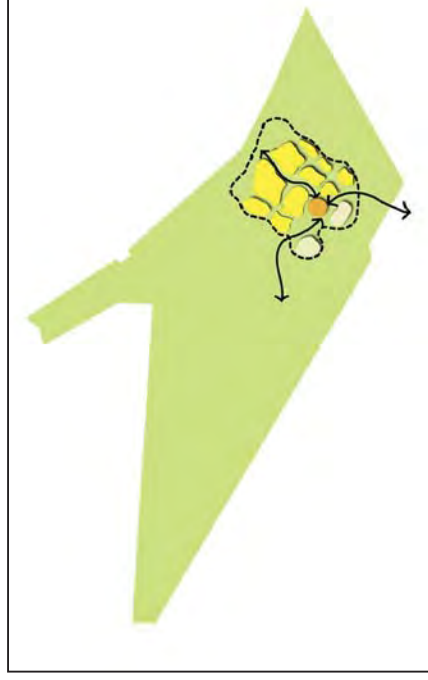
principle 2 water story



principle 3 - compact

The built form will be a compact clusters where the relationship of buildings, privacy and natural environment will take priority. Each cluster will have visual relationship to natural and more formalised amenity, with centralised green spaces and facilities. The accommodation precinct will be a compact footprint within the overall site.

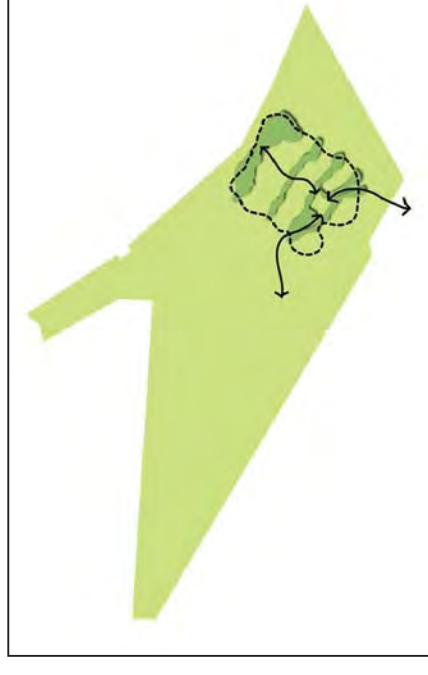
principle 3 compact



principle 4 green linkages

principle 4 - green linkages

A series of green linkages will connect through the accommodation precinct providing equestrian, pedestrian and cart trails between natural areas around the resort. These green fingers will interweave natural areas within the resort built environment and integrate the resort with the surrounding natural landscape.



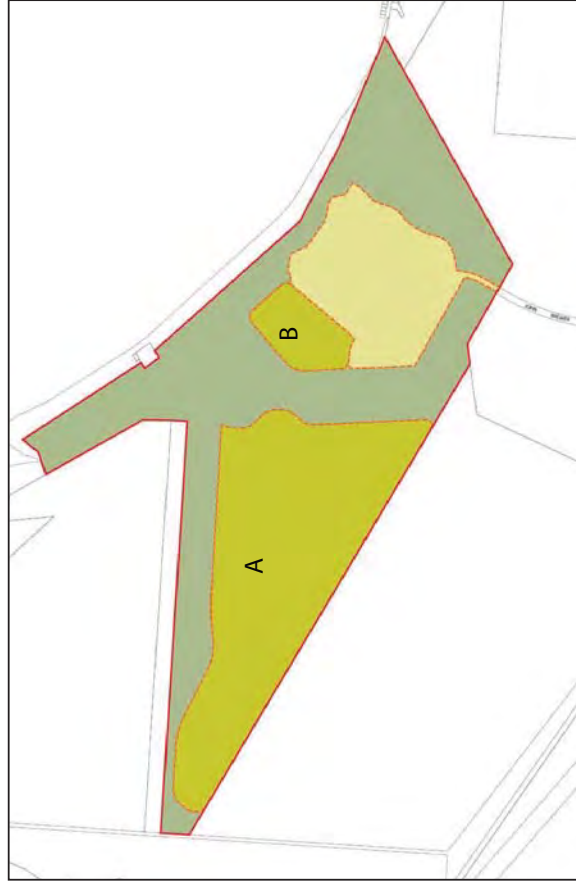
DEVELOPMENT PARAMETERS

A structure planning process was undertaken over the site to identify the potential land uses, movement network, open spaces, building heights and precinct areas, in line with the site analysis findings and overall vision for a "world class dry tropics Country Club & Equestrian Centre which responsibly integrates luxury accommodation and facilities within the natural environment. This work formed the basis of a Development Parameters package that will ensure certainty for all stakeholders in regard to development outcomes.

The precincts plan identifies 3 precincts:

- Accommodation Precinct;
- Sport & Recreation Precinct;
- Environment & Open Space Precinct.

Precincts Plan



- LEGEND**
- Site Boundary
 - Accommodation Precinct
 - Environmental and Open Space Precinct
 - Sport and Open Space Precinct

Movement Plan



- LEGEND**
- Site Boundary
 - Accommodation Precinct
 - Environmental and Open Space Precinct
 - Sport and Recreation Precinct
 - Entry Road
 - Central Access Spine
 - Equestrian Access Road
 - Secondary Access Road
 - Minor Access Route
 - Access Point
 - Destination Node - Resort
 - Destination Node - Equestrian

resort entry node to the beach front and providing access to the resort clusters on either side of the corridor.

A comprehensive network of paths will be designated through the resort for cart, pedestrian and horse movement. Equestrian and pedestrian trails throughout the natural areas link a variety of destinations and provide access to the beach front. These trails are a key integration feature of the resort, connecting the resort with the rural and natural activities and landscapes around it. A network of peripheral roads around the resort precinct provide maintenance and service access.

Limited carparking for resort guests, visitors and staff is provided south of the main entry road screened by landscaping and accessed via cart transport. Another defining element is the Central Spine connecting the

The movement network has a series of key elements including the main entry road connecting the resort to the equestrian precinct. Guest arrivals and departures will be consolidated via scheduled bus transport reducing trip generation and the need for extensive car parking. The primary bus drop off zone is provided centrally to the resort areas. No general traffic is permitted in the Central Resort north of the main entry road.

The Building heights plan mandates a low rise building form limiting development heights mainly to the Accommodation Precinct where land uses will be targeted to support guests.

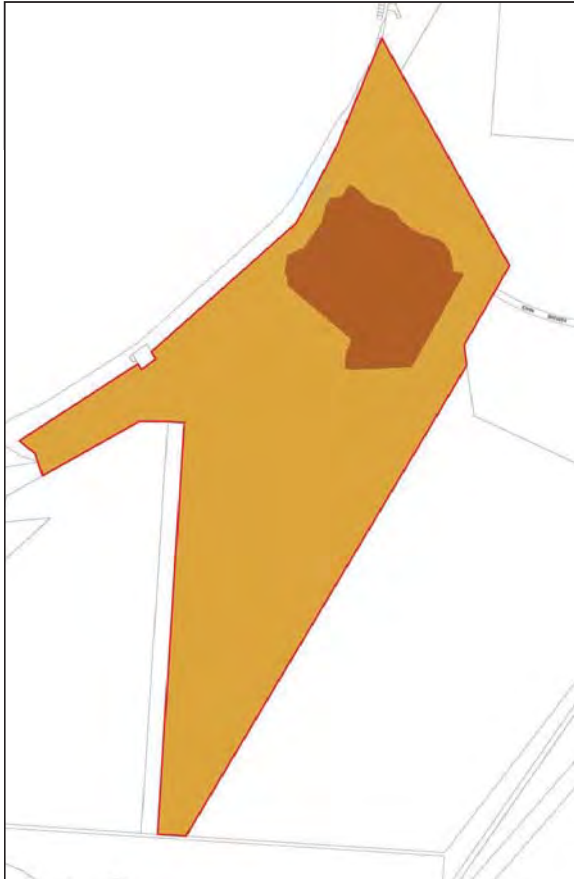
A suitable transition in heights will be encouraged through design criteria and reflected through the development by-laws.

The land use structure plan presents a potential network of natural area corridors and buffers as well as transitional areas between land uses. The central resort footprint located within the north-east portion of the site has been determined through site assessment and technical consideration of development constraints. Open space areas are identified within the resort footprint corresponding with existing lower areas to facilitate drainage and overland flow.

Resort back of house, staff accommodation and major infrastructure is identified south of the entry road. The precinct.

Active equestrian uses such as the equestrian hub and polo field will be centrally located, with proximity to the resort. Equestrian use areas, including holding yards are identified in the western portion of the site.

Building Heights Plan



Land Use Structure Plan

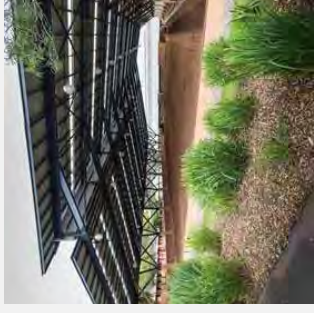


SPORT & RECREATION CHARACTER

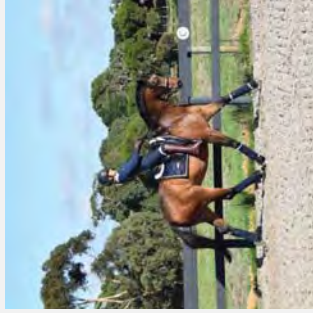
“Facilities and spaces reflect a natural, equine aesthetic and offer a unique recreational opportunity to experience the outdoors in a passive or active way.”



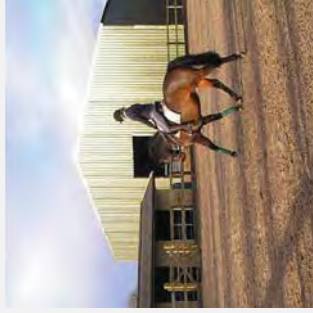
● Stabling for 150 - 200 horses



● Competition Arenas - indoors & outdoors & support facilities



● Training yards, dressage & riding school



● Equestrian show events



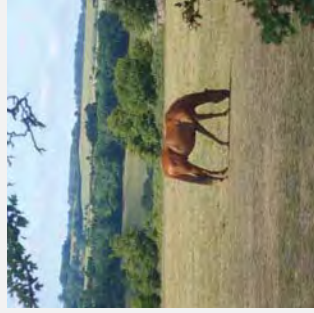
● Trails through resort



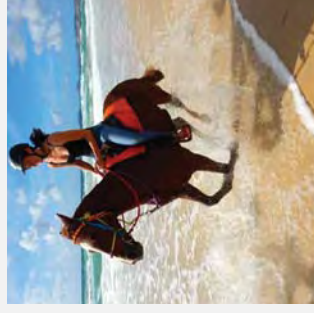
● Cross country & riding school



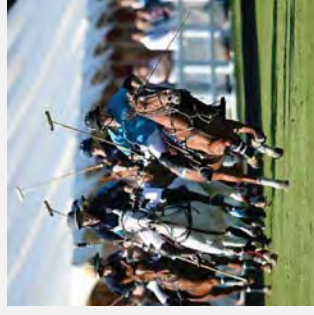
● Horse holding yards & paddocks



● Trails & tracks through natural areas



● Beach riding



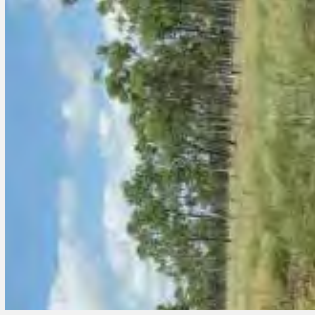
● Country club

ENVIRONMENTAL & OPEN SPACE CHARACTER

“The majority of the site is retained as natural areas, including a range of coastal environments such as the beach interface, grassed open areas, creeks and waterways, flood plain areas and vegetation communities.”



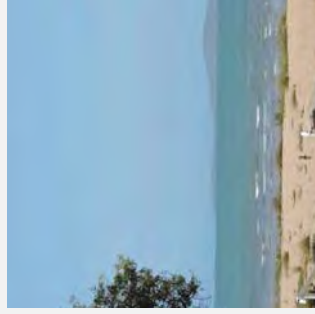
● Natural areas



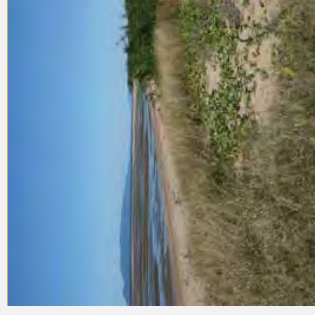
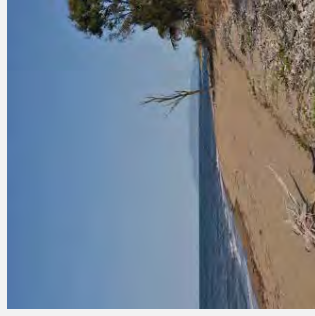
● Natural Creeks & Overland Flow



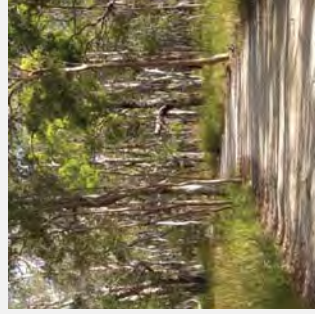
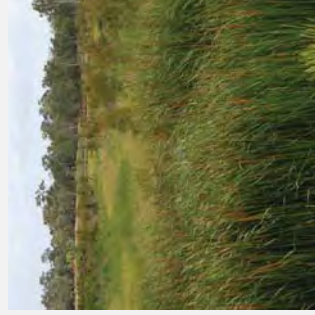
● Pedestrian trails within natural areas



● Natural beach interface



● Wetlands



● Trails & tracks through natural areas



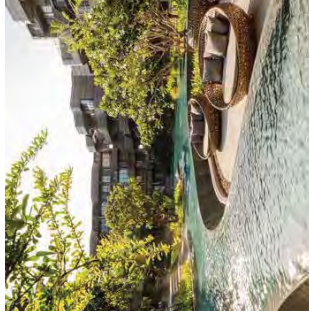
LANDSCAPE VISION

North Queensland Country Club & Equestrian Centre encompasses a large and varied landscape intended to provide tourists, locals and visitors alike with a pleasant recreation-focussed environment exemplifying the flora of the dry tropics landscape.

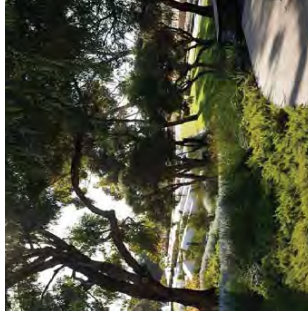
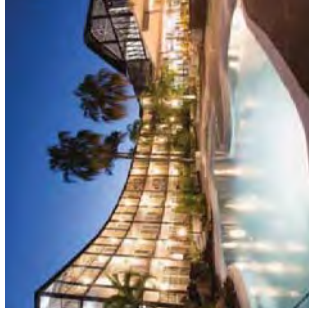
Within the development, a series of distinct landscape zones are proposed. These follow a gradient from highly manicured formal landscape within the heart of the accommodation precinct, to transitional recreation or rural linkages, through to equestrian landscapes and finally, natural reserve and conservation areas that buffer the site.

Within the accommodation precinct, a series of formal landscapes adjacent to the main buildings provide high quality amenity to holiday makers. This formal landscape then softens into the rural linkages with a strong focus on retaining the existing landscape. Trails that can be accessed via horseback or walking then connect to a fully functional equestrian hub with stables and event spaces.

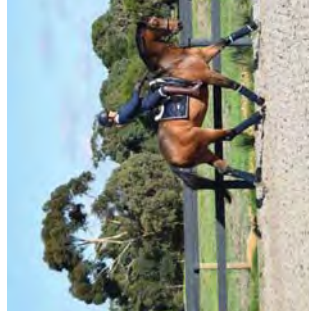
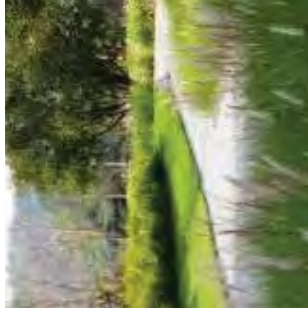
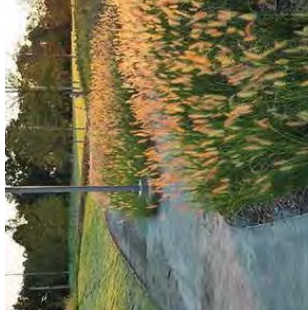
Much of the site is intended to remain close to its natural state, best described as 'rural'; to allow for equestrian activities and bush and nature walks by horseback. A large portion of the site is also to be reserved for conservation; offering a sympathetic response to the landscape; giving a landscape buffer to adjacent properties and ensuring the natural landscape is conserved for future generations.



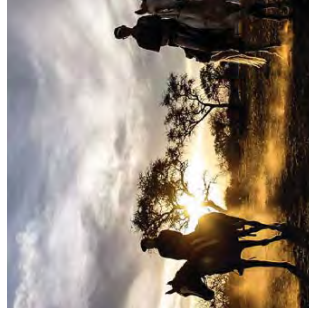
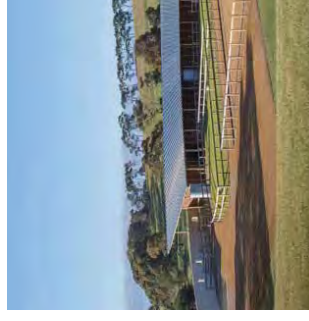
● Formal, high quality resort landscapes, resort accesway/central spine



● Rural linkages - a gradient from formal to natural



● Equestrian landscape



LANDSCAPE CHARACTER AREAS

North Queensland Country Club & Equestrian Centre will have four Landscape Character Areas defined as:

CENTRAL RESORT

Formal, highly manicured and cultivated landscapes for resort amenity, featuring pools and areas for recreation. Includes the central access spine which link all precincts together via horseback, cart and pedestrian movement.

RURAL LINKAGES

Transitional landscapes that gradient from a cultivated resort space to a more natural landscape – allowing for horse riding, winding pathways and some landscape embellishment. In summary these spaces have a ‘naturalistic’ quality.

EQUESTRIAN

Portions of the site dedicated to horse riding, grazing, recreation and show events. This extensive area incorporates the equestrian hub, fields and grazing paddocks.

NATURAL

Much of the site is intended to be retained in a natural state with limited intervention, particularly existing drainage paths and natural wetland areas.



CENTRAL RECREATION AREAS

Landscape Intent

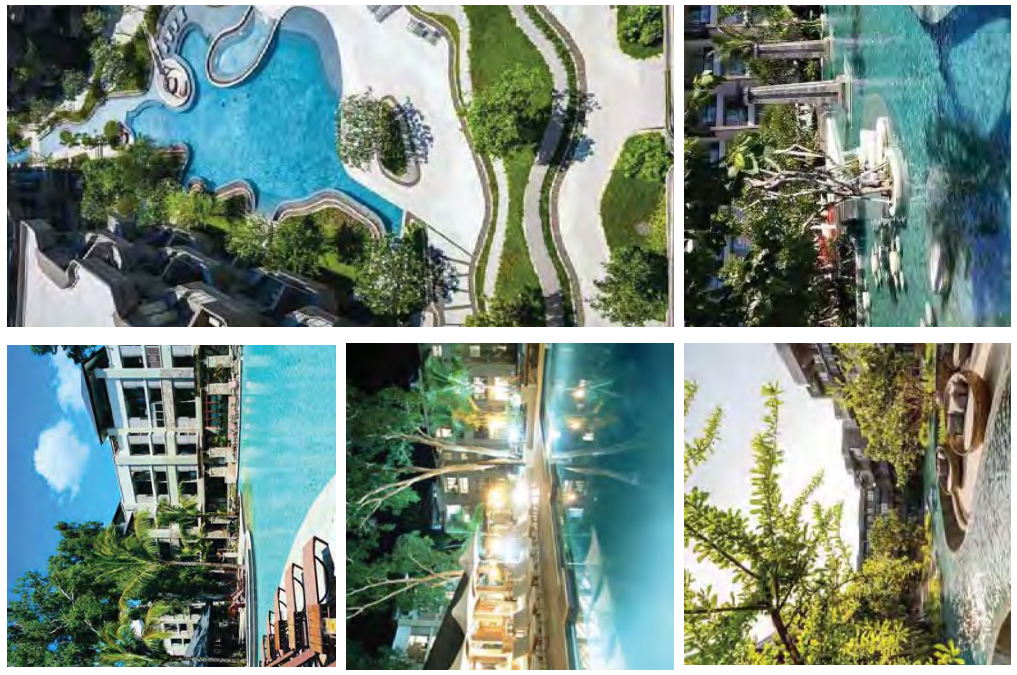
The central recreation areas provide a high quality landscape, amenity and recreation to resort guests. This will feature large pools for swimming and lounging, interspersed with shady trees, lush planting and shelters. Bar and restaurant spaces will be accommodated within the building and build outs within the landscape allowing for views over the pool space and beyond to the lakes.



- LEGEND
- 1 Pathway linking to other resort spaces
 - 2 Resort bar
 - 3 Pool
 - 4 Edge planting to units
 - 5 Pool shade
 - 6 Outdoor dining edge



- LEGEND
- 1 Entrance
 - 2 Resort entrance and overlooking restaurant area
 - 3 Pool area
 - 4 Access to Natural Areas and Trails
 - 5 Resort guest rooms
 - 6 Edge planting
 - 7 Outdoor dining edge



● Formal, high quality resort landscapes incorporating pools and recreational areas

SHARED ACCESSWAYS

Landscape Intent

Beginning at the entrance to the Central Resort, the Central Access Spine is the primary shared accessway within the resort. As the name suggests it is a major linkage extending north-south past several resort nodes.

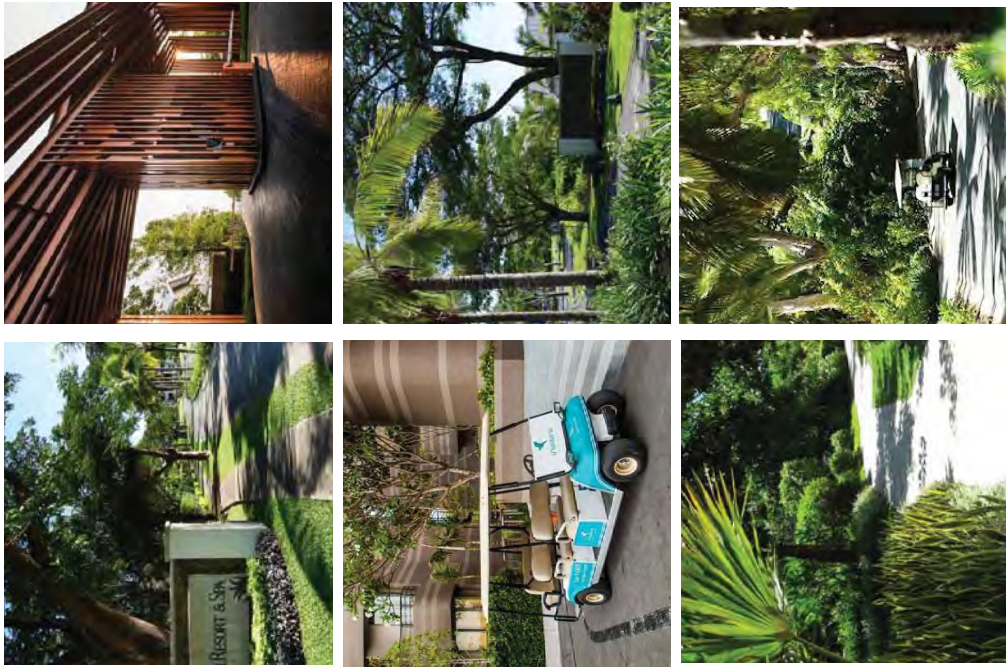
The Central Access Spine's intended purpose is to function as a high quality shaded linkage that encourages walkability in a car free zone by all guests to different parts of the resort. It also serves the role of enabling electric carts to transport guests and their luggage upon arrival and departure from the Entry-Departure Reception.

Along this shared pathway guests may choose to walk, cycle, or opt for a slower pace via a secondary pathway that meanders through the site, providing additional amenity and stop-off points. As a major pedestrian route it will offer break-away pathways linking to building entrances, the east-west rural linkages, and the beach-front. The Central Spine will have generous tree and shade planting to shelter visitors from the hot sun with occasional shelters for respite.

No general vehicle traffic is allowed within the Central Resort.



- LEGEND
- 1 Central Spine and shared accessway
 - 2 Pedestrian way
 - 3 Planting & natural garden beds
 - 4 Formal entrance planting
 - 5 Individual Resort Node Entries



Resort entrances, shady shared access pathways, buggy pathways

RURAL LINKAGES

Landscape Intent

Rural Linkages are transitional areas providing an intermediary landscape that creates deliberate variation within the Central Resort areas while also being more structured than the natural and rural character of the reserve and equestrian areas. These linkages act as a series of strong green connections that create distinct separation between varying resort areas without the need for boundary fencing.

Typically 35m wide, these linkages create transitional landscapes that reference the natural landscape while being partly cultivated. Planting provides shade and amenity and concrete pathways close to resort buildings wind through these linkages with occasional break out areas. A key feature of the rural linkages are equestrian pathways - compacted trails that offer the opportunity for horse riders to travel safely through the resort to the natural landscapes surrounding it.

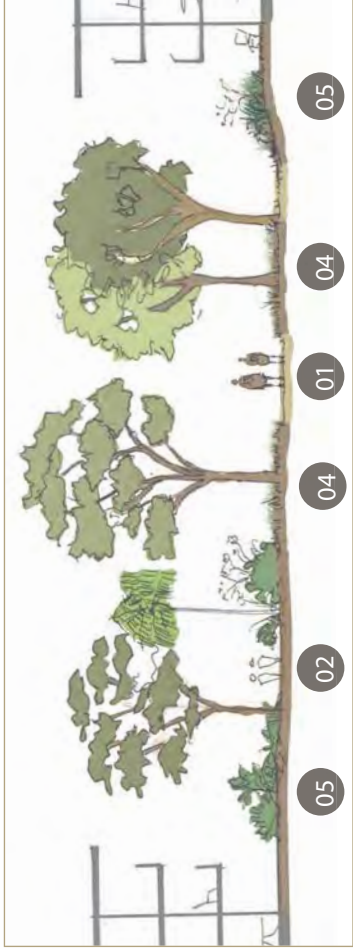
The overall feeling of these rural linkages is a soft and naturalistic character which speaks to both the more formal landscapes of the resort and the rural landscapes of the equestrian and natural areas.

LEGEND

1. Horse trail through rural linkages
2. Pedestrian pathway
3. Common entrance to guest rooms
4. Large shade trees
5. Edge planting to guest rooms
6. Low level natural planting beds



● Horse trails, compacted pathways in natural landscapes, cultivated resort edges





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USE DEFINITION (In Condition Format)

1. The material change of use for Particular Development listed in Schedule 5.7 (Approved Details PD35 – Tourist Development) of the 2003 Thuringowa Planning Scheme (superseded) is approved;
 - 1.1 subject to:
 - 1.1.1. The Tourist Development being limited to, the uses listed and within the definitions contained in Column A of Table A of these conditions;
 - 1.1.2. Each use only being located on site if within the Precinct/s identified in Columns B, C or D of Table A;
 - 1.1.3. subject to any specific and further condition identified in Column E of Table A; and
 - 1.2. Generally in accordance with the following:
 - 1.2.1. Plan 1: Precincts, identifying the location of those Precinct areas listed in Column B, C and D in Table A;
 - 1.2.2. Plan 2: Access and Movement;
 - 1.2.3. Plan XXX [to be inserted as Stage 2 with additional supporting report updates further detail];
 - 1.2.4.
 - 1.3. The following uses from PD35 – Tourist Development are not approved:
 - 1.3.1. Marina; and
 - 1.3.2. Golf course (other than putting greens or mini put-put).
2. All uses approved in accordance with Condition 1 above must be undertaken in compliance with and under the management of a Community Management Statement that includes the Development Code/Guideline set out in Annexure A to these conditions – [INSERT REF CMS Design Code XX final version details].

TABLE A

Column A	Column B	Column C	Column D	Column E
Proposal Use Definition (Amended from 2003 Scheme Definitions)	Accommodation on Precinct	Sport and Recreation Precinct	Environmental and Open Space Precinct	Limitations/ Restrictions
<i>Camping Area.</i> Premises used to allow accommodation in caravans, tents and the like with supporting ancillary services.	No	Yes	No	Maximum of: <ul style="list-style-type: none"> one designated area for camping, including with permanent tent structures ('glamping') and services; and one designated area for short term camping (maximum 6 nights) for persons associated with or attending an event (eg. Equestrian event or performance).
<p><i>Country Club Main Centre Premises used to provide the main operational reception facilities and services for the development, its operators and guests, , including,</i></p> <ul style="list-style-type: none"> <i>Bottleshop.</i> Premises used to sell packaged liquor for consumption off premises. <i>Medical Centre.</i> Premises used to provide health services including preventative care, first aid, rehabilitative care to guests only. <i>Restaurant.</i> Premises used for the preparation and service of food and drink to be consumed on the premises. It includes the use of the premises for – <ul style="list-style-type: none"> (a) entertainment; or (b) Supply of liquor for consumption on the premises (includes café, coffee shop, outdoor dining). <i>Shop.</i> Premises used for the retail sale, or display for sale, of goods to the public that is conducted by one occupier. <i>Tourism booking and guide services,</i> including waiting lounge and tour facilities for guests of the development. 	Yes	No	No	Maximum of one café in the facility. Maximum of 1500m ² over all shop/shops.

Column A	Column B	Column C	Column D	Column E
Proposal Use Definition (Amended from 2003 Scheme Definitions)	Accommodation on Precinct	Sport and Recreation Precinct	Environmental and Open Space Precinct	Limitations/ Restrictions
<ul style="list-style-type: none"> Educational facilities for guests (displays, small theatre). 				
<p><i>Arts and Craft Centre.</i> Premises with a GLA that does not exceed 200m² used for the retail sale or display of:</p> <ul style="list-style-type: none"> (a) antiques; (b) handbeaten copper goods; (c) handwoven goods; (d) handmade soap; (e) handmade jams and preserves; (f) leatherwork; (g) art works; or (h) other handmade goods. 	Yes	No	No	Maximum of only in Country Club Main Centre
<p><i>Indoor Entertainment.</i> Premises used for commercial entertainment or leisure that is conducted wholly or mainly indoors. Includes Amusement Machine Parlours, Cinema, Club, Exhibition, Night Club, Theatre.</p>	Yes	No	No	
<p><i>Indoor Recreation.</i> Premises used for indoor recreation, leisure or sports. The term does not include a club used in association with Community Facilities, Outdoor Recreation or Park, but includes Gyms, Sports Centres Unlicensed).</p>	Yes	No	No	Must be integrated within a Tourist Facility.
See Outdoor Entertainment				
<p><i>Veterinary clinic.</i> Premises used for the treatment of equine and other animals residing on site or attending events.</p>	No	Yes	Yes	
<p><i>Transport Depot.</i> Premises used for the storage, maintenance, service or garaging of more than one truck, bus, taxi or other commercial vehicle associated with the Development. It may include the use of premises as an operational base for fleet vehicles for the development.</p>	Yes	Yes		Only for the vehicles used by the Country Club
<p><i>Major Resort Accommodation.</i> Premises used for facilities and activities that accommodate and entertain tourists. The premises must be -</p> <ul style="list-style-type: none"> (a) on an extensive land area; (b) include two or more buildings; (c) designed in an integrated way; and (d) be managed as one entity. 	Yes	Yes	Yes	Unless a caravan park, no tourist accommodation may be located outside of the Accommodation Precinct.

Column A	Column B	Column C	Column D	Column E
Proposal Use Definition (Amended from 2003 Scheme Definitions)	Accommodation on Precinct	Sport and Recreation Precinct	Environmental and Open Space Precinct	Limitations/ Restrictions
<p>It may include premises which are used as a Function Room or have permanent Residential development.</p> <p>Includes:</p> <ul style="list-style-type: none"> • Theme Park • Tourist Resort <p><i>Function Room.</i> Premises used, by arrangement, to cater for private functions and in which food and drinks may be served. It may include entertainment.</p>	Yes	Yes	Yes	Maximum of one permanent Function Room may be located in the sport and recreation Precinct. Temporary Marquees may be used in all Precincts.
See Sports and Recreation Areas				
<p><i>Sports and Recreation Area.</i> Premises used for outdoor recreation, performances, leisure or sports which is conducted wholly or mainly outdoors and open to members of the public, clubs, associations or other similar organisations, excluding Golf Course, Athletics Sports Ground, Swimming Pool.</p> <p>The use expressly includes horse riding, training, equestrian sport of the service, agistment and stabling of horses.</p> <p><i>Outdoor Entertainment.</i> Premises used for commercial entertainment or leisure that is conducted wholly or mainly outdoors or requiring large outdoor arenas such as equine and rodeo events, displays and shows.</p>	No	Yes	Yes	
<p>Service and Rural Industries means:</p> <p>(a) A Dwelling Unit or Dwelling House on premises occupied by the supervisor of a building, plant or operation approved on the premises; and</p> <p>(b) <i>Rural Accommodation Units.</i> Premises in the Rural Planning Area used for the residential accommodation of persons employed to assist in a commercial rural occupation on the premises.</p>	Yes	Yes	No	
	No	Yes	No	

ATTACHMENT B
LETTER OF AUTHORITY (RH GROUP)



Resources Capital International Pty Ltd.
c/o Room 508, Sun Hung Kai Center,
20 Harbour Road
Wanchai
Hong Kong
Attn: Simon Lee

19 March 2019

Dear Simon,

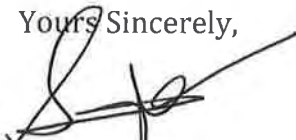
Thank you for the efforts to date to present the project at Toolakea (currently known as the North Queensland Country Club Resort & Equestrian Centre) to the Queensland Government for consideration as a project of State Significance. RH Group is thrilled by the long term opportunity to bring a global standard vision in tourism infrastructure to the North Queensland region and contribute to the region's long term economic and social vitality.

As Director of Landmark Projects Pty. Ltd. ("Landmark"), I wish to confirm that Landmark is part of the RH Group which is founded, owned and managed by the Tiong Family. Landmark is jointly owned by two representatives of the Tiong Family members who are also the ultimate beneficiaries of the RH Group.

I write to confirm that Resources Capital International Pty Ltd. ("RCI") is the sole authorised representative on behalf of Landmark/RH Group in relation to the project and the site upon which it is located. This authority has been conferred so as to ensure all stakeholders can be confident that engagement with RCI in relation to the project and the subject site is done so with the authority of the RH Group and Landmark, its subsidiary landowning company.

We look forward to progress this project swiftly and working with all stakeholders to achieve an exceptional outcome.

Yours Sincerely,



Sijia Tiong
Director



ATTACHMENT C
ECONOMIC FEASIBILITY ASSESSMENT (LOCATIONIQ)



**North Queensland Country Club Resort and
Equestrian Centre, Townsville
Economic Feasibility Assessment**

Prepared for Landmark Projects Pty Ltd

October 2018



TABLE OF CONTENTS

INTRODUCTION.....	i
KEY DATA.....	2
KEY FINDINGS.....	6
Regional and Local Context	6
Proposed Development	8
Tourism Market Overview.....	8
Equestrian Market in China.....	16
Equestrian Industry in Australia	17
Comparable Examples - Equestrian Resorts	19
Market Potential (Staging/Demand)	19
Summary of Economic Need and Benefits.....	20
MAPS, FIGURES, CHARTS and TABLES	29

INTRODUCTION

This report presents an independent economic feasibility and impact assessment for the development of North Queensland Country Club Resort and Equestrian Centre in Townsville in Northern Queensland.

This key findings report has been prepared in accordance with instructions received from Landmark Projects Pty Ltd, a wholly owned subsidiary of Rimbunan Hijau Group, and includes the following:

- A review of the regional and local context of Townsville.
- An overview of the tourist market within Australia, Queensland and Townsville.
- A review of trends in the overseas resorts and the Chinese equestrian industry.
- Recommendations in relation to the likely demand and staging of the development
- An assessment of the likely benefits and impacts of the proposed development.

Figures, Maps, Charts and Tables are provided at the end of the report.

KEY DATA

Key data in relation to the proposed North Queensland Country Club Resort and Equestrian Centre includes the following:

Site Location and Proposed Development

- i. Townsville is the major regional centre for the Northern region of Queensland and is located 300 km south of Cairns and 1,100 km north of Brisbane.
- ii. The country club resort and equestrian centre is proposed to include:
 - A 2,800-room country club resort and equestrian centre on the Northern Beaches in Townsville.
 - The resort is estimated to cost \$1 billion to construct and is to be developed in stages, with a variety of hotel chains to operate facilities at the site.
 - The proposed resort is targeted at attracting wealthy Asian customers, particularly Chinese visitors.
 - The development is also planned to host a number of equestrian-based events each year.

Tourism Market Overview

- i. Key points to note in relation to the tourist market include:
 - **Australia:** In 2016/17, almost nine million international visitors travelled to Australia, spending almost \$40 billion. Almost one quarter of this \$40 billion in international visitor expenditure is from Chinese tourists. China's market share of international visitor arrivals is projected to increase from 14.6% (or 1.3 million) in 2016-17 to 25.7% (or 3.9 million) by 2026-27.
 - **Queensland** achieves a 20.5% share of international visitor nights in Australia. The number of visitor nights in Queensland has grown by 9.7% in the last 12 months, faster than all other states/territories, with the exception of ACT (from a much

smaller base). This is partly driven by the establishment of direct flights between China and Cairns.

– **Townsville:**

- Townsville accounts for 5% of international visitors to Queensland but only 1.9% of spend, highlighting the lack of major tourist-based facilities currently provided.
- International tourist visitation and spend has remained relatively flat in Townsville over the past decade, while visitation to Queensland overall has increased steadily.
- Townsville provides almost 2,500 short-term accommodation rooms across 46 establishments, which represents less than 25% of that currently provided in Far North Queensland.
- Average room occupancy rates in Townsville are 62.7% (June-16 quarter), which is higher than the Queensland average (59.8%).

– **China Market Visitor Profile:**

- In total, some 1.3 million tourists from China visited Australia.
- The majority (54%) of these visitors were holiday-makers.
- Chinese visitors spent over 52 million nights in Australia, spending a total of \$8.3 billion.
- China became Australia's largest international market (overtaking New Zealand in December 2017) as highest number of inbound arrivals.

Equestrian Market

- i. **China:** as economic growth continues across China, the potential for residents' disposable income to invest in new sports and leisure activities also increases. China's professional horse sports and leisure industry has benefited from this rise in demand

and its potential for future growth is substantial. A total of 1,452 equestrian clubs were provided across China (as at December 2017), with more than one-third (545) of these clubs being developed in 2016/17. The growth of activities such as equestrian sports in China, is driving rapid increases in demand for a full range of high-end products including tourist activities.

- ii. **Australia:** the proposed development is also planned to host a number of equestrian-based events each year. The equestrian industry provides events across a wide range of disciplines, including; polo, dressage, endurance, show jumping, barrel racing, rodeo, reining, carriage driving and show horsing. Larger-scale events can attract 30,000 - 50,000 visitors each year. These are the types of events that the proposed Equestrian Centre should be targeting as well as a range of smaller-scale events throughout the year.

Market Potential

- i. Based on a staged development plan of the resort (560 rooms in stage 1 by 2021) as well as an average of 1.8 persons per room and an assumed occupancy rate of 65%, projected resort visitation levels are almost 240,000 in 2021, increasing to 1.2 million in 2041, once the final stage is developed. Visitation levels may vary, depending on the rate of development of the various components of the resort.
- ii. International visitation levels to Queensland are projected at 10.8 million in 2021, increasing to 30.5 million by 2041. The proposed resort is anticipated to account 2.2% - 6.0% of total international tourist visitation to Queensland over the 2021-41 period, depending on the rate of development of the resort.
- iii. This analysis assumes that the proposed development is only targeted at international tourists. It is likely that this type of development would appeal to domestic tourists also, given that lack of major equestrian resort facilities within Australia. Event driven accommodation requirements will also be a factor.

Economic Benefits

- i. Key benefits from the proposed development will arise directly from a number of sources, including:
 - Cost of construction of the development (\$1 billion).
 - Expenditure of resort and event attendees on accommodation and other non-accommodation related items (e.g. food and beverages and other regional non-service providers), estimated at \$363.5 million per annum.
 - Jobs created directly as a result of the construction of the development and ongoing jobs associated with the operation of the resort (i.e. resort staff), estimated at \$534.6 million.
- ii. The proposed development will also generate indirect benefits to the local economy, including:
 - Indirect jobs created during the construction phase and as a result of ongoing operation of the resort, estimated at \$788.2 million (in wages and salaries).
 - Other gross value-added multiplier effects arising from the construction of the development, estimated at \$1.2 billion.
- iii. In total, the benefits arising from the development plus one year of operation are estimated at \$3.9 billion.
- iv. Other indirect benefits, which are difficult to quantify, include the benefits to the small business economy (e.g. tourism operators) to service the entertainment needs of resort visitors and event attendees and the growth in the range and types of new skills sets within the local workforce e.g. language services, hospitality and hotel management etc.

KEY FINDINGS

The key findings of this report in relation to the market potential and economic benefits resulting from the development of proposed equestrian report in Townsville are as follows:

Regional and Local Context

- i. Townsville is the major regional centre for the Northern region of Queensland and is located 300 km south of Cairns and 1,100 km north of Brisbane (refer Map 1).
- ii. Townsville is Queensland's fourth most populated city, after Brisbane, Gold Coast and Sunshine Coast.
- iii. Townsville is a major tourist destination, being located adjacent to the central section of the Great Barrier Reef and averaging 320 days of sunshine per year.
- iv. The Townsville urban area is one of the fastest growing areas in Queensland, with the population increasing by almost 20,000 since 2011.
- v. The 2014 City Plan commenced on 27th October 2014. In Section 1.1 of the City Plan, it is indicated the planning scheme has been prepared for a 25-year planning horizon. Part 3 entitled *Strategic Framework* sets the policy direction for the planning scheme. At Section 3.2.1 it is indicated that Townsville is on the cusp of significant growth and change. It states that it is already the largest city in Queensland outside the south-east, and its population of around 190,000 is set to grow to between 270,000 – 300,00 people by 2031.
- vi. Key future development projects which are proposed in Townsville include:
 - **Singapore Military Base:** A 'Memorandum of Understanding Concerning Military Training and Training Area Development in Australia' was signed in October 2016 which will be in effect for 25 years. The Agreement allows the Singapore Armed Forces to have access to military training areas located at the Townsville Field Training Area and the Shoalwater Bay Training Area which will accommodate 14,000 soldiers for up to 18 weeks of the year. It is estimated that \$2.25 billion will be invested in the Townsville and Rockhampton regions over the 2016-26 period.

This partnership will assist in developing the future economy of the region, given that conscripted Singaporean soldiers are considered to be the future business leaders and traders of the nation.

- **Museum of Underwater Art (MOUA):** Townsville has a growing reputation for providing unique experiences for both residents and tourists in the region, based on a combination of assets, including its natural environment, international-quality cultural activities and leading scientific institutions. Building on these strengths, a Museum of Underwater Art (MOUA) is now proposed within Townsville, providing artistic installations and sculptured works which will likely become a major destination for tourists.
- **Waterfront Priority Development Area:** Townsville City Council and Queensland State Government have jointly declared the Townsville Waterfront a Priority Development Area (PDA). The PDA includes 63.7 hectares of land directly adjacent to the Townsville CBD, located on both sides of Ross Creek. The \$250 million waterfront redevelopment is anchored by the North Queensland Stadium (under construction). This project will be one of the largest urban renewal projects in Australia and will assist in activating the inner-Townsville area and create significant investment and job opportunities. The development will likely be a catalyst for the revitalisation of the Townsville CBD over the next 20 years. The development of the waterfront will increase the destination appeal of Townsville to both domestic and international tourists.
- **Castle Hill Concept Plan:** is a heritage-listed isolated pink granite monolith and is one of the most distinctive natural features on the Queensland coast. The activation potential for Castle Hill is currently being investigated. Potential uses include developing the site into a key adventure tourism hub, or a dining destination in its own right.
- **The Strand Crystal Lagoon** on the Townsville foreshore is planned to be the largest man-made pool in northern Australia providing the opportunity to swim all year round.

Proposed Development

- i. A 2,800-room country club resort and equestrian centre is proposed on the Northern Beaches in Townsville.
- ii. The resort is estimated to cost \$1 billion to construct.
- iii. The proposed 2,800 rooms are to be developed in stages, with a variety of hotel chains to operate facilities, similar to the mix of resort hotels provided at Denarau Island in Fiji (which includes Radisson Blu, Westin, Sofitel, Hilton and Sheraton Hotels).
- iv. The proposed resort is targeted on the emerging upper-middle class and upper class Asian customers, particularly Chinese visitors.
- v. The development is also planned to host a number of equestrian-based events each year.

Tourism Market Overview

Australian Tourist Market

- i. Since the end of the commodities boom, Australia has transitioned to a more diversified economy in which the tourism market is becoming an increasingly important sector.
- ii. Key statistics in relation to the Australian tourist market include:
 - Tourism currently provides one in 20 jobs and contributes to one-tenth of national exports.
 - The 2016/17 Tourism Satellite Accounts produced by Tourism Research Australia (TRA), indicate that tourism gross domestic product (GDP) grew by 6.1% (refer Chart 1) in the year to June 2017.
 - In 2016/17, almost nine million international visitors travelled to Australia, spending almost \$40 billion.

- Almost one quarter of this \$40 billion in international visitor expenditure is from Chinese tourists (refer Chart 2).
 - In total, some 631 million visitor nights were spent in Australia in 2017/18, 45.6% of which were international visitor nights (rather than domestic visitor nights). International visitor nights grew by 8.7% in 2017/18, compared with growth of only 1.8% in the domestic visitor night market over the same time period.
- iii. Chart 3 illustrates historical and projected growth in international tourist numbers, visitor nights and expenditure over the 2006/07 – 2016/17 period. Key points to note include:
- International visitors to Australia are projected to increase from 8.6 million currently to 15.0 million by 2026/27, reflecting an average annual growth rate of 5.8%.
 - International tourism will capture a greater share of the visitor dollar, from 33% in 2016/17 to 44% in 2026/27.
 - Total international spend growth is projected to almost double from \$39.8 billion in 2016/17 to \$75.8 billion in 2026/27, reflecting an average annual growth rate of 6.7%.
 - Over the period to 2026/27, the strongest rate of growth is projected in the international visitors' market (at 6.7% per annum), with growth in the domestic overnight and day tripper markets projected at 2.1% and 1.3% per annum, respectively over the same time period.
 - The primary reason for international tourists visiting Australia is for the purposes of a holiday, although strong growth is projected in visitation for the purposes of employment in 2018/19 (refer Chart 4).
 - China's market share of international visitor arrivals is projected to increase from 14.6% (or 1.3 million) in 2016-17 to 25.7% (or 3.9 million) by 2026-27 (refer Chart 5).

Queensland Tourist Market

- i. Table 1 outlines the key statistics in relation to tourist visitation and expenditure to Queensland in the year to December 2017. Key points to note are:
 - In total, some 65.1 million international, domestic and day trippers have visited the Queensland for the year ending December 2017. This includes 40.7 million domestic day trippers (62.4%), 21.8 million domestic overnight visitors (33.4%) and 2.7 million international visitors (4.1%).
 - These visitors were estimated to spend a total of \$21.1 billion within the Queensland economy. Tourists typically spend on a range of items including food catering, giftware and souvenirs and apparel.
 - Combining the domestic overnight visitor nights (86.5 million) with the international visitor nights (53.0 million), tourists stayed a total of some 139.6 million visitor nights in Queensland for the year ending December 2017. Dividing 139.6 million by the number of days in the year (365) means that domestic overnight and international visitors are the equivalent of an additional 383,500 permanent residents for retail facilities provided in Queensland. This is equivalent to 8.2% of the total Queensland population, however this proportion would be higher in major tourist areas.
- ii. Figure 1 illustrates the distribution of tourist visitor nights by state/territory in 2017/18. As shown, Queensland achieves a 20.5% share of international visitor nights in Australia. The number of visitor nights in Queensland has grown by 9.7% in the last 12 months, faster than all other states/territories, with the exception of ACT (from a much smaller base). This is partly driven by the establishment of direct flights between China and Cairns.
- iii. Chart 6 illustrates the trends in international visitor numbers, nights and expenditure to Queensland over the 2005-17 period. Key points to note are as follows:

- The number of international visitors to Queensland has increased by 550,000 since 2005 to reach 2.7 million in 2017, reflecting an average annual growth rate of 2.1% per annum.
 - International visitor nights have increased more rapidly from 31.5 million in 2005 to 53.1 million in 2017, at a rate of 5.7% per annum. This in part reflects the impact of the weaker Australian dollar in addition to the establishment of direct flights between China and Cairns.
 - International visitor expenditure has also increased rapidly, by over \$2.0 billion in 2005, to reach \$5.3 billion in 2017, reflecting an average annual growth rate of 5.1%.
- iv. Table 2 details international tourist visitation to Queensland by reason for visiting. Key points to note are as follows:
- Almost 70% (7.3 million) of international visitors to Queensland were visiting on a holiday, with 24% (2.5 million) visiting friends and family.
 - The average length of stay for international holiday-makers, at 12.6 nights, has declined slightly (by 3.0% over the last 3 years).
 - Expenditure of international holiday-makers in Queensland is currently \$11.1 billion, having increased by 8.4% over the last 3 years (in-line with visitation growth).
- v. In summary, the major reason for international tourist visits to Queensland was for the purposes of a holiday, with this segment growing steadily. These holiday-makers are staying for a shorter period of time but spending larger amounts.

Townsville Tourist Market

- i. Table 3 provides a snapshot of the Townsville tourist market for the year ending December 2017. Key points to note are as follows:

- In total, some 2.7 million international, domestic and day trippers visited Townsville in the year ending December 2017. This includes 1.4 million domestic day trippers (54.2%), 1.1 million domestic overnight visitors (40.3%) and 147,000 international visitors (5.5%).
 - These visitors were estimated to spend a total of \$1.04 billion within the Townsville economy, which represents 1.9% of total tourism expenditure in Queensland.
 - Combining the domestic overnight visitor nights (3.6 million) with the international visitor nights (1.3 million), tourists stayed a total of some 4.9 million visitor nights in Townsville. Dividing 4.9 million by the number of days in the year (365) means that domestic overnight and international visitors are the equivalent of an additional 13,500 permanent residents in Townsville. This is equivalent to 7.1% of the total Townsville urban area population, however, this proportion would be higher in major tourist areas.
- ii. Chart 6 also compares international tourist visitors, visitor nights and spend in Townsville with that of Far North Queensland and Queensland over the 2006–17 period. As shown, international tourist visitation and spend has remained relatively flat in Townsville over the past decade, while visitation to Queensland overall has increased steadily.
- iii. Table 4 details international tourist visitation to Queensland by region. Key points to note are as follows:
- The average length of stay of international visitors to Townsville at 9.1 nights is longer than the Queensland benchmark of 5.7 nights.
 - The 10.5% decline in international visitors to Townsville in the last 12 months is inconsistent with the majority of other destinations in Queensland which experience positive growth in international tourist numbers. This likely reflects the impact of Cyclone Debbie in March 2017.

- The proportion of international visitors to Townsville for the purpose of a holiday at 81% is higher than the Queensland average of 70% but lower than major tourist destinations such as the Whitsundays (97%) Tropical North Queensland (94%) and the Fraser Coast (92%).
 - Townsville accounts for 5% of international visitors to Queensland but only 1.9% of spend. This highlights the lack of major tourist-based facilities in Townsville currently.
- iv. Table 5 compares the provision of short-term tourist accommodation in the Townsville region with that of Far North Queensland (in the core tourist area from Cairns to Port Douglas) and Queensland overall. Key points to note are as follows:
- Townsville provides almost 2,800 rooms across 46 establishments.
 - The provision of rooms in Townsville represents less than 25% of that provided in Far North Queensland (approximately 10,200) and less than 4% of rooms provided across Queensland (approximately 67,200).
 - In the June 2016 quarter (latest available information), room occupancy rates in Townsville, at 62.7% were higher than the Queensland average (59.8%) and comparable with that of Far North Queensland (63.7%).
 - Average takings per room, per night occupied were 15% - 25% lower than in Far North Queensland and Queensland overall. This is likely a function of supply, with only 40 hotels/motels/serviced apartments with a 4 or 5-star rating provided in Townsville currently (refer Table 6). As such, the area is not a major tourist destination for the overseas market. Townsville currently does not provide a major activity driver for tourist demand like the dive industry/Great Barrier Reef is for Far North Queensland.
- v. Map 2 and Table 7 provide a more detailed breakdown of the location and provision of short-term tourist accommodation in Townsville by SA2. As shown, existing tourist

accommodation is concentrated in the Townsville City – North Ward, South Townsville – Railway Estate, Hermit Park – Rosslea and Magnetic Island.

- vi. Chart 7 illustrates the inbound aircraft and passenger movements to Townsville airport over the 2009-17 period. As shown, aircraft movements have remained relatively static at around 12,800 inbound flights per annum, while inbound passenger movements have fluctuated between 750,000 – 800,000 over the same time period. A \$40 million expansion of Townsville Airport is currently under consideration, which could accommodate the additional visitation levels generated by the proposed development.

China Market Visitor Profile:

- i. Table 8 provides a snapshot of the Chinese visitor market to Australia by reason for visiting for the year to December 2017. Key points to note are as follows:
 - In total, some 1.3 million tourists from China visited Australia.
 - The majority (54%) of these visitors were holiday-makers.
 - Chinese visitors spent over 52 million nights in Australia, spending a total of \$8.3 billion.
- ii. China became Australia's largest international market which overtook New Zealand in December 2017 as highest number of inbound arrivals.
- iii. Chart 9 illustrates the growth in Chinese inbound/outbound passenger movements for each of the major airlines over the 2009-18 period. As shown, the number of inbound passengers has increased significantly from 150,000 in 2009 to 2.5 million in 2018. Due to increasing demand and improved access through the establishment of direct flights from China to Cairns. A direct flight route from Shenzhen in China to Darwin operated by Donghai Airlines was recently announced. This route is anticipated to inject an additional \$32 million per annum into the Darwin economy once the route reaches three flights per week at 80% capacity.

- iv. Key drivers of growth of Chinese visitors to Australia in recent years include:
- The decline of the Australian dollar
 - Australia is perceived as “safe to visit”
 - Relatively low travel costs.
 - Rising Chinese household income
 - Softening of travel controls over Chinese residents
 - Acceptance by a growing number of Australian retailers and tour companies of China’s only domestic bank card, UnionPay
 - Marketing of areas beyond the eastern seaboard cities by Tourism Australia
- v. Table 9 details the visitation levels of Chinese tourists to various cities/regions in Australia. As shown, Sydney was the primary destination with almost 62% of visits, followed by Melbourne (49.8%) and the Gold Coast (25.2%). Almost 216,000 Chinese tourists (17.6%) visited Tropical North Queensland.
- vi. Austrade/TRA released a research paper on ‘High Spending Asian Visitors to Australia’ in 2015. A ‘high spending visitor’ is classified as follows:
- **Trip expenditure high spenders** had total leisure expenditure of \$4,200 (adjusted for CPI).
 - **Daily expenditure high spenders** had average daily expenditure of \$330 (adjusted for CPI).
- These thresholds were chosen to capture the top 10% of Asian leisure visitors. It is noted that some 3% of Asian visitors were both trip and daily high spenders.
- vii. The paper provides a profile of high spending visitors by country of origin. Key points to note in relation to high spending visitors from China are as follows (refer Chart 10):

- High spending Chinese visitors were predominantly women (54%) aged 45 – 59 years (45%).
- 75% of high spending Chinese visitors were visiting Australia on a holiday, compared with the remaining 25% visiting friends or relatives.
- The majority (54%) were visiting Australia for the first time.
- 32% of Chinese high spending visitors were travelling alone, 23% as a couple and 13% as a family.
- Almost half (47%) arrived in Sydney, with 31% arriving in Melbourne and 14% in Brisbane/Gold Coast.
- 46% were staying for less than one week, indicating a ‘city break’ rather than an extended holiday.

viii. Chart 11 illustrates the spending profile of Chinese high spenders compared with non-high spenders. Key points to note include:

- The spending profile of higher spenders and non-high spenders is broadly similar with the majority of expenditure on shopping to take home – this proportion is slightly higher for high spenders (at 44%).
- High spenders are less likely to go on organised tours than non-high spenders.
- High spenders are more likely to spend more on long distance transport than non-high spenders.

Equestrian Market in China

- iii. The Beijing Olympic Games in 2008 was a key driver in the growth of equestrian based sport as a new leisure activity in China.
- iv. As economic growth continues across China, the potential for residents’ disposable income to invest in new sports and leisure activities also increases. China’s professional

horse sports and leisure industry has benefited from this rise in demand and its potential for future growth is substantial.

- v. As at December 2017, a total of 1,452 equestrian clubs were provided across China, with more than one-third (545) of these clubs being developed in 2016/17.
- vi. According to the China Horse Fair, equestrian club membership in China reached 972,840 in December 2017, reflecting an average annual growth rate of 68%.
- vii. China became the 21st member of the International Federation of Equestrian Tourism in October 2017. The membership will help China to accelerate standardisation of equestrian tourism and promote horse culture exchange and cooperation with other countries. The Chinese Horse Culture, Sports, Tourism Planning Institute now work with the international federation to help Chinese residents to get equestrian tourism information worldwide and arrange for them to join equestrian events abroad.
- viii. The growth of activities such as equestrian sports in China, is driving rapid increases in demand for a full range of high-end products including top quality horses, facility equipment, clothing and equine health products and tourist activities.

Equestrian Industry in Australia

- i. The proposed development is also planned to host a number of equestrian-based events each year. The equestrian industry provides events across a wide range of disciplines, including; polo, dressage, endurance, show jumping, barrel racing, rodeo, reining, carriage driving and show horsing.
- ii. Figure 2 illustrates some key statistics in relation to the equestrian industry in Queensland. In 2017, 15,000 participants competed in various horse-related events, with over 91,000 unique visitors attending.
- iii. Equitana Asia Pacific is the largest horse exhibition held in the southern hemisphere. The event is hosted held at Melbourne Showgrounds over five days, every second year. The event includes a range of competitive events, entertainment, master classes and a large exhibition and attracts a total of 50,000 visitors each year.

iv. A range of other horse-related events are held around the country throughout the year.

The larger-scale events include:

- **Polo:** Australasian Gold Cup, Australian National Open, international test matches and the Victor Ludoram Polo Series are held annually.
- **Endurance:** the Australian championship event is the Tom Quilty Endurance ride; a strenuous 160-kilometre (100 mile) ride which attracts riders from all around Australia, the United Arab Emirates and New Zealand.
- **Rodeo:** the Mount Isa Mines Rodeo is a five-day event held annually. The event provides a number of shows, classes, a ball, live music acts and a range of market stalls.
- **Dressage:** the 2018 Australian Dressage Championships are to be held in Victoria at Boneo Park from 18-21 October. The outdoor arena at Boneo Park will be converted into a 1,500-capacity undercover stadium. The event includes a number of dressage competitions, a dressage showcase, exhibition and food village. A total of 234 riders will compete more than 300 horses over the course of the championships.
- **Polo-Crosse:** The Polo-Crosse World Cup 2019 will be held in Warwick, Queensland. The event is anticipated to attract 300 competitors from around the world, 2,000 international guests and 60,000 spectators, making it the largest international sporting event ever held in rural Australia. The Australian National Polo-Crosse Championships was recently hosted in Brigadoon, WA over a 10-day period.

v. These are the type and scale of event that equestrian facilities at the proposed resort should be targeting.

Comparable Examples - Equestrian Resorts

- i. Table 10 details the top 10 equestrian resorts across the world, based on a review by Robb Report in September 2017. Key points to note are as follows:
 - All of the equestrian resorts reviewed are located in areas of natural beauty or within large established estates (in the case of those resorts located in the UK).
 - All of the resorts provide at least one high-end restaurant and a spa.
 - Other activities are also offered including golf, hiking, tennis, swimming, scuba diving, fishing, archery, cycling etc.
 - All of the resorts are high-end and many offer a mix of suites and villas. The Clayquot Resort in Canada is a high-end 'glamping' resort, which could also be considered as a point of difference.

Market Potential (Staging/Demand)

- i. Table 11 outlines the projected visitation levels for the proposed resort in Townsville, assuming a staged development as follows:
 - **Stage One:** Hotel One (560 rooms) developed in 2021.
 - **Stage Two:** Hotel Two (560 rooms) developed in 2026.
 - **Stage Three:** Hotel Three (560 rooms) developed in 2031.
 - **Stage Four:** Hotel Four (560 rooms) developed in 2036.
 - **Stage Five:** Hotel Five (560 rooms) developed in 2041.
- ii. Based on an average of 1.8 persons per room and an assumed occupancy rate of 65%, projected resort visitation levels are almost 240,000 in 2021, increasing to 1.2 million in 2041, once the final stage is developed – assuming the resort is developed as outlined above. The staging of the various components of the resort will in reality be market-led and likely be more 'lumpy' in nature. For example, three hotels under

various brands may open in first stage across 750 rooms in Stage one, with a second stage only including one hotel. For the purposes of consistency, this report allows for a staged opening programme of a consistent number of rooms every five years.

- iii. International visitation levels to Queensland are projected at 10.8 million in 2021, increasing to 30.4 million by 2041.
- iv. On this basis, the proposed resort is anticipated to account 2.2% - 4.0% of total international tourist visitation to Queensland over the 2021-41 period. Post 2041, once the resort is fully developed and with continued growth in international visitation in Queensland, post 2041, this proportion will continue to diminish. Further, international tourist growth in Queensland may be slightly higher than projected following the development of this type of resort (i.e. supply of a significant resort leads to additional demand).
- v. As outlined above, the staging of the development will be market led and as such, could vary from that assumed in Table 11, with three or more hotels developing in the earlier part of the forecast period. On this basis, the proposed resort would account for a maximum of 5.0% - 6.0% of total international tourist visitation to Queensland. Further, the broader Townsville economy would benefit from the extended benefits resulting from earlier development of the project.
- vi. This analysis assumes that the proposed development is only targeted at international tourists. It is likely that this type of development would appeal to domestic tourists also, given that lack of major equestrian resort facilities within Australia.

Summary of Economic Need and Benefits

- i. 'Need' or 'Community Need' in a planning sense is a relative concept that relates to the overall wellbeing of a community. A use is needed if it would, on balance, improve the services and facilities available in a locality. The reasonable demands and expectations of a community are important, therefore, in assessing need.

- ii. A number of important factors that relate to need, particularly economic need, include:
 - Need for the development
 - Impacts on the existing operators
 - Suitability of site
 - Economic Benefits

Needs Analysis

- i. Key points to note in relation to the need of the proposed development are as follows:
 - China is a rapidly growing, lucrative tourist market.
 - Equestrian activities are a rapidly growing leisure market in China.
 - Currently no major equestrian resorts provided within Australia. As such, the proposed development will not impact on any other operator.
 - There are no major tourist resorts or hotels within Townsville currently. The proposed development will likely generate additional tourist demand which would otherwise have escaped to other international markets. The projected market demand/staging outlined in Table 11 does not account for additional demand generated by the proposed development.

Suitability of Site/Location i.e. Townsville

- i. Key points to note in relation to the suitability of Townsville as a location for an equestrian-themed tourist resort are as follows:
 - Townsville is well positioned to capture growing Chinese visitor market; close to Great Barrier Reef, 320 days of sunshine per year, a number of major projects are planned which will appeal to the tourist market (e.g. MOUMA, Waterfront precinct etc.).

- Townsville has the capacity to accommodate a large-scale resort in a staged development.
- Direct flights from China to Townsville would facilitate the success of the development.
- It will be essential to provide a mix of uses (in addition to equestrian focused activities) in order to broaden the appeal of the resort to a number of customer segments and increase the average length of stay.

Key Economic Benefits

- i. Key benefits from the proposed development will arise directly from a number of sources, including:
 - Cost of construction of the development.
 - Expenditure of resort and event attendees on accommodation and other non-accommodation related items (e.g. food and beverages).
 - Jobs created directly as a result of the construction of the development and ongoing jobs associated with the operation of the resort (i.e. resort staff).
- ii. The proposed development will also generate indirect benefits to the local economy, including:
 - Gross value-added multiplier effects arising from the construction of the development.
 - Indirect jobs created during the construction phase and as a result of ongoing operation of the resort.
- iii. All spending estimates in this section are presented in constant 2017/18 dollars.

Resort

- i. Table 12 outlines projected spend generated by patrons of the resort. Key points to note are as follows:
 - The maximum number of resort nights available per year across 2,800 rooms is 912,800 (i.e. 2,800 rooms multiplied by 365 days).
 - Assuming an occupancy rate of 65% and an average of 1.8 persons per room, the total number of resort visitor nights available per year, is 1.1 million.
 - Based on an average accommodation cost per room of \$250 in today's dollars (or \$157 person per night), the total revenue generated for the accommodation sector is estimated at \$187.6 million per year.
 - Resort guests will also spend on other (non-accommodation related) items and services in the local economy; in particular on food and beverages. Assuming an average non-accommodation spend level of \$100 per person per day, the estimated non-accommodation spend of resort visitors is \$119.6 million per year.
- ii. In total, resort patrons are projected to spend approximately \$307.2 million per annum within the Townsville economy. In the first stage, assuming 20% of rooms have been developed, the spending would be \$61.1 million at that time (i.e. 20% of \$307.2 million).
- iii. Table 13 outlines the economic benefit of various other types of major entertainment events which are held in non-metropolitan locations within Australia. Key points to note are as follows:
 - The number of visitors attending each event varies from around 20,000 for the Muster music festivals to over 200,000 at the Bathurst 1000.
 - Notably, the Townsville 400 Super Cars event attracts almost 150,000 each year, indicating that Townsville can accommodate large-scale entertainment events.

- The economic benefit to the local economy from these entertainment events also varies, depending on the type and length of event. Small-scale music festivals tend to have a lower economic benefit (around \$10 - \$20 million) as attendees often visit for the day, or camp on-site.
 - Larger-scale events which are held over several days require attendees to spend on accommodation and food, in particular. These types of event, such as the Bathurst 1000 and the Tamworth Music Festival can inject \$50 - \$60 million into the local economy.
 - The average economic benefit per visitor across these events is in the order of \$450 - \$500, although some of the larger-scale events such as the Tamworth Music Festival can generate around \$1,000 per visitor.
- iv. For the purposes of this analysis, it is assumed that an equestrian-related event, targeting a wealthier, international market could potentially generate around \$750 per person visitor, given that the horse-related events tend to be held over several days.
- v. Assuming that five horse industry-related events are held each year at the Townsville Equestrian Resort, including four smaller scale events of 5,000 – 10,000 visitors and one large-scale event of 30,000 visitors. This would equate to attracting an average of 12,000 visitors per event would indicate a total of 60,000 visitors per annum. This would translate to an economic benefit in the order of \$45 - \$50 million (i.e. 60,000 visitors x assumed economic benefit of \$750 per visitor).
- vi. Alternatively, the economic benefit can be calculated based on assumptions around accommodation and non-accommodation related expenditure, as follows:
- A total of 60,000 event visitors staying on average around five days would indicate a total of 300,000 events-related visitor nights per annum.
 - Some of these visitors could be accommodated within the resort itself, however, a proportion would stay in accommodation elsewhere within Townsville, thus benefiting the local hotel and rental accommodation industry.

- Assuming an average accommodation cost of \$186 per room (assuming some event attendees will stay at the resort and others will stay elsewhere in Townsville) or \$104 per person per night would indicate an additional \$31.1 million per annum generated in the accommodation industry alone.
- Based on an average spend on non-accommodation related items (e.g. food and beverages, convenience needs, leisure shopping etc.) of \$70 per visitor per day would indicate a further \$21.0 million into the Townsville economy.
- In total, events-related visitors are estimated to generate a total of \$52.1 million (refer Table 14). This is broadly consistent with the economic benefit calculated based on an assumed economic benefit of \$750 per visitor outlined above (\$45 - \$50 million).

Gross Value-Added Effects

- i. Definition of gross regional/state product are as follows:
 - Gross regional product – is the value of all goods and services produced within a particular region of Australia, being Sydney in this instance.
 - Gross state product – is the value of all goods and services produced within a particular state of Australia, New South Wales in this situation.
- ii. Two different types of value added effects are considered, namely:
 - Direct spending effects including day to day expenses and employee wages incurred in the construction of the site.
 - Indirect spending effects, or multiplier effects, including any flow on effects from the initial direct spending undertaken at the site.
- iii. Gross value-added multipliers are used to measure the interconnectedness of various industries within an economy and provide an indication of the flow on effect of spending within a particular industry, acknowledging that money spent can be spent again by those who initially received it.

- iv. Once the initial spending has cycled through the economy, a multiplier can be calculated as a ratio of overall change in GDP caused by the initial spending to the value of the initial spending.
- v. In the construction industry, in output terms, the total multiplier for output and employment in the construction industry is estimated by the ABS to be 2.866. So, for every million dollar increase in construction output, there is an increase in output elsewhere in the economy of \$2.9 million.
- vi. Table 15 outlines the multiplier effects from the construction spending of \$1 billion (or \$764 million in deflated 1996/97 dollars for input-output modelling) as part of the proposed development. Multipliers measure downstream economic activity that results from initial spending to determine the overall change in economic activity. Some \$2.1 billion of total economic activity is anticipated to result from the initial construction spending of \$1 billion.
- vii. Again, if only 20% of rooms are constructed in the first stage, then economic benefits would be approximately \$200 million in construction costs with flow-on benefits of approximately \$400 million.

Construction Jobs

- i. Based on an estimated cost of construction of \$1 billion (or \$764 million at in 1996/97 deflated for input-output modelling), the total number of construction job years throughout the construction phase of the project can be calculated using multipliers for non-residential construction. This results in total job years of 5,348 during the construction project (refer Table 16). Multiplying these jobs by the average annual income for a construction industry worker of \$78,146 results in \$417.9 million directly added to the broader economy.
- ii. The employment multiplier effects from the additional construction jobs would result in further employment of 8,568 job years throughout Townsville and the broader region. Multiplying this by the average income across all industries of \$62,785 results in a net addition of \$537.9 million to the broader economy.

- iii. Based on the above, some \$955.9 million in wage/salary income will be added to the broader economy both directly from construction and from flow on multiplier effects during the construction phase of the project. Depending on the rate of development, these benefits could flow through to the broader economy over an extended period of time.

Ongoing Employment

- i. Table 17 outlines the direct jobs which would be created as a result of the various components of the resort development together with the indirect jobs created as a result of this employment.
- ii. Our review of employment data indicates that on an operational basis, that five-star resorts typically employ around 1.1 workers per room. For international integrated resorts, such as those in Macau, it has been quoted that there are some 2-3 workers per room. A review of employment at other integrated resorts at Macau and Singapore indicates that there is very high employee to room ratios (in some instances greater than three workers per room).
- iii. For the purposes of this analysis, an employment ratio of roughly 1.5 workers per room is assumed, indicating that the proposed resort development would create some 3,750 jobs directly across the various stages. Applying the average income across the accommodation and food services industry of \$38,532 results in an additional \$116.6 million in income from direct employment within the equestrian resort.
- iv. A further 3,986 jobs would be created indirectly throughout Townsville and the broader Queensland economies on an ongoing basis. Applying the average income across all industries of \$62,785 results in an additional \$250.2 million in downstream employment income.
- v. Other indirect benefits which are difficult to quantify at this stage include:
 - The benefits to the small business economy within Townsville, in particular, the growth in tourism operators and small businesses to service the entertainment needs of resort visitors and event attendees.

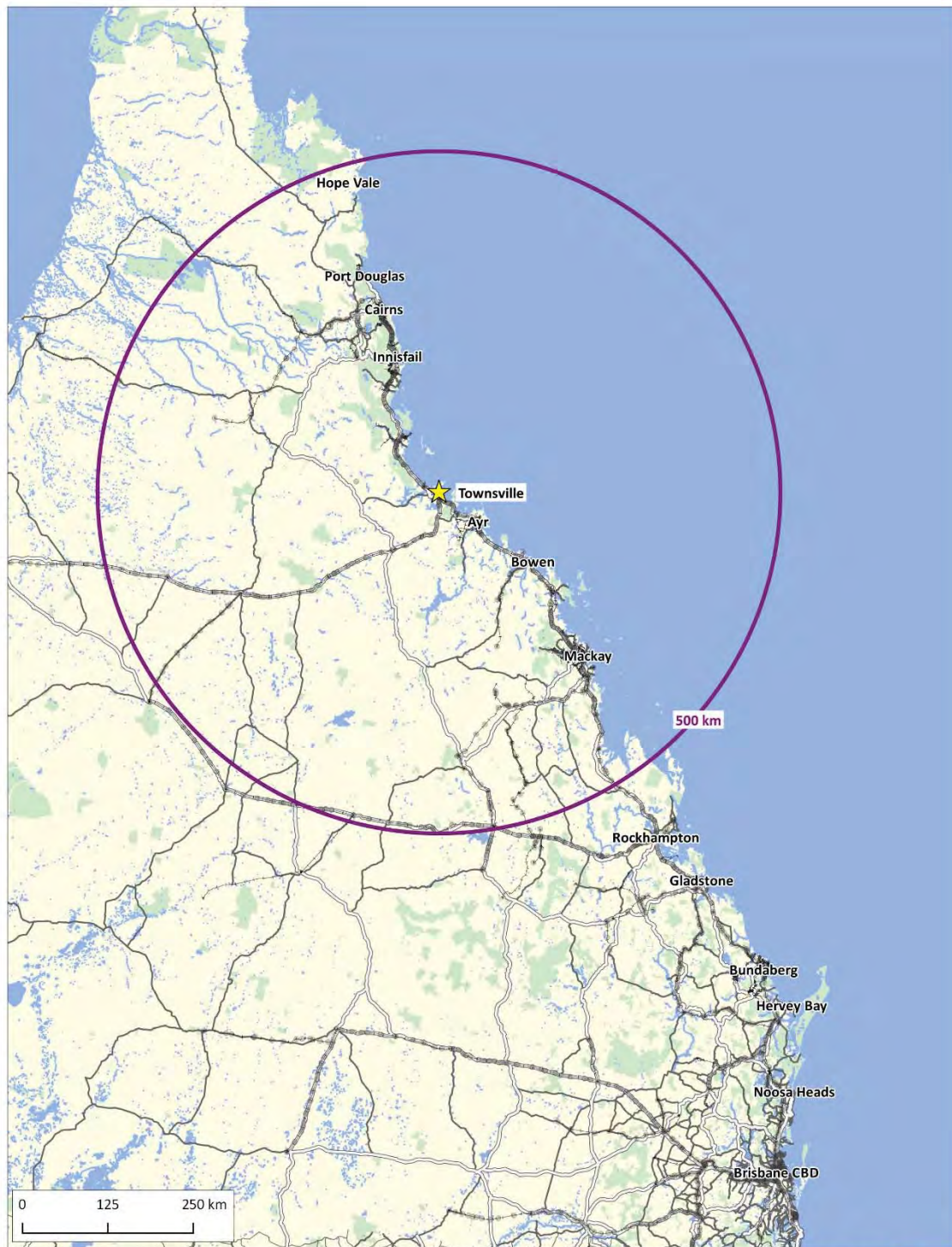
- Growth in the range and types of new skills sets within the local workforce (in addition to the absolute number of jobs created), for example; language services, hospitality and hotel management etc.

Benefits Summary

- i. Overall, the proposed equestrian resort in Townsville is a significant project at estimated as \$1 billion in construction costs (in 2017/18 dollars). The proposed resort and associated events will add significantly to the community in terms of net benefits, particularly for the growing local community in and around the subject site.
- ii. Table 18 outlines the total monetary benefits of the proposed development to the broader economy in Stage One and for the total project both during the construction phase and on an ongoing basis. Construction benefits will accrue during the construction period only, whereas ongoing benefits are accrued annually. The table therefore shows benefits during the construction period and for one year of operation thereafter.
- iii. Total one-off benefits arising from the construction of the resort, based on the cost of construction, construction workers wages and associated multiplier effects in the broader economy are projected at \$627.3 in Stage One and \$3.1 billion across the total project.
- iv. Ongoing benefits resulting from the development including resort workers' wages and associated multiplier effects as well as spending by resort visitors and event attendees is estimated at \$146.1 million in Stage One and \$730.3 million across the total project.
- v. The direct and indirect effects could be higher if the development is staged to include two or three hotels in the earlier stages, with remaining with stages developed over the medium to longer term.
- vi. In total, benefits arising from the construction phase of the proposed development plus one year of operation are estimated at \$773.3 million in Stage One and \$3.9 billion across the total project.

MAPS, FIGURES, CHARTS AND TABLES

MAP 1 – REGIONAL CONTEXT



LOCATIONIQ

Map produced by Location IQ using
QGIS 2.14 and related data sets.

MAP 2 TOWNSVILLE SORT TERM ACCOMMODATION

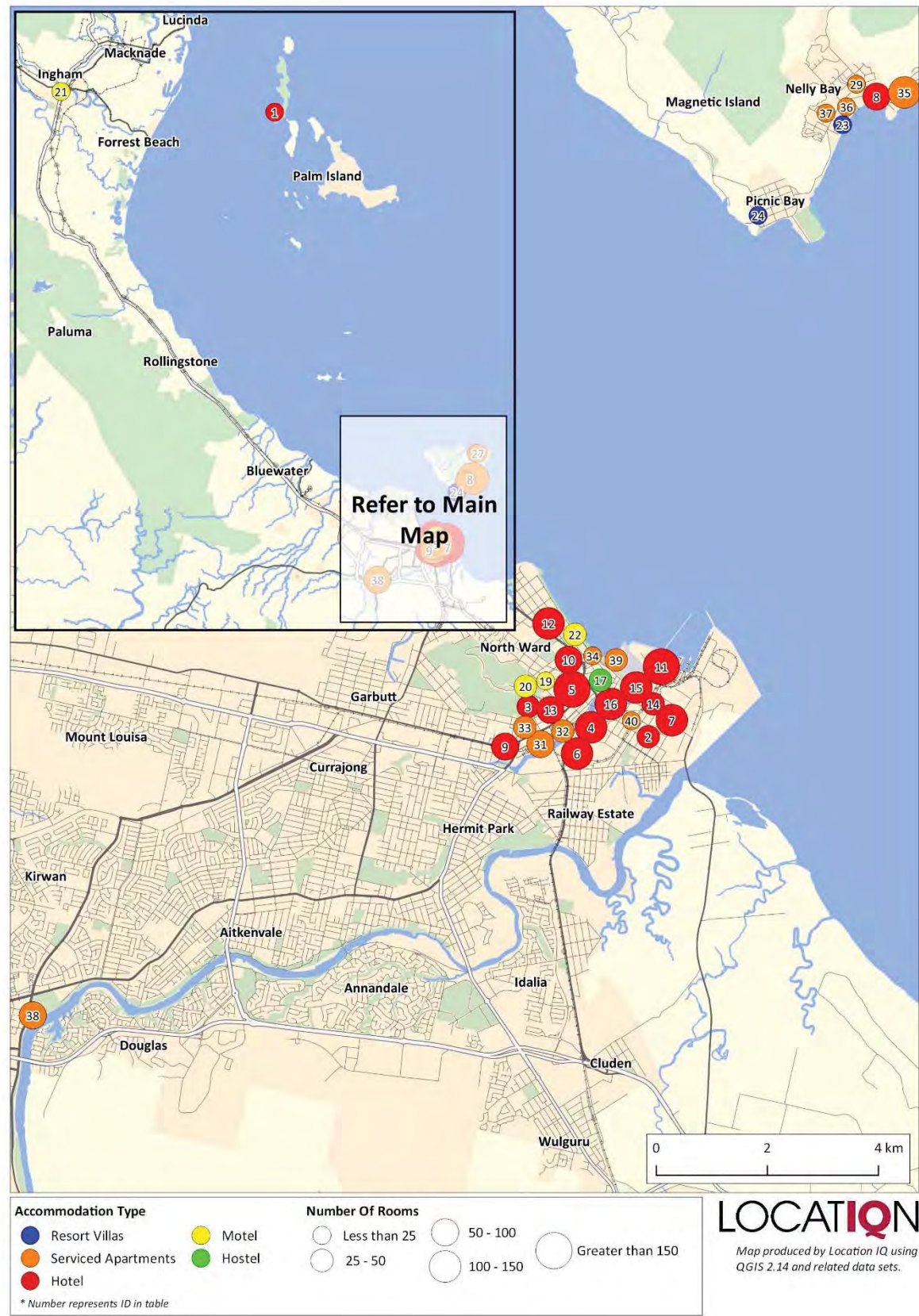


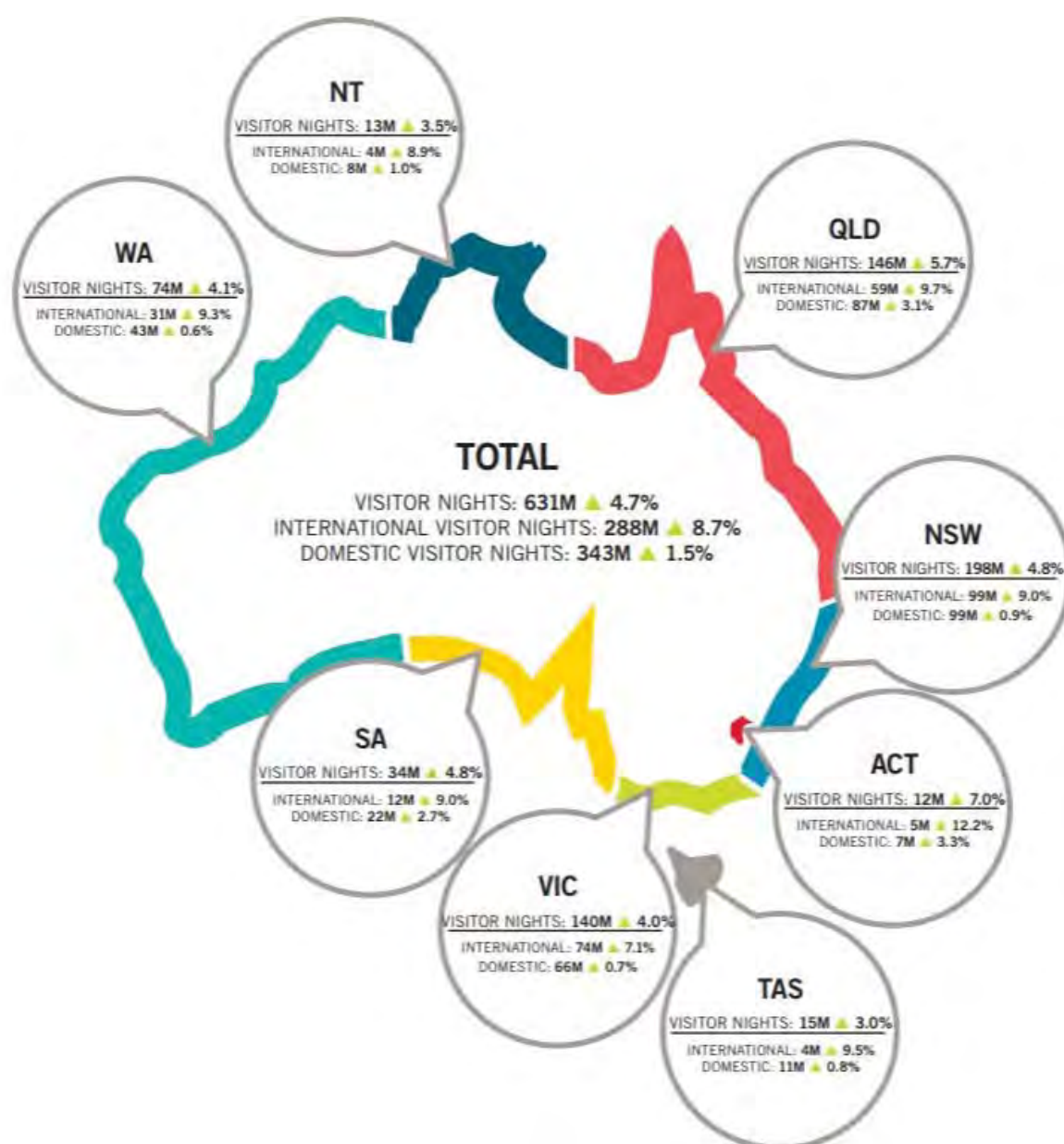
FIGURE 1 – VISITOR NIGHTS BY STATE AND TERRITORY, 2017-18

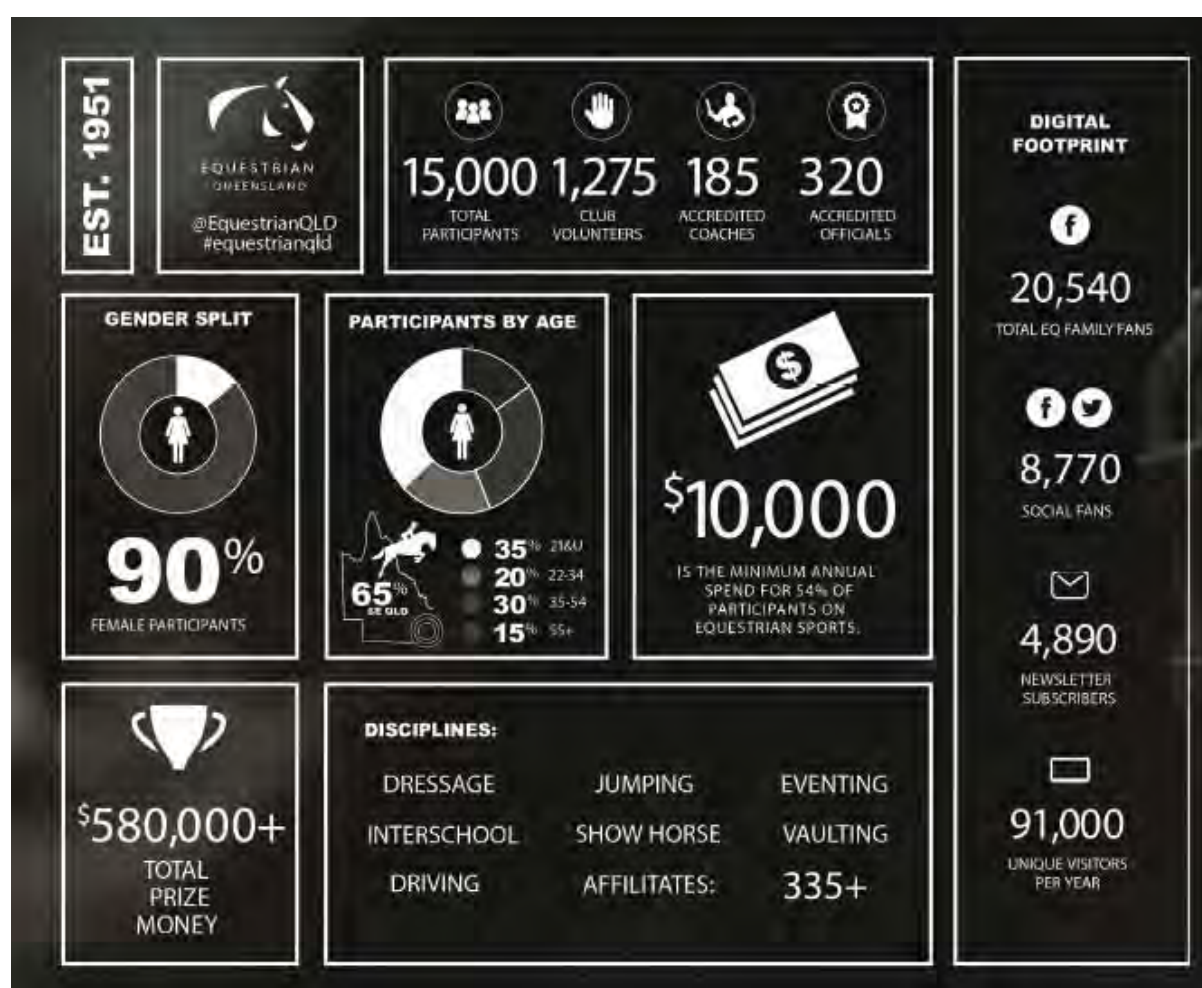
FIGURE 2 – EQUESTRIAN QUEENSLAND OVERVIEW

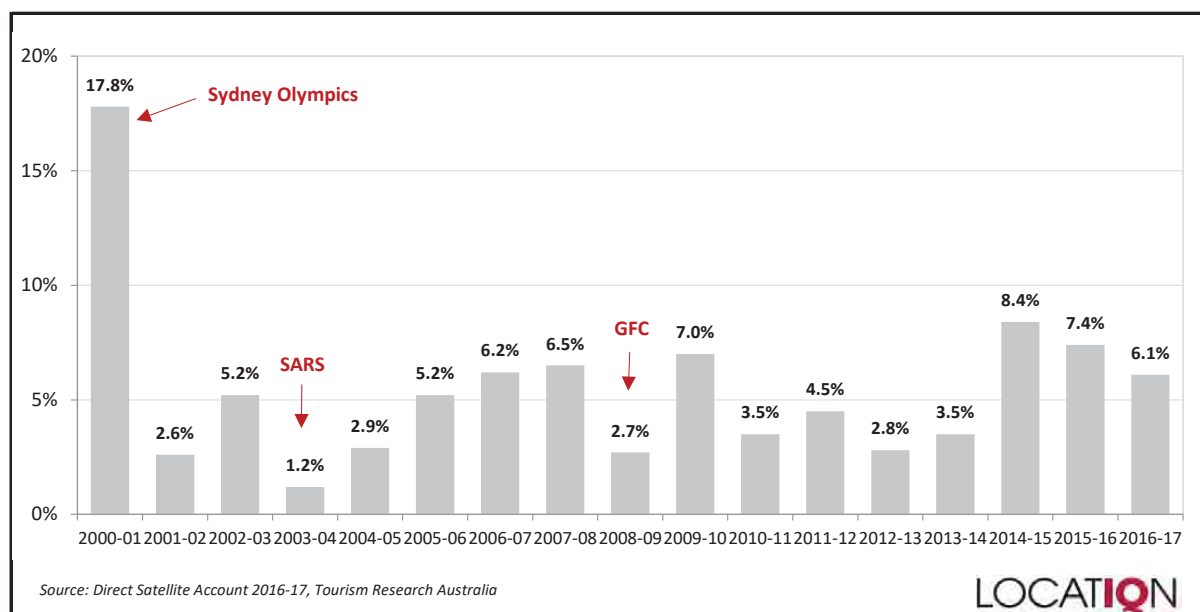
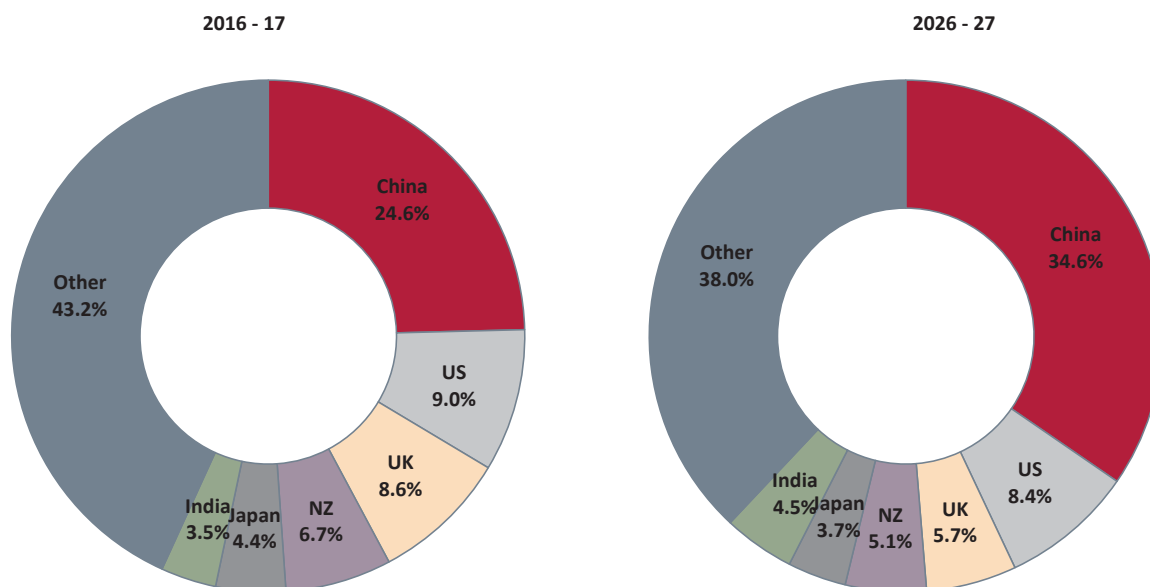
CHART 1 – GROWTH IN DIRECT TOURISM GDP, 2000/01 – 2016/17**CHART 2 – SHARE OF INTERNATIONAL VISITOR EXPENDITURE, 2016/17 & 2026/27**

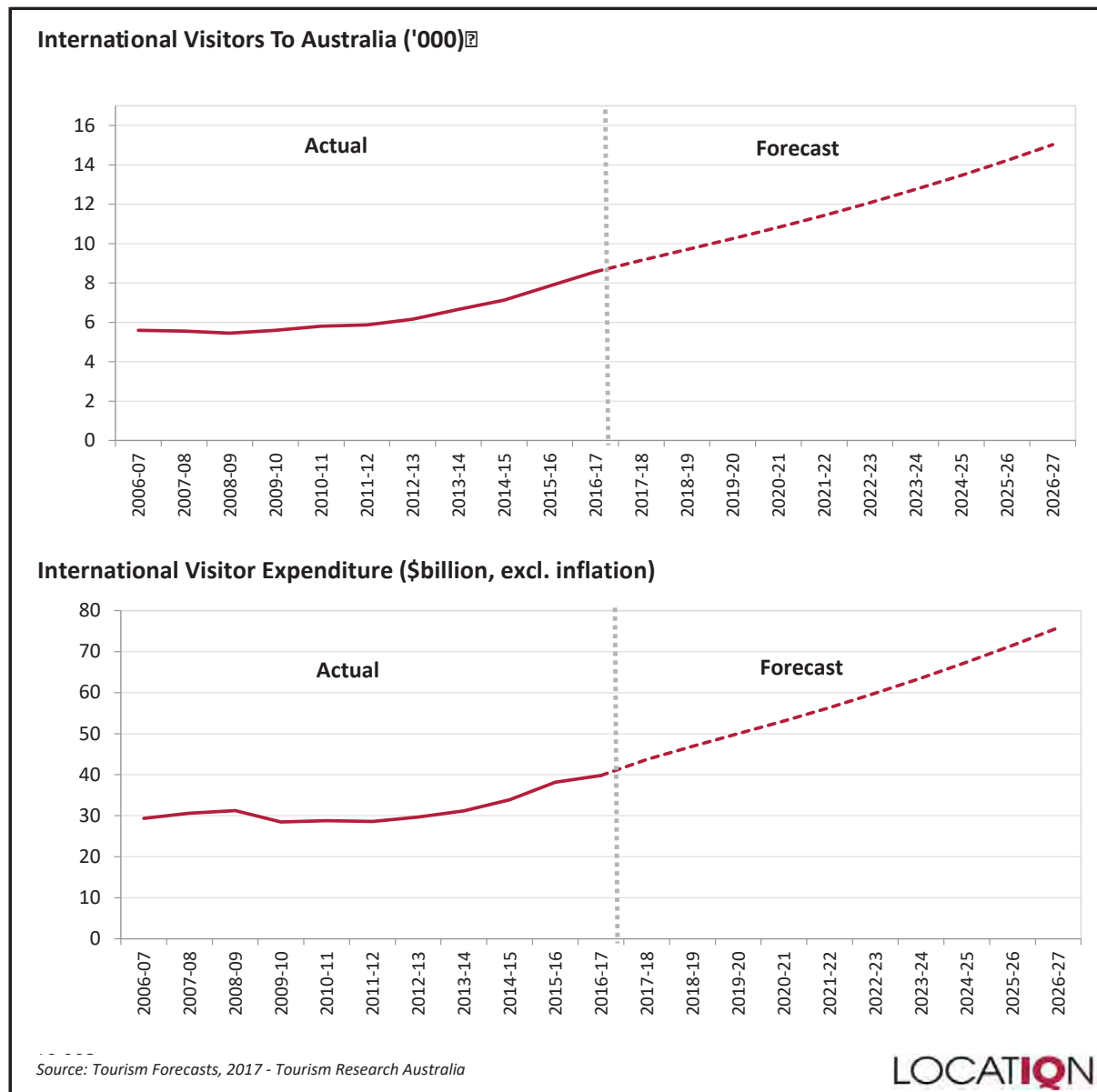
CHART 3 – INTERNATIONAL VISITORS AND EXPENDITURE, 2006/07 - 2026/27

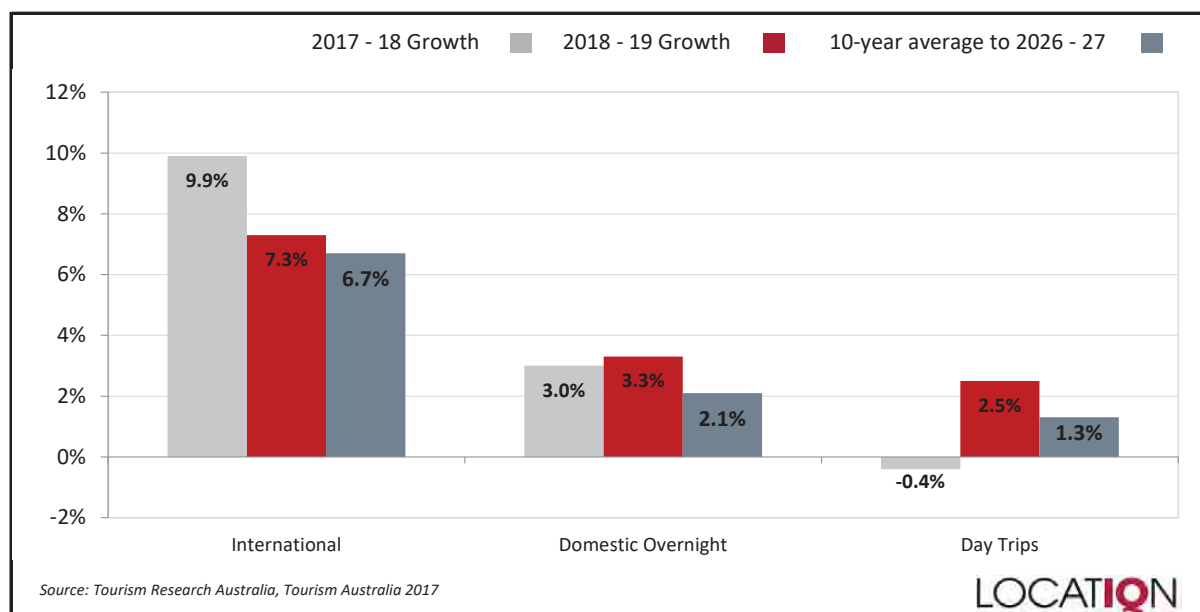
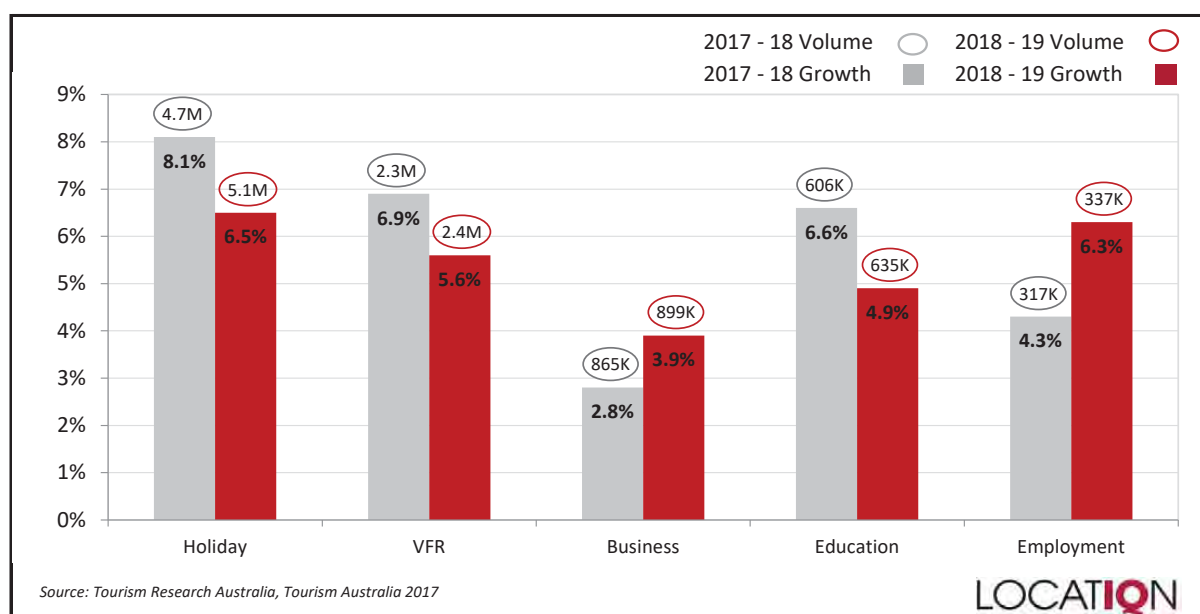
CHART 4 – PROJECTED GROWTH IN TOURIST VISITATION BY SEGMENT, 2017/18 – 2026/27**CHART 5 – PROJECTED GROWTH IN INTERNATIONAL ARRIVALS BY REASON FOR VISITING, 2017/18 & 2018/19**

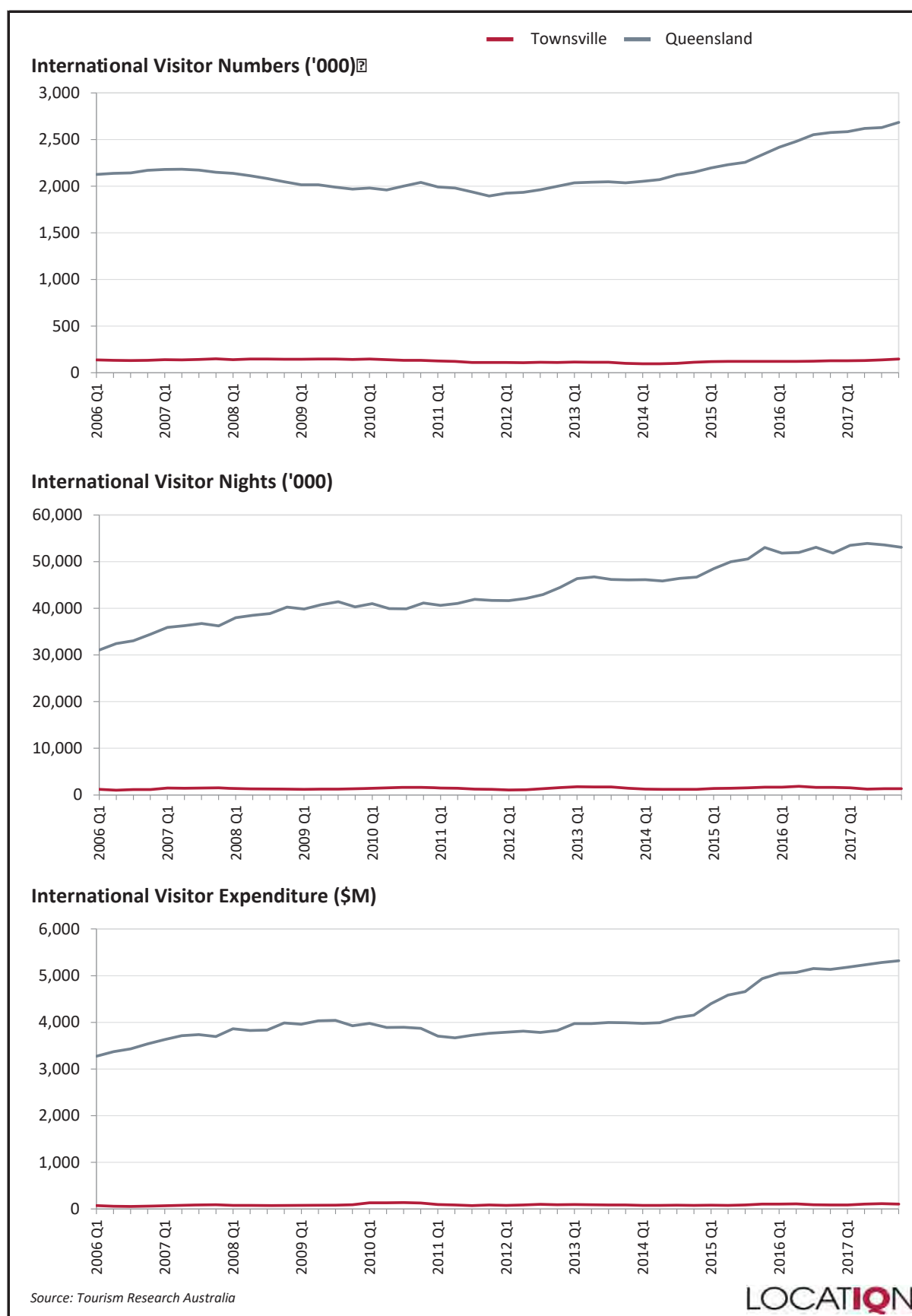
CHART 6 – INTERNATIONAL TOURIST STATISTICS, QUEENSLAND & TOWNSVILLE (2006-17)

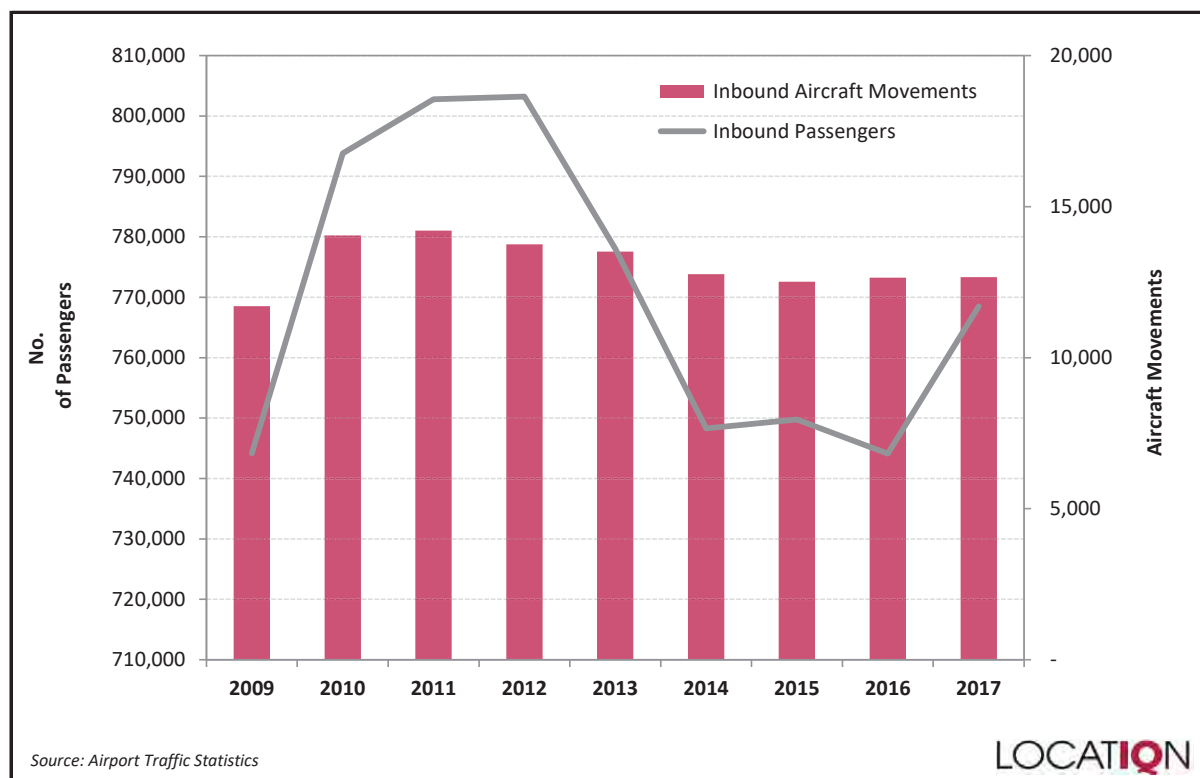
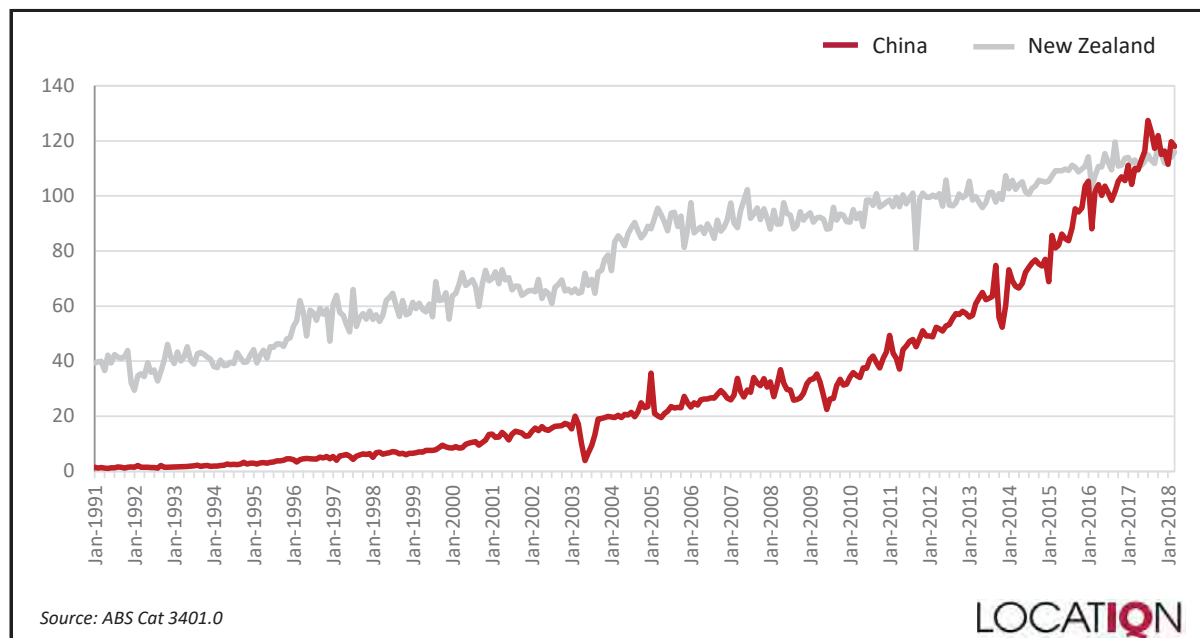
CHART 7 – TOWNSVILLE AIRPORT INBOUND AIRCRAFT & PASSENGER MOVEMENTS, 2009-17**CHART 8 – CHINA VS NEW ZEALAND ARRIVALS, 1991 – 2018**

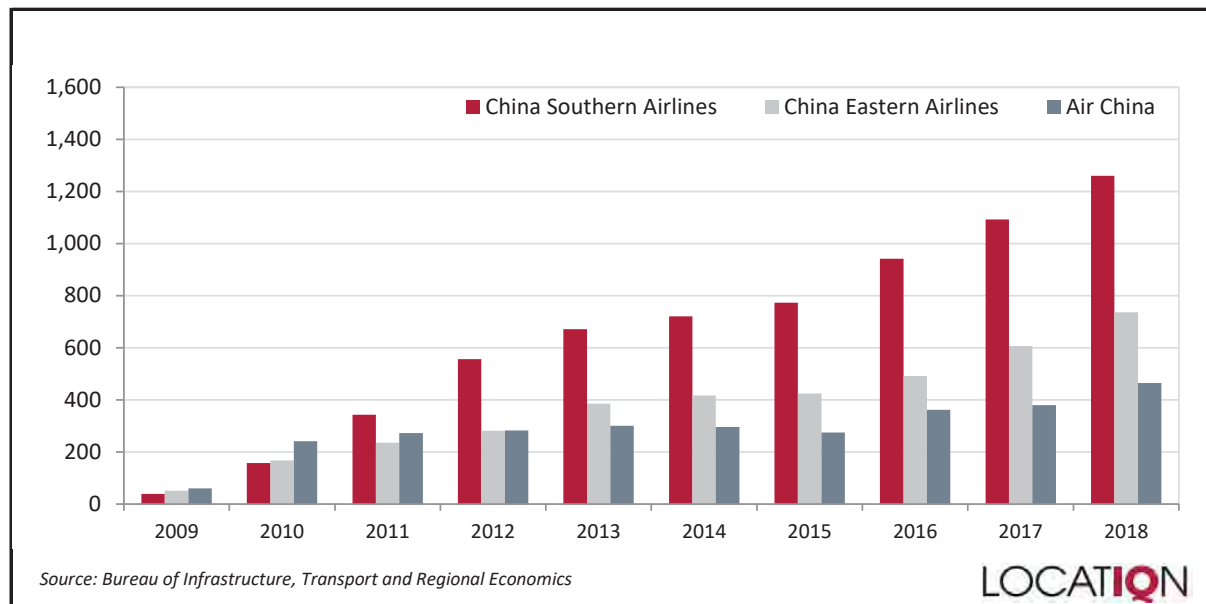
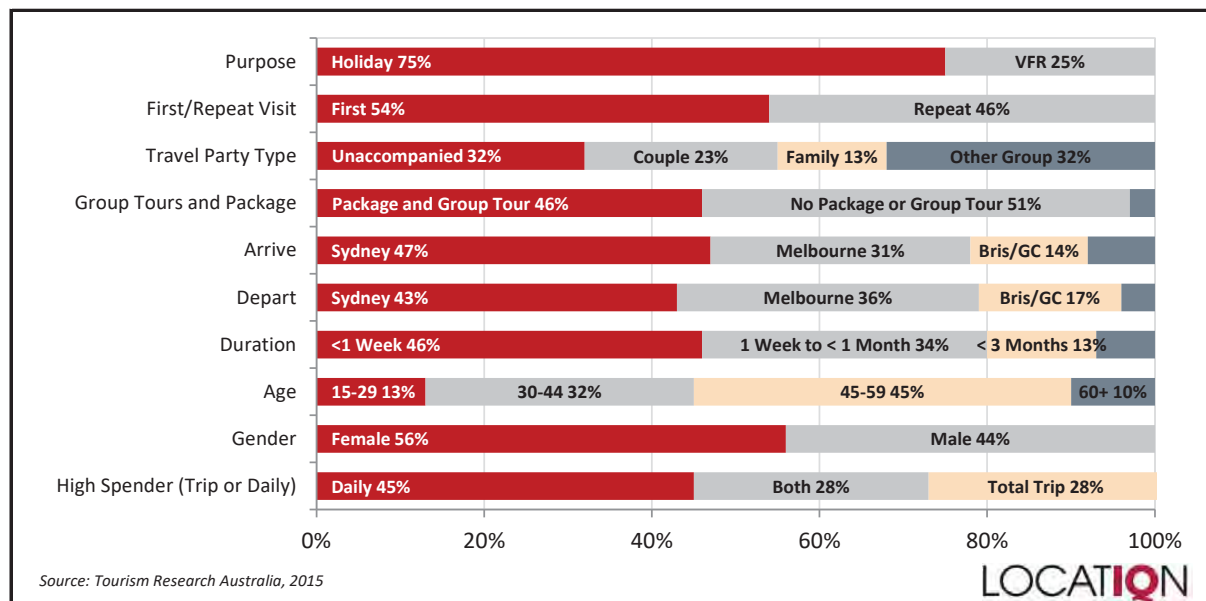
CHART 9 – CHINA AIRLINE PASSENGER MOVEMENTS TO/FROM AUSTRALIA BY AIRLINE**CHART 10 – CHINESE ‘HIGH SPENDER’ VISITOR PROFILE**

CHART 11 – CHINESE ‘HIGH SPENDER’ VS ‘NON-HIGH SPENDER’ COMPARISON

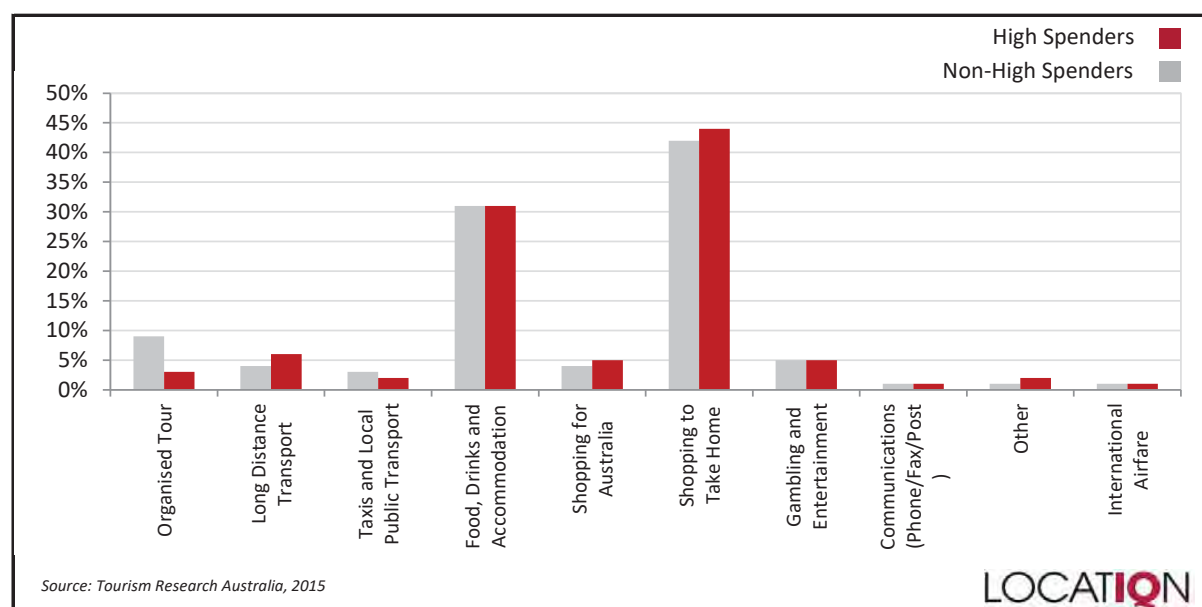


TABLE 1 – QUEENSLAND TOURISM STATISTICS, Y/E DEC 2017

Category	Domestic Day Trippers	Domestic Overnight	International	Total Visitors
Visitors ('000)	40,683	21,781	2,684	65,148
Visitor Nights ('000)	n.a.	86,528	53,089	139,617
Expenditure (\$M)	4,340	15,802	5,318	21,120
Average length of stay (nights)	n.a.	4.0	19.8	5.7
Average expenditure per visitor (\$)	107	725	1,981	863
Average expenditure per night (\$)	n.a.	183	100	151

Source: Tourism and Events Queensland, Dec 2017

LOCATIONIQ

TABLE 2 – QUEENSLAND INTERNATIONAL VISITOR STATISTICS, Y/E DEC 2017

All Visitors	Visitors ('000)	YOY Change (%)	3Y Trend (%)	Average Length of Stay (nights)	YOY Change (%)	3Y Trend (%)	Expenditure (\$M)	YOY Change (%)	3Y Trend (%)
Holiday	7,337	5.5%	8.5%	12.6	-0.8%	-3.0%	11,098.9	0.6%	8.4%
VFR*	2,497	6.7%	6.6%	18.0	-10.1%	-1.7%	2,505.9	6.2%	7.2%
Business	701	8.0%	2.1%	7.6	-11.6%	0.0%	946.6	6.0%	3.3%
Education	451	11.6%	11.3%	103.8	-2.3%	-2.7%	5,124.2	5.6%	12.7%
Employment	223	-13.8%	-3.3%	92.4	13.0%	1.1%	1,096.6	3.3%	0.9%
Other	308	-3.8%	6.3%	4.6	10.8%	-1.3%	243.3	17.9%	19.9%
Total**	10,514	4.9%	7.7%	20.4	-2.2%	-2.7%	21,016	3.0%	8.7%

* Visiting Friends/Relatives

**Includes "Other" visitors

Source: Tourism and Events Queensland, Dec 2017

LOCATIONIQ

TABLE 3 – TOWNSVILLE TOURISM SNAPSHOT

Category	Domesti Day Trippers	Domestic Overnight	International Overnight	Total Visitors
Visitors ('000)	1,444	1,074	147	2,665
Visitor Nights ('000)	n.a.	3,599	1,340	4,939
Expenditure (\$M)	170	775	103	1,048
Average length of stay (nights)	n.a.	3.4	9.1	1.9
Average expenditure per visitor (\$)	n.a.	721	701	393
Average expenditure per night (\$)	n.a.	215	77	212
Proportion of Total Queensland				
Visitor	3.5%	4.9%	5.5%	4.1%
Visitor Nights	n.a.	4.2%	2.5%	3.5%
Source: Tourism and Events Queensland, Dec 2017				LOCATIONIQ

TABLE 4 – TOWNSVILLE INTERNATIONAL VISITOR STATISTICS, Y/E DEC 2017

Regions in Queensland	Visitors ('000)	Annual Change (%)	Visitor Nights ('000)	Annual Change (%)	Average Length of Stay (Nights)	Annual Change	Expenditure (\$M)	Proportion of Travel Purpose (%)			Share of Total Visitors (%)
								Holiday	VFR	Business	
Brisbane	1,274	6.7%	25,683	5.0%	20.2	-0.3	2,245	55.0%	28.0%	9.0%	47.0%
Fraser Coast	150	4.1%	705	0.2%	4.7	n.a.	45	92.0%	7.0%	0.0%	6.0%
Gold Coast	1,069	3.4%	9,691	7.1%	9.1	-0.3	1,228	80.0%	15.0%	3.0%	40.0%
Mackay	50	1.9%	411	-10.6%	8.3	n.a.	14	76.0%	15.0%	4.0%	2.0%
Outback	21	2.9%	481	-0.4%	22.5	n.a.	17	69.0%	15.0%	9.0%	1.0%
SGBR	151	6.1%	2,632	26.9%	17.4	2.9	92	78.0%	13.0%	6.0%	6.0%
SQC	48	3.9%	1,332	-11.5%	28.0	n.a.	66	45.0%	38.0%	11.0%	2.0%
Sunshine Coast	301	-2.8%	3,068	-23.9%	10.2	0.4	238	78.0%	19.0%	3.0%	11.0%
TNQ	897	14.3%	6,468	-17.5%	7.2	-0.1	1,078	94.0%	4.0%	2.0%	33.0%
Townsville	147	-10.5%	1,340	-12.8%	9.1	-3.5	103	81.0%	13.0%	3.0%	5.0%
Whitsundays	241	-0.4%	1,256	-2.1%	5.2	-1.4	190	97.0%	2.0%	1.0%	9.0%
Total Queensland*	2,684	4.3	53,089	2.4%	5.7	-0.4	5,318	70.0%	24.0%	7.0%	-

* Individual region totals will not sum to the State total as international visitors may have visited more than one region while in Queensland

TABLE 5 – SHORT-TERM ACCOMMODATION IN TOWNSVILLE, FNQ AND QUEENSLAND

Category	<u>Hotels, Motels & Serviced Apartments</u>			Townsville [^]	
	Townsville [^]	FNQ [*]	QLD	as a % of FNQ [*]	as a % of QLD
<u>June Quarter 2016 (latest available)</u>					
No. of Establishments	46	170	1,235	27.1%	3.7%
No. of Rooms	2,495	10,184	67,206	24.5%	3.7%
No. of Beds	6,581	30,527	196,032	21.6%	3.4%
<u>Room occupancy rate</u>					
• September Quarter 2015	69.6%	77.8%	67.5%	89.4%	103.0%
• December Quarter 2015	56.8%	65.3%	63.8%	87.0%	89.1%
• March Quarter 2016	49.8%	59.5%	59.8%	83.8%	83.3%
• June Quarter 2016	62.7%	63.7%	59.8%	98.5%	104.9%
<u>Average Takings per Room Night Occupied (\$)</u>					
• September Quarter 2015 (\$)	125.5	157.7	163.2	79.6%	76.9%
• December Quarter 2015 (\$)	114.8	143.2	169.8	80.2%	67.6%
• March Quarter 2016 (\$)	111.5	139.6	164.9	79.9%	67.6%
• June Quarter 2016 (\$)	120.8	140.2	157.3	86.2%	76.8%
[^] Townsville Local Government Area only [*] In core tourist precinct between Cairns and Port Douglas Source: ABS Tourist Accommodation Report No. 8635.0					

TABLE 6 – TOWNSVILLE 4* AND 5* SHORT TERM ACCOMMODATION

Map Ref #	Name	Suburb	No. of Rooms	Star Rating
<u>Hotels</u>				
1	Orpheus Island Resort	Orpheus Island	14	5
2	Allure Hotel & Apartments	South Townsville	45	4.5
3	Clarion Hotel	Townsville	28	4.5
4	Grand Hotel and Apartments Townsville	South Townsville	106	4.5
5	Hotel Grand Chancellor Townsville	Townsville	200	4.5
6	Oaks Gateway Suites	South Townsville	112	4.5
7	Oaks Metropole Hotel	South Townsville	104	4.5
8	Peppers Blue on Blue	Nelly Bay	74	4.5
9	Q Resorts Paddington	Townsville	52	4.5
10	Quest Townsville on Eyre	North Ward	84	4.5
11	The Ville Resort - Casino	Townsville	194	4.5
12	Aquarius on the Beach	North Ward	130	4
13	Madison Plaza Townsville	Townsville	93	4
14	Park Regis Anchorage	South Townsville	31	4
15	Quest Townsville	South Townsville	141	4
16	Townsville Central Hotel	South Townsville	118	4
<u>Motels</u>				
17	Rambutan Hostel	Townsville	42	5
18	Ayr Travellers Motel	Ayr	28	4
19	City Oasis Inn	Townsville	10	4
20	Comfort Inn Robert Towns	Townsville	47	4
21	Tropixx Motel & Restaurant	Ingham	24	4
22	Waters Edge The Strand	North Ward	47	4
<u>Serviced Apartments/Villas</u>				
23	Pure Magnetic Villas	Nelly Bay	10	4
24	Serenity on Magnetic	Picnic Bay	7	4
25	Itara Apartments	Thuringowa Central	52	4.5
26	Maggies Beachfront Apartments	Horseshoe Bay	13	4.5
27	Magnetic Sunsets Resort	Horseshoe Bay	6	4.5
28	One Bright Point	Nelly Bay	n.a.	4
29	Beachside at Magnetic Harbour	Nelly Bay	11	4
30	Blue on Blue Apartments	Nelly Bay	n.a.	4
31	Central Holborn Apartments by Vivo	Townsville	78	4
32	Central Islington Apartments by Vivo	Townsville	30	4
33	Central Kensington Apartments by Vivo	Townsville	44	4
34	Dalgety Apartments by Vivo	Townsville	12	4
35	Grand Mercure Apartments Magnetic Island	Nelly Bay	128	4
36	Island Leisure Resort	Nelly Bay	18	4
37	Island Palms Resort	Nelly Bay	12	4
38	Jacana Apartments	Thuringowa Central	69	4
39	Mariners North Holiday Apartments	Townsville	50	4
40	Townsville Southbank Apartments	South Townsville	15	4
Total			2279	
* per night. As at July 2018. Minimum stay may apply. Source: hotels.com.au; respective provider websites				LOCATION

TABLE 7 – TOWNSVILLE SHORT-TERM ESTABLISHMENTS, ROOMS AND BEDS BY SA2

SA2	Hotels, Motels & Serviced Apartments					
	Establishments		Rooms		Beds	
	No.	% of Total	No.	% of Total	No.	% of Total
<u>June Quarter 2016 (latest available)</u>						
Aitkenvale	2	3.2%	n.a.	n.a.	n.a.	n.a.
Belgian Gardens - Pallarenda	1	1.6%	n.a.	n.a.	n.a.	n.a.
Deeragun	1	1.6%	n.a.	n.a.	n.a.	n.a.
Garbutt - West End	1	1.6%	n.a.	n.a.	n.a.	n.a.
Hermit Park - Rosslea	8	12.7%	257	8.3%	759	9.0%
Magnetic Island	5	7.9%	202	6.5%	627	7.4%
Mundingburra	1	1.6%	n.a.	n.a.	n.a.	n.a.
South Townsville - Railway Estate	8	12.7%	784	25.2%	2,032	24.1%
Townsville City - North Ward	18	28.6%	1,252	40.3%	3,163	37.4%
Wulguru - Roseneath	<u>1</u>	<u>1.6%</u>	<u>n.a.</u>	<u>n.a.</u>	<u>n.a.</u>	<u>n.a.</u>
Total Townsville Study Area*	46	73.0%	2,495	80.3%	6,581	77.9%
Other reported SA2's	17	27.0%	326	10.5%	939	11.1%
Not reported as part of any SA2	<u>0</u>	<u>0.0%</u>	<u>288</u>	<u>9.3%</u>	<u>928</u>	<u>11.0%</u>
Total North Queensland Tourism Region	63	100.0%	3,109	100.0%	8,448	100.0%
* Townsville Local Government Area only Source: ABS Tourist Accommodation Report No. 8365.0						

TABLE 8 – CHINESE VISITORS TO AUSTRALIA, PROFILE (Y/E/ DEC 2017)

Category	Holiday	VFR	Business	Education	Employment	Other reason	Total
Visitors ('000)	679	230	82	201	28	32	1,251
Visitor Nights ('000)	8,422	10,350	1,054	27,946	3,440	1,232	52,444
Expenditure (\$M)	1,527	825	302	5,148	303	179	8,285
Average length of stay (nights)	12	45	13	139	124	39	42
Average expenditure per visitor (\$)	2,248	3,592	3,683	25,633	10,930	5,674	6,622
Average expenditure per night (\$)	181.4	79.7	286.2	184.2	88.0	145.7	158.0

Source: Tourism Research Australia, Dec 2017

TABLE 9 – REGION VISITED BY CHINESE TOURISTS (Y/E DECEMBER 2017)

City/Location	Visitors	Proportion of Visitors (%)
Sydney	757,566	61.8%
Melbourne	611,029	49.8%
Gold Coast	308,986	25.2%
Brisbane	236,236	19.3%
Tropical North Queensland	215,714	17.6%
Perth	58,147	4.7%
Adelaide	56,212	4.6%
Canberra	45,894	3.7%
Great Ocean Road	43,074	3.5%
Hobart and the South	35,415	2.9%

** Does not add up to 100% as visitors may have visited more than one region while in Australia
Source: Tourism Australia, Dec 2017*

TABLE 10 – TOP 10 INTERNATIONAL EQUESTRIAN RESORTS

Name	Location	Facilities Provided
The Ranch at Rock Creek	Montana, USA	5-star resort including spa, restaurant, scenery
Cuixmala Resort	Mexico	Mix of hotel suites and villas, two high end restaurants. Activities include horse riding, polo, scuba diving, hiking etc.
Coworth Park	Sunningdale, UK	70-room luxury house hotel set in 240 acres, including polo fields, eco-spa, 3 restaurants, kids club
Hacienda AltaGracia	Costa Rica	Equestrian resort including a mix of villas and suites plus spa and high end restaurant
Explora	Patagonia, Chile	49 rooms, located within the Torres del Paine National Park, horse riding and hiking focussed. Includes spa, restaurant and bar.
Fairmont Grand Del Mar	San Diego, USA	249 rooms, Tom Fazio designed golf course, a renaissance inspired spa and Addison restaurant
Estancia Vik José Ignacio	Uruguay	12 suites, polo, El Asador restaurant, art gallery, hosts weddings and events
Clayoquot Wilderness Resort	Canada	High-end glamping resort including spa, restaurants & bar. Activities include horse riding, kayaking, whale and bear watching & fishing.
Four Seasons Hotel	Hook, UK	500 acre estate, 3 restaurants, bar, library, spa. Activities include horse riding, clay pidgeon shooting, croquet, tennis, swimming.
Gleneagles Hotel	Scotland	5-star luxury hotel, 3 championship golf courses, spa, 2 Michelin star restaurant. Activities include golf, horse riding, tennis, shooting, archery, fishing, cycling, off-road driving

TABLE 11 – INDICATIVE STAGING AND VISITATION LEVELS, 2021-41

	2021	2026	2031	2036	2041
Proposed Townsville Resort					
Total No. of rooms	560	1,120	1,680	2,240	2,800
Average no. persons/room	1.8	1.8	1.8	1.8	1.8
Average occupancy rate	65.0%	65.0%	65.0%	65.0%	65.0%
Projected No. Resort Visitors p.a. (million)	239,148	478,296	717,444	956,592	1,195,740
QLD Projected International Tourist Visitation (million)*	10.8	14.2	18.3	23.6	30.4
Resort Visitors as Proportion of QLD	2.2%	3.4%	3.9%	4.0%	3.9%

* Source: Tourism Research Australia; Austrade

TABLE 12 – PROJECTED RESORT VISITOR SPEND

Townsville Equestrian Resort Resort Visitor Spend¹	
Total no. of rooms	2,800
Total rooms available per year	1,022,000
Occupancy rate	65%
Average persons per room	1.8
Total visitor nights/year (million)	1.2
Average cost per room per night	250.0
Average cost per bed-night (per person)	157
Revenue for accommodation sector (\$M)	187.6
Average daily spend on non-accommodation items	100
Non-accommodation spend (\$M)	119.6
Total Resort Visitor Spend (\$M)	307.2

1. Constant 2017/18 dollars and including GST

TABLE 13 – ECONOMIC BENEFIT OF ENTERTAINMENT EVENTS IN REGIONAL LOCATIONS

Event Name	Location	No. of Visitors	Economic Benefit (\$M)	Economic Benefit per visitor
Tamworth Music Festival	Tamworth, NSW	50,000	50	1,000
Splendour in Grass & Falls Festival	Byron Bay, NSW	60,000	55	917
Deniliquin Ute Muster	Deniliquin, NSW	20,000	13	650
Dark Mofo	Hobart, TAS	80,000	50	625
Bathurst 1000	Bathurst, NSW	206,000	55	267
Gympie Muster	Gympie, QLD	23,000	6	261
Townsville 400 (Super Cars)	Townsville, QLD	142,500	34	239
Woodford Folk Festival	Woodford, QLD	126,000	22	175
Tulip Time	Bowral, NSW	65,000	7	108
Average		85,833		471

TABLE 14 – ECONOMIC BENEFIT OF EVENTS

Townsville Equestrian Resort Event Attendee Spend¹	
No. of events per year	5
Average no. of attendees per event	12,000
Total Event attendees/year	60,000
Average length of stay (days)	5
Total no. of event attendee nights/year	300,000
Average cost per room per night	212
Average persons per room	1.8
Average cost per bed-night (per person)	118
Revenue for accommodation sector (\$M)	35.3
Average daily spend on non-accommodation items	70
Non-accommodation spend (\$M)	<u>21.0</u>
Total Event Attendee Spend (\$M)	56.3

1. Constant 2017/18 dollars and including GST

LOCATIONIQ

TABLE 15 – VALUE OF ECONOMIC ACTIVITY

Original Stimulus	Cost (\$M)	Total Construction Multiplier	Value of Economic Activity (\$M)
Construction	764	2.796	2,136

Source : Australian National Accounts: Input-Output Tables 1998-99

LOCATIONIQ

TABLE 16 – DIRECT AND MULTIPLIER EMPLOYMENT FROM CONSTRUCTION

Original Stimulus	Estimated Capital Costs (\$M)¹	Direct Employment	Supplier Employment Multiplier Effects	Total	
Construction of Project	764.0	5,348	8,568	13,916	Job Years ²

* Employment totals include both full-time and part-time work

1. Adjusted by inflation and productivity to 1996/97 Dollars

2. Indicates the estimated number of jobs over the life of the construction project plus ongoing multiplier effects, for the equivalent of one year

Source : Australian National Accounts: Input-Output Tables 1996-97

LOCATIONIQ

TABLE 17 – ONGOING EMPLOYMENT

Original Stimulus	Direct Employment*	Total Industry Wages/Salary** (\$M)	Supplier Employment Multiplier Effects	Total Employment Multiplier Wage/Salary**
Equestrian Resort	4,200	116.6	3,986	250.2
<p>* Employment totals include both full-time and part-time work</p> <p>** Based on ABS Average Earnings by Industry</p> <p>Source : Australian National Accounts: Input-Output Tables 1996-97</p>				

LOCATIONIQ

TABLE 18 – SUMMARY OF BENEFITS

Benefit	\$M
Construction Benefits	
Cost of Construction	1,000.1
Construction Wages/Salaries	417.9
Construction Employment Multiplier Effects	537.9
Other Construction Multiplier Effects	<u>1,180.4</u>
Total Construction Benefits	3,136.4
Ongoing Annual Benefits	
Industry Wages/Salaries	116.6
Industry Employment Multiplier Effects	250.2
Resort Visitors Expenditure	307.2
Event Attendees Expenditure	<u>56.3</u>
Total Ongoing Annual Benefits	730.3
Total Benefits From Construction Plus One Year of Operation	3,866.7

LOCATIONIQ

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Level 6, 56 Pitt Street
Sydney NSW 2000
www.locationiq.com.au



ATTACHMENT D
DESKTOP SEARCHES



DA Mapping System – Print Screen

Date: 26/11/2018

0 580 1,160 1,740 2,320

Metres



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Legend

Drawn Polygon Layer

Override 1

Cadastre (50k)



Cadastre (50k)

Coastal management district



Coastal management district

DA Mapping System – Print Screen



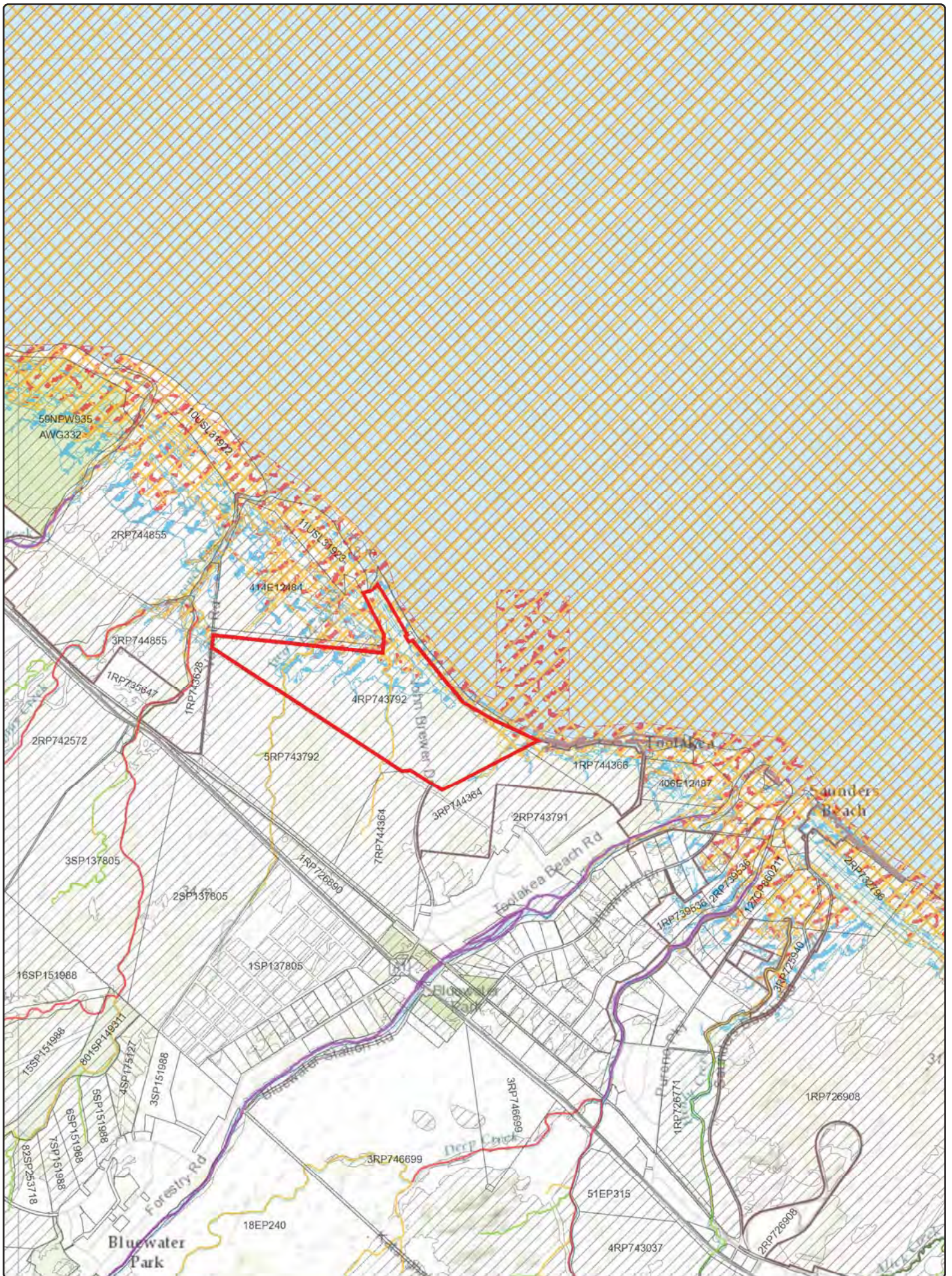
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0 1,100 2,200 3,300 4,400

Metres



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Legend





Drawn Polygon Layer

Override 1



Cadastre (100k)

 Cadastre (100k)


Queensland waterways for waterway barrier works

-  1 - Low
-  2 - Moderate
-  3 - High
-  4 - Major


Regulated vegetation management map (Category A and B extract)

-  Category A on the regulated vegetation management map
-  Category B on the regulated vegetation management map


Coastal management district

 Coastal management district


Coastal area - erosion prone area

 Coastal area - erosion prone area

Coastal area - medium storm tide inundation area

 Coastal area - medium storm tide inundation area

Coastal area - high storm tide inundation area

 Coastal area - high storm tide inundation area

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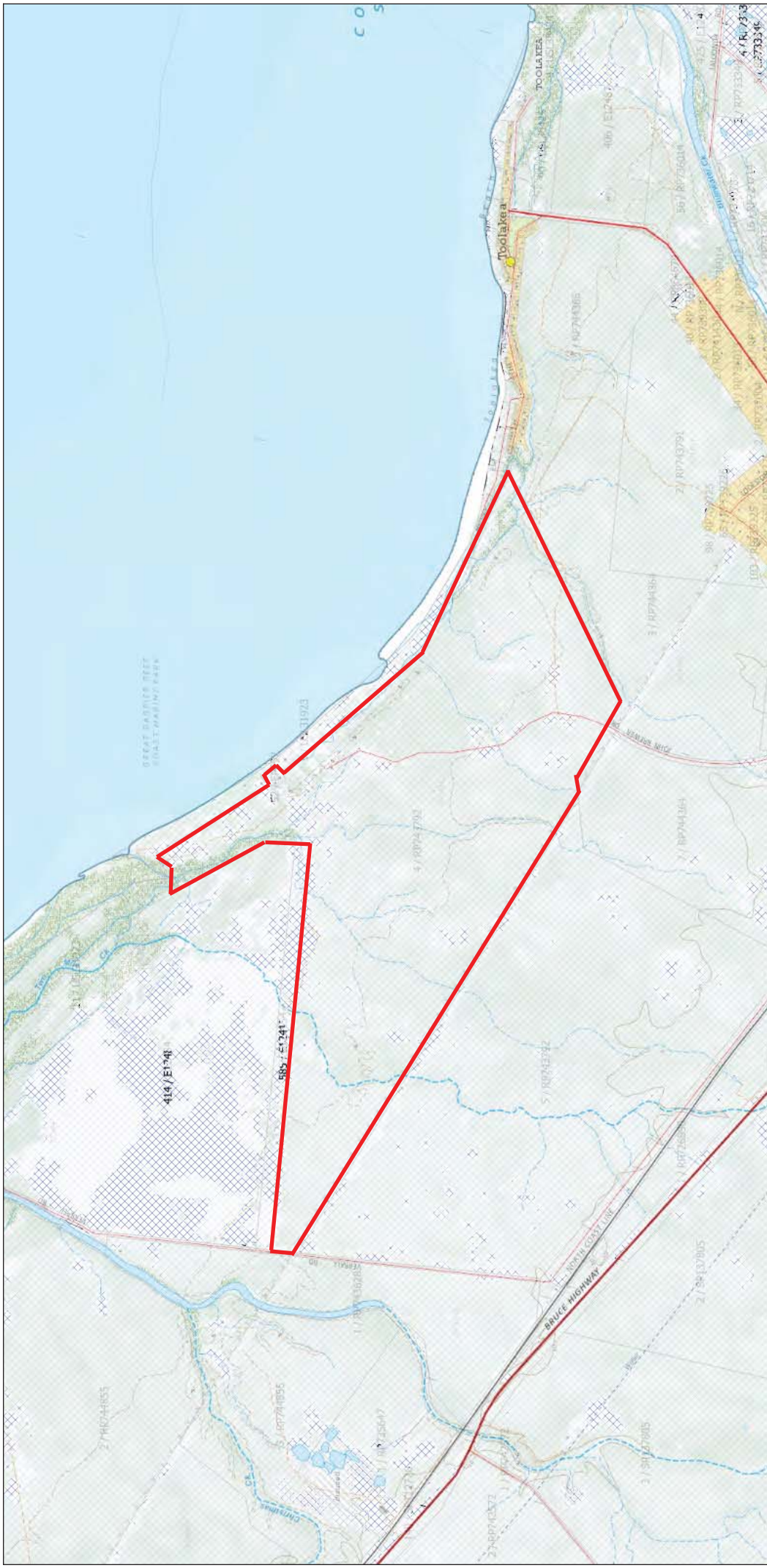
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DATSIP Cultural Heritage Areas



Map Projection : Geographic Latitude & Longitude (GDA94)

Compilation : Land Tenure Information obtained from the Digital Cadastre Data Base, Department of Natural Resources and Mines, Brisbane.

The Land Registry in the Department of Natural Resources and Mines should be consulted for verification of tenures.

Feature names shown on this map have been obtained from available information. It is possible that errors and omissions may exist.

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LEGEND:

Property - Address



qld_boundary_linestring

qld_boundary_linestring

— qld_boundary_linestring

cultural_heritage_study_areas

cultural_heritage_study_areas

cultural_heritage_parties

NULL

Previously Registered

Determined

Registered

cultural_heritage_bodies

cultural_heritage_bodies

cultural_heritage_management_plans

cultural_heritage_management_plans

designated_land_areas

designated_land_areas



PLACE
PLANNING
DESIGN
ENVIRONMENT

189 John Brewer
Drive, Bluewater

Ecological Assessment Report

Prepared for
Landmark Projects Pty Ltd

PLANNING DESIGN ENVIRONMENT

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Date:	28 July 2014		
Document Reference:	20140716_LMP01_EAR_for_DA_v1.0.docx		
Report:	Ecological Assessment Report for 189 John Brewer Drive, Bluewater		

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Date	Change Description	Version No.
28-Jul-14	Original	1.0

GLOSSARY, ACRONYMS & ABBREVIATIONS

Term	Definition
ASS	Acid Sulphate Soils
BBN	Brigalow Belt North Bioregion
Cwlth	Commonwealth
CMC	Central Mackay Coast bioregion
CMD	Coastal Management District
DE	Department of the Environment (Cwlth)
DEHP	Department of Environment and Heritage Protection
EAR	Ecological Assessment Report
EIS	Environmental Impact Statement
EP Act	<i>Environmental Protection Act 1994</i> (Qld)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPPs	Environmental Protection Policies
ERAs	Environmentally relevant activities
GES	General Ecological Significance
HES	High Ecological Significance
IBRA	Interim Biogeographic Regionalisation for Australia
MCU	Material Change of Use
MNES	Matter of National Environmental Significance
MSES	Matters of State Environmental Significance
NC Act	<i>Nature Conservation Act 1992</i> (Qld)
PDG	PLACE Design Group
Qld	Queensland
RaL	Reconfiguring a Lot
RE	Regional Ecosystem
REDD	RE Description Database
SARA	State Assessment and Referral Agency
SDAP	State Development Assessment Provisions
SPA	<i>Sustainable Planning Act 2009</i> (Qld)
SPP	<i>State Planning Policy</i>
SPR	<i>Sustainable Planning Regulation 2009</i> (Qld)
TCC	Townsville City Council
VMA	<i>Vegetation Management Act 1999</i> (Qld)
WET	Wet Tropics bioregion

TABLE OF CONTENTS

GLOSSARY, ACRONYMS & ABBREVIATIONS	1
1 INTRODUCTION	1
1.1 Purpose of this Report	1
1.2 Site Description	1
2 ASSESSMENT METHODOLOGY	3
2.1 Desktop Review	3
2.2 Site Investigation Methodology	3
2.2.1 Vegetation and Waterways	3
2.2.2 Fauna and Habitats	4
3 DESKTOP ASSESSMENT	5
3.1 Conservation and Planning Considerations	5
3.1.1 Commonwealth Government	5
3.1.2 State Government	6
3.1.3 Local Government	7
3.2 Planning Constraints Summary	8
4 ECOLOGICAL FIELD ASSESSMENT	11
4.1 Flora	11
4.1.1 Plant Species	11
4.1.2 Vegetation Communities	11
4.1.3 Weeds	13
4.1.4 Threatened Flora Species and Ecological Communities	13
4.2 Fauna and Habitats	15
4.2.1 Site Habitat Assessment	15
4.2.2 Fauna Species	16
4.2.3 Threatened Fauna Species	18
4.3 Waterways and Ecological Corridors	19
5 DEVELOPMENT EFFECTS AND MITIGATIONS	21
5.1 Development Footprint Rationale	21
5.2 Potential Impacts	21
5.2.1 Flora and Vegetation	21
5.2.2 Fauna and Habitats	23
5.2.3 Waterways	23
5.2.4 Ecological Processes	23
5.3 Mitigation Measures	24
5.3.1 Pest and Weed Removal	24
5.3.2 Rehabilitation	24

5.3.3	Monitoring & Research Program.....	24
6	RESPONSE TO PLANNING PROVISIONS	25
6.1	Commonwealth Matters.....	25
6.1.1	EPBC Act.....	25
6.1.2	Great Barrier Reef Marine Park Act.....	26
6.2	State Matters.....	26
6.2.1	Nature Conservation Act and Associated Regulations.....	26
6.2.2	SDAP Module 8 – Native Vegetation Clearing	26
6.2.3	SDAP Module 10 – Coastal Protection.....	26
6.2.4	SDAP Module 11 – Wetland Protection and Wild River Areas.....	26
6.2.5	SPP Part E: Interim Development Assessment Requirements – Natural Hazards, Risk and Resilience.....	27
6.3	Local Matters.....	27
6.3.1	Thuringowa Planning Scheme – Toolakea Local Area	27
6.3.2	Thuringowa Planning Scheme – Natural Areas Code	28
6.3.3	Thuringowa Planning Scheme – Natural Hazards Code	28
7	CONCLUSION AND RECOMMENDATIONS	29
APPENDIX A	COMMONWEALTH MATTERS	30
APPENDIX B	STATE MATTERS	33
APPENDIX C	LOCAL GOVERNMENT MATTERS	40
APPENDIX D	FIELD WORK RESULTS	45
APPENDIX E	THREATENED SPECIES ASSESSMENT	63
APPENDIX F	BROAD-LEAF TEA-TREE WOODLANDS	76
APPENDIX G	SDAP MODULE 8 NATIVE VEGETATION CLEARING: QUEENSLAND VEGETATION MANAGEMENT CODE.....	82
APPENDIX H	SDAP MODULE 10 COASTAL PROTECTION: TIDAL WORKS, OR DEVELOPMENT IN A COASTAL MANAGEMENT DISTRICT STATE CODE	83
APPENDIX I	SDAP MODULE 11 WETLAND PROTECTION AND WILD RIVER AREAS: WETLAND PROTECTION AREA STATE CODE	84
APPENDIX J	THURINGOWA PLANNING SCHEME NATURAL HAZARDS CODE	85

FIGURES

Figure 1: Locality and Subject Site	2
Figure 2: Vegetation Communities	12
Figure 3: Condition Thresholds for Broad-leaf Tea-tree Woodlands	14
Figure 4: Fauna Habitats.....	17
Figure 5: Ecological Corridors	20
Figure 6: Developable Area	22
Figure 7: Sites for Flora Assessment.....	59
Figure 8: Bioregions for Broad Leaf Tea Tree Woodlands.....	79

TABLES

Table 1: Desktop Review Findings	8
Table 2: Species Ground Cover Assessment for Sites 5, 6 and 12	57

1 INTRODUCTION

1.1 Purpose of this Report

PLACE Design Group (PDG) has been engaged by Landmark Projects Pty Ltd to prepare an Ecological Assessment Report (EAR) for land at street address 189 John Brewer Drive, Bluewater (Lot 4 on RP743792). Situated in the Townsville City Council (TCC) local government area (formerly Thuringowa), this parcel of land is referred to herein as the 'Site'. The Site's boundaries and regional locality are shown in **FIGURE 1**.

The purpose of this report is to provide a description of the existing ecological condition of the Site, identify the conservation planning constraints which apply, assess the potential impacts of the proposed development, specify the necessary measures to mitigate any significant adverse impacts and provide a compliance assessment against applicable State and Local codes.

1.2 Site Description

The Site is located approximately 27 kms north-west of Townsville and is directly accessible from the Bruce Highway via John Brewer Drive. The Site's north-eastern boundary adjoins the beach onto Halifax Bay; a powerline easement (now removed) provides the south-western boundary; aquaculture ponds have been constructed within a cleared area directly to the north-west of the Site and the south-eastern boundary abuts land parcels used for Rural and Rural Residential (large lots) uses, including the township of Toolakea on the beach front. Further to the north are agricultural land uses, the Clemant State Forest approximately 8 kms to the north-west and Paluma Range National Park to the north and west.

Native vegetation on the Site and general surrounds is dominated by woodlands and open forests with closed forest occurring along riparian and beach fore-dune areas. There has been little historical clearing in the general landscape and as such, habitat connectivity along the coastline (south-east to north-west) and west towards the coastal ranges remains largely intact.



FIGURE 1: LOCALITY AND SUBJECT SITE
TOOLAKEA - L4 RP743792

2

ASSESSMENT METHODOLOGY

The study methodology has combined the use of on-ground data collected through site survey describing habitats, habitat features, vegetation communities and threatened species cross referenced with current existing information sourced from databases to facilitate an assessment of ecological values and impacts.

2.1 Desktop Review

The possible presence and likely distribution of site values were sourced from the following public databases and project mappings listed below:

- Commonwealth
 - Protected Matters Search Tool for listed species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), based on a 5 km radius around the Site
 - Birds Australia database
- State
 - Wildlife Online database for listed species under the *Nature Conservation Act 1992* (NC Act), based on a 5 km radius around the Site
 - *Vegetation Management Act 1999* (VMA) mapping: Regulated Vegetation Map and Vegetation Management Supporting Map which includes Regional Ecosystem, essential habitat, regrowth and watercourses
 - *Environmental Protection Act 1994* (EP Act): Referrable Wetland Mapping
 - State Planning Policy (SPP) Interactive Mapping of State Interests for local government to consider when assessing a development application
 - State Assessment and Referral Agency Interactive (SARA) Mapping for State Interests in development assessment
 - Queensland Museum
- Local
 - Thuringowa Planning Scheme
- Other
 - Kemp, J.E. & Kutt, A.S. 2004. 'The vertebrate fauna of the Clemant State Forest Lowlands: a significant coastal woodland remnant in the southern wet tropics bioregion, North-eastern Queensland'. *Aus. Zool.* **32(4)**: 508-534. This study is of specific interest due to its proximity to the Site (approximately 3 kms to the north-west) and the similarity of habitats between the respective areas.

2.2 Site Investigation Methodology

A field survey was conducted from 12 to 14 March 2014 by three staff (Valerie Bares (PDG), Dr. Andrew Daniel (Terrestria) and Peter Buosi (NRA)) to collect ecological data from the Site. The purpose of the survey was to: identify the vegetation communities on the Site; compile a floristic inventory identifying threatened native species as well as declared weed species and assess the fauna habitat values of the Site.

Despite Tropical Cyclone Hadi situated approximately 315 kms from the coast of Australia, the weather was calm and clear, without rain. Temperatures ranged from 20 degrees overnight to 31 degrees in the daytime. Many grass species were in flower allowing easy identification.

2.2.1 Vegetation and Waterways

These investigations were conducted to provide an assessment of the following items:

- Threatened species search (Commonwealth, State & Local species and communities);
- Confirmation of vegetation and habitat units (remnant regional ecosystem and regrowth mapping); and
- Evaluation of functioning ecological corridor within the extent of mapped waterway.

A meandering search technique was employed to search the entirety of the Site.

2.2.2

Fauna and Habitats

The fauna survey was conducted on 13 March 2014 by NRA ecologist Peter Buosi and involved the following tasks:

- Visiting each habitat type to assess and document habitat condition. Specific attention was devoted to habitats likely to support National and State listed species;
- Targeted searches for National and State listed species and their habitat(s) and if found, details of their location and occurrence (e.g. abundance, age class, behaviour);
- Targeted searches for non-native species and if found, details of their location and occurrence (e.g. abundance, age class, behaviour); and
- General searches (no trapping) for all fauna for the purpose of generating a fauna inventory for the site. Fauna were identified via direct observation and from their sign (e.g. tracks, scats, diggings).

3

DESKTOP ASSESSMENT

3.1 Conservation and Planning Considerations

3.1.1 Commonwealth Government

3.1.1.1 Environment Protection and Biodiversity Conservation Act 1999

Under the EPBC Act, a project will require approval by the Minister (Department of the Environment (DE)), if the project will have, or is likely to have, significant impact on a Matter of National Environmental Significance (MNES). These are:

- World Heritage Properties;
- National Heritage Places;
- Ramsar wetlands of international significance;
- Nationally listed threatened species and ecological communities;
- Listed migratory species;
- Commonwealth Marine Areas; and
- Nuclear actions.

Significance of impact is determined by the administrative guidelines which state “in order to decide whether an action is likely to have a significant impact, it is necessary to take into account the nature and magnitude of potential impacts...it is important to consider matters such as:

- All on-site and off-site impacts;
- All direct and indirect impacts;
- The frequency and duration of the action;
- The total impact which can be attributed to that action over the entire geographic area affected, and over time;
- The sensitivity of the receiving environment; and
- The degree of confidence with which the impacts of the action are understood”.

To determine whether the development is a controlled action requires an assessment of whether the project will have a significant impact upon MNES. If a development is potentially a controlled activity, then a referral is made to the Minister to confirm whether or not an Environmental Impact Statement (EIS) is required.

3.1.1.2 Great Barrier Reef Marine Park Act 1975

The main object of this Act is to provide for the long term protection and conservation of the environment, biodiversity and heritage values of the Great Barrier Reef Region. In order to do so, the Act:

- Provides for the establishment, control, care and development of the Great Barrier Reef Marine Park;
- Establishes the Great Barrier Reef Marine Park Authority;
- Provides for zoning plans and plans of management;
- Regulates, including by a system of permissions, use of the Great Barrier Reef Marine Park in ways consistent with ecosystem-based management and the principles of ecologically sustainable use;
- Facilitates partnership with traditional owners in management of marine resources; and
- Facilitates a collaborative approach to management of the Great Barrier Reef World Heritage area with the Queensland government.

3.1.2 State Government

3.1.2.1 Coastal Protection and Management Act 1995

The *Coastal Protection and Management Act 1995* provides for the protection, conservation, rehabilitation and management of the coastal zone, including its resources and biodiversity. It also regulates decisions about land use and development to safeguard life and property from the threat of coastal hazards.

The Act includes provisions for the declaration of Coastal Management Districts (CMD) and erosion prone areas. It also prohibits the unlawful damage or removal of vegetation or a dune within State coastal land.

3.1.2.2 Environmental Protection Act 1994

The EP Act is a major component of the Queensland environmental legal system. Its object is environmental protection within the context of ecologically sustainable development. To help achieve this, the EP Act provides a wide range of tools including but not limited to:

- Environmental protection policies (EPPs);
- An environmental impact statement process for mining and petroleum activities;
- A system for development approvals integrated into the Sustainable Planning Act 2009 (SPA) for environmentally relevant activities (ERAs);
- Environmental authorities for mining activities;
- Environmental authorities for greenhouse gas storage and petroleum exploration, extraction and pipelines (this includes petroleum in both liquid and gas forms);
- A general environmental duty and a duty to notify of environmental harm;
- Environmental evaluations and audits;
- Environmental protection orders;
- Financial assurances;
- A system for managing contaminated land; and
- Environmental offences and executive officer liability.

Chapter 5 of the *Environmental Protection Regulation 2008* lists the matters relating to environmental management and environmental offences. Wetlands are one of those matters (refer Part 7) and the Map of Referable Wetlands is managed under the Regulation.

3.1.2.3 Fisheries Act 1994

The main purpose of this Act is to “provide for the use, conservation and enhancement of the community’s fisheries resources and fish habitats in a way that seeks to—

- a) apply and balance the principles of ecologically sustainable development; and
- b) promote ecologically sustainable development.”

As waterways provide the breeding and feeding grounds and movement corridors for some species, the Act regulates the construction of barriers across waterways through the *Fisheries Regulation 2008*.

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

A framework for the control of declared pests such as foxes, feral pigs and groundsel is created by this Act. Schedule 2 of the *Land Protection (Pest & Stock Route Management) Regulations 2003* lists declared pests in three classes based on their current or potential economic, environmental or social impact. The Act operates in conjunction with the *Plant Protection Act 1989*, which provides for the control and eradication of pest plants, invertebrate animals, fungi, viruses and diseases that are harmful to crop plants.

3.1.2.5 Nature Conservation Act 1992

The NC Act ensures the management of protected areas and protected wildlife. It is unlawful to take, keep or interfere with a cultural or natural resources of a protected area or to take protected wildlife without a permit.

3.1.2.6 Sustainable Planning Act 2009

As of 1 July 2013 the State Development Assessment Provisions (SDAP) have come into effect through the amendments to the *Sustainable Planning Regulation 2009* (SPR) under the *Sustainable Planning Act 2009* (SPA). The provisions set out the matters of State interest for development assessment. If there are any matters of interest to the state relevant to the proposed development, an applicant is required to provide with the application an assessment against the applicable state code(s) in the SDAP. Maps have been prepared that relate to these matters and these can be accessed via the State Assessment and Referral Agency (SARA) mapping online system.

The following SARA layers apply to the Site:

- Fish Habitat Areas
 - Qld waterways for waterway barrier works
 - Tidal waterways
- Strategic Cropping Land
 - Strategic cropping land (potential) trigger map
- Coastal Protection
 - Coastal management district
 - Coastal zone
 - Coastal hazard areas – erosion prone area 40m on HAT
 - Coastal hazard areas – erosion prone area calculated distance
 - Coastal hazard areas – erosion prone area sea level rise
 - Coastal hazard areas – medium storm tide
 - Coastal hazard areas – high storm tide
- Native Vegetation Clearing
 - Category A and B extract from the regulated vegetation management map

3.1.2.7 Vegetation Management Act 1999

The VMA does not itself regulate vegetation management. Instead, the trigger and process for assessment, together with the offence for clearing without approval, are contained in SPA. However the VMA provides for policies against which applications for clearing vegetation are assessed based on mapping identifying areas of high conservation value, areas vulnerable to land degradation and remnant vegetation.

3.1.3 Local Government

3.1.3.1 Townsville City Council

The Site falls within the Townsville City Council (TCC) local government area. As such, development must adequately respond to zoning, development codes and planning scheme policies contained within. Additionally the development is subject to any requirements of specific Local Plans formulated for an area over which a development is proposed.

The Site is currently regulated by the Thuringowa Planning Scheme adopted in 2003¹ where it is identified within the Rural Planning Area and is currently zoned Rural 400. The Rural Planning Area is intended for rural development that contributes to the amenity and landscape of the area and the Rural 400 area is intended for rural development on a minimum lot size of 400 hectares.

¹ Though Council is currently in the process of preparing a combined planning scheme incorporating both the current Townsville City Plan and the Thuringowa Planning Scheme in accordance with SPA, the Thuringowa Planning Scheme will remain in force until this is developed.

As the Site falls within the Toolakea Local Area it must also advance the desired development outcomes of the Local Area Plan. In contributing to the amenity and landscape of the area, the following outcomes are sought:

- Development does not intrude into fragile natural areas;
- Development retains, protects and enhances the natural coastal marine environment;
- Development is adequately serviced by infrastructure; and
- Development is compatible with the landscape of the Local Area, or has a nexus with the Local Area.

Notwithstanding the above, the Site has been identified for Particular Development in accordance with Part 5.7 of the Thuringowa Planning Scheme (PD35 – Tourist Development). This identification is owing to the previous rezoning approval granted over the Site in 1985 which is held in perpetuity. As such, this land retains the approved urban use rights for tourist activities as specified in the approval.

3.1.3.2 State Planning Policy

The State Planning Policy (SPP) which came into effect on 2 December 2013 sets out interests that must be addressed through local government planning schemes, regional plans and when making decisions about the designation of land for community infrastructure. The SPP includes interim development assessment requirements for certain applications where the local government planning scheme has not yet appropriately integrated the state interests in the SPP.

The following interim development assessment requirements are of relevance to the Site:

- Biodiversity. The Site is mapped with the following Matters of State Environmental Significance (MSES) biodiversity overlays:
 - Regulated vegetation;
 - Regulated vegetation (intersecting a watercourse);
 - Wetlands (palustrine, estuarine and lacustrine); and
 - Wetlands (riverine).
- Coastal Environment. The Site falls within a Coastal Management District (CMD).
- Water Quality. The Climatic regions – stormwater management design objectives overlay applies to the Site.
- Natural Hazards. The Site is located within a Level 1 Flood Hazard Area. There is a potential risk of bushfire associated with the native vegetation.

3.2 Planning Constraints Summary

TABLE 1 provides a summary of the results of the database searches and mapping details for the sources listed in **SECTION 2.1**. The table also lists the appendix where the detailed search reports and maps can be found.

TABLE 1: DESKTOP REVIEW FINDINGS

Database	Findings	Refer to
Commonwealth		
Protected Matters Search Tool for MNES under the EPBC Act, based on a 5 km radius around the Site	The online search tool indicates that three threatened ecological communities and 30 terrestrial fauna and flora species have natural geographic ranges that overlap the Site.	APPENDIX A.1
<i>Great Barrier Reef Marine Park Act 1975</i>	The marine environment adjacent to the Site is part of the Great Barrier Reef Marine Park and is zoned for General Purpose.	APPENDIX A.2

Database	Findings	Refer to
State		
Wildlife Online database for listed species under the NC Act, based on a 5 km radius around the Site	The database identifies eleven threatened animal species as occurring in the local area but no plant species were reported.	APPENDIX B.1
Regulated Vegetation Map and Vegetation Management Supporting Map Requested on 21/02/2014	<p>Most of the Site is mapped Least Concern - predominately comprised of RE 7.3.8 with pockets of RE 7.3.45 and RE 7.1.1. Areas mapped Of Concern (RE 7.3.25, 7.2.3 and 7.2.7) occur as a coastal linear strip and fringing some waterways. An isolated pocket is also mapped on the south-western boundary of the Site. Details of each RE are listed below:</p> <ul style="list-style-type: none"> • <u>RE 7.3.8 (Least Concern)</u> – <i>Melaleuca viridiflora</i> +/- <i>Eucalyptus</i> spp. +/- <i>Lophostemon suaveolens</i> open forest to open woodland, on poorly drained alluvial plains [Biodiversity Status = Endangered] • <u>RE 7.3.45 (Least Concern)</u> – <i>Corymbia clarksoniana</i> +/- <i>C. tessellaris</i> +/- <i>E. drepanophylla</i> open forest to open woodland, on alluvial plains [Biodiversity Status = Of Concern] • <u>RE 7.1.1 (Least Concern)</u> - Mangrove closed scrub to open forest of areas subject to regular tidal inundation [Biodiversity Status = No concern at present] • <u>RE 7.3.25 (Of Concern)</u> – <i>Melaleuca leucadendra</i> +/- vine forest species, open forest to closed forest, on alluvium fringing streams [Biodiversity Status = Of Concern] • <u>RE 7.2.3 (Of Concern)</u> - <i>Corymbia tessellaris</i> and/or <i>Acacia crassicaarpa</i> and/or <i>C. intermedia</i> and/or <i>C. clarksoniana</i> woodland to closed forest on beach ridges (predominantly Holocene) [Biodiversity Status = Of Concern] • <u>RE 7.2.7 (Of Concern)</u> - <i>Casuarina equisetifolia</i> +/- <i>Corymbia tessellaris</i> open forest +/- groved vine forest shrublands, on strand and foredunes [Biodiversity Status = Endangered] <p>The Site is not mapped to support Essential Habitat for any threatened species under the NC Act.</p> <p>There are seven waterways mapped across the Site (4 x Stream Order 1 and 3 x Stream Order 2). With the exception of two streams that parallel the coastline, the rest originate in the south and travel in a northerly direction.</p>	APPENDIX B.2
Referrable Wetland Mapping	There are no Wetland Protection Areas or Wetlands of High Ecological Significance (HES) mapped across the Site. The Site contains minor mapping of Wetlands of General Ecological Significance (GES).	APPENDIX B.3
Coastal Protection Mapping (SARA)	<p>The following Coastal Protection overlays apply to the Site:</p> <ul style="list-style-type: none"> • Coastal management district • Coastal zone • Coastal hazard areas – erosion prone area 40m on HAT • Coastal hazard areas – erosion prone area calculated distance • Coastal hazard areas – erosion prone area sea level rise • Coastal hazard areas – medium storm tide 	APPENDIX B.4

4 ECOLOGICAL FIELD ASSESSMENT

4.1 Flora

4.1.1 Plant Species

200 vascular plant species were identified across the Site and a full floristic inventory is provided in **APPENDIX D.2**. None are listed as threatened under the EPBC Act or the NC Act. *Xanthorrhoea johnsonii* (Grass tree) is listed as a Type A Restricted Species under the NC Act; this classification is to protect the commercial trading of the species. For the purposes of a development, a permit is not required.

4.1.2 Vegetation Communities

While the Site occurs in the Herbert province of the Wet Tropics Bioregion (WET), it is very close (approximately 2 km) to the boundary of the Townsville Plains province of the Brigalow Belt North Bioregion (BBN). The natural environment of the Site, therefore, reflects a gradation between the two provinces. The southern extremity of the Herbert province receives the lowest rainfall of any of the coastal lowlands of the WET (Goosem et al. 1999) and because the rainfall pattern is monsoonal, rainforest communities are uncommon (compared with northern areas of the WET) and typically occur as narrow bands along riparian (Kemp & Kutt 2004) and beach fore-dune areas.

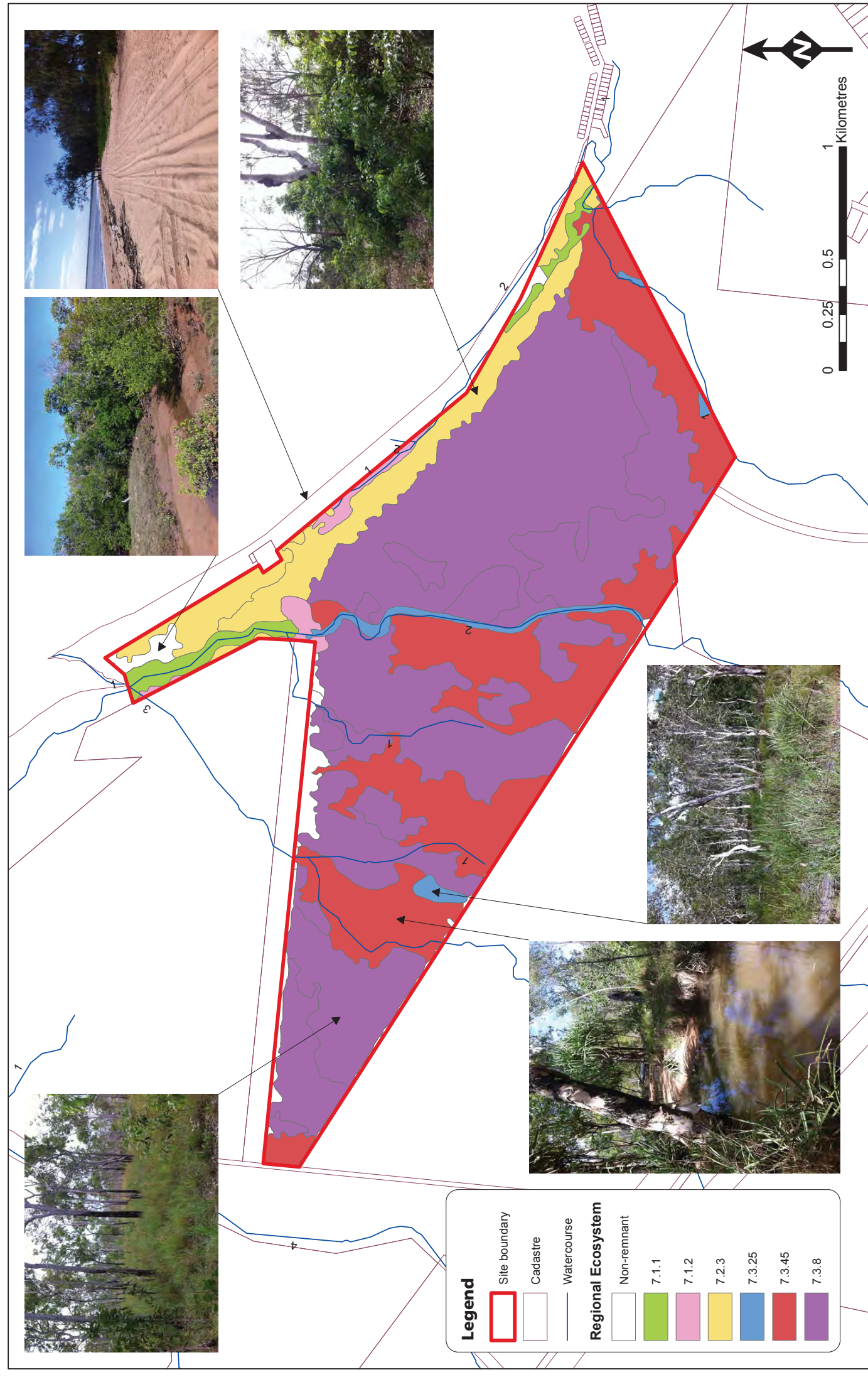
The vegetation communities were identified to represent exactly the Regional Ecosystem (RE) mapping for the Site with one minor exception (refer **FIGURE 2**). The field survey confirmed the presence of the following:

- RE 7.1.1 (Least Concern) - Mangrove closed scrub to open forest of areas subject to regular tidal inundation [Biodiversity Status = No concern at present]
- RE 7.2.3 (Of Concern) - *Corymbia tessellaris* and/or *Acacia crassicaarpa* and/or *C. intermedia* and/or *C. clarksoniana* woodland to closed forest on beach ridges (predominantly Holocene) [Biodiversity Status = Of Concern]
- RE 7.3.8 (Least Concern) – *Melaleuca viridiflora* +/- *Eucalyptus spp.* +/- *Lophostemon suaveolens* open forest to open woodland, on poorly drained alluvial plains [Biodiversity Status = Endangered]
- RE 7.3.25 (Of Concern) – *Melaleuca leucadendra* +/- vine forest species, open forest to closed forest, on alluvium fringing streams [Biodiversity Status = Of Concern]
- RE 7.3.45 (Least Concern) – *Corymbia clarksoniana* +/- *C. tessellaris* +/- *E. drepanophylla* open forest to open woodland, on alluvial plains [Biodiversity Status = Of Concern]

The RE mapping includes a small area of RE 7.2.7 (*Casuarina equisetifolia* +/- *Corymbia tessellaris* open forest +/- groved vine forest shrublands, on strand and foredunes) along the foreshore in the south-eastern corner of the Site. This community was not encountered.

Detailed descriptions for each vegetation community are provided in **APPENDIX D.1**.

All communities were found to be in good condition with weed intrusion concentrated on the edges of tracks and other disturbed areas such as cattle holding pens and beach shacks. Although cattle grazing has taken place over a number of years, the intensity of grazing has not been detrimental to the vegetation. Evidence of bushfire was found in a number of areas however there was no indication that this created a significant negative impact on the vegetation. Across a small area, a number of juvenile trees seemed to have been snapped in half (around the 1.5m height); this could have been due to recent severe storms and cyclonic activity over the past two years.



4.1.3

Weeds

Of the 200 vascular plant species identified across the Site, 21 (10%) are listed as weeds, with one Class 2 and three Class 3 declared under the *Land Protection (Pest and Stock Route Management) Act 2002*. Refer to **APPENDIX D.2** for a complete inventory of floristic species including weeds. Generally the undisturbed remnant vegetation areas showed few weeds, whilst disturbed areas (i.e. where grazing has occurred) had the most. All vegetation communities are weed affected although more prevalent in RE 7.3.25 and 7.3.45 than the others.

4.1.4

Threatened Flora Species and Ecological Communities

Three threatened plant species of national environmental significance have been reported in the search results of the Commonwealth's Protected Matters Database for a 5 km search radius of the Site (**APPENDIX A**). No flora species were reported under DEHP's Wildlife Online database using the same search parameters (**APPENDIX B**). All threatened species are listed in **APPENDIX F.1** along with the assessment of their likelihood of occurrence.

Of the three plants listed in **APPENDIX F.1** only two have been assessed with any likelihood of occurrence: *Phaius australis* (Lesser Swamp-orchid) listed Endangered under the EPBC Act and *Tephrosia levelillei* listed Vulnerable under the EPBC Act. During the field survey, neither was recorded on the Site and there are no records of these species under the Wildlife Online report.

The EPBC Act Protected Matters report listed 3 threatened ecological communities as occurring on or within 5 kms of the Site:

- Broad leaf tea-tree woodlands in high rainfall coastal north Queensland – Endangered;
- Littoral Rainforest and Coastal Vine Thickets of Eastern Australia – Critically Endangered; and
- Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions – Endangered.

The latter two communities listed above were not found to be present on Site. The 'Broad leaf tea-tree woodlands in high rainfall coastal north Queensland' community (referred from here-on as the Broad-leaf Tea-tree Woodlands) corresponds to RE 7.3.8 (refer **SECTION 4.1.2**) has been identified to be present on-site. However the EPBC Act listing focuses on the preservation of those communities which are in good condition. Although this particular vegetation community is wide spread across Queensland (hence its status of Least Concern under the VMA), the biodiversity values of this community derives from the large diversity of grass species present in the ground cover layer. Clearing, grazing, fragmentation and changes in hydrological regime due to development have had the greatest impacts in reducing this diversity. Communities which are still in relatively good condition are now rare and the EPBC listing reflects the loss that has occurred. Commonwealth information on this community is provided in **APPENDIX F**.

To assist in determining whether the Broad-leaf Tea-tree Woodlands which occur on-site meet the type of community protected under the EPBC Act, a number of condition thresholds have been provided by the Commonwealth. These are summarised in the flowchart shown in **FIGURE 3**.

Data collected during the field survey (refer **APPENDIX D.3**) has confirmed that the areas mapped as RE 7.3.8 meet all condition thresholds and therefore the community on-site is the EPBC Act listed Broad-leaf Tea-tree woodlands.

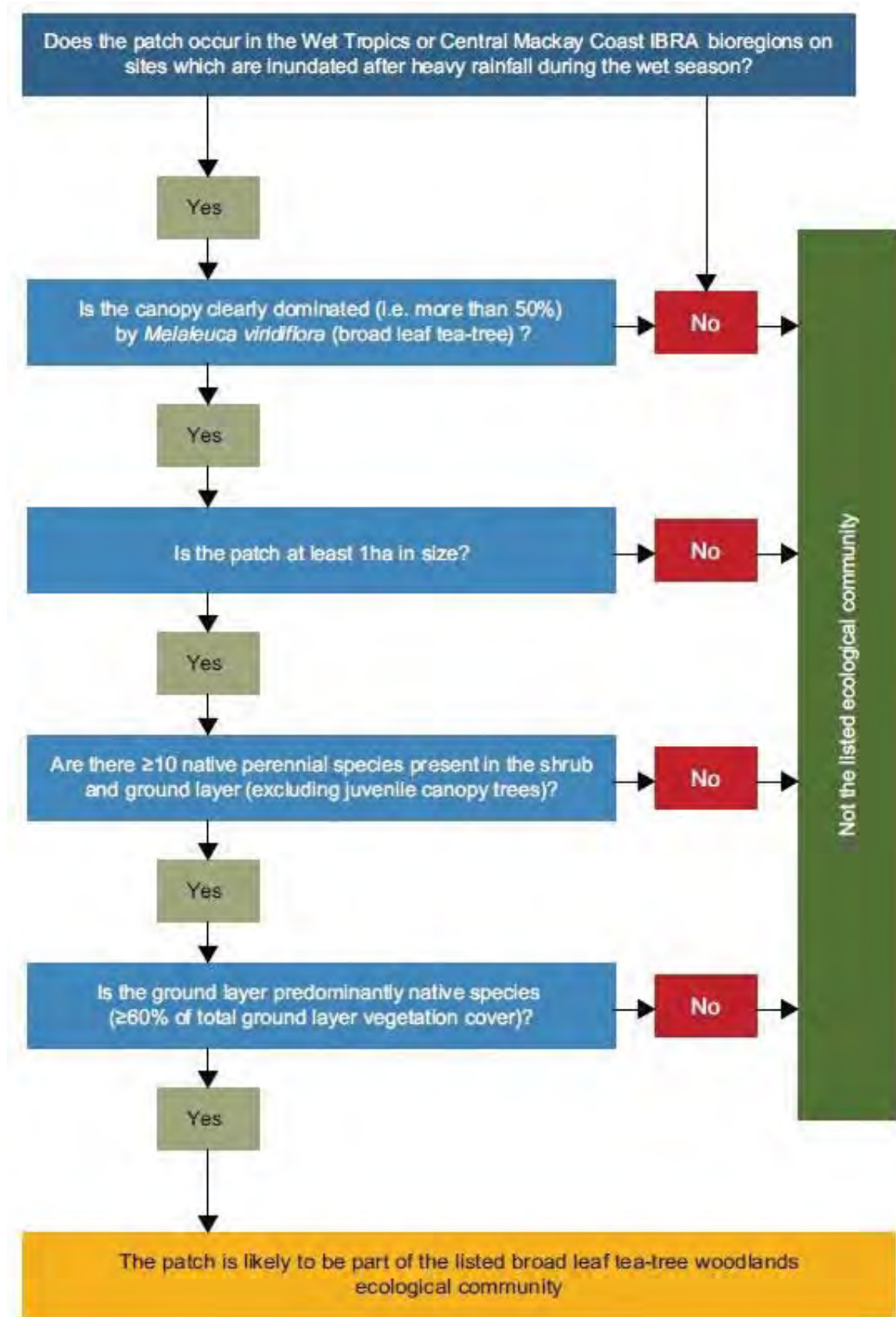


FIGURE 3: CONDITION THRESHOLDS FOR BROAD-LEAF TEA-TREE WOODLANDS

It should be noted that the Vegetation Management status assigned to REs under the VMA is on the basis of extent of vegetation across the State and that the classification of vegetation into REs is based on the predominant strata (the layer which contributes the most above-ground biomass) which in most cases is the canopy layer. Therefore the extent of RE 7.3.8 across the State is sufficient to meet the VMA's Least Concern status but the vegetation under this classification could include highly degraded areas where the grass understorey has been completely removed or consists of mostly weed/exotic species.

4.2 Fauna and Habitats

4.2.1 Site Habitat Assessment

The dominant habitat types occurring on the Site broadly comprise: Estuarine Wetlands; Grasslands and Saltpans; Closed Forest on Beach Ridges; Riparian Forests and Paperbark Swamps; Eucalypt Open Forests; and Tea-tree Woodlands. These habitats are described below and mapped on **FIGURE 4**. Habitat types are described with reference to the REs shown on **FIGURE 2**.

4.2.1.1 Estuarine Wetlands

This habitat comprises mangrove forests and corresponds with RE 7.1.1. On the Site this habitat type occurs along estuarine creeks near to the coastline and covers an area of approximately 9.3 ha. Key habitat features include: tidal estuarine waters; flowering trees and shrubs; patches of woody debris; hollow-bearing trees (living and dead); light to deep shade due to a closed canopy or sub-canopy layer and a cluttered mid and ground stratum (due to high stem density and buttress roots). The areas of this habitat type visited during the field survey were in good condition and there was very little sign of historical clearing or weed ingress. Very tall melaleucas occur along the fringe of this community and many of these were dead. The cause of death is unclear though probably quite recent given the observed level of decay. While cattle are present on the Site, this habitat type is largely inaccessible to them.

4.2.1.2 Grasslands and Saltpans

This habitat comprises saltwater couch grasslands, samphire forblands and saltpans and corresponds with RE 7.1.2a. On the Site small patches (approximately 5.9 ha in total) of this habitat occur near to the estuarine wetlands and coastal dunes. Key habitat features include: low-lying areas subject to regular cycles of drying and inundation in response to rainfall and tides and open tree-less plains. The areas of this habitat type visited during the field survey were in moderate condition with signs of ground disturbance (motor vehicles and pig diggings), illegal dumping (e.g. car bodies) and weed ingress (mostly exotic grasses and forbs along the outer edges of habitat). While cattle are present on the Site, the vegetation in this area is probably unattractive to cattle and grazing impacts are probably low.

4.2.1.3 Closed Forest on Beach Ridges

This habitat comprises the densely vegetated forest community growing on the dune ridges and corresponds with RE 7.2.3. On the Site this habitat type occurs along the coastal dune and covers an area of approximately 42.3 ha. Key habitat features include: flowering trees and shrubs; a dense sub-canopy and/or shrub layer providing light to deep shade and a cluttered mid-stratum; tall emergent trees (mainly eucalypts); patches of woody debris and leaf litter; hollow-bearing trees (living and dead) and sparse grass cover. The areas of this habitat type visited during the field survey were in moderate condition with localised signs of historical clearing (e.g. for simple beach shacks) and variable (low to high) levels of weed ingress. This habitat type had the greatest level of weed ingress of all habitat types visited during the survey. While cattle are present on the Site, this habitat in its natural state is largely unsuitable for grazing (palatable grasses are sparse and accessibility is impeded by the dense shrub layer).

4.2.1.4 Riparian Forests and Paperbark Swamps

This habitat comprises the forest communities fringing streams and swamps and covers an area of approximately 27.9 ha on the Site. There are three discrete occurrences of this habitat type on the Site. One area occurs along a first order stream that follows the south-eastern boundary of the Site; this stream mostly occurs outside the Site. The other two areas also follow streams (a first and second order stream) though the north-western occurrence also encompasses a number of small seasonally inundated wetlands that border the stream. This habitat corresponds with RE 7.3.25 and RE 7.3.7. Key habitat features include: seasonally inundated stream beds and wetlands (including open water suitable for waterfowl); flowering trees and shrubs; a variable sub-canopy layer providing light to deep shade; tall emergent trees (mainly eucalypts); patches of woody debris and leaf litter; hollow-bearing trees (living and dead) and variable grass cover (sparse to dense). The areas of this habitat type visited during the field survey appeared to be in good condition with little sign of historical clearing and localised signs of weed ingress (e.g. patches of Lantana were seen growing along riparian areas). While the presence of standing water precluded the ability to properly assess the paperbark swamp areas, the areas that were visible were in good condition. Cattle and pigs are likely to use the paperbark swamps and the impacts of their activities would be more evident once water levels subside.

4.2.1.5 Eucalypt Open Forests

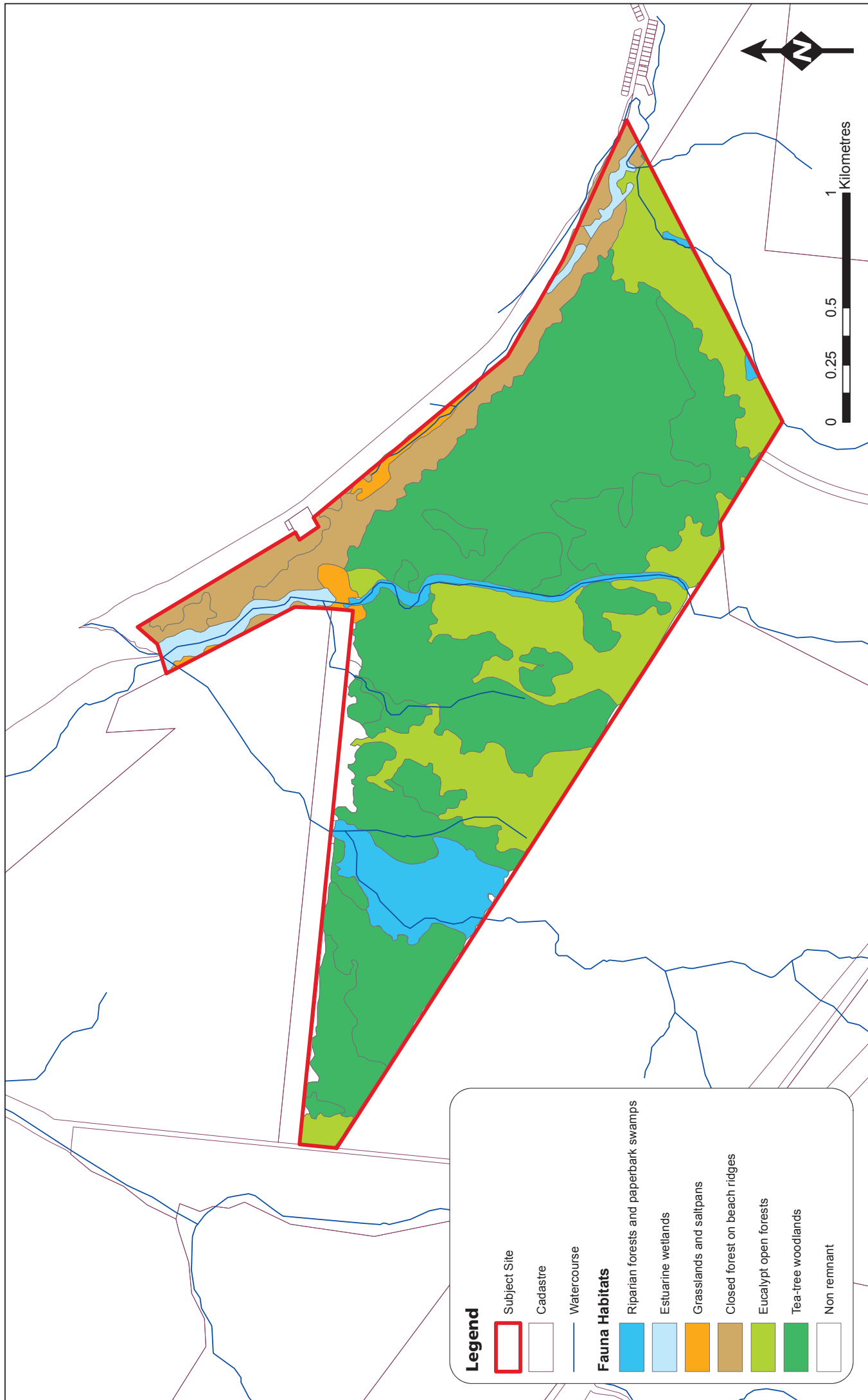
This habitat type is the second largest in extent (approximately 91.1 ha) on the Site and corresponds with RE 7.3.45. Key habitat features include: flowering trees and shrubs; an open canopy, sub-canopy and shrub stratum allowing for high and dappled levels of sunlight; a mid-dense to dense ground stratum dominated by grasses; patches of woody debris and leaf litter and hollow-bearing trees (living and dead). The areas of this habitat type visited during the field survey appeared to be in good condition with little sign of historical clearing and localised signs of weed ingress (mostly exotic grasses, vines and low growing forbs). There was evidence of cattle grazing though based on the good condition of the ground layer, stocking rates are probably low. Fire is likely to be a regular disturbance in this habitat type and fire scars were seen on trees and shrubs.

4.2.1.6 Tea-tree Woodlands


This habitat comprises the seasonally inundated tea-tree swamps and corresponds with RE 7.3.8. It is the most extensive of all habitat types on the Site covering approximately 254.6 ha. Key habitat features include: low lying plains and gilgais that are seasonally inundated (shallow water); flowering trees and shrubs; a variable sub-canopy layer providing light to deep shade; tall emergent trees (mainly eucalypts); patches of woody debris and leaf litter; hollow-bearing trees (living and dead) and variable grass cover (sparse to dense). The areas of this habitat type visited during the field survey appeared to be in good condition with little sign of historical clearing and localised signs of weed ingress (mostly exotic grasses, vines and low growing forbs). There was evidence of cattle grazing, though based on the good condition of the ground layer, stocking rates are probably low. Fire is likely to be a regular disturbance in this habitat type and fire scars were seen on trees and shrubs.


4.2.2 Fauna Species


61 species of fauna were identified during the field work including: one listed under the NC Act (*Nettapus coromandelianus* Cotton Pygmy-goose, Near-threatened), one listed under the EPBC Act (*Merops ornatus* Rainbow Bee-eater, Migratory) and four non-native (*Rhinella marina* Cane Toad, *Bos Taurus/indica* Cattle, *Sus scrofa* Pig and *Hemidactylus frenatus* Asian House Gecko). Refer to **APPENDIX D.4** for a complete list of species.




Legend


 Subject Site


 Cadastre


 Watercourse


Fauna Habitats


 Riparian forests and paperbark swamps


 Estuarine wetlands

 Grasslands and salt pans

 Closed forest on beach ridges

 Eucalypt open forests

 Tea-tree woodlands

 Non remnant

4.2.3

Threatened Fauna Species

Results from the EPBC Act Protected Matters database search (**APPENDIX A**) identified 27 threatened species known to occur in the area (8 birds, 9 mammals, 8 reptiles and 2 sharks). DEHP's Wildlife Online database search (**APPENDIX B**) identified the potential presence of an additional 11 species that have been recorded within a 5 km radius of the investigation area (10 birds and 1 mammal).

The database search results should be viewed with caution due to the following:

- (a) The search area encompasses sections of both the Wet Tropics and Brigalow Belt North bioregions and many of the habitats contained in this area do not reflect those found on the Site.
- (b) The database records include species which rarely occur in the region (e.g. vagrants such as Black-breasted Buzzards, White-bellied Storm-Petrel and Crimson Chat) and/or mostly occur in the adjacent marine environment (e.g. Lesser Frigatebird, Great Frigatebird, Wedge-Tailed Shearwater, Short-Tailed Shearwater and Southern Giant-Petrel).
- (c) Some of the results seem implausible (e.g. records of Southern Cassowary, Australian Lacelid and Waterfall Frog on the coastal plain of the search area). These errant records could be based on imprecise location data, coarse level predictive modelling (e.g. EPBC PMST) and/or misidentifications.

Notwithstanding the above described limitations, the combined field and database results indicate that the region in which the Site occurs supports a high diversity of fauna species. This observation is consistent with Kemp and Kutt's (2004) conclusion about the nearby Clement State Forest (**FIGURE 1**) which was found to support a fauna assemblage as diverse and significant as any other part of the Wet Tropics (including rainforest).

Using available habitat information for the species listed in the database search results, the likelihood of occurrence of each species was determined and is presented in **APPENDIX F.2**.

Based on an assessment of the likelihood of occurrence of the listed species, it is considered that the following utilise or may have a high likelihood of utilising the Site:

- *Nettapus coromandelianus* (Cotton Pygmy-goose)
- *Accipiter novaehollandiae* (Grey Goshawk)
- *Lophoictinia isura* (Square-tailed Kite)
- *Tadorna radjah* (Radjah Shelduck)
- *Aerodramus terraereginae* (Australian Swiftlet)
- *Esacus magnirostris* (Beach Stone-curlew)
- *Ephippiorhynchus asiaticus* (Black-necked Stork)
- *Ninox rufa queenslandica* (Rufous Owl (Southern Subspecies))
- *Tyto novaehollandiae kimberli* (Masked Owl (Northern Subspecies))
- *Saccolaimus saccolaimus nudiclunatus* (Bare-rumped Sheath-tail Bat)
- *Taphozous australis* (Northern Sheath-tail Bat)
- *Hipposideros diadema reginae* (Diadem Leaf-nosed Bat)
- *Rhinolophus philippinensis* (Greater Large-eared Horseshoe Bat)
- *Kerivoula papuensis* (Golden-tipped Bat)
- *Crocodylus porosus* (Estuarine Crocodile)
- *Antairoserpens warro* (North-eastern Plain-nosed Burrowing Snake)
- *Delma labialis* (Single-striped Delma)

In addition, the following migratory species may also utilise the Site:

- *Merops ornatus* (Rainbow Bee-eater)
- *Haliaeetus leucogaster* (White-bellied Sea-eagle)

- *Pandion cristatus* (Eastern Osprey)
- *Apus pacificus* (Fork-tailed Swift)
- *Hirundapus caudacutus* (White-throated Needletail)
- *Ardea ibis* (Cattle Egret)
- *Ardea modesta* (Eastern Great Egret)
- *Monarcha melanopsis* (Black-faced Monarch)
- *Symposiarchus trivirgatus* (Spectacled Monarch)
- *Rhipidura rufifrons* (Rufous Fantail)

4.3 Waterways and Ecological Corridors

The Site is traversed by a number of small waterways ranging from 5m to 15m width. The waterways have sandy floors, generally deeply incised and at the time of the survey had water which appeared clear and of good quality. The waterways are fringed by riparian vegetation which provides high value fauna habitat. Where the streams have been crossed by vehicles, the banks have become eroded.

These waterways only provide local area corridors throughout the Site but would enable access to the larger nearby waterways such as Bluewater Creek which links to the greater habitat area of the Paluma Range National Park to the south-west of the Site (**FIGURE 5**). The Bruce Highway would present the biggest barrier to the movement of smaller terrestrial species such as reptiles. The residential areas of Bluewater and Toolakea would also constrain fauna movement through the clearing of native vegetation and the construction of roads.

The closed forest on beach ridges along the south-eastern boundary of the Site connects along the coastline to the Clemant State Forest and to similar habitat to the east in the localities of Saunders Beach and past Bushland Beach.



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FIGURE 05: ECOLOGICAL CORRIDORS
TOOLAKEA - L4 RP743792

5 DEVELOPMENT EFFECTS AND MITIGATIONS

5.1 Development Footprint Rationale

The occurrence of the EPBC listed Broad-leaf Tea-tree Woodlands across the Site poses a significant constraint for development on the Site.

The basis for any environmental impact assessment and mitigation strategy is that negative impacts need to be firstly avoided, secondly minimised and thirdly, residual impacts may be offset. An avoidance strategy for developing the Site would naturally see no works occurring within the Broad-leaf Tea-tree Woodlands with a focus on the remaining areas instead. However, the listed vegetation community depends on a hydrological regime which relies on seasonal inundation following high rainfalls. Therefore any development in areas surrounding the vegetation community would need to ensure no change to that regime.

Furthermore, although the other vegetation communities are not in themselves listed under Commonwealth or State legislation, they have the potential to provide fauna habitats for species listed under the EPBC Act or NC Act. These communities include:

- The Riparian Forests and Paperbark Swamps, Closed Forests on Beach Ridges and Estuarine Wetlands providing the preferred habitats for the larger proportion of water birds, bats and reptiles (accounting for approximately 65% of the threatened species); and
- Eucalypt Open Forest for the raptor species, denning habitat for species dependent on tree hollows and as secondary habitat for species more likely to use the habitats above.

Although these communities could be used for development, a detailed fauna survey would be required to determine the extent of their use by threatened fauna species in order to identify the locations with the highest ecological values and determine a developable footprint.

Given the high quality of the vegetation communities on the majority of the Site, development opportunities have focussed on minimising the development footprint to situate the development in areas already disturbed or close to existing developed areas. Based on the following criteria, a developable area was identified as shown in **FIGURE 6**:

- Based on the zoning for a tourism facility, it is considered that development would need to take place close to the beach and sea shore.
- To reduce or remove the need for road and service infrastructure through the Site it is considered that access could be potentially afforded by formalising John Brewer Drive (a gazetted road which leads from the Bruce Highway to the Site). This would concentrate any disturbance to areas already affected and would minimise impact on the majority of the Site.

5.2 Potential Impacts

5.2.1 Flora and Vegetation

As indicated in **FIGURE 6** the western portion of the Site to the west of the existing track supports a number of waterways, wetlands and Broad- leaf Tea-tree Woodlands which will be conserved free of development. The developable footprint has been defined to remain outside the coastal dune system and to provide a buffer to the waterway along the south-eastern boundary. Therefore the closed forest on beach ridges, estuarine and riverine wetlands and salt pans will be untouched.

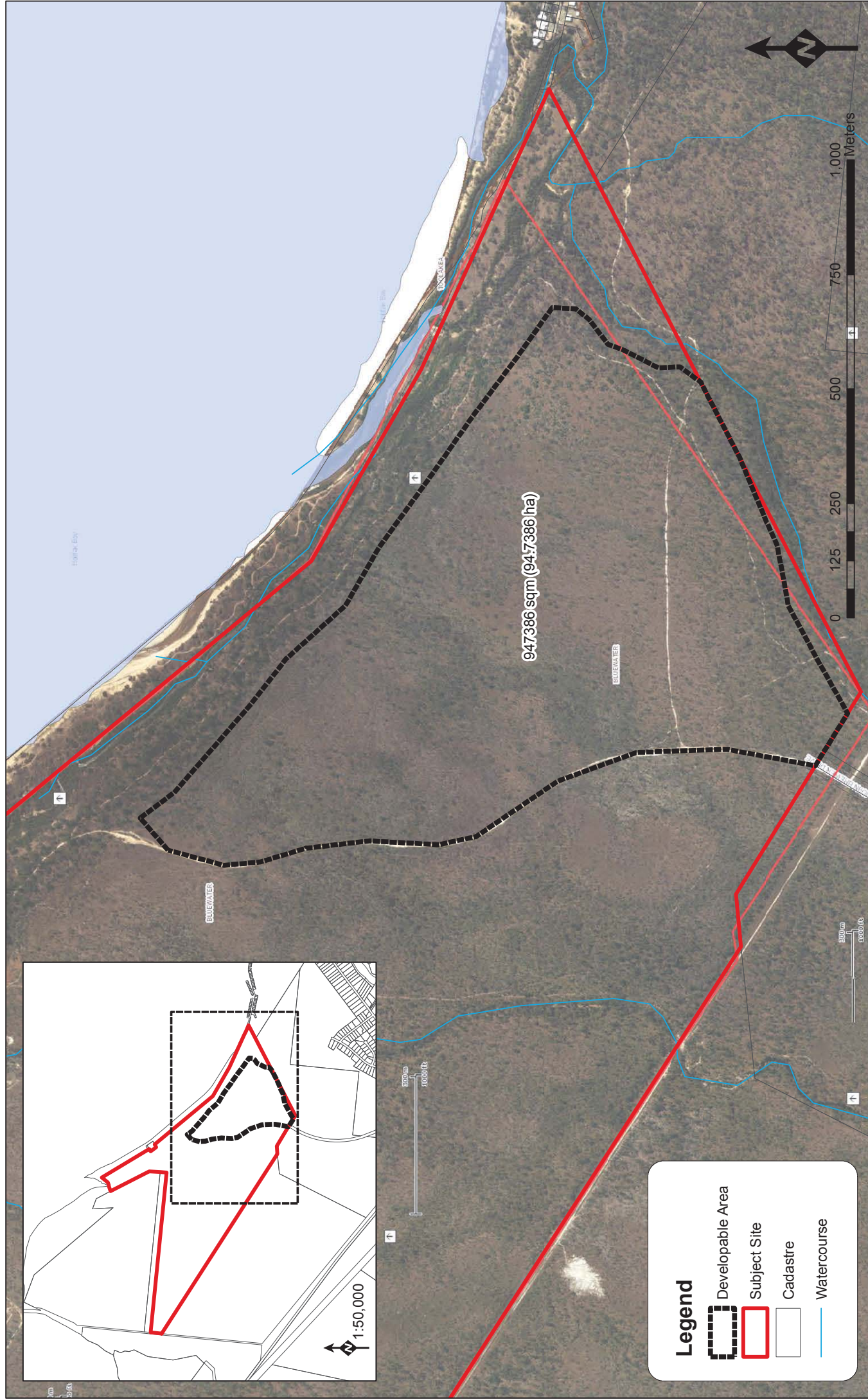


FIGURE 06: DEVELOPABLE AREA
TOOLAKEA - L4 RP743792

Provision of public access to the beach will be restricted to pedestrian paths which will be accommodated through the existing vegetation negating the need to clear.

The developable footprint identified covers an area of approximately 95ha however it is not intended that the entire area be cleared of vegetation and constructed. The design of the tourist facility within this area will be sensitive to the local environment and will seek to minimise the clearing of vegetation especially the Commonwealth listed Broad-leaf Tea-tree Woodlands. Particular attention will also be given to the retention of habitat trees.

None of the 200 vascular plants identified during the survey are listed under the EPBC Act or NC Act, therefore no threatened flora species will be impacted. All impacted remnant vegetation is listed with a vegetation management status of Least Concern under the VMA.

5.2.2 Fauna and Habitats

Removal of vegetation within the developable footprint will also remove fauna habitat. Fourteen out of the 17 threatened fauna species assessed as likely to occur within the site (refer **SECTION 4.2.3**) are bird and bat species. It is considered that the clearing of vegetation for the proposed development will not significantly impact or remove critical habitat for these highly mobile species as it is intended that trees with hollows will be retained.

The estuarine wetlands will not be impacted by the proposed development thereby preserving the preferred habitat for *Crocodylus porosus* (Estuarine Crocodile). Similarly the coastal dune system will not be developed and therefore the potential impacts on the *Antairosepens warro* (North-Eastern Plain-Nosed Burrowing Snake) and *Delma labialis* (Single-Striped Delma) are considered minimal.

Given the proponent's intent to develop an environmentally sensitive tourist facility, it is considered that a detailed fauna survey will only need to be conducted once a conceptual layout and design has evolved to define a footprint. The survey will be scoped to encompass the facility's footprint plus a 100m buffer.

5.2.3 Waterways

The unnamed waterway along the south-eastern boundary will be retained and protected by a buffer from the built environment. This waterway intersects John Brewer Drive approximately 600m south of the Site and a bridge or culvert crossing will be required to provide access (refer Toolakea Flood Inundation Assessment, prepared by WaterTechnology, J3184-01, July 2014).

5.2.4 Ecological Processes

5.2.4.1 Ecological Corridors

The developable footprint has been defined to remain outside the coastal dune system, and to maintain and provide a buffer to the waterway along the south-eastern boundary. These areas are the primary fauna movement corridors through the Site (refer **SECTION 4.3**) and therefore the proposed development will have minimal impact on species dispersion throughout the area.

Movement throughout the site is currently unimpeded. The upgrade of John Brewer Drive will result in an increased barrier for smaller species such as reptiles. However the level of traffic expected to use the road will be small as it will only service the tourist facility and therefore the impact on larger species is considered minimal.

5.2.4.2 Hydrological Regime

The Broad-leaf Tea-tree is a vegetation community which depends on a hydrological regime which relies on seasonal inundation following high rainfalls. It is therefore critical

that the hydrological regime not be impacted. For this reason the proposed development will be situated on the higher elevations of the Site and the majority of the built structures will be constructed off the ground so as to avoid restricting the inundation of the surrounding Woodlands.

5.3 Mitigation Measures

5.3.1 Pest and Weed Removal

The Site is currently being damaged by feral fauna species such as wild horses and wild pigs. These will be removed from the Site and to prevent future intrusions, the Site will be fenced off and regular inspections will be conducted to ensure the integrity of the fence.

Declared weeds and significant infestations of environmental weeds will be removed. Any bare patches created as a result will be revegetated using appropriate local species.

The proposed development will be landscaped using native species local to the area. Monitoring and control measures will be implemented to reduce the potential for the introduction of weeds and to minimise the use of chemicals or pollutants which may impact the threatened vegetation.

5.3.2 Rehabilitation

Although the majority of the Site is in good ecological condition, there are opportunities for rehabilitation in disturbed areas such as the track which provides a continuation of John Brewer Drive through the Site to the beach, as well as a number of other tracks. Unlawful dwellings which have been constructed on the beach ridges will be removed and these cleared areas will be revegetated. Car bodies and other rubbish will be removed.

5.3.3 Monitoring & Research Program

Given the quality of the Broad-leaf Tea-tree Woodlands across the Site, the project will implement a permanent and regular monitoring program of the surrounding Broad- leaf Tea-tree Woodlands to ensure it does not suffer from longer term impacts. A management plan will be developed which could include opportunities for a research program.

6 RESPONSE TO PLANNING PROVISIONS

6.1 Commonwealth Matters

6.1.1 EPBC Act

The *Matters of National Environmental Significance – Significant Impact Guidelines (v1.1)*² (the Guidelines) are used to assist in the determination of whether a project will have, or is likely to have, significant impact on a MNES. As an example of an urban development, the Guidelines suggest that a proposed housing subdivision or an industrial estate on an area which contains nationally listed threatened species or ecological communities, or immediately adjacent to the Great Barrier Reef Marine Park, is likely to be significant under the EPBC Act and should be referred to the minister. Given that the Site supports an endangered ecological community and is adjacent to the Great Barrier Reef Marine Park, it is highly likely that any substantial development proposal would have to be referred to the Commonwealth.

The Guidelines provide the 'significant impact' criteria for assessing a project which may impact critically endangered and endangered ecological communities, as follows.

An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:

- reduce the extent of an ecological community
- fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines
- adversely affect habitat critical to the survival of an ecological community
- modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns
- cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting
- cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:
 - assisting invasive species, that are harmful to the listed ecological community, to become established, or
 - causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community, or
- interfere with the recovery of an ecological community.

From the above criteria, in order to not be considered to have a significant impact a proposed development for the Site would need to aim to:

- Avoid any clearing of vegetation mapped as RE 7.3.8, including clearing for the provision of access or services;
- Avoid alteration of the surface water drainage patterns; and
- Implement measures which reduce the potential for the introduction of weeds and minimised the use of chemicals or pollutants which may impact the threatened vegetation.

The proposed development will not be able to avoid the clearing of vegetation mapped as RE 7.3.8 (Broad-leaf Tea-tree Woodlands), therefore the project will be considered to be a controlled action which will require assessment and approval under the EPBC Act. A referral to the Commonwealth will be submitted by the proponent.

² Commonwealth of Australia, 2013

6.1.2 Great Barrier Reef Marine Park Act

The Site is adjacent to the Great Barrier Reef Marine Park in an area zoned as General Use Zone (refer **APPENDIX A.2**). Within this zone certain activities require a Marine Parks permit such as commercial tourist operations and waste discharge from a fixed structure.

The proposed development does not include any facilities along the foreshore or into the coastal waters (e.g. jetty, pontoon) and would not offer commercial boating operations. Furthermore the Engineering Services Assessment Report (Sedgman Yeats, YBA0031, July 2014) indicates that the facility can be serviced with an on-site waste water treatment system which would not require discharging into coastal waters. It is therefore anticipated that the proposed development will not require a Marine Parks permit.

6.2 State Matters

6.2.1 Nature Conservation Act and Associated Regulations

There are no threatened plant species which would require a permit under the Protected Plants (clearing permit) under the *Nature Conservation (Protected Plants) Management Plan*. The results of a detailed fauna survey will be required to determine the need for an Animal Breeding Places approval under the *Nature Conservation (Wildlife Management) Regulation 2006*.

The Site supports a large number of *Xanthorrhoea johnsonii* (Grass Tree) which is listed as a Type A Restricted Species under the NC Act; this classification is to protect the commercial trading of the species. For the purposes of the proposed development, a permit is not required as any Grass Tree removed will be relocated as part of the landscaping works.

6.2.2 SDAP Module 8 – Native Vegetation Clearing

None of the vegetation mapped under the Vegetation Management Supporting map has a Vegetation Management Status of Endangered. With the Site's Special Facilities (Tourism Facility) zoning and a tourism facility considered an urban purpose, the clearing of the Site's remnant vegetation is therefore exempt under Schedule 24 Part 2 Section 2(e) of the SPR.

As part of the development, an upgrade to John Brewer Drive would be required to turn it from a dirt track to a formed road. Vegetation clearing to enable these works would also be exempt in accordance with Schedule 24 Part 2 Section 5(a) of the SPR as John Brewer Drive is gazetted and the local government would carry out the construction works.

In accordance with Table 8.1.1 of SDAP Module 8 – Native Vegetation Clearing, an "application for a Material Change of Use (MCU) or Reconfiguring a Lot (RaL) for which all clearing is limited to clearing that could be done under an exemption as prescribed under Schedule 24, Parts 1 and 2 of the SPR" need only address the Performance Outcomes PO1, PO2 and PO4 of *Table 8.1.3 Queensland Vegetation Management State Code*. Refer to **APPENDIX G** for the compliance assessment against the code.

6.2.3 SDAP Module 10 – Coastal Protection

A compliance assessment against *Table 10.1.1 Tidal works, or development in a coastal management district state code* of SDAP Module 10 – Coastal Protection is provided in **APPENDIX H**.

6.2.4 SDAP Module 11 – Wetland Protection and Wild River Areas

A compliance assessment against *Table 11.1.1 Wetland Protection State Code* of SDAP Module 10 – Wetland Protection and Wild River Areas is provided in **APPENDIX I**.

6.2.5

SPP Part E: Interim Development Assessment Requirements – Natural Hazards, Risk and Resilience

The SPP indicates that the Site is mapped with Medium and High Bushfire Prone Areas (refer **APPENDIX C**). The SPP provides Interim Development Assessment Requirements where the local government has not incorporated the State's interest in its planning scheme. Although the Thuringowa Planning Scheme does include a Natural Hazards overlay with a Potential Bushfire map, this mapping is not produced in accordance with the methodology specified in the SPP. Therefore the SPP assessment requirements need to be addressed and these are as follows:

Assessment Requirement	Compliance
Development: 1) avoids natural hazard areas or mitigates the risks of the natural hazard to an acceptable or tolerable level, and	The proposed development will implement mitigation measures which will reduce the hazard to an acceptable risk noting that as a tourist facility, the development will be supporting a limited transient population. These measures will include fire breaks, an appropriate evacuation route and a Bushfire Management Plan developed in conjunction with the local emergency services.
2) supports, and does not unduly burden, disaster management response or recovery capacity and capabilities, and	The proposed development will be designed to incorporate appropriate access routes for emergency vehicles. The Bushfire Management Plan developed in conjunction with the local emergency services will ensure that all considerations are given to disaster management response and recovery.
3) directly, indirectly and cumulatively avoids an increase in the severity of the natural hazard and the potential for damage on the site or to other properties, and	It is unlikely that the proposed development will increase the severity of the bushfire hazard. As a tourist facility constructed in a sensitive environment, the choice of building materials, the construction of fire breaks and the implementation of emergency management plans will result in a no-worsening of the bushfire hazard.
4) avoids risks to public safety and the environment from the location of hazardous materials and the release of these materials as a result of a natural hazard, and	The proposed development will be a commercial operation subject to all the environmental requirements for the handling of hazardous materials.
5) maintains or enhances natural processes and the protective function of landforms and vegetation that can mitigate risks associated with the natural hazard.	There are no natural processes or landform/vegetation functions which can mitigate the risks associated with the bushfire hazard.

6.3

Local Matters

6.3.1

Thuringowa Planning Scheme – Toolakea Local Area

The Site is identified within the Toolakea Local Area. The Local Area is intended for development that contributes to the amenity and landscape of the area and in particular intends that:

- (i) *Development –*
 - A. *Does not intrude into fragile natural areas; and*
 - B. *Retains, protects and enhances the natural coastal marine environment;*
- (ii) *Development is adequately serviced by infrastructure; and*

(iii) *Development is compatible with the landscape of the Local Area, or has a nexus with the Local Area.*

It is considered that the proposed development responds to all the above Local Area Plan intentions. The fragile natural areas of the coastal dune ridges and waterways will remain undeveloped and will be rehabilitated where required to protect and strengthen these ecological areas.

The Engineering Services Report (Sedgman Yeats, YBA0031, July 2014) indicates that the all the necessary infrastructure can be provided to the Site or on Site (e.g. on site sewerage treatment).

As a tourist facility, the proposed development will be designed to blend within the local landscape and has been situated close to the existing Toolakea township.

6.3.2

Thuringowa Planning Scheme – Natural Areas Code

The Site is mapped with the Coastal Sub-area boundary and the related Performance Criteria (P4) of the Natural Areas Code is as follows:

Natural Areas Code	Compliance
Development of premises mitigates any potential impacts on natural coastal values and processes in the Coast sub-area identified on map 5.2 to- a) Maintain the biological integrity, diversity and functioning of aquatic and terrestrial coastal ecosystems;	The proposed development will not interfere with the coastal dune system and the waterways by maintaining these areas free of development.
a) Protect coastal resource values (described and outlined in the <i>State Coastal Management Plan 2002</i>);	The State Coastal Management Plan 2002 has been superceded by the SPP and SDAP which identify the contemporary coastal resource values. A response to the SPP and SDAP has been provided in this report – refer SECTION 6.2.3.
b) Create aesthetic and recreational benefits for the community; and	As a tourist facility, the proposed development will be designed to be aesthetically pleasing whilst in keeping with the natural environment that it will be constructed in.
c) Retain the natural physical processes.	The design of the buildings and infrastructure for the Site will aim to minimise disturbance so as to maintain the natural physical processes of the Site, in particular the seasonal inundation of the Broad-lead Tea-tee Woodlands.

6.3.3

Thuringowa Planning Scheme – Natural Hazards Code

The Site is mapped with Potential Storm, Potential Acid Sulphate and Bushfire Hazard Area. The relevant Performance Criteria of the Natural Hazards Code are addressed in **APPENDIX J.**

7

CONCLUSION AND RECOMMENDATIONS

Field surveys of the Site have shown that it supports a threatened ecological community listed under the EPBC Act as endangered and known as the Broad-leaf Tea Tree Woodlands. The biophysical characteristics of this community requires seasonal inundation following high volume rainfalls and thus can be easily impacted if the surface water drainage regime is altered. This presents the greatest constraint to the potential development of the Site.

No threatened plant or fauna species were identified on-site although the Site does provide potential habitat for a number of fauna species including bats. A detailed trapping survey was not conducted but would be required should development intent for the Site be pursued further.

A developable area has been identified for the Site however it should be noted that only a design which responds to the high ecological values of the area is likely to be considered by the Commonwealth under the EPBC Act. This would need to include a light footprint (e.g. stilt mounted buildings), road infrastructure designed to protect the waterways (e.g. bridges rather than culverts) and be flood resilient.

Engineering and flood assessments have shown that a tourist facility can be supported. With the appropriate vision and design, it is considered that a facility can be implemented which will minimise its impacts such that the most significant residual impact will be the removal of some of the Broad-leaf Tea-tree Woodlands. Any offset proposals will be prepared as part of the referral to the Commonwealth for the project's impact on a MNES.

Appendix A

Commonwealth Matters

APPENDIX A.1

EPBC Act Protected Matters Search Tool



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: 21/02/14 12:27:39

[Summary](#)

[Details](#)

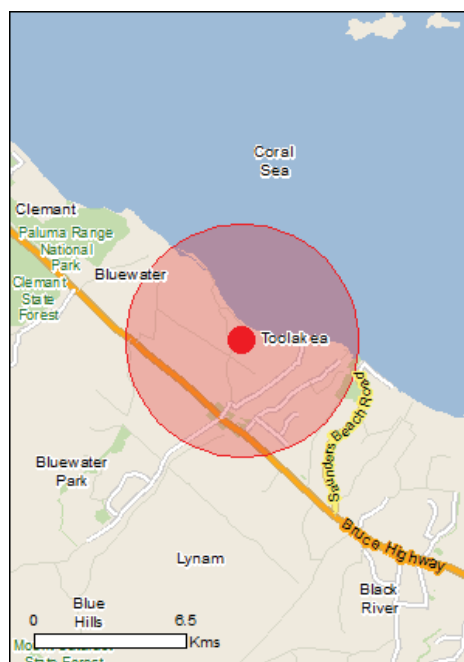
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



This map may contain data which are
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[Coordinates](#)

Buffer: 5.0Km



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:	2
Commonwealth Marine Areas:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	30
Listed Migratory Species:	43

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:	89
Whales and Other Cetaceans:	12
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

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:	35
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
General Use	GU-16-6004	VI
Habitat Protection	HP-19-5160	VI

Listed Threatened Ecological Communities [\[Resource Information \]](#)

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Broad leaf tea-tree (<i>Melaleuca viridiflora</i>) woodlands in high rainfall coastal north Queensland	Endangered	Community likely to occur within area
Littoral Rainforest and Coastal Vine Thickets of Eastern Australia	Critically Endangered	Community likely to occur within area
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	Endangered	Community likely to occur within area

Listed Threatened Species [\[Resource Information \]](#)

Name	Status	Type of Presence
Birds		
Erythrorichis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat known 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
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat likely to occur within area
Neochmia ruficauda ruficauda Star Finch (eastern), Star Finch (southern) [26027]	Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Poephila cincta cincta Black-throated Finch (southern) [64447]	Endangered	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to occur within area
Tyto novaehollandiae kimberli Masked Owl (northern) [26048]	Vulnerable	Species or species habitat likely to occur within area
Mammals		
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area
Dasyurus hallucatus Northern Quoll [331]	Endangered	Species or species habitat likely to occur within area
Hipposideros semoni Semon's Leaf-nosed Bat, Greater Wart-nosed Horseshoe-bat [180]	Endangered	Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Breeding known to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat may occur within area
Pteropus conspicillatus Spectacled Flying-fox [185]	Vulnerable	Species or species habitat likely to occur within area
Rhinolophus philippinensis (large form) Greater Large-eared Horseshoe Bat [66890]	Endangered	Species or species habitat may occur within area
Saccolaimus saccolaimus nudicluniatus Bare-rumped Sheath-tail Bat [66889]	Critically Endangered	Species or species habitat likely to occur within area
Xeromys myoides Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat may occur within area
Plants		
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat may occur within area
Streblus pendulinus Siah's Backbone, Sia's Backbone, Isaac Wood [21618]	Endangered	Species or species habitat may occur within area
Tephrosia leveillei [16946]	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area

Name	Status	Type of Presence
Denisonia maculata Ornamental Snake [1193]	Vulnerable	Species or species habitat may occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Egernia rugosa Yakka Skink [1420]	Vulnerable	Species or species habitat may 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		
* 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
Sterna albifrons Little Tern [813]		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
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely 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 related behaviour known

[[Resource Information](#)]

Name	Threatened	Type of Presence
Lamna nasus Porbeagle, Mackerel Shark [83288]		to occur within area Species or species habitat may occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding likely to occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Breeding known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Orcaella brevirostris Irrawaddy Dolphin [45]		Species or species habitat known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Sousa chinensis Indo-Pacific Humpback Dolphin [50]		Breeding known to occur within area
Migratory Terrestrial Species		
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		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 known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Roosting known to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species

Name	Threatened	Type of Presence
Arenaria interpres Ruddy Turnstone [872]		habitat likely to occur within area Roosting known to occur within area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area
Calidris tenuirostris Great Knot [862]		Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]		Roosting known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]		Roosting known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Roosting may occur within area
Heteroscelus brevipes Grey-tailed Tattler [59311]		Roosting known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Roosting known to occur within area
Numenius madagascariensis Eastern Curlew [847]		Roosting known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
Xenus cinereus Terek Sandpiper [59300]		Roosting known to 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		
Actitis hypoleucos		
Common Sandpiper [59309]		Roosting known to occur within area
Anseranas semipalmata		
Magpie Goose [978]		Species or species habitat may occur within area
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

Name	Threatened	Type of Presence
Ardea ibis Cattle Egret [59542]		Species or species habitat likely to occur within area
Arenaria interpres Ruddy Turnstone [872]		Roosting known to occur within area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area
Calidris tenuirostris Great Knot [862]		Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]		Roosting known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]		Roosting known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Roosting may occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Heteroscelus brevipes Grey-tailed Tattler [59311]		Roosting known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area
Limosa lapponica Bar-tailed Godwit [844]		Roosting known to occur within area
Merops ornatus Rainbow Bee-eater [670]		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 known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew [847]		Roosting known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area

Name	Threatened	Type of Presence
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
Sterna albifrons Little Tern [813]		Species or species habitat may occur within area
Xenus cinereus Terek Sandpiper [59300]		Roosting 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
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

Name	Threatened	Type of Presence
Festucalex cinctus Girdled Pipefish [66214]		area 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
Micrognathus andersonii Anderson's Pipefish, Shortnose Pipefish [66253]		Species or species habitat may occur within area
Micrognathus brevisrostris 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

Name	Threatened	Type of Presence
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	Breeding likely 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
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

Name	Threatened	Type of Presence
Hydrophis mcdowelli null [25926]		habitat may occur within area 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
Balaenoptera musculus Blue Whale [36]	Endangered	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
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Breeding known to occur within area
Orcaella brevirostris Irrawaddy Dolphin [45]		Species or species habitat known 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

Name	Status	Type of Presence
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		area 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]
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Note that not all Indigenous sites may be listed.

Name	State	Status
Natural		
Great Barrier Reef Region	QLD	Registered

Invasive Species	[Resource Information]
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Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area

Frogs		
Bufo marinus Cane Toad [1772]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Rhinella marina Cane Toad [83218]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Plants		
Acacia nilotica subsp. indica Prickly Acacia [6196]		Species or species habitat may occur within area
Annona glabra Pond Apple, Pond-apple Tree, Alligator Apple, Bullock's Heart, Cherimoya, Monkey Apple, Bobwood, Corkwood [6311]		Species or species habitat likely to occur within area
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]		Species or species habitat likely to occur within area
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Cryptostegia grandiflora Rubber Vine, Rubbervine, India Rubber Vine, India Rubbervine, Palay Rubbervine, Purple Allamanda [18913]		Species or species habitat likely to occur within area
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Hymenachne amplexicaulis Hymenachne, Olive Hymenachne, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754]		Species or species habitat likely to occur within area
Jatropha gossypifolia Cotton-leaved Physic-Nut, Bellyache Bush, Cotton-leaf Physic Nut, Cotton-leaf Jatropha,		Species or species habitat likely to occur

Name	Status	Type of Presence
Black Physic Nut [7507] Lantana camara		within area
Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892] Parkinsonia aculeata		Species or species habitat likely to occur within area
Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
Parthenium hysterophorus		
Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]		Species or species habitat likely to occur within area
Prosopis spp.		
Mesquite, Algaroba [68407]		Species or species habitat likely to occur within area
Salvinia molesta		
Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Vachellia nilotica		
Prickly Acacia, Blackthorn, Prickly Mimosa, Black Piquant, Babul [84351]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus		
Asian House Gecko [1708]		Species or species habitat likely to occur within area
Lepidodactylus lugubris		
Mourning Gecko [1712]		Species or species habitat likely to occur within area
Ramphotyphlops braminus		
Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]		Species or species habitat likely to occur within area

Nationally Important Wetlands		[Resource Information]
Name		State
Great Barrier Reef Marine Park		QLD

Coordinates

-19.1468 146.5583

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.

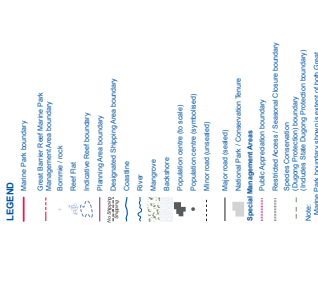
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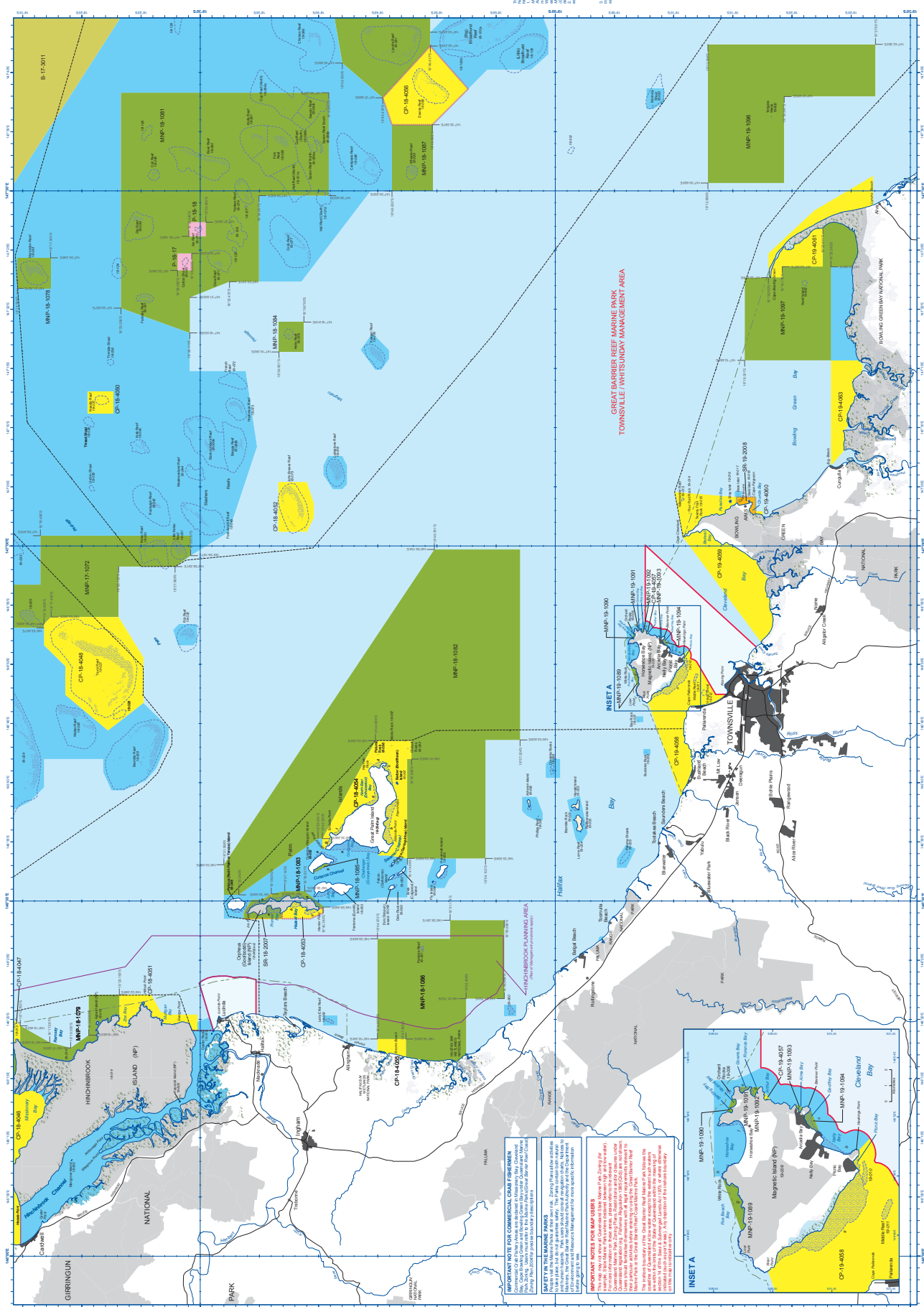
APPENDIX A.2

Great Barrier Reef Marine Park Zoning

 Australian Government
 Queensland Government

[illegible][illegible]

WARNING This map must not be used for marine navigation. Comprehensive and updated navigation information should be obtained from published hydrographic charts.



Appendix B

State Matters

APPENDIX B.1

Wildlife Online Database



Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point

Species: All

Type: All

Status: All

Records: All

Date: All

Latitude: 19.1468

Longitude: 146.5583

Distance: 5

Email: pieters@placedesigngroup.com

Date submitted: Friday 21 Feb 2014 11:27:55

Date extracted: Friday 21 Feb 2014 11:30:06

The number of records retrieved = 258

Disclaimer

As the DSITIA is still in a process of collating and vetting data, it is possible the information given is not complete. The information provided should only be used for the project for which it was requested and it should be appropriately acknowledged as being derived from Wildlife Online when it is used.

The State of Queensland does not invite reliance upon, nor accept responsibility for this information. Persons should satisfy themselves through independent means as to the accuracy and completeness of this information.

No statements, representations or warranties are made about the accuracy or completeness of this information. The State of Queensland disclaims all responsibility for this information and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Hylidae	<i>Litoria bicolor</i>	northern sedgefrog		C		3
animals	amphibians	Hylidae	<i>Litoria inermis</i>	bumpy rocketfrog		C		2
animals	amphibians	Hylidae	<i>Litoria rubella</i>	ruddy treefrog		C		1
animals	amphibians	Hylidae	<i>Litoria caerulea</i>	common green treefrog		C		2
animals	amphibians	Hylidae	<i>Cyclorana alboguttata</i>	greenstripe frog		C		1
animals	amphibians	Hylidae	<i>Cyclorana novaeohollandiae</i>	eastern snapping frog		C		1
animals	amphibians	Limnodynastidae	<i>Platyplectrum ornatum</i>	ornate burrowing frog		C		1/1
animals	amphibians	Myobatrachidae	<i>Uperoleia mimula</i>	mimicking gungan		C		3/1
animals	amphibians	Myobatrachidae	<i>Crinia deserticola</i>	chirping froglet		C		2
animals	birds	Acanthizidae	<i>Gerygone palpebrosa</i>	fairy gerygone		C		3
animals	birds	Acanthizidae	<i>Gerygone levigaster</i>	mangrove gerygone		C		4
animals	birds	Acanthizidae	<i>Gerygone magnirostris</i>	large-billed gerygone		C		3
animals	birds	Accipitridae	<i>Pandion cristatus</i>	eastern osprey		C		8
animals	birds	Accipitridae	<i>Circus assimilis</i>	spotted harrier		C		1
animals	birds	Accipitridae	<i>Lopholichtinia isura</i>	square-tailed kite		NT		4
animals	birds	Accipitridae	<i>Accipiter fasciatus</i>	brown goshawk		C		2
animals	birds	Accipitridae	<i>Aviceda subcristata</i>	Pacific baza		C		5
animals	birds	Accipitridae	<i>Haliastur sphenurus</i>	whistling kite		C		40
animals	birds	Accipitridae	<i>Accipiter novaeohollandiae</i>	grey goshawk		NT		1
animals	birds	Accipitridae	<i>Haliaeetus leucogaster</i>	white-bellied sea-eagle		C		18
animals	birds	Accipitridae	<i>Haliastur indus</i>	brahminy kite		C		21
animals	birds	Accipitridae	<i>Milvus migrans</i>	black kite		C		44
animals	birds	Accipitridae	<i>Aquila audax</i>	wedge-tailed eagle		C		7
animals	birds	Acrocephalidae	<i>Acrocephalus australis</i>	Australian reed-warbler		C		1
animals	birds	Alcedinidae	<i>Ceyx azureus</i>	azure kingfisher		C		7
animals	birds	Alcedinidae	<i>Ceyx pusilla</i>	little kingfisher		C		4
animals	birds	Anatidae	<i>Dendrocygna arcuata</i>	wandering whistling-duck		C		27
animals	birds	Anatidae	<i>Nettapus coromandelianus</i>	cotton pygmy-goose		NT		1
animals	birds	Anatidae	<i>Anas gracilis</i>	grey teal		C		3
animals	birds	Anatidae	<i>Anas superciliosa</i>	Pacific black duck		C		25
animals	birds	Anatidae	<i>Chenonetta jubata</i>	Australian wood duck		C		10
animals	birds	Anhingidae	<i>Anhinga novaeohollandiae</i>	Australasian darter		C		7
animals	birds	Anseranatidae	<i>Anseranas semipalmata</i>	magpie goose		C		20
animals	birds	Apodidae	<i>Apus affinis</i>	house swift		C		1
animals	birds	Apodidae	<i>Aerodramus terraereginae</i>	Australian swiftlet		NT		10
animals	birds	Apodidae	<i>Hirundapus caudacutus</i>	white-throated needletail		C		5
animals	birds	Apodidae	<i>Apus pacificus</i>	fork-tailed swift		C		2
animals	birds	Ardeidae	<i>Ardea modesta</i>	eastern great egret		C		22
animals	birds	Ardeidae	<i>Ardea ibis</i>	cattle egret		C		7
animals	birds	Ardeidae	<i>Egretta novaeohollandiae</i>	white-faced heron		C		15
animals	birds	Ardeidae	<i>Nycticorax caledonicus</i>	Nankeen night-heron		C		4
animals	birds	Ardeidae	<i>Ardea sumatrana</i>	great-billed heron		C		2
animals	birds	Ardeidae	<i>Egretta sacra</i>	eastern reef egret		C		4
animals	birds	Ardeidae	<i>Egretta garzetta</i>	little egret		C		7
animals	birds	Ardeidae	<i>Ardea pacifica</i>	white-necked heron		C		11
animals	birds	Ardeidae	<i>Ardea intermedia</i>	intermediate egret		C		17

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Ardeidae	<i>Butorides striata</i>	striated heron		C		2
animals	birds	Artamidae	<i>Cracticus nigrogularis</i>	pie'd butcherbird		C		29
animals	birds	Artamidae	<i>Artamus superciliosus</i>	white-browed woodswallow		C		1
animals	birds	Artamidae	<i>Artamus leucorhynchus</i>	white-breasted woodswallow		C		28
animals	birds	Artamidae	<i>Artamus cyanopterus</i>	dusky woodswallow		C		1
animals	birds	Artamidae	<i>Strepera graculina</i>	pie'd currawong		C		4
animals	birds	Artamidae	<i>Artamus personatus</i>	masked woodswallow		C		3
animals	birds	Artamidae	<i>Artamus cinereus</i>	black-faced woodswallow		C		2
animals	birds	Artamidae	<i>Cracticus quoyi</i>	black butcherbird		C		3
animals	birds	Artamidae	<i>Cracticus tibicen</i>	Australian magpie		C		34
animals	birds	Artamidae	<i>Burhinus grallarius</i>	bush stone-curlew		C		35
animals	birds	Burhinidae	<i>Esacus magnirostris</i>	beach stone-curlew		V		6
animals	birds	Burhinidae	<i>Cacatua galerita</i>	sulphur-crested cockatoo		C		35
animals	birds	Cacatuidae	<i>Calyptorhynchus banksii</i>	red-tailed black-cockatoo		C		31
animals	birds	Cacatuidae	<i>Nymphicus hollandicus</i>	cockatiel		C		3
animals	birds	Cacatuidae	<i>Eolophus roseicapillus</i>	galah		C		6
animals	birds	Campephagidae	<i>Lalage leucomela</i>	varied triller		C		10
animals	birds	Campephagidae	<i>Lalage sueurii</i>	white-winged triller		C		3
animals	birds	Campephagidae	<i>Coracina novaehollandiae</i>	black-faced cuckoo-shrike		C		27
animals	birds	Campephagidae	<i>Coracina papuensis</i>	white-bellied cuckoo-shrike		C		35
animals	birds	Caprimulgidae	<i>Caprimulgus macrurus</i>	large-tailed nightjar		C		14
animals	birds	Charadriidae	<i>Vanellus miles miles</i>	masked lapwing (northern subspecies)		C		19
animals	birds	Charadriidae	<i>Charadrius ruficapillus</i>	red-capped plover		C		13
animals	birds	Charadriidae	<i>Charadrius leschenaultii</i>	greater sand plover		C		7
animals	birds	Charadriidae	<i>Vanellus miles</i>	masked lapwing		C		19
animals	birds	Charadriidae	<i>Charadrius mongolus</i>	lesser sand plover		C		5
animals	birds	Charadriidae	<i>Eiseyornis melanops</i>	black-fronted dotterel		C		4
animals	birds	Charadriidae	<i>Pluvialis squatarola</i>	grey plover		C		1
animals	birds	Ciconiidae	<i>Ephippiorhynchus asiaticus</i>	black-necked stork		NT		14
animals	birds	Cisticolidae	<i>Cisticola exilis</i>	golden-headed cisticola		C		2
animals	birds	Columbidae	<i>Geopelia striata</i>	peaceful dove		C		46
animals	birds	Columbidae	<i>Ducula bicolor</i>	pie'd imperial-pigeon		C		2
animals	birds	Columbidae	<i>Geophaps scripta</i>	squatter pigeon		C		1
animals	birds	Columbidae	<i>Ocyphaps lophotes</i>	crested pigeon		C		31
animals	birds	Columbidae	<i>Geopelia humeralis</i>	bar-shouldered dove		C		40
animals	birds	Columbidae	<i>Ptilinopus superbus</i>	superb fruit-dove		C		1
animals	birds	Columbidae	<i>Lopholaimus antarcticus</i>	topknot pigeon		C		1
animals	birds	Coraciidae	<i>Eurystomus orientalis</i>	dollarbird		C		18
animals	birds	Corvidae	<i>Corvus orru</i>	Torresian crow		C		26
animals	birds	Corvidae	<i>Corvus coronoides</i>	Australian raven		C		3
animals	birds	Cuculidae	<i>Eudynamys orientalis</i>	eastern koel		C		19
animals	birds	Cuculidae	<i>Cacomantis pallidus</i>	pallid cuckoo		C		15
animals	birds	Cuculidae	<i>Chalcites basalus</i>	Horsfield's bronze-cuckoo		C		2
animals	birds	Cuculidae	<i>Cacomantis variolosus</i>	brush cuckoo		C		10
animals	birds	Cuculidae	<i>Centropus phasianinus</i>	pheasant coucal		C		23
animals	birds	Cuculidae	<i>Scythrops novaehollandiae</i>	channel-billed cuckoo		C		16

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Cuculidae	<i>Cacomantis flabelliformis</i>	fan-tailed cuckoo		C		2
animals	birds	Dicruridae	<i>Dicrurus bracteatus</i>	spangled drongo		C		41
animals	birds	Estrilidae	<i>Taeniopygia guttata</i>	zebra finch		C		2
animals	birds	Estrilidae	<i>Taeniopygia bichenovii</i>	double-barred finch		C		26
animals	birds	Estrilidae	<i>Neochmia modesta</i>	plum-headed finch		C		5
animals	birds	Eurostopodidae	<i>Eurostopodus argus</i>	spotted nightjar		C		1
animals	birds	Falconidae	<i>Falco longipennis</i>	Australian hobby		C		1
animals	birds	Falconidae	<i>Falco berigora</i>	brown falcon		C		1
animals	birds	Falconidae	<i>Falco subniger</i>	black falcon		C		6
animals	birds	Falconidae	<i>Falco cenchroides</i>	nankeen kestrel		C		1
animals	birds	Gruidae	<i>Grus rubicunda</i>	brulga		C		17
animals	birds	Haematopodidae	<i>Haematopus longirostris</i>	Australian pied oystercatcher		C		14
animals	birds	Halcyonidae	<i>Todiramphus macleayii</i>	forest kingfisher		C		33
animals	birds	Halcyonidae	<i>Todiramphus sanctus</i>	sacred kingfisher		C		11
animals	birds	Halcyonidae	<i>Dacelo novaeguineae</i>	laughing kookaburra		C		22
animals	birds	Halcyonidae	<i>Dacelo leachii</i>	blue-winged kookaburra		C		36
animals	birds	Hirundinidae	<i>Petrochelidon nigricans</i>	tree martin		C		4
animals	birds	Hirundinidae	<i>Petrochelidon ariel</i>	fairy martin		C		17
animals	birds	Hirundinidae	<i>Hirundo neoxena</i>	welcome swallow		C		23
animals	birds	Jacaniidae	<i>Irediparra gallinacea</i>	comb-crested jacana		C		1
animals	birds	Laridae	<i>Thalasseus bengalensis</i>	lesser crested tern		C		4
animals	birds	Laridae	<i>Gelochelidon nilotica</i>	gull-billed tern		C		9
animals	birds	Laridae	Sternula albifrons	little tern		E		4
animals	birds	Laridae	<i>Hydroprogne caspia</i>	Caspian tern		C		8
animals	birds	Laridae	<i>Sterna sumatrana</i>	black-naped tern		C		1
animals	birds	Laridae	<i>Sterna hirundo</i>	common tern		C		1
animals	birds	Laridae	<i>Chroicocephalus novaehollandiae</i>	silver gull		C		22
animals	birds	Laridae	<i>Thalasseus bergii</i>	crested tern		C		8
animals	birds	Maluridae	<i>Malurus melanocephalus</i>	red-backed fairy-wren		C		28
animals	birds	Maluridae	<i>Malurus amabilis</i>	lovely fairy-wren		C		3
animals	birds	Megapodiidae	<i>Alectura lathami</i>	Australian brush-turkey		C		4
animals	birds	Meliphagidae	<i>Philemon corniculatus</i>	noisy friarbird		C		24
animals	birds	Meliphagidae	<i>Ramsayornis fasciatus</i>	bar-breasted honeyeater		C		2
animals	birds	Meliphagidae	<i>Myzomela sanguinolenta</i>	scarlet honeyeater		C		2
animals	birds	Meliphagidae	<i>Philemon citreogularis</i>	little friarbird		C		39
animals	birds	Meliphagidae	<i>Gavicalis fasciogularis</i>	mangrove honeyeater		C		1
animals	birds	Meliphagidae	<i>Melithreptus albogularis</i>	white-throated honeyeater		C		29
animals	birds	Meliphagidae	<i>Meliphaga notata</i>	yellow-spotted honeyeater		C		1
animals	birds	Meliphagidae	<i>Myzomela obscura</i>	dusky honeyeater		C		33
animals	birds	Meliphagidae	<i>Stomiopera flavus</i>	yellow honeyeater		C		34
animals	birds	Meliphagidae	<i>Entomyzon cyanotis</i>	blue-faced honeyeater		C		38
animals	birds	Meliphagidae	<i>Philemon buceroides</i>	helmeted friarbird		C		35
animals	birds	Meliphagidae	<i>Stomiopera unicolor</i>	white-gaped honeyeater		C		3
animals	birds	Meliphagidae	<i>Lichmera indistincta</i>	brown honeyeater		C		33
animals	birds	Meliphagidae	Melithreptus gularis	black-chinned honeyeater		NT		1
animals	birds	Meliphagidae	<i>Ramsayornis modestus</i>	brown-backed honeyeater		C		22

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Meropidae	<i>Merops ornatus</i>	rainbow bee-eater		C		39
animals	birds	Monarchidae	<i>Grallina cyanoleuca</i>	magpie-lark		C		45
animals	birds	Monarchidae	<i>Myiagra rubecula</i>	leaden flycatcher		C		29
animals	birds	Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian pipit		C		15
animals	birds	Nectariniidae	<i>Dicaeum hirundinaceum</i>	mistletoebird		C		14
animals	birds	Nectariniidae	<i>Nectarinia jugularis</i>	olive-backed sunbird		C		40
animals	birds	Neosittidae	<i>Daphoenositta chrysoptera</i>	varied sittella		C		1
animals	birds	Oriolidae	<i>Oriolus sagittatus</i>	olive-backed oriole		C		26
animals	birds	Oriolidae	<i>Sphecotheres vieilloti</i>	Australasian figbird		C		29
animals	birds	Otididae	<i>Ardeotis australis</i>	Australian bustard		C		1
animals	birds	Pachycephalidae	<i>Pachycephala rufiventris</i>	rufous whistler		C		1
animals	birds	Pachycephalidae	<i>Colluricincla megarrhyncha</i>	little shrike-thrush		C		2
animals	birds	Pachycephalidae	<i>Colluricincla harmonica</i>	grey shrike-thrush		C		10
animals	birds	Pardalotidae	<i>Pardalotus striatus</i>	striated pardalote		C		16
animals	birds	Pelecanidae	<i>Pelecanus conspicillatus</i>	Australian pelican		C		18
animals	birds	Petroicidae	<i>Microeca flavigaster</i>	lemon-bellied flycatcher		C		9
animals	birds	Petroicidae	<i>Poecilodryas superciliosa</i>	white-browed robin		C		1
animals	birds	Phalacrocoracidae	<i>Phalacrocorax sulcirostris</i>	little black cormorant		C		5
animals	birds	Phalacrocoracidae	<i>Microcarbo melanoleucos</i>	little pied cormorant		C		3
animals	birds	Phalacrocoracidae	<i>Phalacrocorax varius</i>	pied cormorant		C		10
animals	birds	Phasianidae	<i>Pavo cristatus</i>	Indian peafowl	Y			2
animals	birds	Phasianidae	<i>Coturnix ypsilophora</i>	brown quail		C		7
animals	birds	Podargidae	<i>Podargus strigoides</i>	tawny frogmouth		C		18
animals	birds	Podicipedidae	<i>Tachybaptus novaehollandiae</i>	Australasian grebe		C		1
animals	birds	Psittacidae	<i>Trichoglossus chlorolepidotus</i>	scaly-breasted lorikeet		C		28
animals	birds	Psittacidae	<i>Trichoglossus haematodus moluccanus</i>	rainbow lorikeet		C		48
animals	birds	Psittacidae	<i>Aprosmictus erythropterus</i>	red-winged parrot		C		32
animals	birds	Psittacidae	<i>Platycercus adscitus</i>	pale-headed rosella		C		30
animals	birds	Psittacidae	<i>Platycercus elegans</i>	crimson rosella		C		1
animals	birds	Ptilonothynchidae	<i>Ptilonothynchus nuchalis</i>	great bowerbird		C		35
animals	birds	Recurvirostridae	<i>Himantopus himantopus</i>	black-winged stilt		C		1
animals	birds	Rhipiduridae	<i>Rhipidura albiscapa</i>	grey fantail		C		15
animals	birds	Rhipiduridae	<i>Rhipidura rufifrons</i>	rufous fantail		C		1
animals	birds	Rhipiduridae	<i>Rhipidura leucophrys</i>	willie wagtail		C		16
animals	birds	Rhipiduridae	<i>Rhipidura rufiventris</i>	northern fantail		C		4
animals	birds	Scolopacidae	<i>Gallinago hardwickii</i>	Latham's snipe		C		2
animals	birds	Scolopacidae	Numenius madagascariensis	eastern curlew		NT		15
animals	birds	Scolopacidae	<i>Xenus cinereus</i>	terek sandpiper		C		2
animals	birds	Scolopacidae	<i>Tringa brevipes</i>	grey-tailed tattler		C		4
animals	birds	Scolopacidae	<i>Limosa lapponica</i>	bar-tailed godwit		C		5
animals	birds	Scolopacidae	<i>Tringa nebularia</i>	common greenshank		C		1
animals	birds	Scolopacidae	<i>Numenius phaeopus</i>	whimbrel		C		11
animals	birds	Scolopacidae	<i>Calidris acuminata</i>	sharp-tailed sandpiper		C		3
animals	birds	Scolopacidae	<i>Calidris ruficollis</i>	red-necked stint		C		1
animals	birds	Scolopacidae	<i>Calidris tenuirostris</i>	great knot		C		4
animals	birds	Strigidae	Ninox rufa queenslandica	rufous owl (southern subspecies)		V		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Sulidae	<i>Sula leucogaster</i>	brown booby		C		1
animals	birds	Threskiornithidae	<i>Threskiornis molucca</i>	Australian white ibis		C		29
animals	birds	Threskiornithidae	<i>Platalea regia</i>	royal spoonbill		C		5
animals	birds	Threskiornithidae	<i>Platalea flavipes</i>	yellow-billed spoonbill		C		3
animals	birds	Threskiornithidae	<i>Threskiornis spinicollis</i>	straw-necked ibis		C		29
animals	mammals	Dasyuridae	<i>Planigale maculata</i>	common planigale		C		1
animals	mammals	Delphinidae	<i>Orcaella heinsohni</i>	Australian snubfin dolphin		NT		5/3
animals	mammals	Macropodidae	<i>Macropus agilis</i>	agile wallaby		C		1/1
animals	mammals	Macropodidae	<i>Macropus giganteus</i>	eastern grey kangaroo		C		1/1
animals	mammals	Muridae	<i>Hydromys chrysogaster</i>	water rat		C		1
animals	mammals	Phalangeridae	<i>Trichosurus vulpecula</i>	common brushtail possum		C		1/1
animals	mammals	Potoroidae	<i>Aepyprymnus rufescens</i>	rufous bettong		C		1/1
animals	mammals	Rhinolophidae	<i>Rhinolophus megaphyllus</i>	eastern horseshoe-bat		C		1
animals	ray-finned fishes	Melanotaeniidae	<i>Melanotaenia splendida splendida</i>	eastern rainbowfish				2/2
animals	reptiles	Boidae	<i>Morelia spilota</i>	carpet python		C		1/1
animals	reptiles	Boidae	<i>Morelia kinghorni</i>	amethystine python (Australian form)		C		1
animals	reptiles	Scincidae	<i>Lygisaurus zuma</i>			C		1
animals	reptiles	Varanidae	<i>Varanus varius</i>	lace monitor		C		1
plants	higher dicots	Cactaceae	<i>Hylocereus undatus</i>	night blooming cactus	Y			1/1
plants	higher dicots	Caesalpiniaceae	<i>Senna occidentalis</i>	coffee senna	Y			1/1
plants	higher dicots	Chenopodiaceae	<i>Tecticornia pergranulata subsp. queenslandica</i>			C		1/1
plants	higher dicots	Chenopodiaceae	<i>Tecticornia indica subsp. indica</i>			C		1/1
plants	higher dicots	Chenopodiaceae	<i>Tecticornia indica subsp. leiostachya</i>			C		1/1
plants	higher dicots	Convolvulaceae	<i>Ipomoea violacea</i>			C		1/1
plants	higher dicots	Euphorbiaceae	<i>Euphorbia tannensis subsp. tannensis</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Indigofera tinctoria</i>		Y			1/1
plants	higher dicots	Fabaceae	<i>Canavalia rosea</i>	coastal jack bean		C		1/1
plants	higher dicots	Fabaceae	<i>Indigofera linifolia</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Aphyllodium biarticulatum</i>			C		2/2
plants	higher dicots	Lamiaceae	<i>Vitex trifolia var. trifolia</i>			C		1/1
plants	higher dicots	Lecythidaceae	<i>Planchonia careya</i>	cockatoo apple		C		1
plants	higher dicots	Menyanthaceae	<i>Nymphoides exiliflora</i>			C		1/1
plants	higher dicots	Mimosaceae	<i>Acacia flavescens</i>	toothed wattle		C		1
plants	higher dicots	Mimosaceae	<i>Acacia leptocarpa</i>	north coast wattle		C		1
plants	higher dicots	Mimosaceae	<i>Acacia crassicarpa</i>			C		1
plants	higher dicots	Mimosaceae	<i>Acacia leptostachya</i>	Townsville wattle		C		1/1
plants	higher dicots	Mimosaceae	<i>Acacia aulacocarpa</i>			C		1/1
plants	higher dicots	Myrtaceae	<i>Eucalyptus tereticornis</i>			C		1
plants	higher dicots	Myrtaceae	<i>Lophostemon suaveolens</i>	swamp box		C		1/1
plants	higher dicots	Myrtaceae	<i>Eucalyptus platyphylla</i>	poplar gum		C		1
plants	higher dicots	Myrtaceae	<i>Corymbia clarksoniana</i>			C		1
plants	higher dicots	Myrtaceae	<i>Corymbia dallachiana</i>			C		1
plants	higher dicots	Myrtaceae	<i>Melaleuca viridiflora</i>			C		1
plants	higher dicots	Myrtaceae	<i>Eucalyptus drepanophylla</i>			C		1
plants	higher dicots	Portulacaceae	<i>Portulaca pilosa subsp. pilosa</i>		Y			1/1
plants	higher dicots	Proteaceae	<i>Grevillea pteridifolia</i>	golden parrot tree		C		2/2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Proteaceae	<i>Grevillea glauca</i>	bushy's clothes peg		C		1/1
plants	higher dicots	Sapindaceae	<i>Dodonaea dodecandra</i>			C		1/1
plants	higher dicots	Sapotaceae	<i>Planchonella pohlmanniana</i>			C		1/1
plants	higher dicots	Scrophulariaceae	<i>Limnophila brownii</i>			C		1/1
plants	higher dicots	Scrophulariaceae	<i>Limnophila fragrans</i>			C		1/1
plants	higher dicots	Sparmanniaceae	<i>Grewia retusifolia</i>			C		1/1
plants	higher dicots	Stylidiaceae	<i>Stylidium velleioides</i>			C		1/1
plants	higher dicots	Verbenaceae	<i>Stachytarpheta jamaicensis</i>	Jamaica snakeweed	Y			1
plants	higher dicots	Ceratophyllaceae	<i>Ceratophyllum demersum</i>	hornwort		C		1/1
plants	lower dicots	Commelinaceae	<i>Cyanotis axillaris</i>			C		1/1
plants	monocots	Commelinaceae	<i>Commelina ensifolia</i>	scurvy grass		C		1/1
plants	monocots	Cyperaceae	<i>Fuirena ciliaris</i>			C		1/1
plants	monocots	Cyperaceae	<i>Fimbristylis dolera</i>			C		1/1
plants	monocots	Cyperaceae	<i>Bulbostylis barbata</i>			C		1/1
plants	monocots	Eriocaulaceae	<i>Eriocaulon pallidum</i>			C		1/1
plants	monocots	Hydrocharitaceae	<i>Blyxa aubertii</i>			C		1/1
plants	monocots	Poaceae	<i>Enneapogon robustissimus</i>		Y	C		1/1
plants	monocots	Poaceae	<i>Sporobolus jacquemontii</i>			C		1/1
plants	monocots	Poaceae	<i>Eriachne triodioides</i>		Y			2/2
plants	monocots	Poaceae	<i>Bothriochloa pertusa</i>		Y			1
plants	monocots	Poaceae	<i>Urochloa distachya</i>		Y			1/1
plants	monocots	Poaceae	<i>Aristida holathera</i> var. <i>holathera</i>			C		1/1
plants	monocots	Poaceae	<i>Themeda triandra</i>	kangaroo grass		C		1
plants	monocots	Poaceae	<i>Chloris inflata</i>	purpletop chloris	Y			1
plants	monocots	Poaceae	<i>Melinis repens</i>	red natal grass	Y			1
plants	monocots	Poaceae	<i>Megathyrsus maximus</i> var. <i>coloratus</i>		Y			1/1
plants	monocots	Poaceae	<i>Panicum seminudum</i> var. <i>cairnsianum</i>			C		1/1
plants	monocots	Poaceae	<i>Digitaria bicornis</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).

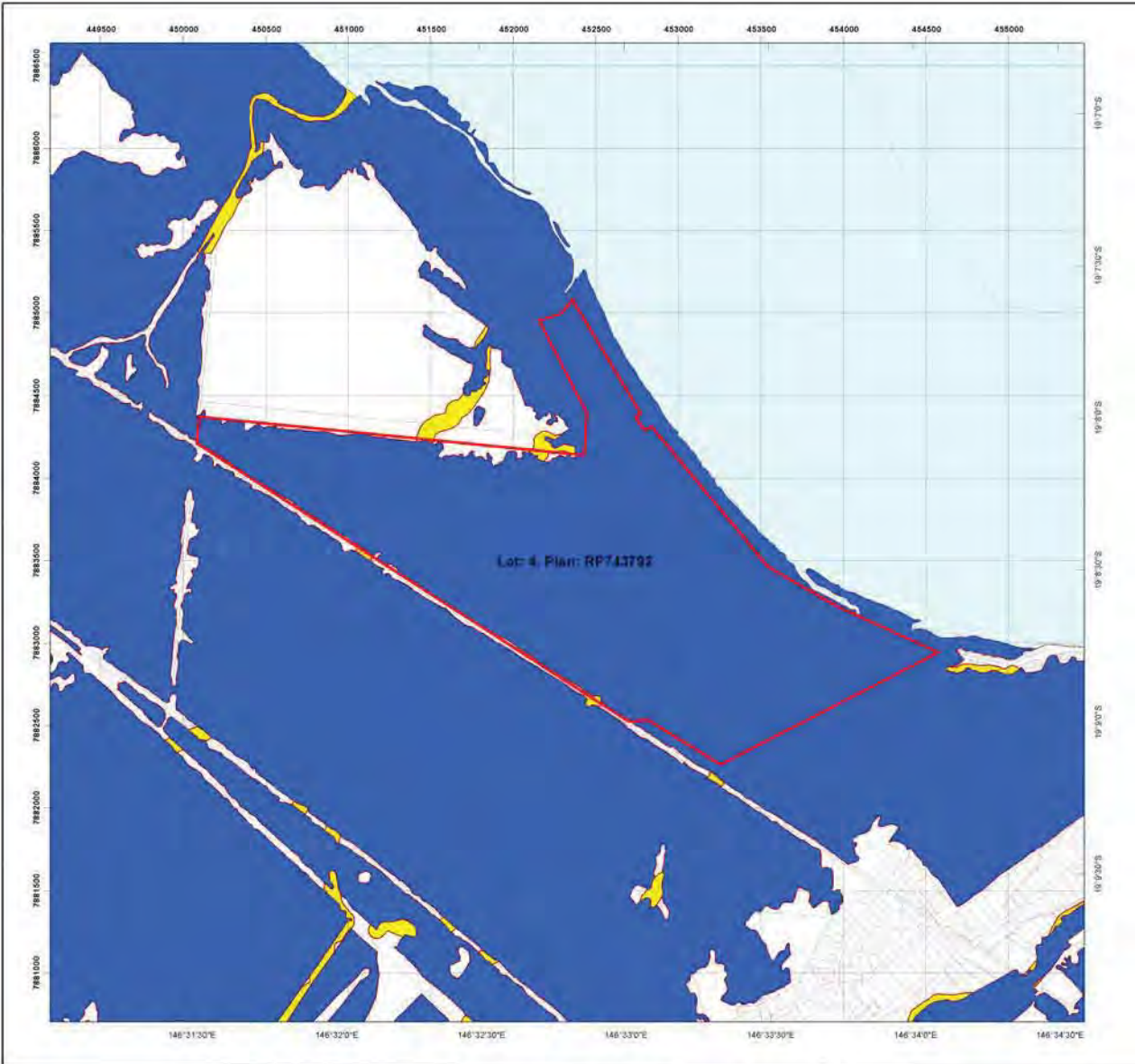
Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).

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.

APPENDIX B.2

Regulated Vegetation Map, Vegetation Management Supporting Map (version 8.0)



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

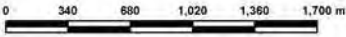


Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Natural Resources and Mines makes no representations or warranties about its accuracy, reliability, completeness or suitability or any particular purpose and disclaims all responsibility and all liability (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.

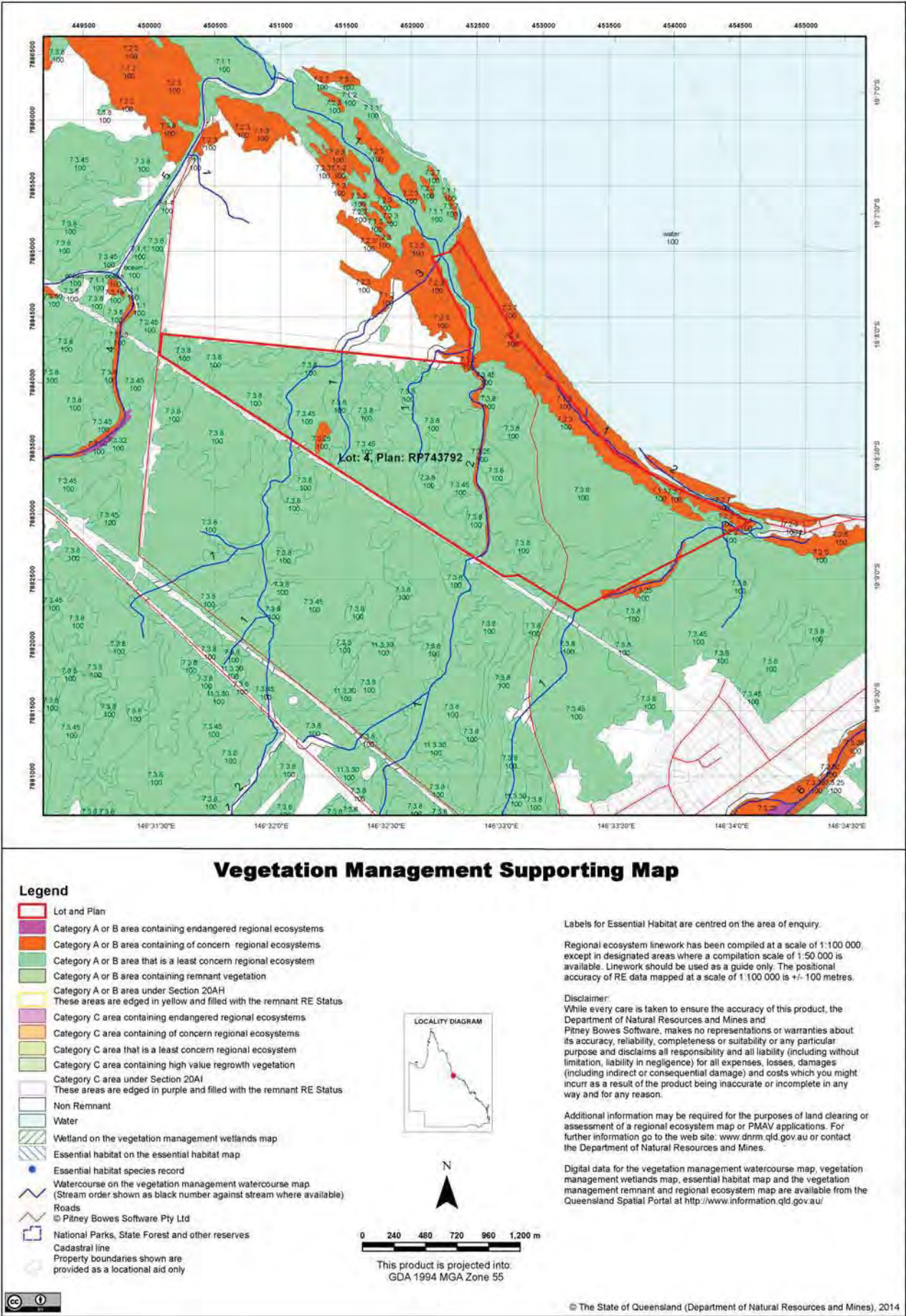
Digital data for the regulated vegetation management map is available from the Queensland Spatial Portal at <http://www.information.qld.gov.au/>

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



This product is projected into:
GDA 1994 MGA Zone 55





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-

- (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
- (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 - (no results)

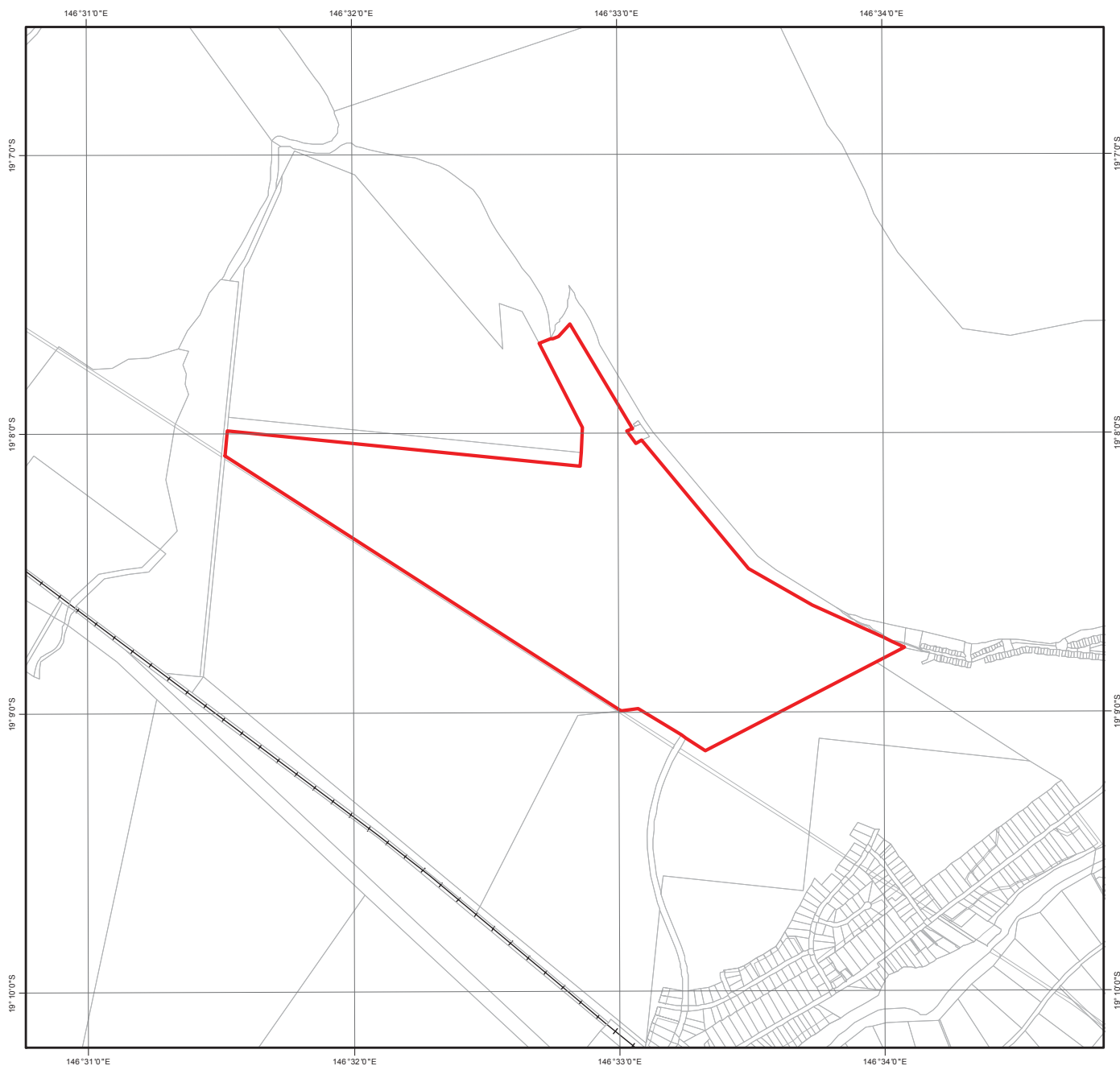
Essential habitat in Category A and B (Remnant vegetation) areas:1100m Regional Ecosystems Information - (no results)

Essential habitat in Category C (High value regrowth vegetation) areas:1100m Species Information - (no results)

Essential habitat in Category C (High value regrowth vegetation) areas:1100m Regional Ecosystems Information - (no results)

APPENDIX B.3

SPR Referrable Wetland Mapping



Map of Referable Wetlands Wetland Protection Areas

Requested By: PIETERS@PLACEDESIGNGROUP.COM

Date: 25 Mar 14 Time: 15.12.31

**Centred on Lot on Plan:
4 RP743792**



Selected Land Parcel



Cadastral Boundary

Wetland Protection Areas



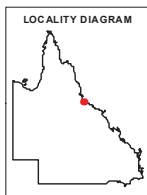
HES Wetland



Trigger Area



LOCALITY DIAGRAM



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.

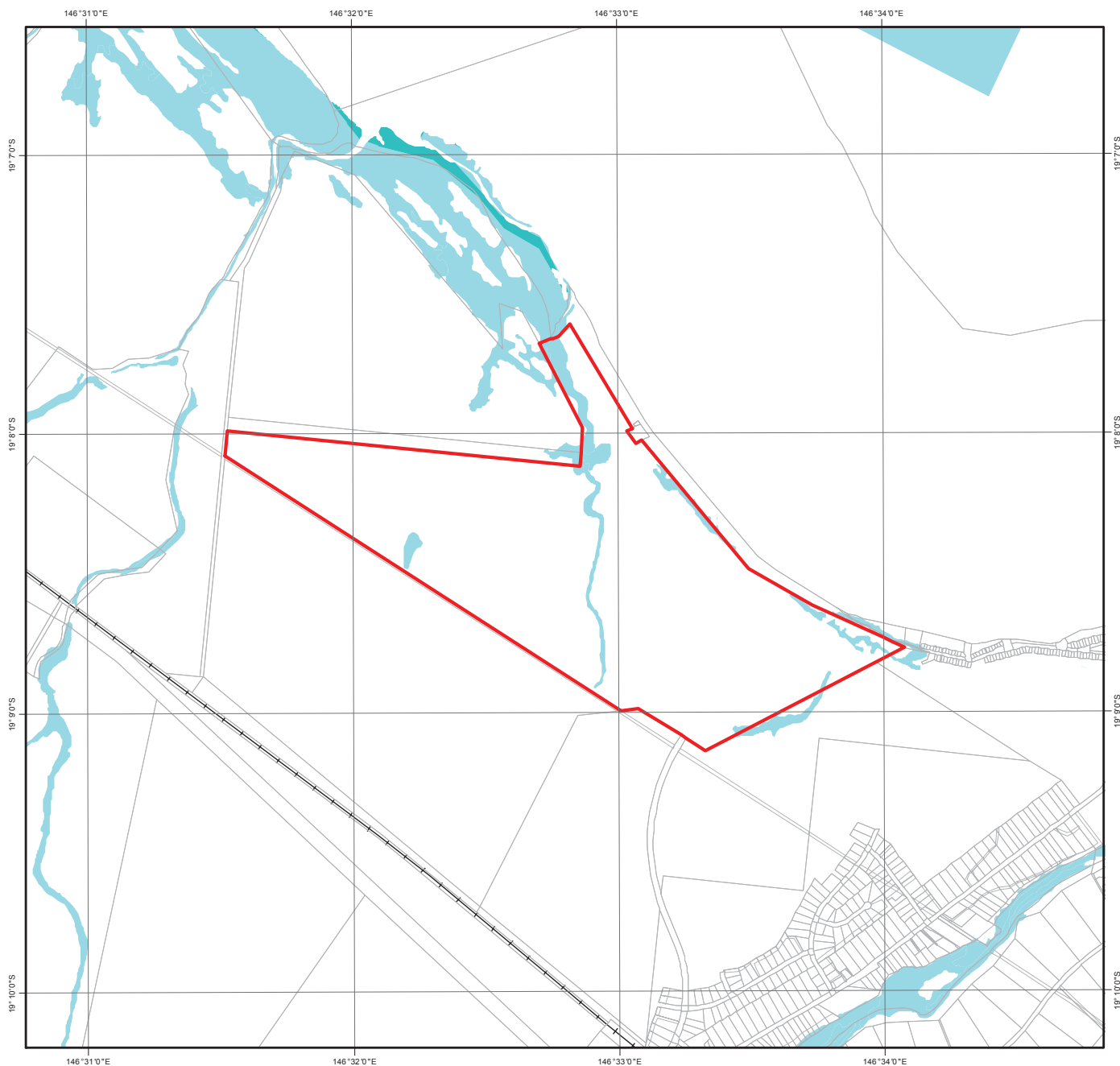
Within wetland protection areas, certain types of development involving high impact earthworks are made assessable under Schedule 3 of the Sustainable Planning Regulation 2009.

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: PIETERS@PLACEDESIGNGROUP.COM

Date: 25 Mar 14 Time: 15.12.34

Centred on Lot on Plan:

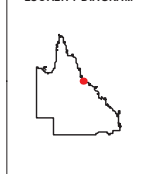
4 RP743792

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



**Queensland
Government**

LOCALITY DIAGRAM



N



0 390 780 1170 1560 1950 m

This product is projected into GDA 1994 MGA Zone 55

Note:

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

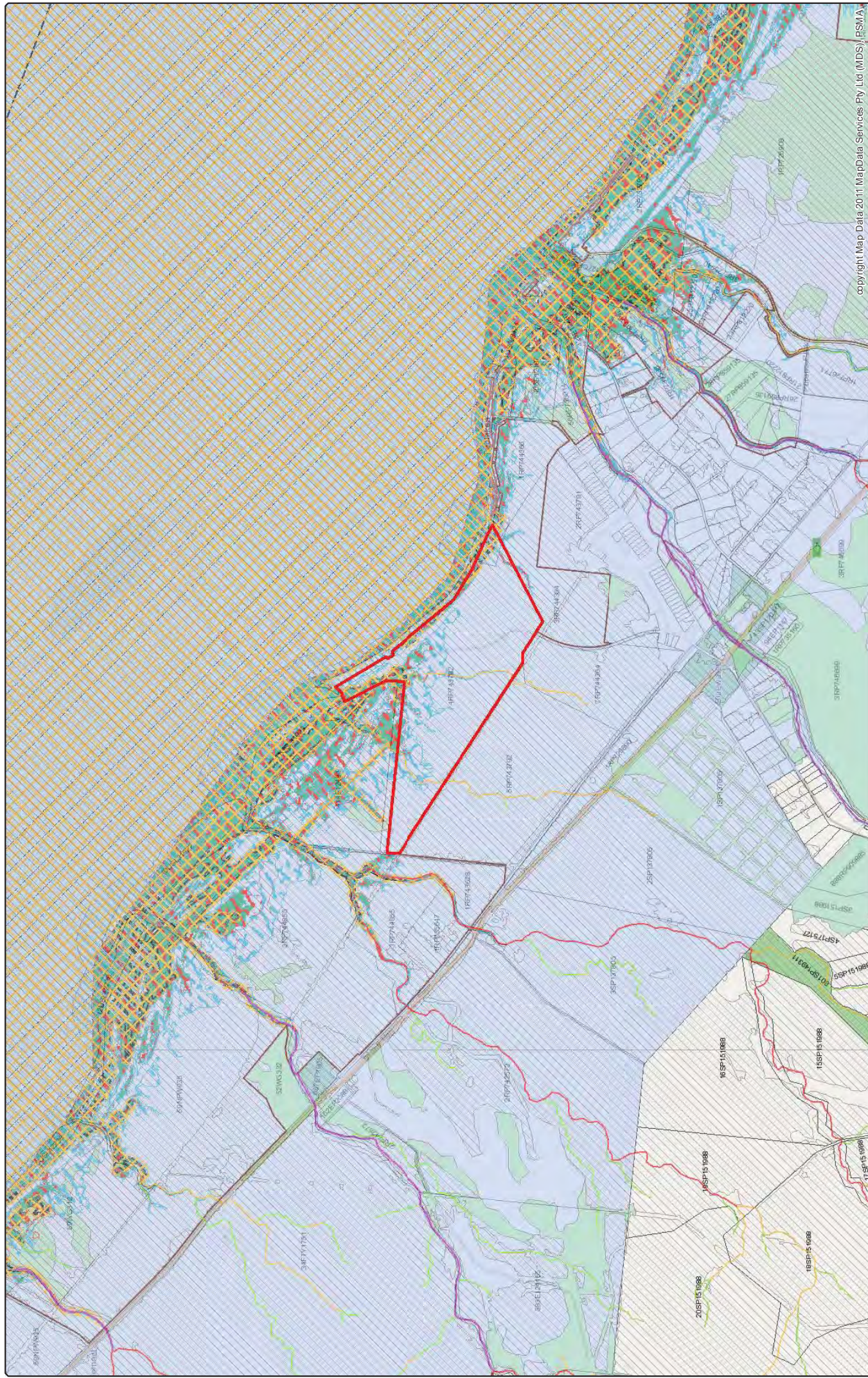
Wetlands are assessed for ecological significance using the environmental values for wetlands in section 81A of the Environmental Protection Regulation 2008. Wetlands are considered either High Ecological Significance (HES) or of General Ecological Significance (GES) for the purposes of the environmental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

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APPENDIX B.4

SARA Mapping



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State Assessment and Referral Agency



Date: 08/04/2014

Legend

Old waterways for waterway barrier works

- 1 - Low
- 2 - Moderate
- 3 - High
- 4 - Major

Category A and B extract from the regulated vegetation management map

- Category A on the regulated vegetation management map
- Category B on the regulated vegetation management map

Coastal management district

- Coastal management district

Coastal hazard areas - erosion prone area 40m on HAT

- Coastal hazard areas - erosion prone area 40m on HAT

Coastal hazard areas - erosion prone area calculated distance

- Coastal hazard areas - erosion prone area calculated distance

Coastal hazard areas - medium storm tide

- Coastal hazard areas - medium storm tide

Coastal hazard areas - high storm tide

- Coastal hazard areas - high storm tide

Tidal waterways

- Tidal waterways

Strategic cropping land (potential) trigger map

- Strategic cropping land (potential) trigger map

Coastal hazards areas - erosion prone area sea level rise

- Coastal hazards areas - erosion prone area sea level rise

Coastal zone

- Coastal zone

Matters of Interest by Lotplan

Lot Plan: 4RP743792 (Area: 4,406,000 m²)

- Old waterways for waterway barrier works
- Category A and B extract from the regulated vegetation management map
- Coastal management district
- Coastal hazard areas - erosion prone area 40m on HAT
- Coastal hazard areas - erosion prone area calculated distance
- Coastal hazard areas - medium storm tide
- Coastal hazard areas - high storm tide
- Tidal waterways
- Strategic cropping land (potential) trigger map
- Coastal hazards areas - erosion prone area sea level rise
- Coastal zone



Department of
State Development
Infrastructure and Planning

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State Assessment and Referral Agency

Date: 08/04/2014

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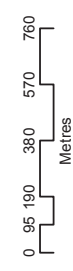
APPENDIX B.5

SPP – Matters of State Environmental Significance and Flood Assessment Mapping



State Planning Policy

Local government development assessment



Department of
State Development
Infrastructure and Planning



Disclaimer:
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Please note whilst Bushfire Hazard Areas have not been triggered they may still apply.

Date: 08/04/2014

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Legend

- polygonLayer

Override 1
- Cadastre (25k)

Cadastre (25k)
- Climatic regions - stormwater management design objectives

Climatic regions - stormwater management design objectives
- MSES - Wetlands (riverine)

MSES - Wetlands (riverine)
- MSES - Regulated vegetation (intersecting a watercourse)

MSES - Regulated vegetation (intersecting a watercourse)
- MSES - Wetlands (palustrine, estuarine and lacustrine)

MSES - Wetlands (palustrine, estuarine and lacustrine)
- Coastal management district

Coastal management district
- Flood hazard area* - Level 1 - Queensland floodplain assessment overlay

Flood hazard area* - Level 1 - Queensland floodplain assessment overlay
- MSES - Regulated vegetation

MSES - Regulated vegetation



APPENDIX B.6

SPP – Bushfire Hazard Area Mapping

Legend

- polygonLayer

Override 1
- Cadastre (25k)

Cadastre (25k)
- Bushfire hazard area (Bushfire prone area)

Very high (potential intensity)

High (potential intensity)

Medium (potential intensity)
- Climatic regions - stormwater management design objectives

Climatic regions - stormwater management design objectives
- Potential bushfire impact buffer

Potential bushfire impact buffer

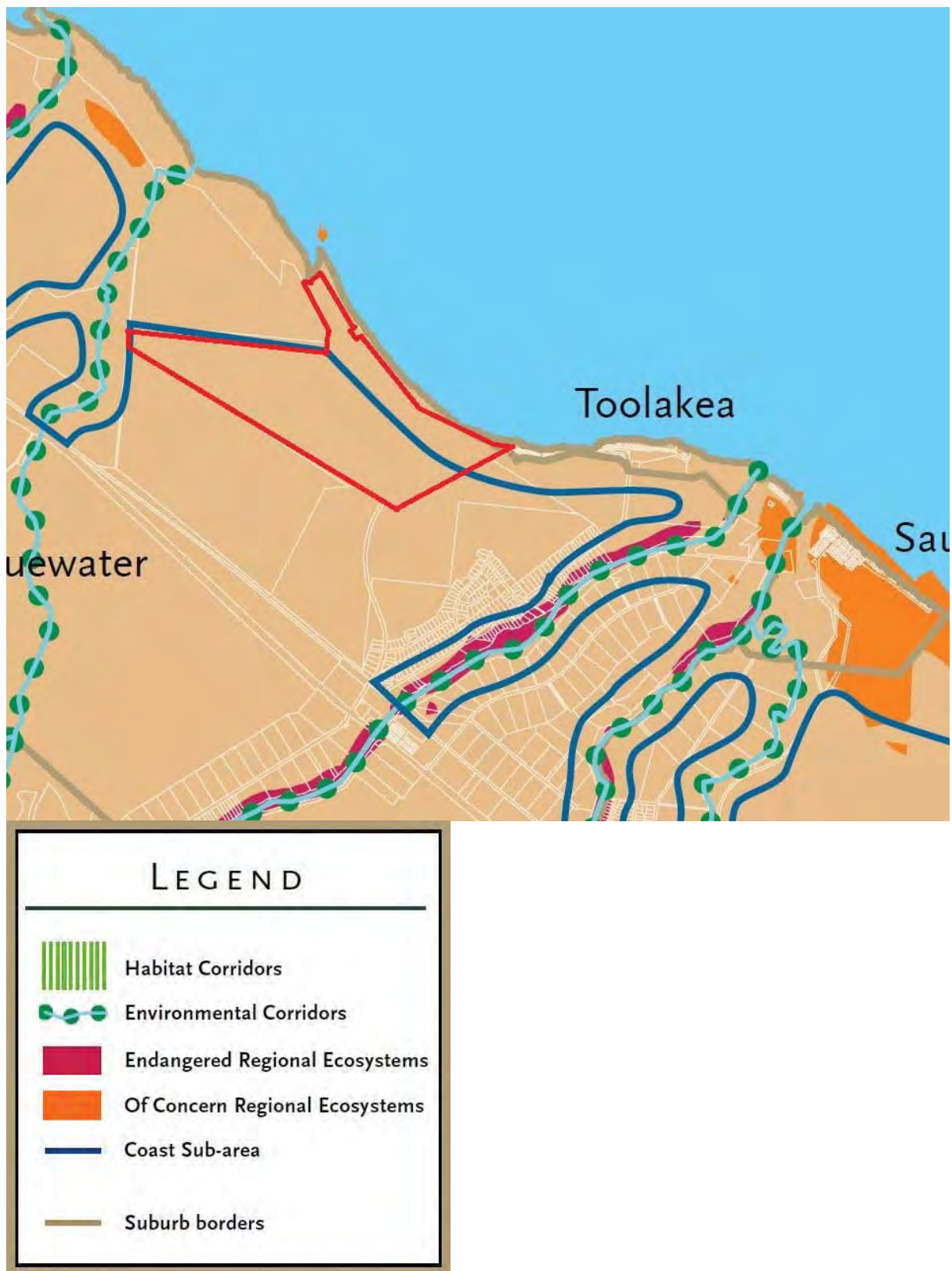


Appendix C

Local Government Matters

APPENDIX C.1

Thuringowa Planning Scheme – Natural Areas



APPENDIX C.2

Thuringowa Planning Scheme – Natural Hazards



Appendix D

Field Work Results

APPENDIX D.1

Vegetation Community Descriptions
(Extracts from the Regional Ecosystem Description Database)



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Home > Topics > Wildlife and ecosystems > Regional ecosystems >

Regional ecosystem details for 7.1.1

Regional ecosystem	7.1.1
Vegetation Management Act class	Least concern
Wetlands	Estuarine wetlands (e.g. mangroves).
Biodiversity status	No concern at present
Subregion	2, 1, 3, 9, (6)
Estimated extent	In September 2011, remnant extent was > 10,000 ha and >30% of the pre-clearing area remained.
Extent in reserves	High
Short description	Mangrove closed scrub to open forest of areas subject to regular tidal inundation
Structure category	Dense
Description	Mangrove closed scrub to open forest. Sheltered coastlines, estuaries, and deep swales between dunes, on fine anaerobic silts, inundated with saline water at high tide. (BVG1M: 35a)
Supplementary description	Stanton and Stanton (2005), E22a; Kemp and Morgan (1999), 1; Kemp et al. (1999), 1; Neldner and Clarkson (1995), 34, 132; Tracey and Webb (1975), 22a
Protected areas	Hinchinbrook Island NP, Girringun NP, Girramay NP, Hull River NP, Daintree NP, Russell River NP, Halifax Bay Wetlands NP, Maria Creek NP, Kurrimine Beach NP, Ella Bay NP, Paluma Range NP, Ngalba Bulal NP, Orpheus Island NP, Goold Island NP, Annan River (Yuku Baja-Muliku) RR, Moresby Range NP, Carello Palm Swamp CP, [Bloomfield River CP], [Moresby Range RR], [Family Islands NP], [Annan River (Yuku Baja-Muliku) NP]
Fire management guidelines	SEASON: Do not burn deliberately. INTENSITY: Do not burn deliberately. INTERVAL: Do not burn deliberately. STRATEGY: Do not burn deliberately. ISSUES: No fire management required. Non-flammable vegetation. The vulnerable ant plant (Myrmecodia beccarii) and the endangered Apollo jewel butterfly Hypochrysops apollo apollo) require consideration.
Comments	The main river systems with extensive mangrove communities include the Annan, Bloomfield, Daintree, Barron, Mulgrave, Russell, Johnstone, Hull, Tully, Murray, Seymour and Herbert Rivers and Mourilyan Harbour and Trinity Inlet. Structure and composition varies greatly, depending upon distance from the sea and differential freshwater influence.

Search again

Key identification number

RE ID:
7.1.1

Composition of key identification number
= 1.Bioregion + 3.Landzone + 5.Region

Search

[List all regional ecosystems and their status \(http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/search.php \)](http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/search.php)

[Download the REDD database \(http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/how_to_download_redd.html \)](http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/how_to_download_redd.html)

[Conditions of use \(http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/conditions_of_use.html \)](http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/conditions_of_use.html)

Ecosystem details

Land zone:

Description:

VMA class:

Biodiversity status:

Search



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Regional ecosystem details for 7.1.2

Regional ecosystem	7.1.2
Vegetation Management Act class	Of concern
Wetlands	Estuarine wetlands (e.g. mangroves).
Biodiversity status	Of concern
Subregion	1, 2, 3, 9, (6)
Estimated extent	In September 2011, remnant extent was < 10,000 ha and >30% of the pre-clearing area remained
Extent in reserves	High
Short description	Sporobolus virginicus grassland, samphire open forbland to sparse forbland, and bare saltpans, on plains adjacent to mangroves
Structure category	Very sparse
Description	<p>Sporobolus virginicus (saltwater couch) grassland, samphire open forbland to sparse forbland, and bare saltpans. Fine anaerobic saline silts on plains adjacent to mangroves. Saltpans dominate in extremely saline situations. Vegetation communities in this regional ecosystem include:</p> <p>7.1.2a: Estuarine wetlands (e.g. mangroves). Samphire flats with open forbland to sparse forbland of Tecticornia spp., and Suaeda australis. Includes bare saltpans. Occurs in extremely saline situations adjacent to mangroves, usually in slight depressions which form salt scalds after the accumulated seawater evaporates. Soils are fine anaerobic saline silts. (BVG1M: 35b)</p> <p>7.1.2b: Estuarine wetlands (e.g. mangroves). Sporobolus virginicus (saltwater couch) grassland. Slightly elevated marine plains on fine anaerobic saline silts of the saline littoral zone. Slightly elevated marine plains on fine anaerobic saline silts of the saline littoral zone. (BVG1M: 35b)</p>
Supplementary description	Stanton and Stanton (2005), E22b, E107, D107; Kemp and Morgan (1999), 2; Kemp et al. (1999), 2; Neldner and Clarkson (1995), 194; Tracey and Webb (1975), 22b
Protected areas	Girringun NP, Halifax Bay Wetlands NP, Hinchinbrook Island NP, Girramay NP, Paluma Range NP, Daintree NP, Ngalba Bulal NP, Kurrimine Beach NP, Hull River NP, Russell River NP, [Ella Bay NP], [Orpheus Island NP]
Fire management guidelines	SEASON: Do not burn deliberately. INTENSITY: Do not burn deliberately. INTERVAL: Do not burn deliberately. STRATEGY: Do not burn deliberately. ISSUES: No fire management required. Non-flammable vegetation consists of salt meadow herbfield with Sporobolus virginicus, Tecticornia indica and Suaeda australis.
Comments	7.1.2: Some areas are in poor condition due to recreational vehicular activities, usually close to urban areas. This regional ecosystem occurs as relatively small patches among mangroves on higher and drier areas subject to inundation only by king tides. Small depressions favour salt scalds after the accumulated seawater evaporates. This ecosystem is threatened by activities such as building of rubbish tips, airstrips, and recreational driving. 7.1.2a: Distributed along the entire coast, but most extensive in the drier northern and southern sections of the bioregion. 7.1.2b: Distributed along the entire coast, but most extensive in the drier northern and southern sections of the bioregion.

Search again

<div>Key identification number</div> <div>RE ID: 7.1.2</div> <div>Composition of key identification number = 1.Bioregion + 3.Landzone + 5.Region</div> <div>Search</div> <div>List all regional ecosystems and their status (http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/search.php)</div> <div>Download the REDD database (http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/how_to_download_redd.html)</div> <div>Conditions of use (http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/conditions_of_use.html)</div>	<div>Ecosystem details</div> <div>Land zone:</div> <div>Description:</div> <div>VMA class:</div> <div>Biodiversity status:</div> <div>Search</div>
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Regional ecosystem details for 7.2.3

Regional ecosystem	7.2.3
Vegetation Management Act class	Of concern
Biodiversity status	Of concern
Subregion	3, 2, 1, 9, (6), (7)
Estimated extent	In September 2011, remnant extent was < 10,000 ha and >30% of the pre-clearing area remained
Extent in reserves	High
Short description	Corymbia tessellaris and/or Acacia crassicaarpa and/or C. intermedia and/or C. clarksoniana woodland to closed forest on beach ridges (predominantly Holocene)
Structure category	Mid-dense
Description	<p>Corymbia tessellaris (Moreton Bay ash) and/or Acacia crassicaarpa (beach wattle) and/or C. intermedia (pink bloodwood) and/or C. clarksoniana (Clarkson's bloodwood) woodland to closed forest. Beach ridges, predominantly of Holocene age.</p> <p>Vegetation communities in this regional ecosystem include:</p> <p>7.2.3a: Corymbia tessellaris, C. clarksoniana (and/or C. intermedia), Melaleuca dealbata +/- Lophostemon suaveolens woodland to closed forest, with Acacia mangium, A. crassicaarpa, Canarium australianum and Deplanchea tetraphylla. Unweathered low prograding beach dunes, predominantly of Holocene age. (BVG1M: 9e)</p> <p>7.2.3b: Corymbia tessellaris and Corymbia clarksoniana (or C. intermedia), woodland to open forest. Beach ridges, predominantly of Holocene age. (BVG1M: 9e)</p> <p>7.2.3c: Corymbia tessellaris and Corymbia clarksoniana (or C. intermedia), woodland to open forest, with a very well-developed vine forest understorey (due to infrequent burning). Beach ridges, predominantly of Holocene age. (BVG1M: 9e)</p> <p>7.2.3d: Corymbia intermedia open forest. Beach ridges, predominantly of Holocene age. (BVG1M: 9e)</p> <p>7.2.3e: Corymbia intermedia open forest, with a very well-developed vine forest understorey (due to infrequent burning). Beach ridges, predominantly of Holocene age. (BVG1M: 9e)</p> <p>7.2.3f: Acacia crassicaarpa open to closed forest. Beach ridges, predominantly of Holocene age. (BVG1M: 28b)</p> <p>7.2.3g: Corymbia clarksoniana woodland to open forest. Beach ridges, predominantly of Holocene age. (BVG1M: 9e)</p> <p>7.2.3h: Corymbia tessellaris, Acacia crassicaarpa, Melaleuca leucadendra and M. viridiflora woodland. Prograding dunes, often mixed with alluvium. (BVG1M: 9e)</p> <p>7.2.3i: Acacia crassicaarpa low closed forest (wind sheared). Foredunes. (BVG1M: 28b)</p> <p>7.2.3j: Corymbia clarksoniana, C. tessellaris and Acacia crassicaarpa woodland. Transported coastal cobble and boulder ridges. (BVG1M: 9e)</p>
Supplementary description	Stanton and Stanton (2005), D117, D73, D73v, D74, D74v, D151, G43, D43, D88, D98, D104; Kemp and Morgan (1999), 6; Kemp et al. (1999), 6; Neldner and Clarkson (1995), 20, 53C, 55, 93, 193, 198; Tracey and Webb (1975), 17 (in part)
Protected areas	Girramay NP, Hinchinbrook Island NP, Paluma Range NP, Ella Bay NP, Kurrimine Beach NP, Hull River NP, Daintree NP, Russell River NP, Girringun NP, Halifax Bay Wetlands NP, Goold Island NP, Orpheus Island NP, [Ngalba Bulal NP], [Moresby Range NP], [Clump Mountain NP]
Fire management guidelines	<p>SEASON: Dry season and storm burns. Burn as soon after heavy rain as fire will carry until reliable rain ends. INTENSITY: Various. INTERVAL: 3-5 years or up to 8 years where these communities adjoin Melaleuca forest/woodland and grassland/sedgeland communities. STRATEGY: Mosaic burn <30%. Begin burning early in the fire season, with progressive patch fires burnt through the year. Stop burning when the network of fires and other breaks is sufficient to impede fire spread later in the year. Storm-burning may be used to add further diversity to fire mosaic, promote perennial grasses and arrest woody thickening. ISSUES: Cajanus acutifolius should persist as a fire ephemeral of coastal forests if fire regimes are on track.</p>
Comments	<p>7.2.3: Many areas in poor condition due to weed invasion and vehicular disturbance. Subject to encroachment by housing developments</p> <p>7.2.3a: Distributed along most sections of coastline in the bioregion</p> <p>7.2.3b: Distributed along most sections of coastline in the bioregion</p> <p>7.2.3c: Distributed along most sections of coastline in the bioregion</p> <p>This vegetation community may be considered a condition state - a low burning frequency has enabled encroachment by vine forest species.</p> <p>7.2.3d: Central wetter parts of the bioregion from approximately Cardwell to Cape Tribulation.</p> <p>7.2.3e: Central wetter parts of the bioregion from approximately Cardwell to Cape Tribulation. This vegetation community may be considered a condition state - a low burning frequency has enabled encroachment by vine forest species.</p> <p>7.2.3f: Scattered along the coast over most of the bioregion.</p> <p>7.2.3g: Scattered along the coast over most of the bioregion.</p> <p>7.2.3h: Rare, scattered along the coast, especially the Orient southeast of Ingham.</p> <p>7.2.3i: Scattered along the coastal fringe of the bioregion.</p> <p>7.2.3j: Restricted to the Palm Islands.</p>

Search again

<div>Key identification number</div> <div>RE ID: 7.2.3</div> <div>Composition of key identification number = 1.Bioregion + 3.Landzone + 5.Region</div> <div>Search</div> <div>List all regional ecosystems and their status (http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/search.php)</div> <div>Download the REDD database (http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/how_to_download_redd.html)</div> <div>Conditions of use (http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/conditions_of_use.html)</div>	<div>Ecosystem details</div> <div>Land zone:</div> <div>Description:</div> <div>VMA class:</div> <div>Biodiversity status:</div> <div>Search</div>
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Regional ecosystem details for 7.2.7

Regional ecosystem	7.2.7
Vegetation Management Act class	Of concern
Biodiversity status	Endangered
Subregion	1, 3, 2, 9, (7)
Estimated extent	In September 2011, remnant extent was < 10,000 ha and >30% of the pre-clearing area remained
Extent in reserves	High
Short description	Casuarina equisetifolia +/- Corymbia tessellaris open forest +/- groved vine forest shrublands, on strand and foredunes
Structure category	Mid-dense
Description	<p>Casuarina equisetifolia (coast sheoak) +/- Corymbia tessellaris (Moreton Bay ash) open forest +/- groved vine forest shrublands. Beach strand and foredune.</p> <p>Vegetation communities in this regional ecosystem include:</p> <p>7.2.7a: Complex of open shrubland to closed shrubland, grassland, low woodland and open forest. Includes pure stands of Casuarina equisetifolia, and Acacia crasscarpa, Syzygium forte subsp. forte, Calophyllum inophyllum and Pandanus spp. woodland to open forest. Beach strand and foredune. (BVG1M: 28a)</p> <p>7.2.7b: Groved shrubland with Corymbia tessellaris, Casuarina equisetifolia and vine forest species including Canarium australianum, Terminalia arenicola, Sersalisia sericea. Alluvial terrace behind coastal boulder ridge, only on the Palm Islands. (BVG1M: 28a)</p> <p>7.2.7c: Areas of open sand. Coastal dunes (excluding the beach). (BVG1M: 28d)</p>
Supplementary description	Stanton and Stanton (2005), D44, D236, A236, D260j; Kemp and Morgan (1999), 4; Kemp et al. (1999), 4; Tracey and Webb (1975), 17 (in part)
Protected areas	Girramay NP, Hull River NP, Daintree NP, Orpheus Island NP, Kurrimine Beach NP, Ella Bay NP, Hinchinbrook Island NP, Paluma Range NP, Ngalba Bulal NP, Halifax Bay Wetlands NP, Russell River NP, [Annan River (Yuku Baja-Muliku) NP], [Brook Islands NP], [Fitzroy Island NP]
Fire management guidelines	STRATEGY: Do not burn deliberately. Perimeter burning early in the fire season may limit the extent and intensity of wildfire incursions. Burning may be useful for weed management. ISSUES: Coastal she-oaks and river oaks are sensitive to fire. Fire in the litter layer of river oaks (Allocasuarina/Casuarina) will be of low intensity and patchy. Storm burning may be useful to minimise scorch intensity to fire sensitive Casuarina. No active fire management required, except as part of weed control. Fire could be useful in controlling Singapore daisy, Sphagneticola trilobata, lantana, Lantana camara and high biomass grasses (such as grader grass Themeda quadrivalvis).
Comments	7.2.7: Most examples are invaded by weeds, many quite severely. Common weed species include Sphagneticola trilobata (Singapore Daisy), Cenchrus echinatus, Melinis repens, Tridax procumbens, Megathyrsus maximus (Guinea grass), and Mesosphaerum suaveolens. Extremely vulnerable to weed invasion, and subject to recreational disturbance and encroachment by housing developments. 7.2.7a: Occurs on the majority of foredunes in the Wet Tropics. 7.2.7b: Palm Islands.

Search again

<div>Key identification number</div> <div>RE ID: 7.2.7</div> <div>Composition of key identification number = 1.Bioregion + 3.Landzone + 5.Region</div> <div>Search</div> <div>List all regional ecosystems and their status (http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/search.php)</div> <div>Download the REDD database (http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/how_to_download_redd.html)</div> <div>Conditions of use (http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems</div>	<div>Ecosystem details</div> <div>Land zone:</div> <div>Description:</div> <div>VMA class:</div> <div>Biodiversity status:</div> <div>Search</div>
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Regional ecosystem details for 7.3.8

Regional ecosystem	7.3.8
Vegetation Management Act class	Least concern
Wetlands	Floodplain (other than floodplain wetlands).
Biodiversity status	Endangered
Subregion	1, 2, (3), (8)
Estimated extent	In September 2011, remnant extent was > 10,000 ha and >30% of the pre-clearing area remained.
Extent in reserves	Medium
Short description	Melaleuca viridiflora +/- Eucalyptus spp. +/- Lophostemon suaveolens open forest to open woodland, on poorly drained alluvial plains
Structure category	Sparse
Description	<p>Melaleuca viridiflora (broad leaf tea tree) +/- Eucalyptus spp. +/- Lophostemon suaveolens (swamp mahogany) open forest to open woodland. Humic gleyed texture contrast soils with impeded drainage, on alluvial plains.</p> <p>Vegetation communities in this regional ecosystem include:</p> <p>7.3.8a: Floodplain (other than floodplain wetlands). Melaleuca viridiflora open forest to open woodland. Includes areas of natural invasion onto former grasslands. Alluvial plains. (BVG1M: 21a)</p> <p>7.3.8b: Floodplain (other than floodplain wetlands). Melaleuca viridiflora open forest to open woodland with eucalypt emergents (or sparse eucalypt overstorey) of species such as Corymbia clarksoniana, Eucalyptus platyphylla, Lophostemon suaveolens and E. drepanophylla. Poorly drained alluvium, mostly on the coastal plains. (BVG1M: 21a)</p> <p>7.3.8c: Floodplain (other than floodplain wetlands). Melaleuca viridiflora, and Lophostemon suaveolens open forest to woodland. Poorly drained soils of coastal lowlands. (BVG1M: 21a)</p> <p>7.3.8d: Floodplain (other than floodplain wetlands). Melaleuca viridiflora, Lophostemon suaveolens and Allocasuarina littoralis open shrubland. Poorly drained soils of coastal lowlands. (BVG1M: 21a)</p>
Supplementary description	Stanton and Stanton (2005), A118, A41, A78, A93; Kemp and Morgan (1999), 30, 31, 32; Kemp et al. (1999), 23, 24, 31, 32; Tracey and Webb (1975), 20
Protected areas	Girringun NP, Paluma Range NP, Girramay NP, Hinchinbrook Island NP, Macalister Range NP, Mount Mackay NP, Halifax Bay Wetlands NP, Hull River NP, Djiru NP, Daintree NP, Kuranda NP, Maria Creek NP, Russell River NP, [Ngalba Bulal NP], [Tully Gorge NP], [Mowbray NP]
Fire management guidelines	SEASON: Early to mid-dry season in normal season (March-May). Early to late season in wet year (March-Sep). INTENSITY: Low to moderate. INTERVAL: 5-15 years. STRATEGY: Burn in association with surrounding vegetation. Ensure broad-scale management of surrounding country so that wildfires would be very limited in extent. Fire exclusion and buffering from fire are not necessary, but fire should be restricted in its intensity. Burn at the lower end of recommended fire interval if woody thickening is a problem. ISSUES: The majority of species in these communities occur in the very diverse ground stratum, including threatened ground orchids. Inappropriate fire regimes result in the conversion of the diverse ground layer to a simple grass layer, and the loss of life forms such as the ground orchids. These communities are very diverse and as such may require different fire regimes across their range; these ecosystems require further research. Fire tolerance of ant plants (Myrmecodia beccarii) unknown. Aim for low flame height to protect this species. Weed invasion and woody thickening can be a problem. Fire may be useful in control of pond apple Annona glabra and sicklepod Senna obtusifolia.
Comments	7.3.8: The greatest threat to this ecosystem now lies in gradual fragmentation (and resulting weed invasion) via clearing of fence, road and housing infrastructure, and the introduction of cattle grazing, on hobby farms, particularly in southern areas. In some areas many weeds occur in the ground layer after disturbance. These include Senna occidentalis (coffee senna), Cassia obtusifolia (sickle pod), Clitoria laurifolia, Chrysopogon aciculatus (Mackie's pest), Mimosa pudica (common sensitive plant), Sida cordifolia (flannel weed), Stachytarpheta jamaicensis (snakeweed) and Hyparrhenia rufa. Inappropriate fire regimes result in the conversion of the diverse ground layer to a simple grass layer, and the loss of life forms such as ground orchids. The exotic ant Pheidole megacephala is displacing the native ant Philidris cordatus from the ant plant Myrmecodia beccarii. This introduced ant does not tend the larvae of Hypochrysops apollo (the apollo jewel butterfly) or pollinate the ant plant. The enormous variation displayed by this regional ecosystem across the bioregion suggests that it could be further divided into several regional ecosystems given further examination of soil, drainage and ground layer species differences. 7.3.8a: Widespread throughout the bioregion where most common on the coastal floodplains, but also found in upland areas. 7.3.8b: Widespread throughout the bioregion where most common on the coastal floodplains, but also found in upland areas. 7.3.8d: Formerly scattered across the Tully-Murray floodplain, now reduced to one small area in the Kennedy Valley.

Search again

<div>Key identification number</div> <div>RE ID: 7.3.8</div> <div>Composition of key identification number = 1.Bioregion + 3.Landzone + 5.Region</div> <div>Search</div> <div>List all regional ecosystems and their status (http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/search.php)</div> <div>Download the REDD database (http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/how_to_download_redd.html)</div> <div>Conditions of use (http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/conditions_of_use.html)</div>	<div>Ecosystem details</div> <div>Land zone:</div> <div>Description:</div> <div>VMA class:</div> <div>Biodiversity status:</div> <div>Search</div>
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Regional ecosystem details for 7.3.25

Regional ecosystem	7.3.25
Vegetation Management Act class	Of concern
Wetlands	Riverine wetland or fringing riverine wetland.
Biodiversity status	Of concern
Subregion	1, 2, 9, 3, (8), (6)
Estimated extent	In September 2011, remnant extent was < 10,000 ha and >30% of the pre-clearing area remained
Extent in reserves	High
Short description	Melaleuca leucadendra +/- vine forest species, open forest to closed forest, on alluvium fringing streams
Structure category	Mid-dense
Description	<p>Melaleuca leucadendra (weeping tea tree) +/- vine forest species, open forest to closed forest. Stream levees and prior streams on well-drained sandy clay loam alluvial soils.</p> <p>Vegetation communities in this regional ecosystem include:</p> <p>7.3.25a: Riverine wetland or fringing riverine wetland. Melaleuca leucadendra open forest and woodland. Stream levees and prior streams on well-drained sandy clay loam alluvial soils. (BVG1M: 22c)</p> <p>7.3.25b: Riverine wetland or fringing riverine wetland. Melaleuca leucadendra and Eucalyptus tereticornis, layered open forest, and closed forest with a vine forest understorey. Stream levees and prior streams on well-drained sandy clay loam alluvial soils. (BVG1M: 22c)</p> <p>7.3.25c: Riverine wetland or fringing riverine wetland. Closed forest of Tristaniopsis exiliflora and Xanthostemon chrysanthus. Stream banks, on well drained alluvium adjacent to Pleistocene sand dunes. (BVG1M: 22c)</p>
Supplementary description	Stanton and Stanton (2005), A38, A50, M38, G38, D50; Kemp et al. (1999), 47; Kemp and Morgan (1999), 47; Tracey and Webb (1975), 18
Protected areas	Daintree NP, Girringun NP, Hinchinbrook Island NP, Girramay NP, Wooroonooran NP, Paluma Range NP, Ngalba Bulal NP, Russell River NP, Halifax Bay Wetlands NP, Hull River NP, Tully Gorge NP, Little Mulgrave NP, Macalister Range NP, Maria Creek NP, Kuranda NP, Annan River (Yuku Baja-Muliku) RR, Moresby Range NP, Japoon NP, Eubenangee Swamp NP, [Dinden NP], [Mount Windsor NP], [Mount Mackay NP], [Goold Island NP], [Mowbray NP], [Dinden NP (R)], [Mount Whitfield CP], [Mowbray CP]
Fire management guidelines	STRATEGY: Do not burn deliberately. Burn surrounding country so that fire cannot penetrate gallery forest. ISSUES: Typically unlikely to burn owing to lack of flammable grasses. Melaleuca forests are fire-adapted, but too high an intensity or frequent fire will slow or prevent regeneration. Fan palms may be disadvantaged by fire. Burns may threaten peat layer; if fire is allowed to penetrate then vegetation base should be wet or moist. Fire may be useful in control of pond apple Annona glabra and sicklepod Senna obtusifolia.
Comments	7.3.25: Distributed across the entire bioregion. Subject to widespread weed invasion and clearing for agriculture.

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Regional ecosystem details for 7.3.45

Regional ecosystem	7.3.45
Vegetation Management Act class	Least concern
Biodiversity status	Of concern
Subregion	1, 3, 2, (8), (4)
Estimated extent	In September 2011, remnant extent was > 10,000 ha and >30% of the pre-clearing area remained.
Extent in reserves	Medium
Short description	Corymbia clarksoniana +/- C. tessellaris +/- E. drepanophylla open forest to open woodland, on alluvial plains
Structure category	Mid-dense
Description	<p>Corymbia clarksoniana (Clarkson's bloodwood) +/- C. tessellaris (Moreton Bay ash) +/- E. drepanophylla (ironbark) open forest to open woodland. Alluvial plains.</p> <p>Vegetation communities in this regional ecosystem include:</p> <p>7.3.45a: Eucalyptus drepanophylla, Corymbia clarksoniana, +/- E. platyphylla, +/- C. tessellaris, +/- C. dallachiana woodland to open forest. Lowland alluvial plains of southern, drier areas. (BVG1M: 9e)</p> <p>7.3.45b: Corymbia clarksoniana woodland to open forest. May include small areas of Acacia leptostachya shrubland. Alluvial plains. (BVG1M: 9e)</p> <p>7.3.45c: Corymbia clarksoniana and C. tessellaris +/- E. tereticornis +/- E. platyphylla +/- Lophostemon suaveolens +/- Melaleuca dealbata +/- C. dallachiana woodland. Alluvial plains. (BVG1M: 9e)</p> <p>7.3.45d: Corymbia tessellaris, C. intermedia, C. clarksoniana grassy woodland, open woodland and sparse woodland occurring only on the Palm Islands. Alluvial fans. (BVG1M: 9e)</p> <p>7.3.45e: Woodland with Corymbia clarksoniana in the Cowie Point and Duncans Flat area. Alluvium. (BVG1M: 9e)</p> <p>7.3.45f: Corymbia clarksoniana dense open forest, with Melaleuca dealbata, Eucalyptus platyphylla, C. tessellaris, Lophostemon suaveolens, and occasionally E. pellita. Dense secondary tree layer of Alphitonia excelsa, Acacia oraria, A. mangium, A. crassicarpa, A. flavescens, Pandanus sp., and Planchonia careya. (This vegetation community is practically extinct with all remnants being below mappable size.). Fine silts possibly of marine origin forming a very flat plain. Perhaps a recent natural invasion of the former marine plain. Redbank area. (BVG1M: 9e)</p>
Supplementary description	Stanton and Stanton (2005), A144, A250b, A164, A232, A269, A226, A131 in part (Qld Herbarium and WTMA (2005) A247a); Kemp and Morgan (1999), 29, 34; Kemp et al. (1999), 30, 34; Tracey and Webb (1975), 16e, 19
Protected areas	Girringun NP, Paluma Range NP, Girramay NP, Kuranda NP, Daintree NP, Hasties Swamp NP, Ngalba Bulal NP, [Orpheus Island NP], [Mowbray NP], [Mowbray CP], [Paluma Range RR]
Fire management guidelines	SEASON: Cool, dry season (June-Sep). INTENSITY: Low to moderate. INTERVAL: 2-5 years. STRATEGY: Mosaic burn < 30%. Begin burning early in the fire season, with progressive patch fires burnt through the year. Stop burning when the network of fires and other breaks is sufficient to impede fire spread later in the year. Storm-burning may be used to add further diversity to the fire mosaic. ISSUES: Ignition is most likely during hot, dry season (Oct - Jan). These fires are typically high intensity fires that can be difficult to control. Maintaining a fire mosaic will ensure protection of animal habitats and mitigate against wildfires. Fire management approach may be different south of Ingham and similar to areas west of Kuranda to Mt Molloy.
Comments	7.3.45: Widespread across drier parts of the bioregion. This ecosystem is under threat from clearing and weed invasion, particularly via clearing of fence, road and housing infrastructure, and the introduction of cattle grazing, on hobby farms, particularly in southern areas. The weed species Mesosphaerum suaveolens Stylo spp., and Passiflora suberosa, are common in southern areas, and may result from heavy grazing pressure. This RE is approaching the threshold of 'Of concern' Vegetation Management Act class and therefore consideration of any further clearing should be very carefully assessed. 7.3.45e: Cowie Point and Duncan's Flat in the Daintree area. 7.3.45f: Broad, very flat plain, between Gordonvale and Trinity Inlet (Redbank area) - formerly extensive, the vegetation community is now practically extinct. Species composition estimated on very small (unmappable) remnants on the plain. This vegetation unit was based on a distinct photo-pattern from old aerial photography, and from a particular soil type and landform. Field evidence (Quaternary data) was also used from very thin remnant roadside strips of vegetation (which are not mappable). Therefore essentially extinct.

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APPENDIX D.2

Floristic Inventory

Family	Scientific Name	7.1.1	7.1.2	7.2.3	7.3.8	7.3.25	7.3.45	Exotic	WONS ¹	Declared Weed Class ²	Invasive Plant Ranking ³
ACANTHACEAE	<i>Brunoniella acaulis</i>				X		X				
ADIANTACEAE	<i>Cheilanthes brownii</i>				X	X	X				
ADIANTACEAE	<i>Cheilanthes nudiuscula</i>				X	X	X				
AIZOACEAE	<i>Sesuvium portulacastrum</i>		X								
ALTERNANTHACEAE	<i>Alternanthera sessilis</i>				X	X	X				
AMARYLLIDACEAE	<i>Crinum angustifolium</i>				X		X				
ANACARDIACEAE	<i>Pleiogynium timorense</i>			X							
APIACEAE	<i>Platysace linearifolia</i>				X		X				
APOCYNACEAE	<i>Alyxia spicata</i>			X							
APOCYNACEAE	<i>Catharanthus roseus</i>			X				*			62
APOCYNACEAE	<i>Gymnanthera oblonga</i>			X							
APONOGETONACEAE	<i>Aponogeton queenslandicus</i>					X					
ASTERACEAE	<i>Glossocardia bidens</i>			X							
ASTERACEAE	<i>Peripleura scabra</i>				X	X	X				
ASTERACEAE	<i>Tridax procumbens</i>				X	X	X	*			
ASTERACEAE	<i>Wedelia spilanthisoides</i>				X	X	X				
AVICENNIACEAE	<i>Avicennia marina subsp. eucalyptifolia</i>	X									
BIGNONIACEAE	<i>Deplanchea tetraphylla</i>			X							
BIGNONIACEAE	<i>Tecoma stans</i>			X				*	X	Class 3	100
BURSERACEAE	<i>Canarium australianum</i>			X							
CAMPANULACEAE	<i>Wahlenbergia graniticola</i>				X		X				
CANNABACEAE	<i>Celtis paniculata</i>			X							
CELASTRACEAE	<i>Denhamia celastroides</i>										
CELASTRACEAE	<i>Maytenus cunninghamii</i>			X	X						
COMBRETACEAE	<i>Lumnitzera racemosa</i>	X									
COMBRETACEAE	<i>Terminalia arenicola</i>			X							
COMMELINACEAE	<i>Commelina ensifolia</i>			X	X		X				

Family	Scientific Name	7.1.1	7.1.2	7.2.3	7.3.8	7.3.25	7.3.45	Exotic	WONS ¹	Declared Weed Class ²	Invasive Plant Ranking ³
COMMELINACEAE	<i>Murdannia graminea</i>				X		X				
CONVOLVULACEAE	<i>Evolvulus alsinoides</i>				X		X				
CUCURBITACEAE	<i>Momordica charantia</i>			X							
CYPERACEAE	<i>Abildgaardia ovata</i>			X							
CYPERACEAE	<i>Bulbostylis barbata</i>			X							
CYPERACEAE	<i>Cyperus aquatilis</i>					X					
CYPERACEAE	<i>Cyperus difformis</i>					X					
CYPERACEAE	<i>Cyperus exaltatus</i>		X			X					
CYPERACEAE	<i>Cyperus haspan</i>					X					
CYPERACEAE	<i>Cyperus iria</i>				X		X				
CYPERACEAE	<i>Cyperus polystachyos</i>					X	X				
CYPERACEAE	<i>Eleocharis spiralis</i>		X			X					
CYPERACEAE	<i>Fimbristylis ferruginea</i>	X	X								
CYPERACEAE	<i>Schoenoplectus validus</i>					X					
CYPERACEAE	<i>Schoenus brevifolius</i>				X	X	X				
DILLENIACEAE	<i>Hibbertia linearis</i>			X	X	X	X				
DIOSCOREACEAE	<i>Dioscorea transversa</i>			X		X	X				
EBENACEAE	<i>Diospyros geminata</i>			X							
ELAEOCARPACEAE	<i>Elaeocarpus obovatus</i>			X							
ERIOCAULACEAE	<i>Eriocaulon pallidum</i>				X		X				
EUPHORBIACEAE	<i>Euphorbia bifida</i>					X	X				
EUPHORBIACEAE	<i>Excoecaria agallocha</i>	X				X					
EUPHORBIACEAE	<i>Mallotus claoxylodes</i>			X			X				
FABACEAE	<i>Zornia dyctiocarpa</i>				X	X	X				
FABACEAE	<i>Abrus precatorius</i>			X			X				
FABACEAE	<i>Aphyllodium biarticulatum</i>			X	X		X				
FABACEAE	<i>Canavalia rosea</i>			X							
FABACEAE	<i>Crotalaria calycina</i>				X						

Family	Scientific Name	7.1.1	7.1.2	7.2.3	7.3.8	7.3.25	7.3.45	Exotic	WONS ¹	Declared Weed Class ²	Invasive Plant Ranking ³
FABACEAE	<i>Crotalaria medicaginea</i>				X	X	X				
FABACEAE	<i>Crotalaria montana</i>				X		X				
FABACEAE	<i>Crotalaria pallida</i>				X	X	X	*			
FABACEAE	<i>Cullen spicigerum</i>				X		X				
FABACEAE	<i>Desmodium brachypodium</i>				X		X				
FABACEAE	<i>Desmodium rhytidophyllum</i>				X	X	X				
FABACEAE	<i>Flemingia parviflora</i>			X	X	X	X				
FABACEAE	<i>Galactia muelleri</i>				X		X				
FABACEAE	<i>Glycine tabacina</i>				X	X	X				
FABACEAE	<i>Indigofera linnaei</i>				X		X				
FABACEAE	<i>Indigofera suffruticosa</i>				X		X				
FABACEAE	<i>Macroptilium lathyroides</i>					X	X	*			
FABACEAE	<i>Stylosanthes hamata</i>				X	X	X	*	X		
FABACEAE	<i>Stylosanthes humilis</i>				X	X	X	*			
FABACEAE	<i>Tephrosia filipes</i> subsp. <i>filipes</i>				X		X				
FABACEAE	<i>Vigna marina</i>			X							
FABACEAE	<i>Zornia dyctiocarpa</i> var. <i>filifolia</i>				X		X				
HAEMODORACEAE	<i>Haemodorum coccineum</i>				X		X				
HEMEROCALLIDACEAE	<i>Dianella caerulea</i>				X	X	X				
HEMEROCALLIDACEAE	<i>Geitonoplesium cymosum</i>			X			X				
HYDROCHARITACEAE	<i>Blyxa aubertii</i>					X					
HYDROCHARITACEAE	<i>Ottelia ovalifolia</i>					X					
JOHNSONIACEAE	<i>Tricoryne anceps</i>				X		X				
LAMIACEAE	<i>Clerodendrum floribundum</i>			X							
LAMIACEAE	<i>Hyptis suaveolens</i>			X							
LAMIACEAE	<i>Vitex trifolia</i>			X							
LAURACEAE	<i>Cassytha pubescens</i>			X			X				
LAXMANNIACEAE	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>				X	X	X				

Family	Scientific Name	7.1.1	7.1.2	7.2.3	7.3.8	7.3.25	7.3.45	Exotic	WONS ¹	Declared Weed Class ²	Invasive Plant Ranking ³
LECYTHIDACEAE	<i>Planchonia careya</i>			X	X	X	X				
LEJEUNEACEAE	<i>Thysanotus tuberosus</i>				X		X				
LORANTHACEAE	<i>Amyema congener subsp. rotundifolia</i>			X							
MALVACEAE	<i>Sida cordifolia</i>			X	X		X	*			
MALVACEAE	<i>Sida hackettiana</i>			X							
MALVACEAE	<i>Sida rhombifolia</i>			X			X	*	X		153
MALVACEAE	<i>Urena lobata</i>			X		X	X	*			
MARSILEACEAE	<i>Marsilea mutica</i>					X					
MELIACEAE	<i>Dysoxylum gaudichaudianum</i>			X							
MENISPERMACEAE	<i>Stephania japonica</i>			X			X				
MENYANTHACEAE	<i>Nymphoides indica</i>					X					
MIMOSACEAE	<i>Acacia crassicarpa</i>			X	X	X	X				
MIMOSACEAE	<i>Acacia flavescens</i>				X	X	X				
MIMOSACEAE	<i>Acacia hemsleyi</i>				X		X				
MIMOSACEAE	<i>Acacia holosericea</i>			X	X	X	X				
MIMOSACEAE	<i>Acacia leptocarpa</i>				X		X				
MIMOSACEAE	<i>Acacia leptostachya</i>				X		X				
MIMOSACEAE	<i>Acacia mangium</i>			x							
MIMOSACEAE	<i>Acacia simsii</i>				X						
MIMOSACEAE	<i>Mimosa diplotricha</i>					X	X	*	X	Class 2	
MIMOSACEAE	<i>Mimosa pudica</i>					X	X	*			102
MIMOSACEAE	<i>Neptunia dimorphantha</i>				X	X	X				
MORACEAE	<i>Ficus racemosa</i>			X			X				
MORACEAE	<i>Streblus brunonianus</i>			X							
MYRSINACEAE	<i>Aegiceras corniculatum</i>	X									
MYRTACEAE	<i>Corymbia clarksoniana</i>				X		X				
MYRTACEAE	<i>Corymbia dallachiana</i>				X		X				
MYRTACEAE	<i>Corymbia intermedia</i>			X			X				

Family	Scientific Name	7.1.1	7.1.2	7.2.3	7.3.8	7.3.25	7.3.45	Exotic	WONS ¹	Declared Weed Class ²	Invasive Plant Ranking ³
MYRTACEAE	<i>Corymbia tessellaris</i>			X							
MYRTACEAE	<i>Eucalyptus drepanophylla</i>				X		X				
MYRTACEAE	<i>Eucalyptus platyphylla</i>				X		X				
MYRTACEAE	<i>Eucalyptus tereticornis</i>					X					
MYRTACEAE	<i>Lophostemon suaveolens</i>				X		X				
MYRTACEAE	<i>Melaleuca dealbata</i>					X					
MYRTACEAE	<i>Melaleuca viridiflora</i>				X		X				
NYCTAGINACEAE	<i>Boerhavia dominii</i>				X		X				
NYMPHAEACEAE	<i>Nymphaea gigantea</i>					X					
OLEACEAE	<i>Chionanthus ramiflorus</i>			X							
OLEACEAE	<i>Jasminum didymum</i>			X							
OLEACEAE	<i>Jasminum simplicifolium</i>			X							
ONAGRACEAE	<i>Ludwigia octovalvis</i>					X					
OXALIDACEAE	<i>Oxalis corniculata</i>				X	X	X				
PANDANACEAE	<i>Pandanus whitei</i>				X	X	X				
PASSIFLORACEAE	<i>Passiflora aurantia</i>			X							
PASSIFLORACEAE	<i>Passiflora foetida</i>			X			X	*	X		70
PHYLLANTHACEAE	<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>			X	X	X	X				
PHYLLANTHACEAE	<i>Phyllanthus simplex</i>						X				
PICRODENDRACEAE	<i>Petalostigma pubescens</i>				X	X	X				
POACEAE	<i>Alloteropsis semialata</i>				X		X				
POACEAE	<i>Aristida holathera</i> var. <i>holathera</i>				X		X				
POACEAE	<i>Aristida spuria</i>				X						
POACEAE	<i>Arundinella nepalensis</i>				X		X				
POACEAE	<i>Bothriochloa ewartiana</i>				X	X	X				
POACEAE	<i>Capillipedium spicigerum</i>				X	X	X				
POACEAE	<i>Cenchrus echinatus</i>			X	X			*			178
POACEAE	<i>Chloris gayana</i>				X	X	X	*			46

Family	Scientific Name	7.1.1	7.1.2	7.2.3	7.3.8	7.3.25	7.3.45	Exotic	WONS ¹	Declared Weed Class ²	Invasive Plant Ranking ³
POACEAE	<i>Chrysopogon fallax</i>				X		X				
POACEAE	<i>Cymbopogon refractus</i>				X		X				
POACEAE	<i>Digitaria bicornis</i>			X							
POACEAE	<i>Digitaria brownii</i>				X		X				
POACEAE	<i>Digitaria ciliaris</i>				X		X				
POACEAE	<i>Echinochloa colona</i>					X		*			160
POACEAE	<i>Ectrosia leporina</i>				X						
POACEAE	<i>Elionurus citreus</i>				X						
POACEAE	<i>Enneapogon lindleyanus</i>				X		X				
POACEAE	<i>Enneapogon robustissimus</i>				X		X				
POACEAE	<i>Eragrostis brownii</i>				X		X				
POACEAE	<i>Eragrostis cumingii</i>				X		X				
POACEAE	<i>Eragrostis spartinoides</i>				X		X				
POACEAE	<i>Eriachne mucronata</i>				X		X				
POACEAE	<i>Heteropogon contortus</i>				X	X	X				
POACEAE	<i>Heteropogon triticeus</i>				X	X	X				
POACEAE	<i>Hymenachne amplexicaulis</i>					X					
POACEAE	<i>Imperata cylindrica</i>				X		X				
POACEAE	<i>Melinis repens</i>			X	X	X	X	*			65
POACEAE	<i>Panicum decompositum</i> var. <i>decompositum</i>					X	X				
POACEAE	<i>Paspalidium disjunctum</i>				X		X				
POACEAE	<i>Paspalidium distans</i>				X		X				
POACEAE	<i>Perotis rara</i>				X		X				
POACEAE	<i>Phragmites australis</i>					X					
POACEAE	<i>Pseudopogonatherum contortum</i>				X						
POACEAE	<i>Schizachyrium pseudeulalia</i>				X						
POACEAE	<i>Sporobolus jacquemontii</i>				X		X	*	X		

Family	Scientific Name	7.1.1	7.1.2	7.2.3	7.3.8	7.3.25	7.3.45	Exotic	WONS ¹	Declared Weed Class ²	Invasive Plant Ranking ³
POACEAE	<i>Sporobolus virginicus</i>	X	X								
POACEAE	<i>Themeda triandra</i>				X	X	X				
POACEAE	<i>Urochloa mosambicensis</i>		X	X							
PONTEDERIACEAE	<i>Monochoria cyanea</i>					X					
POTAMOGETONACEAE	<i>Potamogeton crispus</i>					X					
PROTEACEAE	<i>Grevillea pteridifolia</i>				X	X	X				
PROTEACEAE	<i>Grevillea striata</i>				X						
PROTEACEAE	<i>Persoonia falcata</i>			X							
PTERIDACEAE	<i>Acrostichum speciosum</i>	X				X					
PUTRANJIVACEAE	<i>Drypetes deplanchei</i>			X							
RHAMNACEAE	<i>Alphitonia excelsa</i>			X	X	X	X				
RHIZOPHORACEAE	<i>Bruguiera gymnorhiza</i>	X									
RHIZOPHORACEAE	<i>Ceriops tagal</i>	X				X					
RHIZOPHORACEAE	<i>Rhizophora stylosa</i>	X									
RUBIACEAE	<i>Aidia racemosa</i>			X							
RUBIACEAE	<i>Coelospermum reticulatum</i>				X						
RUBIACEAE	<i>Oldenlandia mitrasacmoides</i>				X						
RUBIACEAE	<i>Pogonolobus reticulatus</i>			X	X	X	X				
RUBIACEAE	<i>Spermacoce brachystema</i>				X		X				
SANTALACEAE	<i>Exocarpos latifolius</i>			X							
SAPINDACEAE	<i>Cupaniopsis anacardioides</i>			X							
SAPOTACEAE	<i>Mimusops elengi</i>	X		X							
SAPOTACEAE	<i>Planchonella pohlmiana</i>			X			X				
SOLANACEAE	<i>Solanum seaforthianum</i>			X				*			55
TACCACEAE	<i>Tacca leontopetaloides</i>				X		X				
VERBENACEAE	<i>Lantana camara</i>			X		X	X	*	X	Class 3	1
VERBENACEAE	<i>Stachytarpheta jamaicensis</i>			X	X		X	*			
VERBENACEAE	<i>Vitex rotundifolia</i>			X							

Family	Scientific Name	7.1.1	7.1.2	7.2.3	7.3.8	7.3.25	7.3.45	Exotic	WONS ¹	Declared Weed Class ²	Invasive Plant Ranking ³
VIOLACEAE	<i>Hybanthus enneaspermus</i>				X		X				
VIOLACEAE	<i>Hybanthus stellarioides</i>				X		X				
XANTHORRHOACEAE	<i>Xanthorrhoea johnsonii</i>				X		X				
XYRIDACEAE	<i>Xyris complanata</i>				X		X				
ZYGOPHYLLACEAE	<i>Tribulus terrestris</i>				X		X				
ZYGOPHYLLACEAE	<i>Zygophyllum apiculatum</i>				X		X				

Notes:

Weeds of National Significance.

Declared Weed Class, Land Protection (Pest and Stock Route) Management Act; South East Queensland (SEQ), the classes are Class 1 – plants not well established in the state which could cause a serious economic, environmental or social impact subject to eradication requirements, with land owners responsible for taking reasonable steps to keep lands free of these pests (1), Class 2 – plants established in the state which could cause a serious economic, environmental or social impact subject to co-ordinated response with land owners responsible for taking reasonable steps to keep lands free of these pests (2), Class 3 – plants established in the state which could cause a serious economic, environmental or social impact and a pest control notice can only be issued on land that is or adjacent to an environmentally significant area.

Assessment of invasive naturalised plants in south-east Queensland, by Batianoff, G. N. and Butler, D. W., Queensland Herbarium

APPENDIX D.3

Flora Site Assessment

Site assessments in accordance with Queensland Herbarium methodology were conducted at a number of locations as shown on **FIGURE 7**. Records of those assessments can be provided on demand.

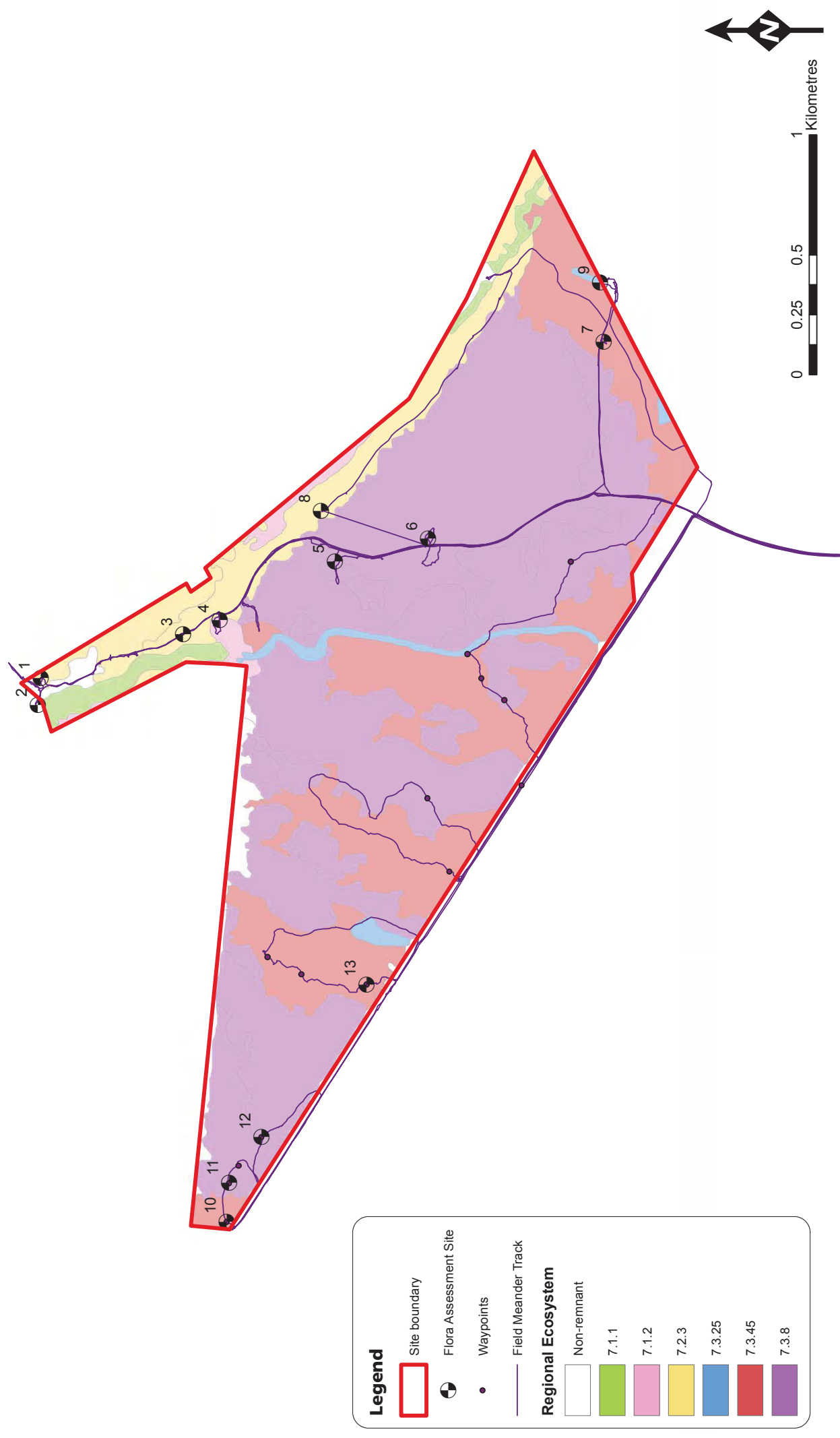
Ground cover assessment was undertaken at three locations (site 5, 6 and 12; refer **FIGURE 7**) to determine the diversity of native perennial species as part of the conditions thresholds assessment for the determination of the community protected under the EPBC Act as the Broad-leaf Tea-tree Woodlands. One metre quadrats established along a 50m transect for sites 5 and 6 and a 100m transect for site 12 were surveyed. The results are provided in **TABLE 2**.

TABLE 2: SPECIES GROUND COVER ASSESSMENT FOR SITES 5, 6 AND 12

Quadrats	Species												Litter	Bare ground	Total	
	Themeda triandra	Eragrostis brownii	Alloternopsis semialata	Melaleuca viridiflora	Capillipedium spicigerum	Wedelia spilanthisoides	Phyllanthus simplex	Heteropogon triticeus	Stachytarpheta jamaicensis*	Sporobolus jacquemontii*	Paspalidium distans	Planchonia careya				Murdannia graminea
Site 5																
Q1		5			40	1	1							10	43	100
Q2	20	5		5					30					20	20	100
Q3	40	2	10	5			3							35	5	100
Q4	10	5		5	20	12	2		40					6		100
Q5	35	3	12		5	5	2			12				20	6	100
Site 5 Mean	21	4	4.4	3	13	3.6	1.6	0	14	2.4	0	0	0	18.2	14.8	100
Site 6																
Q1		80	5	1		2							2	5	5	100
Q2		80	3	5			2							10		100
Q3	60										30			10		100

Quadrats	Species												Bare ground	Litter	Total
	Themeda triandra	Eragrostis brownii	Allotriopsis semialata	Melaleuca viridiflora	Capillipedium spicigerum	Wedelia spilanthisoides	Phyllanthus simplex	Heteropogon triticeus	Stachytarpheta jamaicensis*	Sporobolus jacquemontii*	Paspalidium distans	Planchonia careya	Murdannia graminea		
Q4	50							20				20		10	100
Q5								40				50		10	100
Site 6 Mean	22	32	1.6	1.2	0	0.4	0.4	12	0	0	6	14	0.4	9	100
Site 12															
Q1	50													40	100
Q2	80													20	100
Q3	30							5						20	100
Q4	10							15		10				55	100
Q5	5	30	10											35	100
Q6	40													50	100
Q7	30		5	3	20			2						40	100
Q8	40													50	100
Q9	40													50	100
Q10	20								3					20	100
Site 12 Mean	34.5	3	1.5	0.3	2	0	0	2.2	0.3	1	0	0	0	38	100

FIGURE 07: FLORA ASSESSMENT SITES
TOOLAKEA - L4 RP743792



APPENDIX D.4

Field-identified Fauna Species List

Family	Scientific Name	Common Name	Status	
			Non-Native	NC Act/EPBC Act
BUFONIDAE	Rhinella marina	Cane Toad	Y	
HYLIDAE	Litoria bicolor	Northern Dwarf Tree-Frog		
HYLIDAE	Litoria fallax	Eastern Sedgefrog		
HYLIDAE	Litoria gracilentia	Graceful Treefrog		
HYLIDAE	Litoria rothii	Roth's Tree-Frog		
ACCIPITRIDAE	Aviceda subcristata	Pacific Baza		
ACCIPITRIDAE	Haliastur indus	Brahminy Kite		
ACCIPITRIDAE	Haliastur sphenurus	Whistling Kite		
ALCEDINIDAE	Ceyx pusilla	Little Kingfisher		
ANATIDAE	Nettapus coromandelianus	Cotton Pygmy-Goose		NT
ARDEIDAE	Ixobrychus flavicollis	Black Bittern		
ARTAMIDAE	Artamus leucorhynchus	White-Breasted Woodswallow		
BURHINIDAE	Burhinus grallarius	Bush Stone-Curlew		
CACATUIDAE	Cacatua galerita	Sulphur-Crested Cockatoo		
CACATUIDAE	Calyptorhynchus banksii	Red-Tailed Black-Cockatoo		
CAMPEPHAGIDAE	Coracina papuensis	White-Bellied Cuckoo-Shrike		
CAMPEPHAGIDAE	Lalage leucomela	Varied Triller		
COLUMBIDAE	Geopelia humeralis	Bar-Shouldered Dove		
COLUMBIDAE	Geopelia striata	Peaceful Dove		
CORACIIDAE	Eurystomus orientalis	Dollarbird		
CORVIDAE	Corvus orru	Torresian Crow		
CUCULIDAE	Cacomantis pallidus	Pallid Cuckoo		
CUCULIDAE	Cacomantis variolosus	Brush Cuckoo		
CUCULIDAE	Centropus phasianinus	Pheasant Coucal		
CUCULIDAE	Chalcites minutillus	Little Bronze-Cuckoo		
DICRURIDAE	Dicrurus bracteatus	Spangled Drongo		
ESTRILDIDAE	Taeniopygia bichenovii	Double-Bar Finch		
HALCYONIDAE	Dacelo leachii	Blue-Winged Kookaburra		
HALCYONIDAE	Dacelo novaeguineae	Laughing Kookaburra		
HALCYONIDAE	Todiramphus macleayi	Forest Kingfisher		
MALURIDAE	Malurus melanocephalus	Red-Backed Fairy-Wren		
MELIPHAGIDAE	Entomyzon cyanotis	Blue-Faced Honeyeater		
MELIPHAGIDAE	Lichmera indistincta	Brown Honeyeater		
MELIPHAGIDAE	Meliphaga notata	Yellow-Spotted Honeyeater		
MELIPHAGIDAE	Melithreptus albogularis	White-Throated Honeyeater		

Family	Scientific Name	Common Name	Status	
			Non-Native	NC Act/EPBC Act
MELIPHAGIDAE	Myzomela obscura	Dusky Honeyeater		
MELIPHAGIDAE	Myzomela sanguinolenta	Scarlet Honeyeater		
MELIPHAGIDAE	Philemon buceroides	Helmeted Friarbird		
MELIPHAGIDAE	Philemon citreogularis	Little Friarbird		
MELIPHAGIDAE	Philemon corniculatus	Noisy Friarbird		
MELIPHAGIDAE	Ramsayornis modestus	Brown-Backed Honeyeater		
MELIPHAGIDAE	Stomiopera flavus	Yellow Honeyeater		
MEROPIDAE	Merops ornatus	Rainbow Bee-Eater		M
MONARCHIDAE	Myiagra rubecula	Leaden Flycatcher		
NECTARINIIDAE	Dicaeum hirundinaceum	Mistletoebird		
NECTARINIIDAE	Nectarinia jugularis	Olive-Backed Sunbird		
ORIOIDAE	Sphecotheres vieilloti	Australasian Figbird		
PACHYCEPHALIDAE	Colluricincla megarhyncha	Little Shrike-Thrush		
PACHYCEPHALIDAE	Pachycephala rufiventris	Rufous Whistler		
PARDALOTIDAE	Pardalotus striatus	Striated Pardalote		
PETROICIDAE	Microeca flavigaster	Lemon-Bellied Flycatcher		
PETROICIDAE	Poecilodryas superciliosa	White-Browed Robin		
PHALACROCORACIDAE	Microcarbo melanoleucos	Little Pied Cormorant		
PSITTACIDAE	Platycercus adscitus	Pale-Headed Rosella		
PSITTACIDAE	Trichoglossus haematodus	Rainbow Lorikeet		
RHIPIDURIDAE	Rhipidura albiscapa	Grey Fantail		
BOVIDAE	Bos taurus/indica	Cattle	Y	
MACROPODIDAE	Macropus agilis	Agile Wallaby		
SUIDAE	Sus scrofa	Pig	Y	
VESPERTILIONIDAE	Vespadelus troughtoni	Eastern Cave Bat		
COLUBRIDAE	Dendrelaphis punctulata	Green Tree Snake		
GEKKONIDAE	Hemidactylus frenatus	Asian House Gecko	Y	
GEKKONIDAE	Heteronotia binoei	Bynoe's Gecko		
SCINCIDAE	Carlia jarnoldae	Lined Rainbow-Skink		
SCINCIDAE	Carlia pectoralis	Open-Litter Rainbow-Skink		

Appendix E

Threatened Species Assessment

APPENDIX F.1

Threatened Flora Species Likelihood of Occurrence

Scientific Name	Common Name	EPBC Act Status	NC Act Status	Habitat	Likelihood of Occurrence ¹
<i>Phaius australis</i>	Lesser Swamp-orchid	E		The Lesser Swamp-orchid is endemic to Australia and occurs in southern Queensland and northern NSW. Most populations of the Lesser Swamp-orchid are sporadically distributed between Coffs Harbour and Fraser Island. The Lesser Swamp-orchid is commonly associated with coastal wet heath/sedgeland wetlands, swampy grassland or swampy forest and often where Broad-leaved Paperbark or Swamp Mahogany are found. Typically, the Lesser Swamp-orchid is restricted to the swamp-forest margins, where it occurs in swamp sclerophyll forest (Broad-leaved Paperbark/Swamp Mahogany/Swamp Box (<i>Lophostemon suaveolens</i>)), swampy rainforest (often with sclerophyll emergents), or fringing open forest. It is often associated with rainforest elements such as Bangalow Palm (<i>Archontophoenix cunninghamiana</i>) or Cabbage Tree Palm (<i>Livistona australis</i>).	Possible. However, no specimens were recorded on Site and the species has not been reported in the Wildlife Online database search results.
<i>Streblus pendulinus</i>	Siah's Backbone, Sia's Backbone, Isaac Wood	E		Siah's Backbone occurs from Cape York Peninsula to Milton, south-east New South Wales (NSW), as well as Norfolk Island. On the Australian mainland, Siah's Backbone is found in warmer rainforests, chiefly along watercourses. The altitudinal range is from near sea level to 800 m above sea level. The species grows in well developed rainforest, gallery forest and drier, more seasonal rainforest.	Unlikely. There is no suitable habitat on Site.

Scientific Name	Common Name	EPBC Act Status	NC Act Status	Habitat	Likelihood of Occurrence ¹
<i>Tephrosia levellei</i>		V		<p>There are six known <i>Tephrosia levellei</i> collections from north-east Queensland over a range of 400 km. Little is known about the species, including the population sizes. Collection have been made from the following locations:</p> <p>1) Almaden (1901), 2) between Chillagoe and Walsh River in (1910), 3) near Ravenswood (1931), 4) Mt Fox (1949), 5) 35 km south-west of Mt Garnet (1999) and 6) 2.4 km east of Chudleigh Park Homestead (2001). Habitat where <i>Tephrosia levellei</i> has been recorded include:</p> <ul style="list-style-type: none"> * Cullen's Ironbark (<i>Eucalyptus cullenii</i>) woodland on alluvial plains * Gum-topped Bloodwood (<i>Corymbia erythrophloia</i>) and Cooktown Ironwood (<i>Erythrophleum chlorostachys</i>) woodland with Bushman's Clothes-peg (<i>Grevillea glauca</i>) * <i>Eucalyptus</i> spp. and <i>Corymbia</i> spp. tall open forest over dense Bunch Spear-grass (<i>Heteropogon contortus</i>) on red sand along the railway track in Ravenswood. 	<p>Possible. However, no specimens were recorded on Site and the species has not been reported in the Wildlife Online database search results.</p>

Notes

1. Habitat and breeding information extracted from DE Species Profile and Threats Database (<http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>) for species listed under Protected Matters Report.

APPENDIX F.2

Threatened Fauna Species Likelihood of Occurrence

Scientific Name	Common Name	Status ¹		Data Source ²					Predicted Occurrence on Lot ³	Preferred Habitat on Lot ⁴	
		NC Act	EPBC Act	WO	QM	BA	DoE	K&K 2004			NRA 2014
Recorded on the Lot during current study											
<i>Merops ornatus</i>	Rainbow Bee-Eater		M	X		X	X	X	X	Recorded by NRA foraging above various habitats. Permanent and transient populations likely to use the Lot.	This species forages on the wing and probably occurs above all habitats on the Lot. It is a locally common species and can be found in disturbed and developed areas (eg leafy residential areas).
<i>Nettapus coromandelianus</i>	Cotton Pygmy-Goose	NT			X				X	Recorded by NRA in paperbark swamp (RF&PS) in the north-west of the Lot. Likely to occur in low numbers during the wet season when standing water is present.	Potential habitat likely to be restricted to the paperbark swamps (part of RF&PS) mapped in the north-west of the Lot.
Species with a high likelihood of occurrence based on species distribution data, habitat preference information and habitats observed on the Lot											
<i>Accipiter novaehollandiae</i>	Grey Goshawk	NT				X				High likelihood. Resident birds, or frequent visitors, may occur.	Preferred habitats on Lot: CFBR and RF&PS. Though also likely to use adjacent habitats: EW, EOF and TTW.
<i>Haliaeetus leucogaster</i>	White-Bellied Sea-Eagle		M			X	X	X	X	High likelihood. Resident birds, or frequent visitors, may occur.	Preferred habitats on Lot: EW and adjacent marine environment. Though may also occasionally use: CFBR, RF&PS, EOF and TTW. Tall emergent eucalypt and melaleuca trees near to riparian and coastline may be used for nesting.
<i>Lophoictinia isura</i>	Square-Tailed Kite	NT		X		X				High likelihood. Resident birds, or frequent visitors, may occur.	Preferred habitats on Lot: EOF and RF&PS. Though also likely to use adjacent habitats: TTW.

Scientific Name	Common Name	Status ¹		Data Source ²						Predicted Occurrence on Lot ³	Preferred Habitat on Lot ⁴
		NC Act	EPBC Act	WO	QM	BA	DoE	K&K 2004	NRA 2014		
<i>Pandion cristatus</i>	Eastern Osprey		M			X	X			High likelihood. Resident birds, or frequent visitors, may occur.	Preferred habitats on Lot: EW and adjacent marine environment. Though may also occasionally use: CF&R and RF&PS. Tall emergent eucalypt and melaleuca trees near to riparian and coastline may be used for nesting. A nest thought to belong to an Eastern Osprey was seen by NRA in CF&R during the survey. Place Design Group report seeing an Eastern Osprey at the nest.
<i>Tadorna radjah</i>	Radjah Shelduck	NT				X				High likelihood. Low numbers may occur for short periods in the wet season.	Potential habitat likely to be restricted to the paperbark swamps (part of RF&PS) mapped in the north-west of the Lot.
<i>Aerodramus terraereginae</i>	Australian Swiftlet	NT		X		X		X		High likelihood. Regular visitor above the Lot.	This species forages on the wing and nests in caves. No caves occur on the Lot and its presence is likely to be limited to the airspace above the Lot.
<i>Apus pacificus</i>	Fork-Tailed Swift		M			X	X			High likelihood. Regular visitor above the Lot; especially on storm fronts.	This species forages on the wing and its presence is likely to be limited to the airspace above the Lot.
<i>Hirundapus caudacutus</i>	White-Throated Needletail		M	X		X	X	X		High likelihood. Occasional visitor above the Lot.	This species forages on the wing. Its presence is likely to be limited to the airspace above the Lot.
<i>Ardea ibis</i>	Cattle Egret		M			X	X	X		High likelihood. Regular visitor; especially in the wet season.	Preferred habitats on Lot: EOF and TTW. Though may also occasionally use: EW, G&S, and RF&PS. This species is often seen associating with cattle.
<i>Ardea modesta</i>	Eastern Great Egret		M			X	X	X		High likelihood. Regular visitor; especially in the wet season.	Preferred habitats on Lot: EW and RF&PS. Though may also occasionally use G&S.

Scientific Name	Common Name	Status ¹		Data Source ²						Predicted Occurrence on Lot ³	Preferred Habitat on Lot ⁴
		NC Act	EPBC Act	WO	QM	BA	DoE	K&K 2004	NRA 2014		
<i>Esacus magnirostris</i>	Beach Stone-Curlew	V				X		X		High likelihood; though restricted to beach areas immediately adjacent to the Lot.	This species occurs in low densities along beaches of the local area. While the species is unlikely to venture onto the Lot its presence nearby may be of relevance to impact assessments (eg indirect threats).
<i>Ephippiorhynchus asiaticus</i>	Black-Necked Stork	NT		X		X		X		High likelihood. Regular visitor; especially in the wet season.	Preferred habitats on Lot: EW and RF&PS. Though may also occasionally use G&S and TTW.
<i>Monarcha melanopsis</i>	Black-Faced Monarch		M	X		X	X	X		High likelihood. Seasonal visitor; especially during winter months.	Preferred habitats on Lot: RF&PS and CFBR. Though also likely to use adjacent habitats: EW, EOF and TTW.
<i>Symposiachrus trivirgatus</i>	Spectacled Monarch		M	X		X	X	X		High likelihood. Seasonal visitor; especially during winter months.	Preferred habitats on Lot: RF&PS and CFBR. Though also likely to use adjacent habitats: EW, EOF and TTW.
<i>Rhipidura rufifrons</i>	Rufous Fantail		M	X	X	X	X	X		High likelihood. Seasonal visitor; especially during winter months.	Preferred habitats on Lot: RF&PS and CFBR. Though also likely to use adjacent habitats: EW, EOF and TTW.
<i>Ninox rufa queenslandica</i>	Rufous Owl (Southern Subspecies)	V		X				X		High likelihood. Resident birds, or frequent visitors, may occur.	Preferred habitats on Lot: CFBR and RF&PS. Though also likely to use adjacent habitats: EW, EOF and TTW.
<i>Tyto novaehollandiae kimberli</i>	Masked Owl (Northern Subspecies)	V	V	X		X	X	X		High likelihood. Resident birds, or frequent visitors, may occur.	Preferred habitats on Lot: EOF and TTW. Though also likely to use adjacent habitats: EW, CFBR and RF&PS.

Scientific Name	Common Name	Status ¹		Data Source ²						Predicted Occurrence on Lot ³	Preferred Habitat on Lot ⁴
		NC Act	EPBC Act	WO	QM	BA	DoE	K&K 2004	NRA 2014		
<i>Saccolaimus saccolaimus nudicluniatus</i>	Bare-rumped Sheath-tail Bat	E	CE		X		X			High likelihood. Potential frequency of occurrence unknown due to limited information on species ecology/biology.	Due to paucity of information on species ecology/biology it is difficult to predict preferred habitats. Has been recorded in eucalypt woodlands containing Poplar Gum (<i>Eucalyptus platyphylla</i>) and has been recorded roosting in the hollows of Poplar Gum and Weeping tea-Tree (<i>Melaleuca leucadendra</i>). These tree species are known to occur in the following habitat types on the Lot: EOF, TTW, CFBR and RF&PS. Tall hollow-bearing Weeping Tea-tree also occur along the edges of EW.
<i>Taphous australis</i>	Northern Sheath-tail-Bat	V		X	X			X		High likelihood. Likely to forage above the site.	This species forages on the wing and nests in caves. No caves occur on the Lot and its presence is likely to be limited to the airspace above the Lot.
<i>Hipposideros diadema reginae</i>	Diadem Leaf-Nosed Bat	NT		X				X		High likelihood. The Lot may support permanent or transient populations.	Preferred habitats on Lot: RF&PS and CFBR. Though also likely to use adjacent habitats: EW, EOF and TTW. Roosts in sheltered sites though seemingly not limited to dark caves. Outside Australia the species is known to roost in tree-hollows. Known to forage in areas 10 km from roost site.
<i>Rhinolophus philippinensis</i>	Greater Large-Eared Horseshoe Bat	E	E	X			X	X		High likelihood. The Lot may support permanent or transient populations.	Preferred habitats on Lot: RF&PS and CFBR. Though also likely to use adjacent habitats: EW, EOF and TTW. Roosts in sheltered sites though seemingly not limited to dark caves. May roost in tree hollows.
<i>Kerivoula papuensis</i>	Golden-Tipped Bat	NT		X				X		High likelihood. The Lot may support permanent or transient populations.	Preferred habitats on Lot: RF&PS and CFBR. Though also likely to use adjacent habitats: EW, EOF and TTW. Roosts in a variety places.
<i>Crocodylus porosus</i>	Estuarine Crocodile	V	M				X			High likelihood. Permanent and transient populations may occur on the Lot.	EW is likely to comprise preferred habitat though the species may venture into RF&PS.

Scientific Name	Common Name	Status ¹		Data Source ²						Predicted Occurrence on Lot ³	Preferred Habitat on Lot ⁴
		NC Act	EPBC Act	WO	QM	BA	DoE	K&K 2004	NRA 2014		
<i>Antairoserpens warro</i>	North-Eastern Plain-Nosed Burrowing Snake	NT			X			X		High likelihood. Occurrence difficult to predict due to lack of comprehensive studies; though known from nearby areas.	Preferred habitats on Lot: CFBR. Though may also use adjacent habitats: RF&PS, EOF and TTW.
<i>Delma labialis</i>	Single-Striped Delma	V			X					High likelihood. Occurrence difficult to predict due to lack of comprehensive studies; though known from nearby areas.	Preferred habitats on Lot: CFBR. Though may also use adjacent habitats: RF&PS, EOF and TTW.
Species with a moderate likelihood of occurrence based on species distribution data, habitat preference information and habitats observed on the Lot											
<i>Geophaps scripta scripta</i>	Squatter Pigeon	V	V			X		X		Moderate likelihood. Small patches of suitable habitat possibly occur on the Lot. Permanent populations unlikely to occur on the Lot.	Preferred habitats on Lot: EOF and TTW. Though sections of RF&PS may also provide suitable or marginal habitat. While suitable grasses for foraging occurs in EOF, TTW, and to lesser degree RF&PS, the vegetation structure in the ground and shrub layers of these habitats on the Lot are generally too dense for this species (it prefers lightly grassed areas). It is unclear if permanent freshwater occurs on the Lot.
<i>Poephila cincta cincta</i>	Black-Throated Finch	E	E			X		X		Moderate likelihood. Small patches of suitable habitat possibly occur on the Lot. Permanent populations unlikely to occur on the Lot.	Preferred habitats on Lot: EOF and TTW. Though sections of RF&PS may also provide suitable or marginal habitat. While suitable grasses for foraging occurs in EOF, TTW, and to lesser degree RF&PS, the vegetation structure in the ground and shrub layers of these habitats on the Lot are generally too dense for this species (it prefers lightly grassed areas). It is unclear if permanent freshwater occurs on the Lot.
<i>Hirundo rustica</i>	Barn Swallow		M			X				Moderate likelihood. Occasional visitor above the Lot.	This species forages on the wing. Its presence is likely to be limited to the airspace above the Lot.

Scientific Name	Common Name	Status ¹		Data Source ²						Predicted Occurrence on Lot ³	Preferred Habitat on Lot ⁴
		NC Act	EPBC Act	WO	QM	BA	DoE	K&K 2004	NRA 2014		
<i>Hydroprogne caspia</i>	Caspian Tern		M			X				Moderate likelihood. Occasional visitor to open wetland areas.	Preferred habitats on Lot: EW and GS (when inundated); and adjacent coastal environment. The centre of this species' activity is likely to be along the coastline and inshore waters adjacent to the Lot. It may occasionally venture into nearby estuaries and flooded saltpans to forage.
<i>Sterna albigrons</i>	Little Tern									Moderate likelihood. Occasional visitor to open wetland areas.	Preferred habitats on Lot: EW and GS (when inundated); and adjacent coastal environment. The centre of this species' activity is likely to be along the coastline and inshore waters adjacent to the Lot. It may occasionally venture into nearby estuaries and flooded saltpans to forage. It is known to nest on some sheltered sections of beach in the region and for this reason may be of interest to impact assessments (eg to assess indirect threats).
<i>Rostratula australis</i>	Australian Painted Snipe	V	E, M			X	X			Moderate likelihood. Small numbers may occasionally use the Lot.	Preferred habitats on Lot: G&S and RF&PS (specifically paperbark swamp areas).
<i>Numenius madagascariensis</i>	Eastern Curlew	NT	M	X		X	X	X		Moderate likelihood. Seasonal and infrequent visitor.	Low numbers of this species may occasionally use EW and adjacent beach and intertidal areas.
<i>Numenius phaeopus</i>	Whimbrel		M			X	X	X		Moderate likelihood. Seasonal and infrequent visitor.	Low numbers of this species may occasionally use EW and adjacent beach and intertidal areas.
<i>Tringa brevipes</i>	Grey-Tailed Tattler		M			X	X	X		Moderate likelihood. Seasonal and infrequent visitor.	Low numbers of this species may occasionally use EW and adjacent beach and intertidal areas.
<i>Tringa nebularia</i>	Common Greenshank		M			X	X			Moderate likelihood. Seasonal and infrequent visitor.	Low numbers of this species may occasionally use EW and adjacent beach and intertidal areas.
<i>Xenus cinereus</i>	Terek Sandpiper		M			X	X			Moderate likelihood. Seasonal and infrequent visitor.	Low numbers of this species may occasionally use EW and adjacent beach and intertidal areas.

Scientific Name	Common Name	Status ¹		Data Source ²						Predicted Occurrence on Lot ³	Preferred Habitat on Lot ⁴
		NC Act	EPBC Act	WO	QM	BA	DoE	K&K 2004	NRA 2014		
<i>Melithreptus gularis</i>	Black-chinned Honeyeater	NT				X				Moderate likelihood. Permanent or transient populations may use the Lot.	Preferred habitats on Lot: RF&PS. This species has an unusual distribution in the local area and its potential occurrence is difficult to predict.
<i>Hipposideros semoni</i>	Semon's Leaf-nosed Bat	V	E				X			Moderate likelihood. Very few records from local area make predictions about occurrence difficult.	Preferred habitats on Lot: RF&PS and CFBR. Though also likely to use adjacent habitats: EW, EOF and TTW. Roosts in sheltered sites though seemingly not limited to dark caves
<i>Xeromys myoides</i>	Water Mouse	V	V				X			Moderate likelihood. Species not known from the region though comprehensive searches have not been undertaken.	If the species occurs it is likely to be restricted to EW and G&S. During the current study searches for signs of this species were conducted along the southern edge of EW habitat in the north-east of the Lot; the species was not detected.
<i>Chelonia mydas</i>	Green Turtle	V	V, M				X			Moderate likelihood. May nest on beaches adjacent to the Lot.	The centre of this species' activity is likely to be along the coastline and inshore waters adjacent to the Lot. It is known to nest on some sheltered sections of beach in the region and for this reason may be of interest to impact assessments (eg to assess indirect threats).
<i>Natator depressus</i>	Flatback Turtle	V	V, M		X		X			Moderate likelihood. May nest on beaches adjacent to the Lot.	The centre of this species' activity is likely to be along the coastline and inshore waters adjacent to the Lot. It is known to nest on some sheltered sections of beach in the region and for this reason may be of interest to impact assessments (eg to assess indirect threats).
<i>Acanthophis antarcticus</i>	Common Death Adder	NT			X					Moderate likelihood. Occurrence difficult to predict due to taxonomic uncertainty and lack of comprehensive studies.	If the species occurs it is likely to be more common in the CFBR.

Scientific Name	Common Name	Status ¹		Data Source ²						Predicted Occurrence on Lot ³	Preferred Habitat on Lot ⁴
		NC Act	EPBC Act	WO	QM	BA	DoE	K&K 2004	NRA 2014		
<i>Furina barnardi</i>	Yellow-Naped Snake	NT				X				Moderate likelihood. Occurrence difficult to predict due to lack of comprehensive studies; though known from nearby areas.	Preferred habitats on Lot: CFBR, RF&PS, EOF and TTW.
<i>Menetia sadlieri</i>		V			X					Moderate likelihood. Occurrence difficult to predict due to lack of comprehensive studies; though known from nearby areas.	Known only from Magnetic Island though may also occur on adjacent mainland areas. Preferred habitats on Lot: CFBR. Though may also use adjacent habitats: RF&PS, EOF and TTW.

Notes

- Status.
EPBC Act = Commonwealth Environment Protection and Biodiversity Conservation Act 1999.
NC Act = Queensland Nature Conservation Act 1992.
CE (Critically Endangered), E (Endangered), V (Vulnerable), NT (Near Threatened) and M (Migratory).

WO (Wildlife Online), QM (Queensland Museum), BA (Birdlife Australia), DoE (Department of Environment Protected Matters Search Tool), K&K 2004 (Kemp & Kutt 2004), NRA 2014 (this study).

Only species considered to have a moderate or high likelihood of occurrence are described in table.

Fauna habitats as described in this report. EW (Estuarine Wetlands), G&S (Grasslands and Salt pans), CFBR (Closed Forest on Beach Ridges), EOF (Eucalypt Open Forests), RF&PS (Riparian Forests and Paperbark Swamps) and TTW (Tea-tree Woodlands).

Appendix F

Broad-leaf Tea-tree Woodlands

APPENDIX F.1

Threatened Species Scientific Committee Conservation Advice

The following information has been extracted from the Threatened Species Scientific Committee Listing Advice³ and abbreviated for the purposes of this report.

DESCRIPTION

The Broad leaf tea-tree (*Melaleuca viridiflora*) woodlands in high rainfall coastal north Queensland ecological community (hereafter referred to as the Broad leaf tea-tree woodlands) represents occurrences of woodland where *M. viridiflora* (broad leaf tea-tree) is dominant in the canopy and a diversity of grasses, sedges and forbs occupy the ground layer. Other *M. viridiflora* woodlands not included in this ecological community will have a different suite of species to that described due to differences in landscape and rainfall characteristics.

The ecological community generally consists of two clear structural layers: a canopy of broad leaf tea-tree and a diverse ground layer of grasses, sedges and forbs. Epiphytes are often conspicuous in the canopy trees. Shrubs may be present but are generally sparse although some sites have an obvious presence of *Xanthorrhoea* spp. (grass trees) in the understorey. The structure and floristics of the ecological community vary in response to different soil types, extent of inundation in the wet season and successional responses to fire and grazing impacts (Skull and Congdon, 2008).

The ground layer of this ecological community supports the majority of plant species diversity, with species composition and diversity varying due to differences in soil type and duration, timing and degree of inundation during the wet season. *Themeda triandra* (kangaroo grass) or *Eremochloa bimaculata* (poverty grass) are usually dominant on slightly elevated or drier sites. Wetter sites are often dominated by *Ischaemum* spp. including *Ischaemum australe* (large bluegrass) and *I. fragile*, or they may be dominated by sedges and rushes such as *Schoenus* spp., *Restio* spp., *Fimbristylis* spp. and *Rhynchospora* spp. Sites typically have an average of about 8 species of perennial grasses including poverty grass, *Chrysopogon fallax* (ribbon grass), *Eragrostis brownii* (Brown's lovegrass), *Alloteropsis semialata* (cockatoo grass), kangaroo grass, *Imperata cylindrica* (blady grass), *Aristida superpendens*, *Heteropogon contortus* (black speargrass), *Eriachne trisetia* and *H. triticeus* (giant speargrass).

Perennial herbs in the ground layer include sedges such as *Fimbristylis cinnamometorum*, *F. dichotoma* (common fringe-sedge), *Abildgaardia* spp. and *Schoenus sparteus*, and legumes such as *Flemingia parviflora*, *Desmodium trichostachyum*, and *D. pullenii*. Perennial herbs with tubers are common, such as *Murdannia graminea* (grass lily), *M. gigantea*, *Curculigo ensifolia*, *Brunoniella acaulis* (blue trumpet), *Chlorophytum laxum* and other herbs such as *Lomandra* spp., *Dianella* spp., *Phyllanthus virgatus*, *Goodenia purpurascens* and *Stylidium* spp. (trigger plant) are often present. Carnivorous plants, including *Drosera* spp. (sundew), *Byblis* spp. and *Utricularia* spp. (bladderworts) may also be common.

During the wet season, species composition may substantially change to a high proportion and richness of ephemeral species, some of which may only live for a few weeks (J. Kemp, pers comm.). Short-lived annual herbs such as *Stylidium tenerum* (swamp trigger plant), *Byblis liniflora*, *Phyllanthus sulcatus*, *Mitrasacme* spp., *Rotala* spp. and *Lindernia* spp. are almost always present in the wet season. Annual grasses and sedges which may be abundant in the wet season include *Schizachyrium* spp., *Fuirena* spp., *Eleocharis* spp., *Dimeria* spp., *Pseudopogonatherum contortum* and *Mnesithea formosa*.

NATIONAL DISTRIBUTION

The ecological community is endemic to Queensland and is restricted to the Wet Tropics (WET) and Central Mackay Coast (CMC) IBRA Bioregions (Interim Biogeographical Regionalisation of Australia version 6.1). Refer **FIGURE 8**. Whilst most occurrences lie within 20 km of the east coast, some occurrences of the ecological community lie further inland.

³ Commonwealth Listing Advice on Broad leaf tea-tree (*Melaleuca viridiflora*) woodlands in high rainfall coastal north Queensland (Threatened Species Scientific Committee (TSSC), 2012)

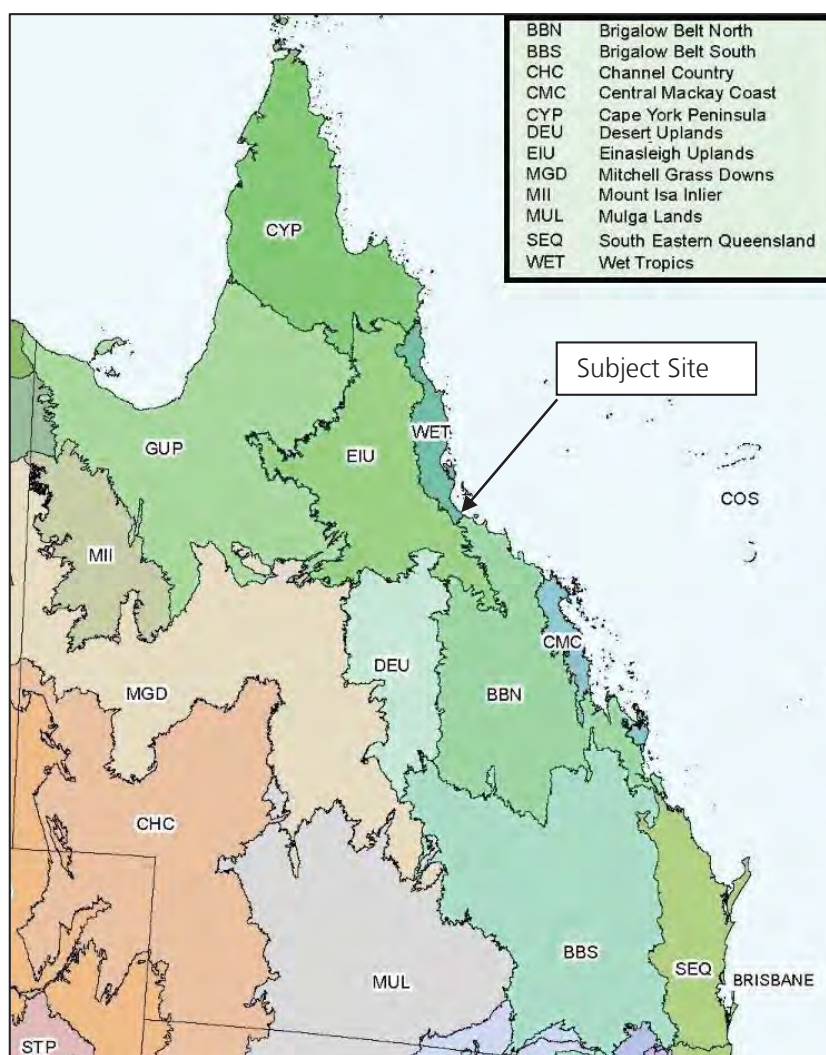


FIGURE 8: BIOREGIONS FOR BROAD LEAF TEA TREE WOODLANDS

KEY DIAGNOSTIC CHARACTERISTICS AND CONDITION THRESHOLDS

Broad leaf tea-tree woodlands no longer exist at many sites where it was formerly present. In many cases, the loss is irreversible because sites have been permanently cleared or have undergone some other substantial modification that has removed their natural hydrological and biological characteristics. In other cases, the ecological community now exists in a disturbed or degraded state, and may be so degraded that it is impractical to restore it.

National listing focuses legal protection on the remaining occurrences of the ecological community that are functional, relatively natural and in relatively good condition. Condition thresholds help identify a patch of the threatened ecological community and when the EPBC Act is likely to apply to an ecological community. They provide guidance for when a patch of a threatened ecological community retains sufficient conservation values to be considered as a Matter of National Environmental Significance, as defined under the EPBC Act. This means that the protection provisions of the EPBC Act will be focussed on the most valuable elements of Australia's natural environment, while heavily degraded patches, which do not meet the condition thresholds, will be largely excluded from EPBC Act protection. The condition thresholds for Broad leaf tea-tree woodlands are based on those developed and used to assess condition by the Queensland Department of Environment and Resource Management.

Key Diagnostic Characteristics

The key defining attributes for the ecological community are:

- It occurs in the Wet Tropics and Central Mackay Coast bioregions in landscapes characterised by high rainfall and near coastal or floodplain locations;
- Sites are seasonally inundated during the wet season but are not permanently waterlogged;
- The tree canopy is clearly dominated (i.e. more than 50% of canopy cover) by *Melaleuca viridiflora*;
- A shrub layer is typically absent or sparse (juvenile canopy species and/or a conspicuous layer of *Xanthorrhoea* (grass tree) may sometimes be present); and
- There is a diverse ground-layer of grasses, sedges and forbs which includes species listed under the Description section.

Condition thresholds

The listed ecological community is limited to patches that meet the description, key diagnostic characteristics and the following condition thresholds:

- Patch size must be ≥ 1 ha;
- AND
- A tree canopy must be present with a canopy cover of at least 15%;
- AND
- The canopy must be dominated by *Melaleuca viridiflora* (broad leaf tea-tree);
- AND
- At least 10 perennial native plant species are present in the understorey (shrub and ground layers, excluding juvenile canopy trees) of a patch;
- AND
- Perennial non-native plant species account for no more than 40% of the total ground layer vegetation cover at any time of the year.

DESCRIPTION OF THREATS

The main threat to this ecological community in the past has been land clearing. This remains a significant threat and the continuing fragmentation of the ecological community for the establishment of hobby farms and crop plantations exposes the ecological community to other threats. These other threats include degradation from weed invasion and cattle and feral horse grazing. Inappropriate fire regimes, exotic species, wildlife harvesting and invasion of pines from surrounding pine plantations also threaten the ecological community. The recently introduced plant pathogen myrtle rust (*Uredo rangelii*) poses a potentially significant threat as do changes in hydrological regimes.

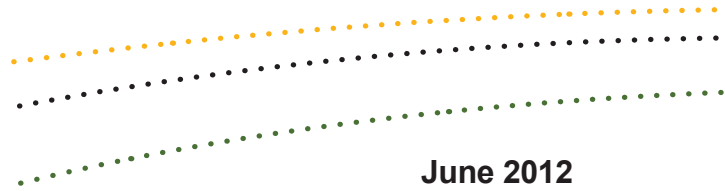
APPENDIX F.2

Nationally protected Broad leaf tea-tree (*Melaleuca viridiflora*) woodlands in high rainfall coastal north Queensland – does it affect you and your land?



Australian Government

Department of Sustainability, Environment,
Water, Population and Communities



June 2012

Nationally protected Broad leaf tea-tree (*Melaleuca viridiflora*) woodlands in high rainfall coastal north Queensland – does it affect you and your land?



Broad leaf tea-tree woodlands, Photo Neisha Burton DSEWPaC

Since European settlement, a large amount of the Broad leaf tea-tree (*Melaleuca viridiflora*) woodlands in high rainfall coastal north Queensland (broad leaf tea-tree woodlands) ecological community has been cleared, or degraded by heavy grazing and incursion of weeds. The relatively small amount that remains in good condition is now protected under Australia's national environment law, the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), as an endangered ecological community.





Myrmecodia beccarii (Ant plant) growing as an epiphyte on broad leaf tea-tree, Photo Neisha Burton DSEWPaC

What does national protection of broad leaf tea-tree woodlands mean for you as a landholder?

The national environment law is not about stopping landholder activities or related business, such as horticulture; rather, it is about protecting Australia's unique native plants and animals and the ecosystem services they provide.

You may need Australian Government approval if:

- the protected woodland (or other protected matters) occur on your property, and
- a new, intensified or changed activity could have a significant detrimental impact on the ecological community.

If you are not sure whether your activity requires Australian Government approval, you can get free advice from the environment liaison officer at the National Farmers' Federation on 1800 704 520 or email: environment@nff.org.au

or from the Department of Sustainability, Environment, Water, Population and Communities
Telephone: 1800 803 772
email: ciu@environment.gov.au
Mail: Community Information Unit
Department of Sustainability, Environment, Water, Population and Communities
GPO Box 787
Canberra 2601.

Where are the broad leaf tea-tree woodlands?

The broad leaf tea-tree woodlands ecological community is found in tropical north Queensland in the Wet Tropics and Central Mackay Coast bioregions. It occurs mainly within 20km of the coast and on floodplains in areas that receive high rainfall. Known occurrences are mostly found between the localities of Mossman to the north and Yeppoon to the south with gaps in the range where the Brigalow Belt North bioregion meet the coast.

A distribution map for the Broad leaf tea-tree woodlands is available at: www.environment.gov.au/biodiversity/threatened/communities/pubs/122-distribution-map.pdf





Melaleuca viridiflora. Photo Matt White, DSEWPac.

What are the key characteristics of the broad leaf tea-tree woodlands?

The Broad leaf tea-tree woodlands represent occurrences of woodland where *Melaleuca viridiflora* (broad leaf tea-tree) is dominant in the canopy and a diversity of native grasses, sedges and forbs occupy the ground layer. The ecological community is typically a woodland but can have a more dense forest structure in some areas. Epiphytes (a plant growing on another plant for support) are often clearly seen in the canopy of broad leaf tea-trees. Shrubs may be present but are generally sparse although some sites have an obvious layer of *Xanthorrhoea* spp. (grass trees).

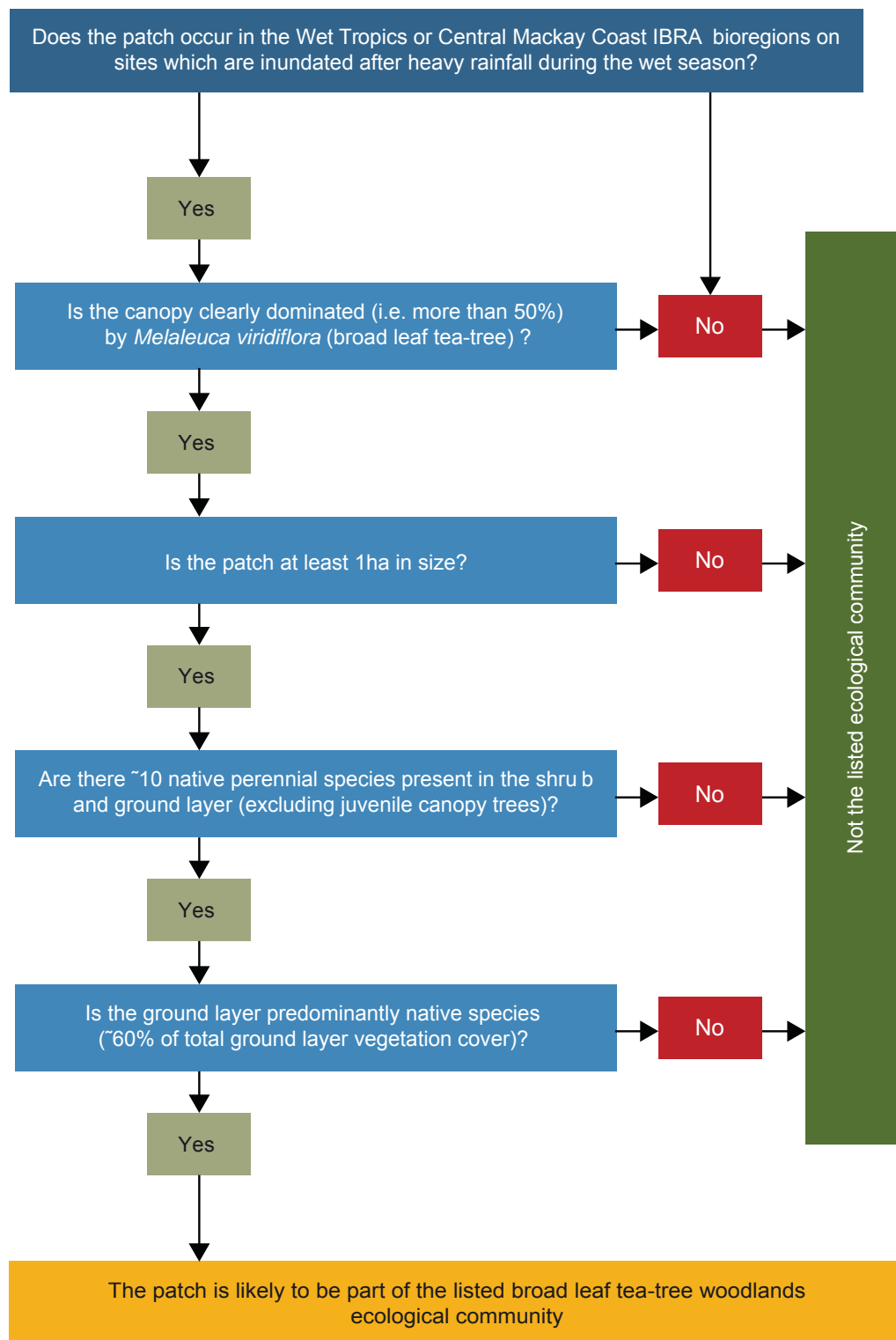
The ground layer of this ecological community supports the majority of plant species diversity, with species composition varying due to differences in soil type and duration, timing and degree of inundation during the wet season. *Themeda triandra* (kangaroo grass) or *Eremochloa bimaclata* (poverty grass) are usually dominant on slightly elevated or drier sites. Wetter sites are often dominated by the grasses *Ischaemum australe* (large bluegrass), *I. fragile*, or by sedges and rushes. The ecological community is seasonally inundated for short periods during the wet season, which supports an abundance of annual species in the ground layer.

For more detail on the broad leaf tea-tree woodlands refer to the listing advice at: www.environment.gov.au/cgi-bin/sprat/public/publicshowcommunity.pl?id=122&status=Endangered



How do I know whether the Broad leaf tea-tree woodlands on my property is protected?

The broad leaf tea-tree woodlands ecological community is only protected under national environment law where it remains in relatively good condition. The flowchart below helps to determine if the ecological community is present and meets the condition thresholds for the ecological community.



What routine landholder activities do not need approval?

This ecological community was officially protected under national environment law on 19 May 2012. Lawful activities that began before the EPBC Act came into effect on 16 July 2000 can continue without further Australian Government approval.

The following activities will not need approval:

- maintaining existing fence lines, tracks, roads or fire breaks
- replacing or maintaining existing sheds, other property buildings and yards
- maintaining existing grazing regimes, if relevant (i.e. type of livestock, stocking rates, timing of grazing, etc.)
- ongoing horticultural or cropping activities
- controlling weeds (if applied with minimal disturbance, or by selective spot spraying)
- small-scale and existing tourism activities

What activities on my land might need approval?

Any activities that are new or intensified and are likely to have a significant, irreversible or long-term detrimental impact on the ecological community may need Australian Government approval. These include:

- land clearing or substantial lopping of trees, and/or clearing of understorey vegetation
- drainage of land or alterations to land which affect natural hydrological regimes
- changing or intensifying ongoing grazing or horticulture/ cropping activities
- substantially changing or intensifying methods of weed control or fertiliser use that may have an adverse affect on native vegetation
- introducing grazing to an area that has not been previously grazed or has not been grazed for some time
- introducing pine plantations into patches of the ecological community or adjacent areas
- new or altered burning regimes
- improving pasture by introducing exotic plant species, fertilisers, herbicides, mechanical disturbance or cultivation, addition of irrigation, etc.

If you are uncertain of your legal responsibility, you can contact the environment liaison officer at the National Farmers' Federation for help or go to the EPBC Act website:

www.environment.gov.au/epbc



What is a buffer zone?

The inclusion of a 40 metre minimum buffer zone is included to help protect a patch from activities surrounding it. It also provides guidance for determining significant impacts. Activities within this zone do not necessarily trigger the EPBC Act. However, a change to a landholder practice or activity within the 40 metre buffer zone may require referral if it is likely to have a significant impact directly on the patch of the ecological community. Examples of activities undertaken within the buffer zone that may affect the ecological community include: chemical sprays (that drift into the patch) and infrastructure or clearing that may change drainage patterns or other functional processes in or near to a patch of the ecological community.

How does the listing of broad leaf tea-tree woodlands affect Indigenous land management and traditional practices?

Listing of the ecological community is unlikely to impact on traditional use of land on which the ecological community occurs. Land management practices such as maintaining traditional fire regimes are likely to benefit the ecological community. The routine landholder activities mentioned on the previous page as well as traditional activities, such as harvesting of bushfood and use of country, will not require approval. Activities which may need approval include those likely to have a significant impact on the ecological community. Some of these are noted under the section on landholder activities.

Can I get help to improve or restore broad leaf tea-tree woodlands?

There may be natural resource management projects funded by the Australian Government's Caring for our Country initiative which can help you manage protected woodland.

For more information on local projects go to www.nrm.gov.au or contact your:

- local NRM regional body — www.nrm.gov.au/nrm/region.html or
- Caring for our Country Regional Officers — www.nrm.gov.au/contacts/index.html





Broad leaf tea-tree woodlands with grasstrees (*Xanthorrhoea johnsoni*) in understorey Neisha Burton, DSEWPaC.

Where can I get more information?

More information on this ecological community, its condition thresholds, threats and priority conservation actions is contained in the comprehensive listing advice and the shorter conservation advice for this ecological community, at: www.environment.gov.au/cgi-bin/sprat/public/publicshowcommunity.pl?id=122&status=Endangered.

For free advice on whether or not an activity may need Australian Government approval contact the Australian Government's Environment Liaison Officer at the National Farmers' Federation (NFF).

Phone: 1800 704 520

Email: environment@nff.org.au

Web: www.environment.gov.au/farming

Or

The Department of Sustainability, Environment, Water, Population and Communities

Telephone: 1800 803 772

email: ciu@environment.gov.au

Mail
Community Information Unit
Department of Sustainability,
Environment, Water, Population and
Communities
GPO Box 787
Canberra 2601.

Photo credits (L-R) *Byblis* spp. (sundew). Broad leaf tea-tree woodlands with fern understorey. *Thysanotus* spp. (fringe lily). Photos Neisha Burton, DSEWPaC.



Appendix G

SDAP Module 8 Native Vegetation Clearing: Queensland Vegetation Management Code

Response column key:
☒ Achieved
P/S Performance
solution

8.1 Queensland vegetation management state code

Table 8.1.3: General

Performance outcomes		Acceptable outcomes		Response	Comment
Clearing to avoid and minimise impacts					
P01 Clearing only occurs where the applicant has demonstrated that the development has first avoided, and then minimised the impacts of development.	No acceptable outcome is prescribed.	<input checked="" type="checkbox"/>	Given the high quality of the vegetation communities on the majority of the Site, development opportunities have focussed on minimising the development footprint to situate the development in areas already disturbed or close to existing developed areas. Based on the following criteria, a developable area was identified as shown in FIGURE 6 of the main body of the report: <ul style="list-style-type: none">Based on the zoning for a tourism facility, it is considered that development would need to take place close to the beach and sea shore.To reduce or remove the need for road and service infrastructure through the Site it is considered that access could be potentially afforded by formalising John Brewer Drive (a gazetted road which leads from the Bruce Highway to the Site). This would concentrate any disturbance to areas already affected and would minimise impact on the majority of the Site.		
Clearing on land where compliance notice or enforcement notice, exchange area or offset exists					
P02 Clearing in an area that is subject to any of the following: (1) a restoration notice, or (2) a compliance notice containing conditions about the restoration of vegetation, or (3) a Land Act notice, or (4) a trespass notice if the trespass	No acceptable outcome is prescribed.	<input checked="" type="checkbox"/>	The Site is not subject to any notice or exchange area or environmental offset.		

Performance outcomes	Acceptable outcomes	Response	Comment
<p>related act under the <i>Land Act 1994</i> for the notice is the clearing of vegetation on the relevant land, or</p> <p>(5) an enforcement notice under the <i>Sustainable Planning Act 2009</i> issued for a vegetation clearing offence, or</p> <p>(6) exchange area, or</p> <p>(7) an environmental offset</p> <p>must not be inconsistent with the notice, or impact on the exchange area unless a better environmental outcome can be achieved, or</p> <p>inconsistent with the environmental offset or another agreement related to the environmental offset.</p>			
Clearing that could already be done under an exemption			
<p>PO4 All clearing is limited to clearing that could be done under an exemption for the purpose of the development (as prescribed under Schedule 24, Parts 1 and 2 of the Sustainable Planning Regulation 2009) prior to the material change of use application being approved.</p>	<p>No acceptable outcome is prescribed.</p>	<input checked="" type="checkbox"/>	<p>None of the vegetation mapped under the Vegetation Management Supporting map has a Vegetation Management Status of Endangered. With the Site's Special Facilities (Tourism Facility) zoning and a tourism facility considered an urban purpose, the clearing of the Site's remnant vegetation is exempt under the SPR Schedule 24 Part 2 Section 2(e).</p> <p>As part of the development, an upgrade to John Brewer Drive would be required to turn it from a dirt track to a formed road. Vegetation clearing to enable these works would also be exempt in accordance with Schedule 24 Part 2 Section 5(a) as John Brewer Drive is gazetted and the local government would carry out the construction works.</p>

Appendix H

SDAP Module 10 Coastal Protection: Tidal Works, or Development in a Coastal Management District State Code

Response column key:
☒ Achieved
P/S Performance solution
N/A Not applicable

10.1 Tidal works, or development in a coastal management district state code

Response column key:
☒ Achieved
P/S Performance solution
N/A Not applicable

Performance outcomes	Acceptable outcomes	Response	Comment
	event, including consideration of the capacity of the route to support the evacuation of the entire local population within a reasonably short timeframe (for example, 12 hours). AND		
	AO2.3 Development within a coastal hazard area is located, designed and constructed to ensure exposed structures can sustain flooding from a defined storm tide event. AND	<input checked="" type="checkbox"/>	A flood modelling study has been conducted showing that the development will be concentrated on the higher elevations of the site. The buildings, services and infrastructure will be designed to be elevated off the ground with boardwalks providing the movement pathways.
	AO2.4 Essential community service infrastructure is: (1) located so that it is not inundated by a recommended storm tide event specified for that infrastructure, or (2) located and designed to ensure any components of the infrastructure that are likely to fail to function or may result in contamination when inundated by a storm tide (for example, electrical switch gear and motors, water supply pipeline air valves) are: (a) located above the peak water level for a recommended storm tide event, or (b) designed and constructed to exclude storm tide intrusions or infiltration (including by being located in the ground), or (c) able to temporarily stop functioning during a recommended storm tide event without causing significant adverse impacts to the infrastructure or the community. AND	N/A	The proposed development is not essential community infrastructure.
	AO2.5 Emergency services infrastructure and emergency shelters, police facilities, and hospitals and associated facilities have an emergency rescue area above the peak water level for a recommended storm tide event.	N/A	The proposed development is not emergency services infrastructure.
P03 Development directly, indirectly and cumulatively avoids an unacceptable increase in the severity of the coastal hazard, and does not significantly increase the potential for damage on the premises or to other premises.	AO3.1 Development avoids increasing the number of premises from which people would need to be evacuated to prevent death or injury from a defined storm tide event.		Although the development would increase the number of premises from which people would need to be evacuated, it is not considered that the risk presented by a storm tide event would significantly increase the potential for damage on the premises or to other premises.
P04 Development avoids the release of	AO4.1 Development that involves the manufacture or	<input checked="" type="checkbox"/>	The developable area identified has avoided areas mapped

Performance outcomes	Acceptable outcomes	Response	Comment
<p>hazardous materials as a result of a natural hazard event.</p> <p>Editor's note: Applications should:</p> <p>(1) assess the risk of storm tide inundation releasing or otherwise exposing hazardous materials, including appropriate emergency planning and contingency measures.</p> <p>(2) applications are to be supported by a report certified by a Registered Professional Engineer of Queensland (RPEQ) that demonstrates this performance outcome will be achieved.</p>	<p>storage of hazardous materials in bulk are designed to:</p> <p>(1) prevent the intrusion of waters from a defined storm tide event into structures or facilities containing the hazardous materials, or</p> <p>(2) ensure hazardous materials remain secured despite inundation, including secure from the effects of hydrodynamic forcing associated with wave action or flowing water.</p>		<p>as being subject to storm tide inundation.</p> <p>A flood modelling study has been conducted showing that the development will be concentrated on the higher elevations of the site.</p>
<p>PO5 Natural processes and the protective function of landforms and vegetation are maintained in coastal hazard areas.</p>	<p>AO5.1 Development in an erosion prone area within the coastal management district:</p> <p>(1) maintains vegetation on coastal landforms where its removal or damage may:</p> <p>(a) destabilise the area and increase the potential for erosion, or</p> <p>(b) interrupt natural sediment trapping processes or dune or land building processes</p> <p>(2) maintains sediment volumes of dunes and near-shore coastal landforms, or where a reduction in sediment volumes cannot be avoided, increased risks to development from coastal erosion are mitigated by location, design, construction and operating standards</p> <p>(3) minimises the need for erosion control structures or riverbank hardening through location, design and construction standards</p> <p>(4) maintains physical coastal processes outside the development footprint for the development, including longshore transport of sediment along the coast</p> <p>(5) reduces the risk of shoreline erosion for areas adjacent to the development footprint unless the development is an erosion control structure</p> <p>(6) reduces the risk of shoreline erosion for areas adjacent to the development footprint to the maximum extent feasible in the case of erosion control structures.</p> <p>AND</p> <p>AO5.2 Development in a storm tide inundation area is</p>	<input checked="" type="checkbox"/>	<p>The developable area identified has avoided areas mapped as erosion prone areas. The footprint has been defined on the basis of remaining outside of the coastal dune system and waterway corridors.</p>
		<input checked="" type="checkbox"/>	<p>The developable area identified has avoided areas mapped</p>

Performance outcomes	Acceptable outcomes	Response	Comment
	<p>located, designed, constructed and operated to:</p> <p>(1) maintain dune crest heights, or where a reduction in crest heights cannot be avoided, mitigate risks to development from wave overtopping and storm tide inundation</p> <p>(2) maintain or enhance coastal ecosystems and natural features, such as mangroves and coastal wetlands, between the development and tidal waters, where the coastal ecosystems and natural features protect or buffer communities and infrastructure from storm tide inundation.</p> <p>AND</p> <p>AO5.3 Redevelopment of built structures in the erosion prone area within a coastal management district:</p> <p>(1) avoids intensifying the use of the premises, or</p> <p>(2) demonstrates that any intensification of use will not result in an increase in the need for erosion control structures or riverbank hardening.</p> <p>AND</p> <p>AO5.4 Development that is coastal protection work involves:</p> <p>(1) beach nourishment undertaken in accordance with a program of beach nourishment works that source sediment of a suitable quality and type from outside the active beach system, or</p> <p>(2) the construction of an erosion control structure, where it is demonstrated that installing an erosion control structure is the only feasible option for protecting permanent structures from coastal erosion and those structures cannot be abandoned or relocated in the event of coastal erosion occurring.</p> <p>Editor's note: Applications for coastal protection work should be supported by a report certified by a Registered Professional Engineer of Queensland (RPEQ) that demonstrates how the engineering solution sought by the work will be achieved.</p> <p>Editor's note: Applications for erosion control structures should demonstrate the consideration of beach nourishment techniques, and include a statement of why nourishment (in whole or part) has not been adopted as the preferred means of controlling the erosion risk.</p>		<p>as being subject to storm tide inundation.</p> <p>The footprint has been defined on the basis of remaining outside of the coastal dune system and waterway corridors.</p>
		N/A	The proposed development is not redevelopment of built structures.
		N/A	The proposed development is not coastal protection work.

Performance outcomes	Acceptable outcomes	Response	Comment
	<p>AND</p> <p>AO5.5 Development involving reclamation:</p> <p>(1) does not alter, or otherwise minimises impacts on, the physical characteristics of a waterway or the seabed near the reclamation, including flow regimes, hydrodynamic forces, tidal water and riverbank stability</p> <p>(2) is located outside the active sediment transport area, or otherwise maintains sediment transport processes as close as possible to their natural state</p> <p>(3) ensures activities associated with the operation of the development maintain the structure and condition of vegetation communities and avoid wind and water run-off erosion.</p> <p>Editor's note: Applications for reclamation should be supported by a report certified by an RPEQ that demonstrates how the engineering solutions sought by the work will be achieved</p>	N/A	The proposed development does not involve reclamation.
<p>PO6 Erosion prone areas in a coastal management district are maintained as development free buffers, or where permanent buildings or structures exist, coastal erosion risks are avoided or mitigated.</p>	<p>AO6.1 Development locates built structures outside the part of the coastal management district that is the erosion prone area unless the development is listed under AO1.1 (1) – (5).</p> <p>AND</p> <p>AO6.2 Development is located outside the erosion prone area unless it is redevelopment.</p> <p>AND</p> <p>AO6.3 Coastal-dependent development:</p> <p>(1) locates, designs and constructs relevant buildings or structures to withstand coastal erosion impacts, or including by use of appropriate foundations, or</p> <p>(2) installs and maintains coastal protection works to mitigate adverse impacts to people and permanent structures from coastal erosion at the location.</p> <p>AND</p> <p>AO6.4 Development that is temporary, readily relocatable or able to be abandoned, or essential community service infrastructure:</p> <p>(1) locates built structures landward of an applicable coastal building line, or</p>	<p><input checked="" type="checkbox"/></p> <p><input checked="" type="checkbox"/></p> <p>N/A</p> <p>N/A</p>	<p>The proposed development is listed under AO1.1 (item (5) small - to medium-scale tourist development). In any case the developable area identified has avoided areas mapped as erosion prone areas.</p> <p>The developable area identified has avoided areas mapped as erosion prone areas.</p> <p>The proposed development is not coastal-dependent development.</p> <p>The proposed development is not temporary, readily relocatable or able to be abandoned, or essential community service infrastructure.</p>

Performance outcomes	Acceptable outcomes	Response	Comment
	<p>(2) where there is no coastal building line, locates habitable built structures landward of the alignment of adjacent habitable buildings, or locates lifesaver towers or beach access infrastructure to minimise its impacts on physical coastal processes, or</p> <p>(3) where it is demonstrated that (1) or (2) is not reasonable and (3) does not apply:</p> <p>(a) locates built structures as far landward as practicable</p> <p>(b) uses layout design to minimise the footprint of the development that remains within the erosion prone area.</p> <p>AND</p> <p>AO6.5 Redevelopment of existing built structures not referred to in AO6.4, and excluding marine development:</p> <p>(1) relocates built structures outside that part of the erosion prone area that is within the coastal management district, or</p> <p>(2) relocates built structures as far landward as practicable, and landward of an applicable coastal building line, or</p> <p>(3) where there is no coastal building line:</p> <p>(a) relocates built structures landward of the alignment of adjacent habitable buildings, or</p> <p>(b) uses layout design to minimise the footprint of the development that remains within the erosion prone area, or</p> <p>(c) provides sufficient space seaward of the development within the premises to allow for the construction of erosion control structures.</p> <p>AND</p> <p>AO6.6 Redevelopment of built structures in the erosion prone area within a coastal management district, which results in an intensification of use, mitigates the erosion threat to the development, having regard to:</p> <p>(1) design and construction standards</p> <p>(2) installing and maintaining on-site erosion control structures within the premises if the development is not intended to be temporary.</p>	N/A	The proposed development is not redevelopment of built structures.
		<input checked="" type="checkbox"/>	The developable area identified has avoided areas mapped as erosion prone areas.
P07 Private marine development avoids	AO7.1 Coastal protection work that is in the form of beach	N/A	The proposed development is not marine development.

Performance outcomes	Acceptable outcomes	Response	Comment
or minimises adverse impacts on coastal resources and their values, to the maximum extent reasonable.	nourishment uses methods of placement suitable for the location that do not interfere with the long-term use of the locality of, or natural values within or neighbouring, the proposed placement site. AND		
	A07.2 Marine development is located and designed to expand on or redevelop existing marine infrastructure unless it is demonstrated that it is not practicable to co-locate the development with existing marine infrastructure. AND	N/A	The proposed development is not marine development.
	A07.3 Marine development: (1) relies on a natural channel of a depth adequate for the intended vessels, or (2) where there are no feasible alternative locations for the facility in the local area that do not require dredging for navigation channel purposes: (a) involves capital dredging for new navigation channel purposes (b) is located, designed and operated to minimise the need for capital and subsequent maintenance dredging for navigation channel purposes. AND	N/A	The proposed development is not marine development.
	A07.4 Development minimises dredging or the disposal of material in coastal waters during key biological events (such as fish aggregations or spawning) for species found in the area. AND	N/A	The proposed development is not marine development.
	A07.5 Measures are to be incorporated as part of siting and design of the development to protect and retain identified ecological values and underlying ecosystem processes within or adjacent to the development site to the greatest extent practicable. This includes: (1) maintaining or restoring vegetated buffers between development and coastal waters to the extent practicable, unless the development is within ports or airports, or is marine development	N/A	The proposed development is not marine development.

Performance outcomes	Acceptable outcomes	Response	Comment
<p>PO8 Coastal protection work is undertaken only as a last resort where erosion presents an imminent threat to public safety or permanent structures.</p> <p>Editor's note: Applications for coastal protection work must be supported by a report certified by an RPEQ that demonstrates how the engineering solution sought by the work will be achieved.</p>	<p>(2) maintaining or enhancing the connectivity of ecosystems in consideration of the cumulative effect of the development in addition to existing developed areas</p> <p>(3) retaining coastal wetlands, seagrass beds and other locally important feeding, nesting or breeding sites for native wildlife.</p> <p>AND</p> <p>AO7.6 Measures are incorporated as part of siting and design of the development to maintain or enhance water quality to achieve the environmental values and water quality objectives outlined in the <i>Environmental Protection (Water) Policy 2009</i>.</p> <p>AND</p> <p>AO7.7 Development avoids the disturbance of acid sulphate soils, or where it is demonstrated that this is not possible, the disturbance of acid sulphate soils is carefully managed to minimise and mitigate the adverse effects of the disturbance on coastal resources.</p>		
	<p>AO8.1 Coastal protection work is only undertaken to protect existing permanent structures from imminent adverse coastal erosion impacts, and the structures cannot reasonably be relocated or abandoned.</p> <p>AND</p> <p>AO8.2 Coastal protection work to protect private structures is undertaken on private land to the maximum extent reasonable.</p> <p>AND</p> <p>AO8.3 Coastal protection work does not increase the coastal hazard risk for adjacent areas or properties.</p>	N/A	The proposed development is not coastal protection work.
	<p>PO9 Development avoids adverse impacts on matters of state environmental significance, or where this is not reasonably possible, impacts are minimised and an environmental offset is</p>	<input checked="" type="checkbox"/>	<p>The MSES identified on the SPP mapping are concentrated along the coastal zone (for regulated vegetation, wetlands and coastal hazards) and the waterways.</p> <p>The proposed development is set back from all MSES therefore the coastal dunes, estuarine wetlands, waterways</p>

Performance outcomes	Acceptable outcomes	Response	Comment
provided for any significant residual impacts to matters of state environmental significance that are prescribed environmental matters.	<p>or processes and interactions that affect or maintain the matters of state environmental significance, such as water quality, hydrology, geomorphology and biological processes, or</p> <p>(3) incorporates measures as part of its location and design to protect and retain matters of state environmental significance and underlying ecosystem processes within and adjacent to the development site to the greatest extent practicable.</p> <p>Editor's note: Applications for development should identify any threatened species or their habitats, or threatened ecosystems that may be affected by the proposal. In particular, applications should identify and describe how the development avoids adverse impacts on any critical life stage ecological processes within or adjacent to the development area.</p> <p>AND</p> <p>AO9.2 An environmental offset is provided for any significant residual impact on matters of state environmental significance that are prescribed environmental matters caused by the development.</p> <p>Editor's note: Applications for development should identify anticipated losses, and outline what actions are proposed to be undertaken to offset the loss in accordance with the relevant Queensland Environmental Offsets Policy.</p>		and associated processes will not be impacted by the proposed development. The off-ground construction of buildings and paths will minimise the impact on the seasonal inundation regime of the site.
	<p>AO10.1 Development adjacent to state coastal land or tidal water:</p> <p>(1) demonstrates that restrictions to public access are necessary for:</p> <p>(a) the safe or secure operation of development, or</p> <p>(b) the maintenance of coastal landforms and coastal habitat</p> <p>(2) separates residential, tourist and retail development from tidal water with public areas or public access facilities, or</p> <p>(3) maintains existing public access (including public access infrastructure that is in the public interest) through the site to the foreshore for:</p> <p>(a) pedestrians, via access points including approved walking tracks, boardwalks and viewing platforms, or</p> <p>(b) vehicles, via access points including approved</p>	N/A	It is considered that the proposed development will not result in significant residual impacts on MSES and therefore no offsets will be required.
PO10 Development maintains or enhances general public access to or along the foreshore, unless this is contrary to the protection of coastal resources or public safety.		<input checked="" type="checkbox"/>	The proposed development will maintain and enhance the public access to the beach as part of the tourism activities which will be provided. Currently the public is gaining unauthorised access to the foreshore using a continuation of John Brewer Drive through the site. This access is limited to 4 wheel drives and is resulting in erosion and clearing of vegetation whenever the track is inundated and side tracks get created. The proposed development will restrict this unauthorised access and the upgrade of John Brewer Drive will prevent further degradation of the remnant vegetation along these paths. Access to the foreshore will be provided along boardwalks to limit damage to the coastal dune system. Vehicle parking will be provided within the development footprint behind the dunes.

Performance outcomes	Acceptable outcomes	Response	Comment
	AND roads or tracks.		
	<p>AO10.2 Development adjacent to state coastal land, including land under tidal water:</p> <p>(1) is located and designed to:</p> <p>(a) allow safe and unimpeded access to, over, under or around built structures located on, over or along the foreshore</p> <p>(b) ensure emergency vehicles can access the area near the development, or</p> <p>(2) minimises and offsets any loss of access to and along the foreshore within two kilometres of the existing access points, and the access is located and designed to be consistent with (1)(a) and (b).</p> <p>AND</p> <p>AO10.3 Any parts of private development that extend over tidal water are to be designed, constructed and used for marine access purposes only.</p>	<input checked="" type="checkbox"/>	The proposed development will not construct buildings or structures on, over or along the foreshore therefore access will not be impeded.
		<input checked="" type="checkbox"/>	The proposed development will not extend over tidal water.
PO11 Private marine development avoids structures attaching to, or extending across, non-tidal state coastal land abutting tidal waters.	<p>AO11.1 Private marine development and other structures such as decks or boardwalks for private use do not attach to, or extend across state coastal land that is situated above the high water mark.</p> <p>Editor's note: For occupation permits or allocations of State land, refer to the <i>Land Act 1994</i>.</p>	N/A	The proposed development is not marine development.
PO12 Further development of artificial waterways avoids or minimises adverse impacts on coastal resources and their values, and does not contribute to:	<p>AO12.1 The design, construction and operation of artificial tidal waterways maintains the tidal prism volume of the natural waterway to which it is connected.</p> <p>AND</p> <p>AO12.2 The design, construction and operation of artificial tidal waterways does not increase risk from flooding.</p> <p>AND</p> <p>AO12.3 The design, construction and operation of an artificial waterway in connection with the reconfiguration of a lot ensures:</p> <p>(1) water inlet and outlets structures are of sufficient capacity to maintain the water quality within the waterway</p>	N/A	The proposed development does not include artificial waterways.
		N/A	The proposed development does not include artificial waterways.
		N/A	The proposed development does not include artificial waterways.

Performance outcomes	Acceptable outcomes	Response	Comment
	<p>(2) water discharged from the artificial waterway protects the environmental values and water quality objectives of the receiving waters</p> <p>(3) dredged material is not disposed of to tidal water beyond the artificial waterway unless there is a beneficial reuse, e.g. beach nourishment.</p> <p>Editor's note: For more information on environmental values and water quality objectives see Schedule 1 of the Environment Protection (Water) Policy 2009.</p> <p>AND</p> <p>AO12.4 The location of the artificial waterways avoids matters of state environmental significance, or does not result in any significant adverse impact on matters of state environmental significance.</p>		
<p>PO13 Development does not involve reclamation of land below tidal water, other than for the purposes of:</p> <p>(1) coastal-dependent development, public marine development or community infrastructure</p> <p>(2) strategic ports, boat harbours or strategic airports and aviation facilities, in accordance with a statutory land use plan, where there is a demonstrated net benefit for the state or region and no feasible alternative exists</p> <p>(3) coastal protection work or work necessary to protect coastal resources or physical coastal processes.</p>	<p>No acceptable outcome is prescribed.</p>	N/A	<p>The proposed development does not include artificial waterways.</p>
		N/A	<p>The proposed development does not involve reclamation of land.</p>

Appendix I

SDAP Module 11 Wetland Protection and Wild River Areas: Wetland Protection Area State Code

11.1 Wetland protection area state code

Table 11.1.1: All development

Performance outcomes		Acceptable outcomes	Response	Comment
Acceptable circumstances for not fully achieving the performance outcomes				
PO1 Acceptable circumstances for not fully achieving all other performance outcomes is development that: (1) provides for an overriding need in the public interest (2) is a development commitment is for community infrastructure.	AO1.1 The proposal achieves PO2 – PO13 to the maximum extent practicable, where this would not compromise the intrinsic characteristics of the development. AND	<input checked="" type="checkbox"/>	There are no wetland protection areas mapped on the site. The site is mapped with estuarine and riverine wetlands under the SPP Biodiversity layers and these correlate with the coastal dune system and the waterways. These areas are identified as wetlands of General Ecological Significance (GES) under the EP Act. Nonetheless, the proposed development will be located outside of the mapped GES wetland areas.	
	AO1.2 The proposal provides an environmental offset for any significant residual impact on a wetland, except where the development arises from, and is necessary to give effect to, a development approval.	N/A		
Development location				
PO2 Development is not carried out in a wetland in a wetland protection area	AO2.1 Development is located outside: (1) the mapped boundary of a wetland in a wetland protection area, or (2) an alternative mapped boundary of the wetland in a wetland protection area: (a) submitted as part of the development application, and (b) supported by a site assessment and analysis of the wetland to delineate its extent, in accordance with the <i>Queensland wetland definition and delineation guidelines</i> (as updated from time to time) available on the Department of Environment and Heritage Protection website, if the chief executive is satisfied the alternative is a more accurate representation of the boundary. OR	<input checked="" type="checkbox"/>	There are no wetland protection areas mapped on the site. The site is mapped with estuarine and riverine wetlands under the SPP Biodiversity layers and these correlate with the coastal dune system and the waterways. These areas are identified as wetlands of GES under the EP Act. Nonetheless, the proposed development will be located outside of the mapped GES wetland areas.	
	AO2.2 Development is minimised in a wetland in a wetland protection area and provides an environmental offset for any significant residual impact, in accordance with PO13 (except where development arises from, and is necessary to give effect to a current development	N/A	AO2.1 is achieved.	

Response column key:

☒ Achieved
P/S Performance solution
N/A Not applicable

Performance outcomes	Acceptable outcomes	Response	Comment
	approval).		
PO3 An adequate buffer to a wetland in a wetland protection area is provided and maintained.	<p>AO3.1 A buffer surrounding a wetland in a wetland protection area is provided and has a minimum width of:</p> <p>(1) 200 metres, where the wetland is located outside an urban area, or</p> <p>(2) 50 metres, where the wetland is located within an urban area.</p> <p>OR</p> <p>AO3.2 An alternative buffer is provided, the width of which is supported by evaluation of the environmental values and functioning of, and threats to, the wetland in a wetland protection area.</p> <p>Editor's note: The <i>Queensland wetland buffer guideline</i>, Department of Environment and Heritage, 2011 should be referred to when planning detailed buffer design to position development, determine any alternative buffer widths, and establish operating measures that avoid adverse impacts on a wetland.</p>	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.
			There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.
Hydrology			
PO4 The existing surface water hydrological regime of the wetland protection area (including the area of the wetland) is enhanced or maintained.	<p>AO4.1 Development must:</p> <p>(1) provide a net ecological benefit and improvement to the environmental values and functioning of a wetland in a wetland protection area</p> <p>(2) rehabilitate the existing hydrological regime, or restore the natural hydrological regime of the wetland in a wetland protection area to enhance the ecological functions and biodiversity values of the wetland.</p> <p>Editor's note: Refer to the <i>Wetland rehabilitation guidelines for the Great Barrier Reef catchment</i>, Wetland care, 2008.</p> <p>OR</p> <p>AO4.2 Development does not change the existing surface water hydrological regime of a wetland in a wetland protection area, including through channelisation, redirection or interruption of flows.</p> <p>Editor's note: An assessment of the extent of change should take into account the natural variability of the hydrological regime of</p>	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.
			There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.

Performance outcomes	Acceptable outcomes	Response	Comment
	the wetland. OR AO4.3 The extent of any change to the existing surface water hydrological regime is minimised to ensure wetland values and functioning are protected. The change is minimised if: (1) there is no change to the reference duration high-flow and low-flow duration frequency curves, low-flow spells frequency curve and mean annual flow to and from the wetland (2) any relevant stream flows into the wetland comply with the relevant flow objectives of the applicable water resource plan for the area (3) for development resulting in an increase to the velocity or volume of stormwater flows into the wetland—the collection and re-use of stormwater occurs in accordance with (1) and (2).	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.
PO5 The existing groundwater hydrological regime of the wetland protection area (including the area of the wetland) is enhanced or protected.	AO5.1 The water table and hydrostatic pressure in the wetland protection area are returned to their natural state. OR	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.
	AO5.2 The water table and hydrostatic pressure in the wetland protection area is not lowered or raised outside the bounds of variability of existing pre-development conditions. AND	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.
	AO5.3 Development does not result in the ingress of saline water into freshwater aquifers.	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.
Stormwater management			
PO6 During construction and operation of development in a wetland in a wetland protection area: (1) a wetland in a wetland protection area is not used for stormwater treatment (2) the buffer for and water quality values of a wetland in a wetland	AO6.1 Development does not result in any measurable change to the quantity or quality of stormwater entering a wetland in a wetland protection area during construction or operation. OR	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.
	AO6.2 Development in a wetland protection area manages stormwater quantity and quality in accordance	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located

Module 11 — Wetland protection and wild river areas

11.1 Wetland protection area state code

Performance outcomes	Acceptable outcomes	Response	Comment
protection area are protected from stormwater impacts.	with best practice environmental management for erosion and sediment control in the <i>Queensland urban stormwater quality planning guidelines</i> , Department of Environment and Heritage Protection, 2010. AND		outside of the mapped GES wetland areas.
	AO6.3 During the construction of development in a wetland protection area, erosion and sediment control practices, including approved proprietary products, are designed, installed, constructed, maintained and monitored in accordance with local conditions and recommendations by suitably qualified persons or professionals. During construction, development also incorporates erosion and sediment control measures to achieve best practice design objectives. Editor's note: It is recommended that an erosion and sediment control plan should be prepared by a Registered Professional Engineer of Queensland (RPEQ) to demonstrate compliance with AO6.2 and AO6.3. AND	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.
	AO6.4 During construction of development in a wetland protection area, release of sediment-laden stormwater is avoided for the nominated design storm, and minimised if the design storm is exceeded, consistent with an erosion and sediment control plan for the development which includes the following best practice principles: (1) stormwater run-off during any construction works is diverted or by-passed around a wetland (2) all stormwater run-off saved for dewatering flow from site catchments achieves a maximum concentration of 50 milligrams per litre of total suspended solids (3) all drainage lines, diversion and collection drains and bank, chutes and outlets are able to safely carry peak flow in accordance with the <i>Queensland urban stormwater quality planning guidelines</i> , Department of Environment and Heritage Protection, 2010. AND	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.
	AO6.5 During construction of development in a wetland protection area, erosion and sediment control practices, including approved proprietary products, are designed,	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.

Performance outcomes	Acceptable outcomes	Response	Comment
	installed, constructed, maintained and monitored in accordance with local conditions and recommendations by suitably qualified persons or professionals. AND		
	AO6.6 During operation of development in a wetland protection area, stormwater discharges are treated in accordance with best practice load reduction design objectives before stormwater flow enters the buffer for a wetland. Stormwater treatment should address pollutants including, but not limited to: (1) total suspended solids (2) total phosphorus (3) total nitrogen (4) gross pollutants >5 millimetres. AND	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.
	AO6.7 During operation of development in a wetland protection area in an urban area, development incorporates stormwater flow control measures to achieve best practice design objectives.	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.
Ecological values			
PO7 Development involving the clearing of vegetation protects the biodiversity, ecological values and processes, and hydrological functioning of a wetland in wetland protection area, including: (1) water quality values (2) aquatic habitat values (3) terrestrial habitat values (4) usage of the site by native wetland fauna species or communities.	AO7.1 Vegetation clearing undertaken as a consequence of development does not occur: (1) in a wetland in a wetland protection area, or (2) in a buffer for a wetland in a wetland protection area. OR AO7.2 Where development is in a wetland protection area, development is located and designed to minimise the extent of vegetation clearing, and development is undertaken outside of a wetland and any buffer for the wetland to minimise the extent of vegetation clearing required.	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.
PO8 Development avoids land degradation in a wetland protection area, including: (1) mass movement, gully erosion, rill erosion, sheet erosion, tunnel	AO8.1 Development: (1) is located outside the wetland in a wetland protection area and buffer for the wetland (2) that involves clearing is undertaken in a way that avoids and minimises land degradation in accordance	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.

Performance outcomes	Acceptable outcomes	Response	Comment
<p>erosion, wind erosion or scalding</p> <p>(2) loss or modification or chemical, physical or biological properties or functions of soils.</p>	<p>with a sediment and erosion control plan.</p> <p>AND</p> <p>AO8.2 Mechanical clearing of vegetation within a wetland protection area:</p> <p>(1) is located outside of a wetland and any buffer for the wetland</p> <p>(2) is undertaken in a way that avoids and minimises land degradation in accordance with a sediment and erosion control plan.</p> <p>OR</p> <p>AO8.3 The application is a development application where a local government is the assessment manager.</p>	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.
	<p>AO9.1 Development in a wetland protection area does not occur within an existing ecological corridor.</p> <p>OR each of the following acceptable outcomes apply:</p> <p>AO9.2 If an ecological corridor is required to facilitate fauna movement, access or use of a wetland in a wetland protection area, the ecological corridor:</p> <p>(1) has a minimum width of 100 metres, and is provided and maintained in accordance with the <i>Wetland rehabilitation guidelines for the Great Barrier Reef catchment</i>, Department of Environment and Heritage, 2008 or other relevant guidelines, or</p> <p>(2) is of sufficient width to facilitate fauna movement, access or use of a wetland in a wetland protection area, and is provided and maintained in accordance with the <i>Wetland rehabilitation guidelines for the Great Barrier Reef catchment</i>, Department of Environment and Heritage, 2008 or other relevant guidelines.</p> <p>AND</p> <p>AO9.3 Unimpeded movement of fauna associated with or likely to use, a wetland in a wetland protection area as part of their normal life cycle is facilitated within and through the wetland protection area, particularly along identified ecological corridors, by:</p> <p>(1) ensuring that development (for example, roads,</p>	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.
	<p>PO9 Development in a wetland protection area ensures that any existing ecological corridors are enhanced or protected, and have dimensions and characteristics that will:</p> <p>(1) effectively link habitats on or adjacent to the development</p> <p>(2) facilitate the effective movement of terrestrial and aquatic fauna accessing or using a wetland as habitat.</p>	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.

Performance outcomes	Acceptable outcomes	Response	Comment
	<p>pedestrian access, in-stream structures) during both construction and operation does not create barriers to the movement of fauna along or within ecological corridors</p> <p>(2) providing wildlife movement infrastructure where necessary, and directing fauna to locations where wildlife movement infrastructure has been provided to enable fauna to safely negotiate a development area</p> <p>(3) separating fauna from potential hazards (for example, through fencing).</p>		
<p>PO10 Development does not result in the introduction of non-native pest plants or animals that pose a risk to the ecological values and processes of a wetland in a wetland protection area.</p>	<p>AO10.1 Existing non-native pest plants or animals are removed, or their threat is controlled by adopting pest management practices that provide for the long-term integrity of a wetland in a wetland protection area.</p> <p>OR all of the following acceptable outcomes apply:</p>	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.
	<p>AO10.2 Development does not result in the introduction of any non-native fauna or pest species in a wetland protection area.</p> <p>AND</p>	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.
	<p>AO10.3 Exclusion fencing or other pest dispersal control measures are provided in appropriate locations to manage the threat of pest species to a wetland in a wetland protection area.</p> <p>AND</p>	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.
	<p>AO10.4 Exclusion fencing does not result in a barrier or hazard to the movement of wetland fauna in a wetland protection area.</p>	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.
<p>PO11 During construction and operation of development in a wetland protection area, wetland fauna are protected from impacts associated with noise, light or visual disturbance.</p>	<p>AO11.1 Development in a wetland protection area does not result in any measurable impact on wetland fauna from noise, light or visual disturbance during construction or operation.</p> <p>OR</p>	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.
	<p>AO11.2 Development in a wetland protection area mitigate noise, light and visual disturbance in accordance with expert advice, to ensure it does not have an adverse effect on the wetland fauna of a wetland in a wetland</p>	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.

Performance outcomes	Acceptable outcomes	Response	Comment
	protection area. Visual disturbance may be mitigated by excluding activities in certain areas (for example, line of sight buffers, exclusion fencing), and using visual screens, or similar, during sensitive periods, such as when breeding or roosting.		
PO12 During construction and operation of the development in a wetland protection area, ongoing management, maintenance and monitoring is undertaken to ensure adverse effects on hydrology, water quality and ecological processes of a wetland are avoided or minimised.	AO12.1 Construction and operations related to the development in a wetland protection area are carried out in accordance with an operational management plan where appropriate.	N/A	There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.
Offsets			
PO13 Development involving a wetland in a wetland protection area avoids significant adverse impacts on matters of state environmental significance, or where this is not reasonably possible, significant adverse impacts are mitigated and an environmental offset is provided for any significant residual impacts on matters of state environmental significance that are prescribed environmental matters.	<p>AO13.1 Matters of state environmental significance likely to be affected by development involving a wetland in a wetland protection area are identified and evaluated, AND</p> <p>13.2 Any significant adverse impacts on matters of state environmental significance are avoided</p> <p>OR</p> <p>13.3 Where significant adverse impacts on matters of state environmental significance cannot be avoided:</p> <p>(1) significant adverse impacts are mitigated</p> <p>(2) an environmental offset is provided for any significant residual impacts on matters of state environmental significance that are prescribed environmental matters.</p> <p>Editor's note: Applications for development should identify anticipated losses, and outline what actions are proposed to be undertaken to offset the loss in accordance with the relevant Queensland Environmental Offsets Policy.</p>	<p>N/A</p> <p>N/A</p> <p>N/A</p>	<p>There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.</p> <p>There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.</p> <p>There are no wetland protection areas mapped over the site. Nevertheless, the proposed development will be located outside of the mapped GES wetland areas.</p>

Appendix J

Thuringowa Planning Scheme Natural Hazards Code

NATURAL HAZARDS CODE - FLOODING

Performance Criteria	Acceptable Solutions	Proposed Development
P1. Development of premises in the Residential, Industrial and Centres Planning Areas is free from risk of inundation by a Defined Flood Event	A1 The finished level of premises is at least above the Defined Flood Event	The Toolakea Flood Inundation Assessment (prepared by WaterTechnology, J3184-01, July 2014) confirmed that an extensive amount of inundation occurs over the site however the majority is quite shallow (< 300mm). The modelling revealed that of the approximately 440ha parcel, 138ha are mapped as flood free (< .1 m of flood depth) whilst a further 127ha are within the low hazard area. Given the dependence of the Broad-leaf Tea-tree Woodlands to the seasonal inundation of the Site, the proposed development will be designed to minimise its impact on that natural process and hence, if required, the majority of the buildings and infrastructure will be constructed off the ground.
P2 Habitable areas of buildings are located above a Defined Flood Event	A2 All floor areas of habitable areas in buildings are at least 450mm above the Defined Flood Event	Refer to response for P1.
P3 Development involving the excavation or filling of premises is carried out such that no increase in flood water levels or flow results, taking into account existing development and the ultimate form of development.	A3 No acceptable solution prescribed.	The Engineering Services Report (prepared by Sedgman Yeats, YBA0031, 2014) indicates that the proposed development could be constructed with minimal disturbance to the existing topography (average earthworks depth 150mm).

NATURAL HAZARDS CODE – ACID SULPHATE SOILS

Performance Criteria	Acceptable Solutions	Proposed Development
P1. No environmental harm resulting from ASS / PASS exposure is caused.	A1 Development does not – (a) Involve excavation or filling of land below 5m AHD (b) Include excavation of subsoil below 5m AHD	The Site is situated in a low lying coastal area and ASS is likely to be encountered. However no geotechnical surveys have yet been undertaken to confirm the extent of ASS across the Site. Given the flood free zone identified by the Toolakea Flood Inundation Assessment (prepared by WaterTechnology, J3184-01, July 2014), and the intent to minimise earthworks, it is considered that construction of the proposed development can be appropriately managed to such that environmental harm will occur from ASS/PASS exposure.

NATURAL HAZARDS CODE – STORM SURGE

Performance Criteria	Acceptable Solutions	Proposed Development
P1. Development on premises identified as susceptible to Storm Surge on maps 5.4, 5.4B and 5.4C does not compromise the safety of residents, visitors or premises.	A1 Development ensures - <ul style="list-style-type: none"> (a) the floor height of buildings (other than class 10 buildings) is at least 3.9m AHD; or (b) where the reconfiguration of lots is proposed, the ground level of all lots is at least 3.9m AHD. 	The Toolakea Flood Inundation Assessment (prepared by WaterTechnology, J3184-01, July 2014) indicates that the majority of the site floor levels will be governed by flooding rather than storm tide inundation.

NATURAL HAZARDS CODE – BUSHFIRE

Performance Criteria	Acceptable Solutions	Proposed Development
Siting		
P1. Development must be sited to minimise the Potential Bushfire Hazard Area and maximise the protection of life and property from bushfire.	A1 Development is sited to provide a minimum area of 20m width serving as a firebreak to all buildings and structures.	The proposed development would accommodate a firebreak of an appropriate width to protect all buildings and structures. It should be noted that under the methodology used for the mapping of bushfire prone areas under the SPP4 the Broad-leaf Tea-tree Woodlands fall within the most hazardous class of vegetation due to the high bark fuel content of the paperbark trees. The firebreak could consist of a transition zone from the built structures to the remnant vegetation which includes the grassy understorey of the Woodlands but without the paperbarks.
Firebreaks		
P2 Appropriate firebreaks must be provided to mitigate against the impacts of bushfires and have sufficient width for emergency vehicle access around or through individual lots to ensure that life and property is protected.	A2 Development incorporates - <ul style="list-style-type: none"> (a) fire trails between premises and surrounding vegetation areas where such trails - <ul style="list-style-type: none"> (i) have a minimum cleared width of 6m; (ii) have a maximum gradient of 1 in 4; (iii) are constructed and maintained to 	The firebreaks incorporated within the proposed development will meet the requirements to enable emergency vehicle access as required. A bushfire management plan will be developed in consultation with the appropriate emergency authorities to ensure that adequate protection will be provided to residents and property.

⁴ Leonard, J., Newnham, G., Opie, K., and Bianchi, R. (2014) A new methodology for state-wide mapping of bushfire prone areas in Queensland. CSIRO, Australia.

Performance Criteria	Acceptable Solutions	Proposed Development
	<p>prevent erosion and provide continuous access for emergency vehicles;</p> <p>(iv) allow for vehicle access at least every 200m; and</p> <p>(v) provide passing or turning areas at least every 400m.</p>	
Access		
P3 Access is provided for safe and effective operational use of firefighting vehicles and evacuation of residents and emergency personnel.	<p>A3 Development that involves the creation of a new road and / or incorporates a perimeter road is -</p> <p>(a) located between the boundary of the lots and the surrounding vegetated areas;</p> <p>(b) of a minimum 20m cleared width;</p> <p>(c) of a constructed road width of 6m;</p> <p>(d) constructed to an all weathering standard;</p> <p>(e) a through-road and cul-de-sacs and dead ends are not utilised.</p>	Access to the proposed development will be provided by John Brewer Drive. The upgrade to the road will ensure emergency vehicle access as well as an appropriate evacuation route.
Water Supply		
P4 An adequate, safe and accessible water supply is readily accessible to firefighting personnel for firefighting purposes.	<p>A4 Development -</p> <p>(a) is connected to a reticulated water supply (available with conveniently located hydrants) that is reliable and has sufficient flow and pressure for firefighting purposes at all times; or</p> <p>(b) where there is no reticulated water supply, a dam, on-site water tank or swimming pool is provided -</p> <p>(i) having a total minimum capacity of 45,000L;</p> <p>(ii) of concrete construction; and</p> <p>(iii) with a 50mm male camlock.</p>	The Engineering Services Report (prepared by Sedgman Yeats, YBA0031, 2014) indicates that sufficient reticulated water supply is or can be generated to the site to support the tourism facility.

Performance Criteria		Acceptable Solutions	Proposed Development
Intensity of Development			
P5 Development must not materially intensify the use of premises within the Bushfire Hazard Area.	A5 Development must not – (a) increase the number of lots; (b) result in a high concentration of people living, working or concentrating on premises in a Bushfire Hazard Area (eg. Educational Establishment, Hospital, Tourist Facility, Caravan Park, Retirement Village).	Whilst the proposed development does not comply with this Performance Criteria, it should be noted that all previous criteria have been complied with and these include the provision of mitigation measures aimed at reducing the risk to life and property.	
P6 Development of premises is not carried out in locations where the safety of life or property would be seriously at-risk from bushfire.	A6 No acceptable solution prescribed.	It is considered that the proposed development can be designed to provide adequate protection measures (e.g. evacuation route via John Brewer Drive or to the beach; firebreaks) such that the life or property will not be seriously at risk.	

Areas of Interest



November 19, 2018

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- Protected Areas
- Ramsar Wetlands
- Nationally Important Wetlands
- Commonwealth Heritage Places
- World Heritage Properties
- National Heritage Places
- Regional Forest Agreements
- Property Boundaries
- Great Barrier Reef Marine Park

Local Heritage
Areas

- Legend
- Properties
 - Easements (Indication Only)
 - Parks
 - Suburbs
 - Road Network
 - Freeway
 - Highway
 - Main Road
 - Secondary Road
 - Trafficable Road

Note: Please refer to Full Legend Reference Sheet For Asset Infrastructure



Date: 23/11/2018 9:09 AM
Scale 1: 64,000.00

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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: 22/11/18 15:20:36

[Summary](#)

[Details](#)

[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



This map may contain data which are
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[Coordinates](#)

Buffer: 5.0Km



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:	2
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	47
Listed Migratory Species:	57

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	98
Whales and Other Cetaceans:	12
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	2
Regional Forest Agreements:	None
Invasive Species:	35
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
General Use	GU-16-6004	VI
Habitat Protection	HP-19-5160	VI

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Broad leaf tea-tree (Melaleuca viridiflora) woodlands in high rainfall coastal north Queensland	Endangered	Community likely to occur within area
Littoral Rainforest and Coastal Vine Thickets of Eastern Australia	Critically Endangered	Community likely to occur within area
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	Endangered	Community likely to occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Roosting known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Erythrorchis 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
Limosa lapponica baueri Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may occur within area
Neochmia ruficauda ruficauda Star Finch (eastern), Star Finch (southern) [26027]	Endangered	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Poephila cincta cincta Southern Black-throated Finch [64447]	Endangered	Species or species habitat known to occur within area
Rostratula australis Australian Painted-snipe, Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Tyto novaehollandiae kimberli Masked Owl (northern) [26048]	Vulnerable	Species or species habitat likely to occur within area
Frogs		
Litoria dayi Australian Lace-lid, Lace-eyed Tree Frog, Day's Big-eyed Treefrog [86707]	Endangered	Species or species habitat likely to occur within area
Litoria nannotis Waterfall Frog, Torrent Tree Frog [1817]	Endangered	Species or species habitat may occur within area
Mammals		
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area
Hipposideros semoni Semon's Leaf-nosed Bat, Greater Wart-nosed Horseshoe-bat [180]	Vulnerable	Species or species habitat may occur within area
Macroderma gigas Ghost Bat [174]	Vulnerable	Breeding likely to occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Mesembriomys gouldii rattoides Black-footed Tree-rat (north Queensland), Shaggy Rabbit-rat [87620]	Vulnerable	Species or species habitat may occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat may occur within area
Petrogale sharmani Mount Claro Rock Wallaby, Sharman's Rock Wallaby [59281]	Vulnerable	Species or species habitat may occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat may occur within area
Pteropus conspicillatus Spectacled Flying-fox [185]	Vulnerable	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Rhinolophus robertsi Large-eared Horseshoe Bat, Greater Large-eared Horseshoe Bat [87639]	Vulnerable	Species or species habitat known to occur within area
Saccolaimus saccolaimus nudicluniatus Bare-rumped Sheath-tailed Bat, Bare-rumped Sheathtail Bat [66889]	Vulnerable	Species or species habitat likely to occur within area
Xeromys myoides Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat may occur within area
Plants		
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Marsdenia brevifolia [64585]	Vulnerable	Species or species habitat may occur within area
Myrmecodia beccarii Ant Plant [11852]	Vulnerable	Species or species habitat likely to occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat may occur within area
Phalaenopsis amabilis subsp. rosenstromii Native Moth Orchid [87535]	Endangered	Species or species habitat may occur within area
Tephrosia leveillei [16946]	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Denisonia maculata Ornamental Snake [1193]	Vulnerable	Species or species habitat may occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Egernia rugosa Yakka Skink [1420]	Vulnerable	Species or species habitat may 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		
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River	Vulnerable	Species or species

Name	Status	Type of Presence
Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756] Pristis zijsron		habitat known to occur within area
Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442] Rhincodon typus	Vulnerable	Breeding likely to occur within area
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		
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat known to occur within area
Sternula albifrons Little Tern [82849]		Species or species habitat may occur within area
Migratory Marine Species		
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely 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 related behaviour known to occur within area

Name	Threatened	Type of Presence
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding likely to occur within area
Manta alfredi Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]		Species or species habitat likely to occur within area
Manta birostris Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat likely to occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Orcaella brevirostris Irrawaddy Dolphin [45]		Species or species habitat known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat known to occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding likely to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Sousa chinensis Indo-Pacific Humpback Dolphin [50]		Breeding known to occur within area
Migratory Terrestrial Species		
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat known to 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 known to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Arenaria interpres Ruddy Turnstone [872]		Roosting known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Roosting known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Roosting may occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Roosting known to occur

Name	Threatened	Type of Presence
Tringa nebularia Common Greenshank, Greenshank [832]		within area Species or species habitat known to occur within area
Xenus cinereus Terek Sandpiper [59300]		Roosting known to 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		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area
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
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Arenaria interpres Ruddy Turnstone [872]		Roosting known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species

Name	Threatened	Type of Presence
Calidris ruficollis Red-necked Stint [860]		habitat likely to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Roosting known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Roosting may occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Heteroscelus brevipes Grey-tailed Tattler [59311]		Roosting known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		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 known to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
Sterna albifrons Little Tern [813]		Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Xenus cinereus Terek Sandpiper [59300]		Roosting 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
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

Name	Threatened	Type of Presence
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
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

Name	Threatened	Type of Presence
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 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	Breeding likely 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
Disteira kingii Spectacled Seasnake [1123]		Species or species habitat may occur within area
Disteira major Olive-headed Seasnake [1124]		Species or species

Name	Threatened	Type of Presence
Enhydrina schistosa Beaked Seasnake [1126]		habitat may occur within area 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 Spotted Seasnake, Ornate Reef 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
Balaenoptera musculus Blue Whale [36]	Endangered	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
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area

Name	Status	Type of Presence
Orcaella brevirostris Irrawaddy Dolphin [45]		Species or species habitat known 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

State and Territory Reserves	[Resource Information]
Name	State
Paluma Range	QLD
Upper Sleeper Log Creek	QLD

Invasive Species	[Resource Information]
Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.	

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat known to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Acacia nilotica subsp. indica Prickly Acacia [6196]		Species or species habitat may occur within area
Annona glabra Pond Apple, Pond-apple Tree, Alligator Apple, Bullock's Heart, Cherimoya, Monkey Apple, Bobwood, Corkwood [6311]		Species or species habitat likely to occur within area
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]		Species or species habitat likely to occur within area
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Cryptostegia grandiflora Rubber Vine, Rubbervine, India Rubber Vine, India Rubbervine, Palay Rubbervine, Purple Allamanda [18913]		Species or species habitat likely to occur within area
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species

Name	Status	Type of Presence
Hymenachne amplexicaulis		habitat likely to occur within area
Hymenachne, Olive Hymenachne, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754]		Species or species habitat likely to occur within area
Jatropha gossypifolia		
Cotton-leaved Physic-Nut, Bellyache Bush, Cotton-leaf Physic Nut, Cotton-leaf Jatropha, Black Physic Nut [7507]		Species or species habitat likely to occur within area
Lantana camara		
Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Parkinsonia aculeata		
Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
Parthenium hysterophorus		
Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]		Species or species habitat likely to occur within area
Prosopis spp.		
Mesquite, Algaroba [68407]		Species or species habitat likely to occur within area
Salvinia molesta		
Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Vachellia nilotica		
Prickly Acacia, Blackthorn, Prickly Mimosa, Black Piquant, Babul [84351]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus		
Asian House Gecko [1708]		Species or species habitat likely to occur within area
Lepidodactylus lugubris		
Mourning Gecko [1712]		Species or species habitat likely to occur within area
Ramphotyphlops braminus		
Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]		Species or species habitat likely to occur within area
Nationally Important Wetlands		
Name	[Resource Information]	
Great Barrier Reef Marine Park	State	QLD

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-19.134632 146.525389,-19.153443 146.555945,-19.14647 146.568562,-19.141362 146.558778,-19.127253 146.547534,-19.128388 146.546504,-19.128631 146.545388,-19.133416 146.549336,-19.135119 146.549508,-19.13301 146.525647,-19.134632 146.525475

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
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- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.



DA Mapping System – Print Screen

Date: 23/11/2018

0 580 1,160 1,740 2,320

Metres



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Legend

Drawn Polygon Layer

Override 1

Cadastre (50k)



Cadastre (50k)

Queensland heritage place



Queensland heritage place

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Vegetation management report

For Lot: 4 Plan: RP743792

Current as at 28/08/2018

This publication has been compiled by Operations Support, Department of Natural Resources, Mines and Energy.

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Recent changes

New vegetation clearing laws

New vegetation management laws were passed by the Queensland Parliament on 3 May 2018 and may affect the clearing you can undertake on your property.

For more information, read about the new vegetation management laws

(<https://www.dnrme.qld.gov.au/land-water/initiatives/vegetation-management-laws/>) or call 135VEG (13 58 34) between 8.30am and 4.30pm Monday to Friday.

Updated mapping

The Regulated Vegetation Management Map and Supporting Map was updated in March 2018 to reflect the most up to date information available in relation to regional ecosystems, essential habitat and wetland mapping (Version 10).

Overview

Based on the lot on plan details you have supplied, this report provides the following detailed information:

- *Vegetation management framework* - an explanation of the application of the framework.
- *Property details* - information about the specified Lot on Plan, lot size, local government area, bioregion(s), subregion(s), catchment(s), coastal or non coastal status, and any applicable area management plans associated with your property.
- *Vegetation management details for the specified Lot on Plan* - specific information about your property including vegetation categories, regional ecosystems, watercourses, wetlands, essential habitat, and protected plants.
- *Contact information*.
- *Maps* - a series of colour maps to assist in identifying regulated vegetation on your property.
- *Other legislation contact information*.

This information will assist you to determine your options for managing vegetation, which may include:

- exempt clearing work
- accepted development vegetation clearing code
- an area management plan
- a development approval.

Other laws

The clearing of native vegetation is regulated by both Queensland and Australian legislation, and some local governments also regulate native vegetation clearing. You may need to obtain an approval or permit under another Act, such as Queensland's Protected Plants framework or the Commonwealth Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Section 6 of this guide provides contact details of other agencies you should confirm requirements with, before commencing vegetation clearing.

Table of Contents

1. Vegetation management framework	5
1.1 Exempt clearing work	5
1.2 Accepted development vegetation clearing codes	5
1.3 Area management plans	6
1.4 Development approvals	6
2. Property details	7
2.1 Tenure	7
2.2 Property location	7
3. Vegetation management details for Lot: 4 Plan: RP743792	8
3.1 Vegetation categories	8
3.2 Regional ecosystems	9
3.3 Watercourses	9
3.4 Wetlands	10
3.5 Essential habitat	10
3.6 Protected plants (administered by the Department of Environment and Science (DES))	11
3.7 Emissions Reduction Fund (ERF)	12
4. Contact information for DNRME	12
5. Maps	13
5.1 Regulated vegetation management map	14
5.2 Vegetation management supporting map	15
5.3 Coastal/non coastal map	16
5.4 Protected plants map administered by DES	17
6. Other relevant legislation contacts list	18

1. Vegetation management framework

The *Vegetation Management Act 1999* (VMA), the Vegetation Management Regulation 2012, the *Planning Act 2016* and the Planning Regulation 2017, in conjunction with associated policies and codes, form the Vegetation Management Framework.

The VMA does not apply to all land tenures or vegetation types. State forests, national parks, forest reserves and some tenures under the *Forestry Act 1959* and *Nature Conservation Act 1992* are not regulated by the VMA. Managing or clearing vegetation on these tenures may require approvals under these laws.

The following native vegetation is not regulated under the VMA but may require permit(s) under other laws:

- grass or non-woody herbage;
- a plant within a grassland regional ecosystem prescribed under Schedule 5 of the Vegetation Management Regulation 2012; and
- a mangrove.

1.1 Exempt clearing work

Exempt clearing work is an activity for which you do not need to notify DNRME or obtain an approval. Exempt clearing work was previously known as exemptions.

In areas that are mapped as Category X (white in colour) on the regulated vegetation management map (see section 5.1), and where the land tenure is freehold, indigenous land and leasehold land for agriculture and grazing purposes, the clearing of vegetation is considered exempt clearing work and does not require notification or development approval. For all other land tenures, contact DNRME before commencing clearing to ensure that the proposed activity is exempt clearing work.

A range of routine property management activities are considered exempt clearing work. A list of exempt clearing work is available at

<https://www.qld.gov.au/environment/land/vegetation/exemptions/>.

Exempt clearing work may be affected if the proposed clearing area is subject to development approval conditions, a covenant, an environmental offset, an exchange area, a restoration notice, or an area mapped as Category A. Contact DNRME prior to clearing in any of these areas.

1.2 Accepted development vegetation clearing codes

Some clearing activities can be undertaken under an accepted development vegetation clearing code. The codes can be downloaded at

<https://www.qld.gov.au/environment/land/vegetation/codes/>

If you intend to clear vegetation under an accepted development vegetation clearing code, you must notify DNRME before commencing. The information in this report will assist you to complete the online notification form.

You can complete the online form at

<https://apps.dnrm.qld.gov.au/vegetation/>

1.3 Area management plans

Area Management Plans (AMP) provide an alternative approval system for vegetation clearing. They list the purposes and clearing conditions that have been approved for the areas covered by the plan. It is not necessary to use an AMP, even when an AMP applies to your property.

As a result of the new laws, AMPs for fodder harvesting, managing thickened vegetation and managing encroachment will continue for 2 years. New notifications cannot be made for these AMPs.

New notifications can be made for all other AMPs. These will continue to apply until their nominated end date.

If an area management plan applies to your property for which you can make a new notification, it will be listed in Section 2.2 of this report. Before clearing under one of these AMPs, you must first notify the DNRME and then follow the conditions and requirements listed in the AMP.

<https://www.qld.gov.au/environment/land/vegetation/area-plans/>

1.4 Development approvals

If your proposed clearing is not exempt clearing work, or is not permitted under an accepted development vegetation clearing code, or an AMP, you may be able to apply for a development approval. Information on how to apply for a development approval is available at

<https://www.qld.gov.au/environment/land/vegetation/applying/>

2. Property details

2.1 Tenure

All of the lot, plan and tenure information associated with property Lot: 4 Plan: RP743792, including links to relevant Smart Maps, are listed in Table 1. The tenure of the property (whether it is freehold, leasehold, or other) may be viewed by clicking on the Smart Map link(s) provided.

Table 1: Lot, plan and tenure information for the property

Lot	Plan	Tenure	Link to property on SmartMap
4	RP743792	Freehold	https://apps.information.qld.gov.au/data/cadastre/GenerateSmartMap?q=4\RP743792

The tenure of the land may affect whether clearing is considered exempt clearing work or may be carried out under an accepted development vegetation clearing code.

2.2 Property location

Table 2 provides a summary of the locations for property Lot: 4 Plan: RP743792, in relation to natural and administrative boundaries.

Table 2: Property location details

Local Government(s)
Townsville City

Bioregion(s)	Subregion(s)
Wet Tropics	Herbert

Catchment(s)
Black

For the purposes of the accepted development vegetation clearing codes and the State Development Assessment Provisions (SDAP), this property is regarded as*
Coastal

*See also Map 5.4

Area Management Plan(s)
Area Management Plan for the control of pest plants in the Dry Tropics region

3. Vegetation management details for Lot: 4 Plan: RP743792

3.1 Vegetation categories

Vegetation categories are shown on the regulated vegetation management map in section 5.1 of this report. A summary of vegetation categories on the subject lot are listed in Table 3. Descriptions for these categories are shown in Table 4.

Table 3: Vegetation categories for subject property. Total area: 439.67ha

Vegetation category	Area (ha)
Category B	429.98
Category C	1.45
Category R	0.95
Category X	7.29

Table 4

Category	Colour on Map	Description	Requirements / options
A	red	Compliance areas, environmental offset areas and voluntary declaration areas	Special conditions apply to Category A areas. Before clearing, contact DNRME to confirm any requirements in a Category A area.
B	dark blue	Remnant vegetation areas	Exempt clearing work, or notification and compliance with accepted development vegetation clearing codes, area management plans or development approval.
C	light blue	High-value regrowth areas	Exempt clearing work, or notification and compliance with managing Category C regrowth vegetation accepted development vegetation clearing code.
R	yellow	Regrowth within 50m of a watercourse or drainage feature in the Great Barrier Reef catchment areas	Exempt clearing work, or notification and compliance with managing Category R regrowth accepted development vegetation clearing code or area management plans.
X	white	Clearing is considered accepted development on freehold land, indigenous land and leasehold land for agriculture and grazing purposes. Contact DNRME to clarify whether a development approval is required for other State land tenures.	No permit or notification required on freehold land, indigenous land and leasehold land for agriculture and grazing. A development approval may be required for some State land tenures.

Property Map of Assessable Vegetation (PMAV)

This report does not confirm if a Property Map of Assessable Vegetation (PMAV) exists on a lot. To confirm whether or not a PMAV exists on a lot, please check the PMAV layer on the Queensland Globe², or contact DNRME on 135VEG (135 834).

3.2 Regional ecosystems

The endangered, of concern and least concern regional ecosystems on your property are shown on the vegetation management supporting map in section 5.2 and are listed in Table 5.

A description of regional ecosystems can be accessed online at

<https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/descriptions/>

Table 5: Regional ecosystems present on subject property

Regional Ecosystem	VMA Status	Category	Area (Ha)	Short Description	Structure Category
7.1.1	Least concern	B	9.28	Mangrove closed scrub to open forest of areas subject to regular tidal inundation	Dense
7.1.2	Of concern	B	5.94	Sporobolus virginicus grassland, samphire open forbland to sparse forbland and bare saltpans on plains adjacent to mangroves	Grassland
7.2.3	Of concern	B	39.43	Corymbia tessellaris and/or Acacia crassicaarpa and/or C. intermedia and/or C. clarksoniana woodland to closed forest on beach ridges (predominantly Holocene)	Mid-dense
7.2.7	Of concern	B	3.50	Casuarina equisetifolia +/- Corymbia tessellaris open forest +/- groved vine forest shrublands on strand and foredunes	Mid-dense
7.3.25	Of concern	B	7.42	Melaleuca leucadendra +/- vine forest species open forest to closed forest on alluvium fringing streams	Mid-dense
7.3.45	Least concern	B	111.21	Corymbia clarksoniana +/- C. tessellaris +/- E. drepanophylla open forest to open woodland on alluvial plains	Mid-dense
7.3.8	Least concern	B	253.20	Melaleuca viridiflora +/- Eucalyptus spp. +/- Lophostemon suaveolens open forest to open woodland on poorly drained alluvial plains	Sparse
7.3.8	Least concern	C	1.45	Melaleuca viridiflora +/- Eucalyptus spp. +/- Lophostemon suaveolens open forest to open woodland on poorly drained alluvial plains	Sparse
non-rem	None	R	0.95	None	None
non-rem	None	X	7.29	None	None

Please note:

1. All area and area derived figures included in this table have been calculated via reprojecting relevant spatial features to Albers equal-area conic projection (central meridian = 146, datum Geocentric Datum of Australia 1994). As a result, area figures may differ slightly if calculated for the same features using a different co-ordinate system.
2. If Table 5 contains a Category 'plant', please be aware that this refers to 'plantations' such as forestry, and these areas are considered non-remnant under the VMA.

The VMA status of the regional ecosystem (whether it is endangered, of concern or least concern) also determines if any of the following are applicable:

- exempt clearing work
- accepted development vegetation clearing codes
- performance outcomes in State Development Assessment Provisions (SDAP).

3.3 Watercourses

Vegetation management watercourses and drainage features for this property are shown on the vegetation management supporting map in section 5.2.

3.4 Wetlands

There are no vegetation management wetlands present on this property.

3.5 Essential habitat

Protected wildlife is native wildlife prescribed under the *Nature Conservation Act 1992* (NCA), and includes endangered, vulnerable or near-threatened wildlife.

Essential habitat for protected wildlife includes suitable habitat on the lot, or where a species has been known to occur up to 1.1 kilometres from a lot on which there is assessable vegetation. These important habitat areas are protected under the VMA.

Any essential habitat on this property will be shown as blue hatching on the vegetation supporting map in section 5.2.

If essential habitat is identified on the lot, information about the protected wildlife species is provided in Table 6 below. The numeric labels on the vegetation management supporting map can be cross referenced with Table 6 to outline the essential habitat factors for that particular species. There may be essential habitat for more than one species on each lot, and areas of Category A, Category B and Category C can be mapped as Essential Habitat.

Essential habitat is compiled from a combination of species habitat models and buffered species records. Regional ecosystem is a mandatory essential habitat factor, unless otherwise stated. Essential habitat, for protected wildlife, means an area of vegetation shown on the Regulated Vegetation Management Map as assessable vegetation -

- 1) 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. Essential habitat factors are comprised of - regional ecosystem (mandatory for most species), vegetation community, altitude, soils, position in landscape; or
- 2) in which the protected wildlife, at any stage of its life cycle, is located.

If there is no essential habitat mapping shown on the vegetation management supporting map for this lot, and there is no table in the sections below, it confirms that there is no essential habitat on the lot.

Category A and/or Category B and/or Category C

Table 6: Essential habitat in Category A and/or Category B and/or Category C

Label	Scientific Name	Common Name	NCA Status	Vegetation Community	Altitude	Soils	Position in Landscape
1087	<i>Casuarium casuarium</i> johnsonii (southern population)	southern cassowary (southern population)	E	Dense lowland and highland tropical rainforest, closed gallery forest, eucalypt forest with vine forest elements, swamp forest and adjacent melaleuca swamps, littoral scrub, eucalypt woodland and mangroves; often using a habitat mosaic; will cross open eucalypt, canefields and dry ridges between rainforest patches.	Sea level to 1500m.	None	None

Label	Scientific Name	Common Name	NCA Status	Vegetation Community	Altitude	Soils	Position in Landscape
584	<i>Crocodylus porosus</i>	estuarine crocodile	V	Estuaries and major rivers, billabongs and swamps in dry season; freshwater swamps in wet season, occasionally found in open sea; also in dune swale swamps and dams; mostly within 40-50km of coastline (some breeding populations up to 100km from sea). Nest sites vegetated areas (preference for Melaleuca swamp forest with Thoracostachyum or Scleria sedgeswamp &/or Stenoclaena fern) near permanent freshwater (<100-200m), often on north-west banks, prime areas associated with productive deepwater estuaries; will also use marginal sites, e.g. grassy areas (Imperata, Ischaemum, Themeda, Sorghum) near forest edge or with sparse eucalypt, riverbank/fringe forest (Melaleuca, Corypha, Acacia), mangrove fringe, salt meadow behind mangrove, and sparse short (<40cm) sedgeland/swamp.	Sea level to 100m.	None	Near and in waterbodies.

Label	Regional Ecosystem (mandatory unless otherwise specified)
1087	7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.2.1, 7.2.2, 7.2.3, 7.2.4, 7.2.5, 7.2.6, 7.2.7, 7.2.8, 7.2.9, 7.2.10, 7.2.11, 7.3.1, 7.3.2, 7.3.3, 7.3.4, 7.3.5, 7.3.6, 7.3.7, 7.3.8, 7.3.9, 7.3.10, 7.3.12, 7.3.13, 7.3.17, 7.3.19, 7.3.20, 7.3.21, 7.3.23, 7.3.25, 7.3.28, 7.3.29, 7.3.30, 7.3.31, 7.3.34, 7.3.35, 7.3.36, 7.3.37, 7.3.38, 7.3.39, 7.3.40, 7.3.42, 7.3.45, 7.3.46, 7.3.47, 7.3.49, 7.8.1, 7.8.2, 7.8.3, 7.8.4, 7.8.11, 7.8.12, 7.8.13, 7.8.14, 7.8.15, 7.8.16, 7.8.18, 7.11.1, 7.11.2, 7.11.3, 7.11.5, 7.11.6, 7.11.7, 7.11.8, 7.11.10, 7.11.12, 7.11.13, 7.11.14, 7.11.16, 7.11.18, 7.11.19, 7.11.23, 7.11.24, 7.11.25, 7.11.26, 7.11.27, 7.11.28, 7.11.29, 7.11.30, 7.11.31, 7.11.32, 7.11.34, 7.11.38, 7.11.39, 7.11.40, 7.11.42, 7.11.44, 7.11.46, 7.11.47, 7.11.49, 7.12.1, 7.12.2, 7.12.4, 7.12.5, 7.12.6, 7.12.7, 7.12.9, 7.12.10, 7.12.11, 7.12.12, 7.12.13, 7.12.16, 7.12.17, 7.12.19, 7.12.20, 7.12.21, 7.12.22, 7.12.23, 7.12.24, 7.12.25, 7.12.26, 7.12.29, 7.12.37, 7.12.38, 7.12.39, 7.12.40, 7.12.41, 7.12.43, 7.12.44, 7.12.45, 7.12.47, 7.12.48, 7.12.49, 7.12.50, 7.12.53, 7.12.59, 7.12.61, 7.12.66, 7.12.67, 7.12.68
584	All regional ecosystems within the stream/wetland buffer as determined by VMA code.

3.6 Protected plants (administered by the Department of Environment and Science (DES))

In Queensland, all plants that are native to Australia are protected plants under the *Nature Conservation Act 1992* (NCA), with clearing of protected plants in the wild regulated by the [Nature Conservation \(Wildlife Management\) Regulation 2006](#). These requirements apply irrespective of the classification of the vegetation under the *Vegetation Management Act 1999*.

Prior to clearing, if the plants proposed to be cleared are in the wild (see [Operational policy: When a protected plant in Queensland is considered to be 'in the wild'](#)) and the exemptions under the [Nature Conservation \(Wildlife Management\) Regulation 2006](#) are not applicable to the proposed clearing, you must check the flora survey trigger map to determine if any part of the area to be cleared is within a high risk area. The trigger map for this property is provided in section 5.5. The exemptions relate to:

- imminent risk of death or serious injury (refer s261A)
- imminent risk of serious damage to a building or other structure on land, or to personal property (refer s261B)
- *Fire and Emergency Service Act 1990* (refer 261C)
- previously cleared areas (refer s261ZB)
- maintenance activities (refer s261ZC)
- firebreak or fire management line (refer s261ZD)
- accepted development vegetation clearing code (refer s261ZE)
- conservation purposes (refer s261ZG)
- authorised in particular circumstances (refer s385).

Some exemptions under the NCA are the same as exempt clearing work (formerly known as exemptions) from the *Vegetation Management Act 1999* (i.e. listed in the Planning Regulations 2017) while some are different.

If the proposed area to be cleared is shown as blue (i.e. high risk) on the flora survey trigger map, a flora survey of the clearing impact area must be undertaken in accordance with the flora survey guidelines. The main objective of a flora survey is to locate any endangered, vulnerable or near threatened plants (EVNT plants) that may be present in the clearing impact area.

If a flora survey identifies that EVNT plants are not present within the clearing impact area or clearing within 100m of EVNT plants can be avoided, the clearing activity is exempt from a permit. An [exempt clearing notification form](#) must be submitted to the Department of Environment and Science, with a copy of the flora survey report, at least one week prior to clearing. The

clearing must be conducted within two years after the flora survey report was submitted.

If a flora survey identifies that EVNT plants are present in, or within 100m of, the area to be cleared, a clearing permit is required before any clearing is undertaken. The flora survey report, as well as an impact management report, must be submitted with the [application form clearing permit](#).

In an area other than a high risk area, a clearing permit is only required where a person is, or becomes aware that EVNT plants are present in, or within 100m of, the area to be cleared. You must keep a copy of the flora survey trigger map for the area subject to clearing for five years from the day the clearing starts. If you do not clear within the 12 month period that the flora survey trigger map was printed, you need to print and check a new flora survey trigger map.

Further information on protected plants is available at

<http://www.ehp.qld.gov.au/licences-permits/plants-animals/protected-plants/>

For assistance on the protected plants flora survey trigger map for this property, please contact the Department of Environment and Science at palm@des.qld.gov.au.

3.7 Emissions Reduction Fund (ERF)

The ERF is an Australian Government scheme which offers incentives for businesses and communities across the economy to reduce emissions.

Under the ERF, landholders can earn money from activities such as planting (and keeping) trees, managing regrowth vegetation and adopting more sustainable agricultural practices.

The purpose of a project is to remove greenhouse gases from the atmosphere. Each project will provide new economic opportunities for farmers, forest growers and land managers.

Further information on ERF is available at <https://www.qld.gov.au/environment/land/state/use/carbon-rights/>.

4. Contact information for DNRME

For further information on vegetation management:

Phone 135VEG (135 834)

Email vegetation@dnrme.qld.gov.au

Visit www.dnrme.qld.gov.au/our-department/contact-us/vegetation-contacts to submit an online enquiry.

For contact details for other State and Commonwealth agencies, please see Section 6.

5. Maps

The maps included in this report may also be requested individually at:

<https://www.dnrme.qld.gov.au/qld/environment/land/vegetation/vegetation-map-request-form>

and

<http://www.ehp.qld.gov.au/licences-permits/plants-animals/protected-plants/map-request.php>

Regulated vegetation management map

The regulated vegetation management map shows vegetation categories needed to determine clearing requirements. These maps are updated monthly to show new [property maps of assessable vegetation \(PMAV\)](#).

Vegetation management supporting map

The vegetation management supporting map provides information on regional ecosystems, wetlands, watercourses and essential habitat.

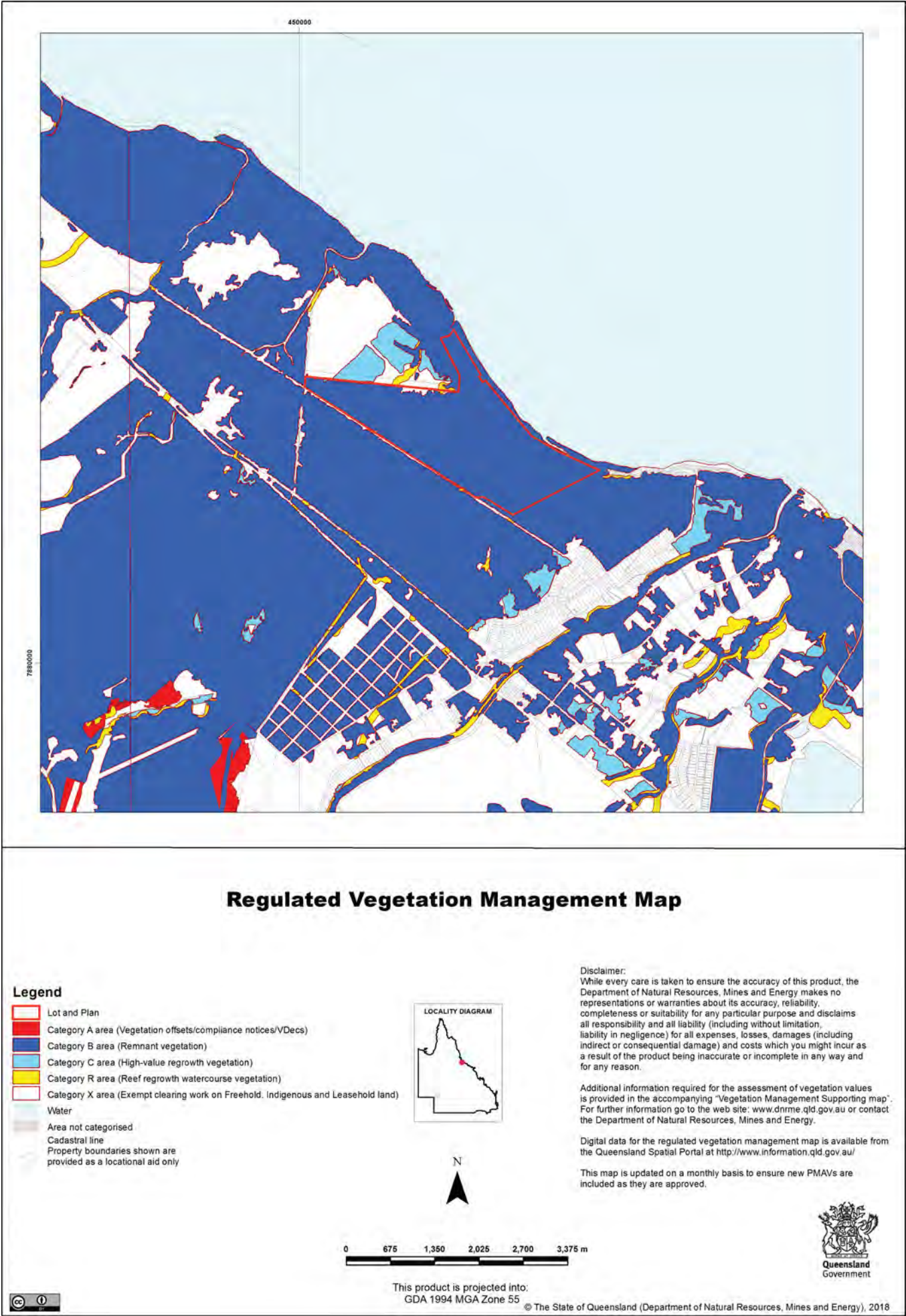
Coastal/non coastal map

The coastal/non-coastal map confirms whether the lot, or which parts of the lot, are considered coastal or non-coastal for the purposes of the accepted development vegetation clearing codes and the State Development Assessment Provisions (SDAP).

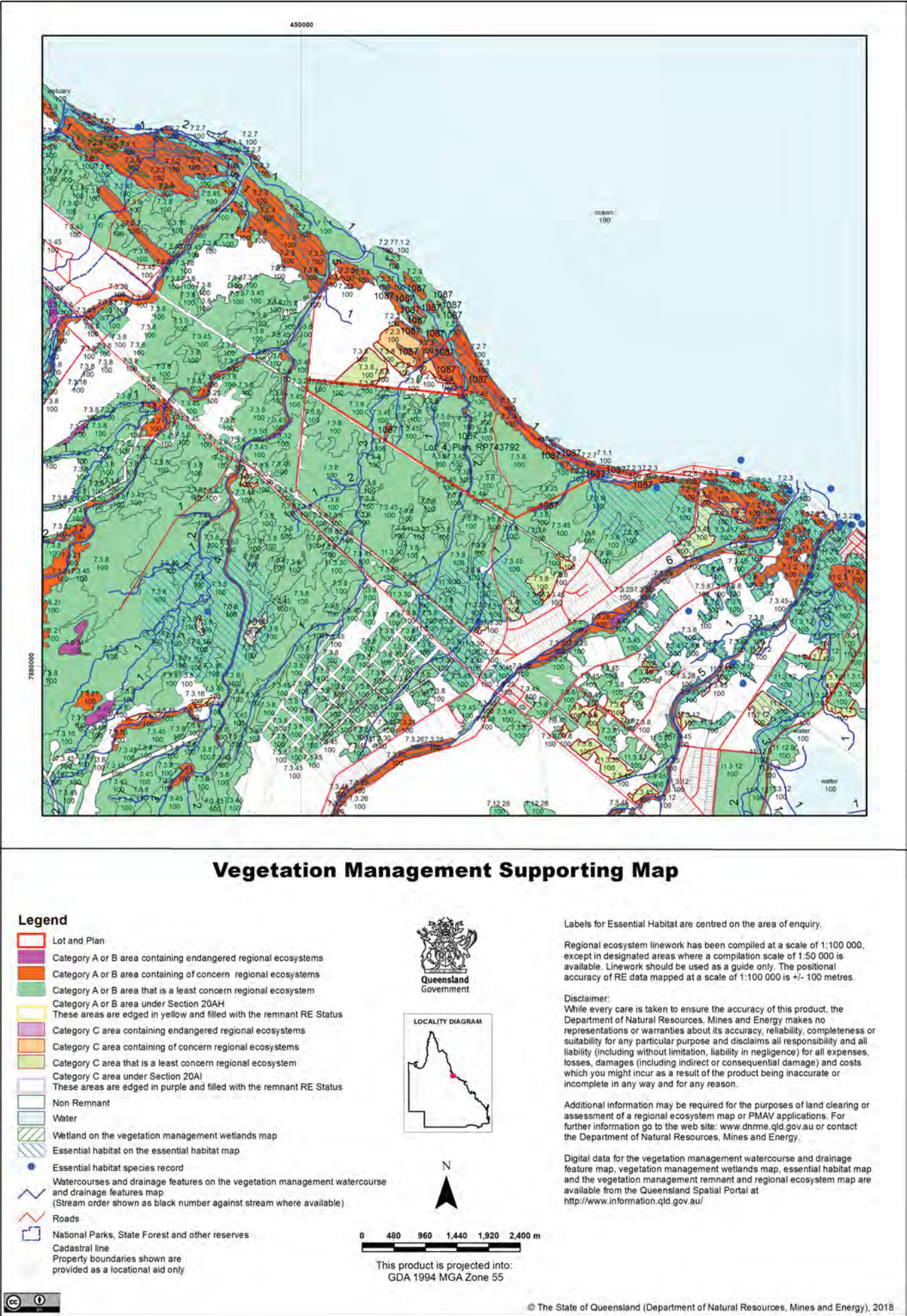
Protected plants map

The protected plants map shows areas where particular provisions of the *Nature Conservation Act 1992* apply to the clearing of protected plants.

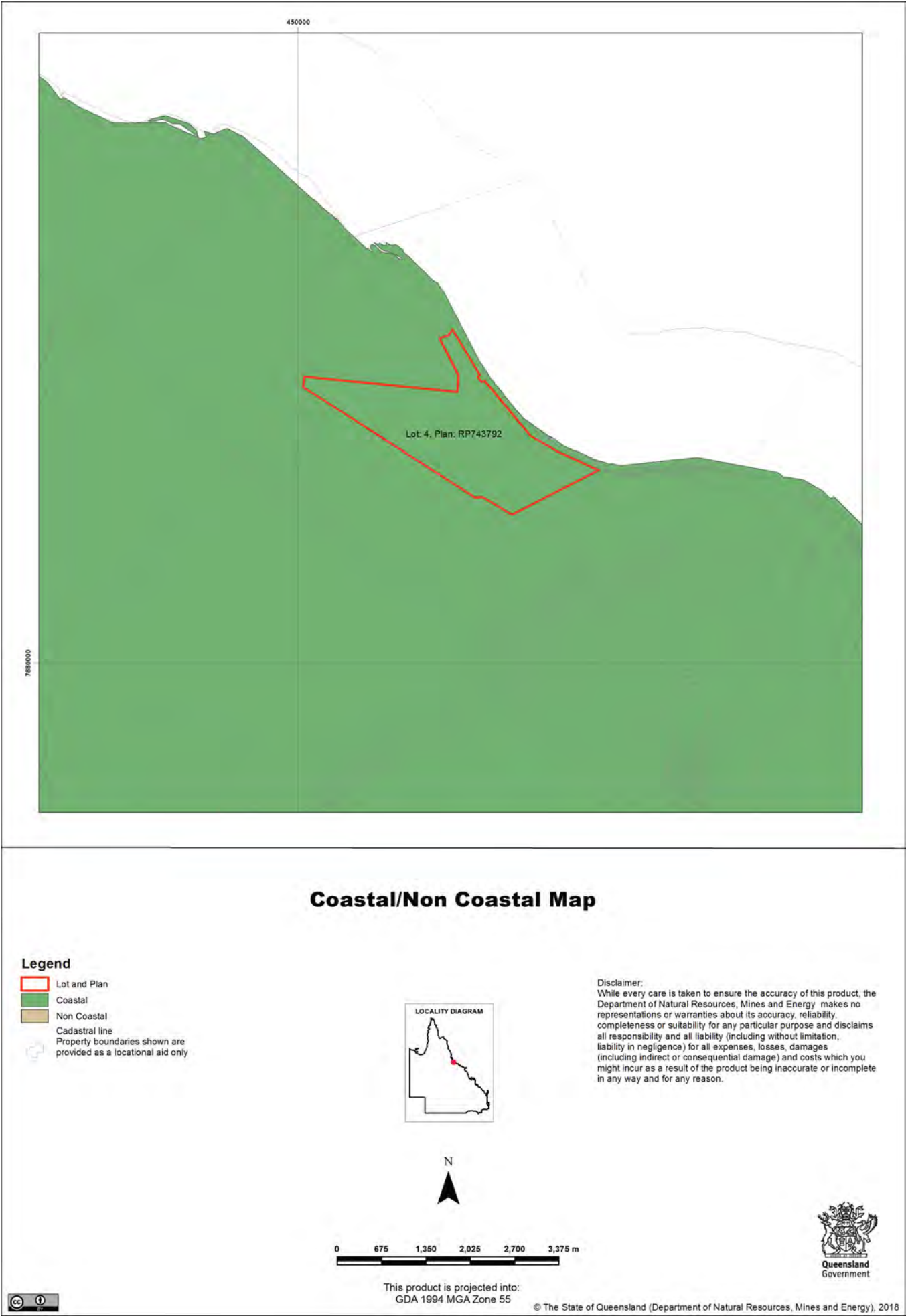
5.1 Regulated vegetation management map



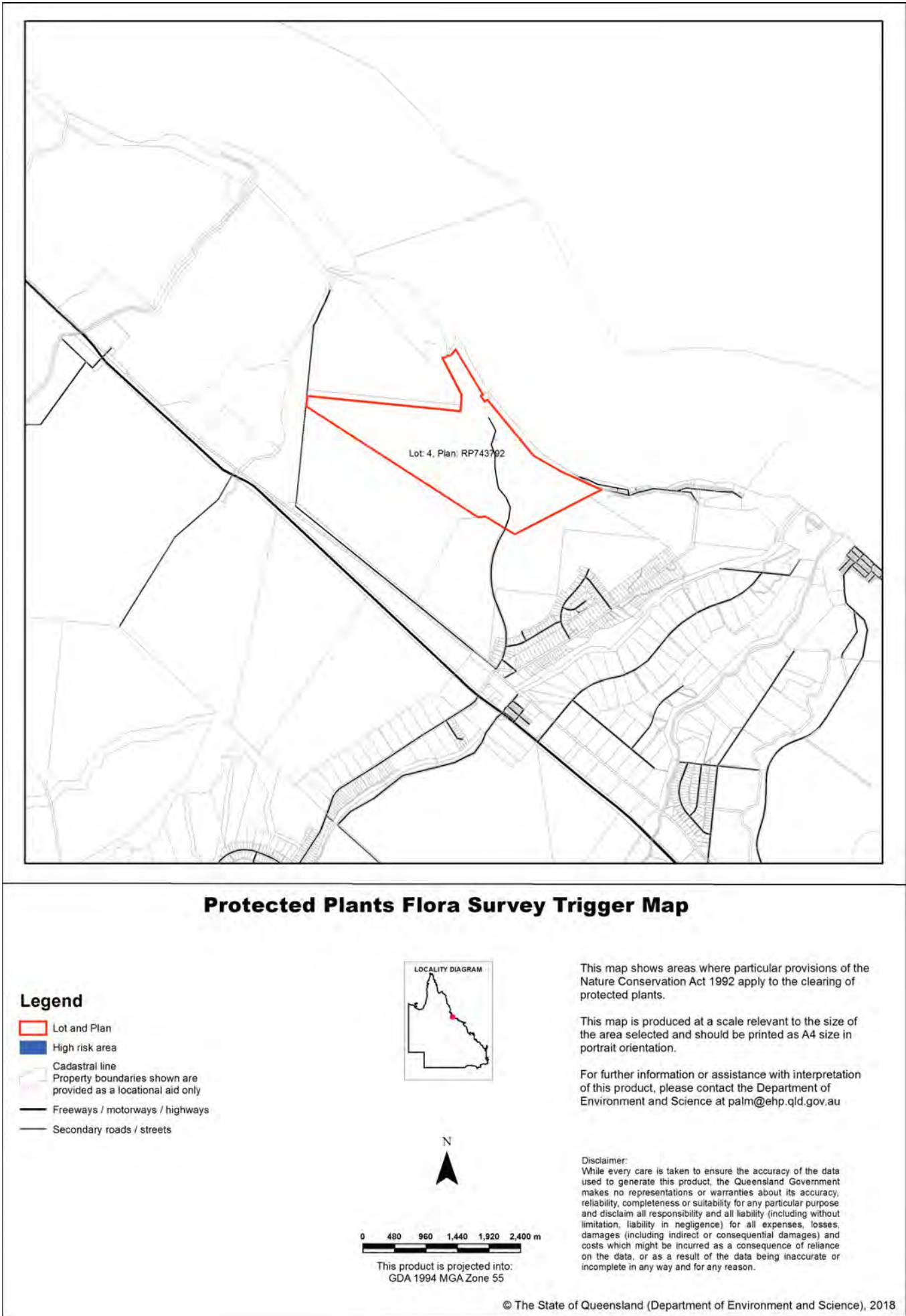
5.2 Vegetation management supporting map



5.3 Coastal/non coastal map



5.4 Protected plants map administered by DES



6. Other relevant legislation contacts list

Activity	Legislation	Agency	Contact details
Interference with overland flow Earthworks, significant disturbance	<i>Water Act 2000</i> <i>Soil Conservation Act 1986</i>	Department of Natural Resources, Mines and Energy (Queensland Government)	Ph: 13 QGOV (13 74 68) www.dnrme.qld.gov.au
Indigenous Cultural Heritage	<i>Aboriginal Cultural Heritage Act 2003</i> <i>Torres Strait Islander Cultural Heritage Act 2003</i>	Department of Aboriginal and Torres Strait Islander Partnerships (Queensland Government)	Ph: 13 QGOV (13 74 68) www.datsip.qld.gov.au
Mining and environmentally relevant activities Infrastructure development (coastal) Heritage issues Protected plants and protected areas ¹	<i>Environmental Protection Act 1994</i> <i>Coastal Protection and Management Act 1995</i> <i>Queensland Heritage Act 1992</i> <i>Nature Conservation Act 1992</i>	Department of Environment and Science (Queensland Government)	Ph: 13 QGOV (13 74 68) www.des.qld.gov.au
Interference with fish passage in a watercourse, mangroves Forestry activities ²	<i>Fisheries Act 1994</i> <i>Forestry Act 1959</i>	Department of Agriculture and Fisheries (Queensland Government)	Ph: 13 QGOV (13 74 68) www.daf.qld.gov.au
Matters of National Environmental Significance including listed threatened species and ecological communities	<i>Environment Protection and Biodiversity Conservation Act 1999</i>	Department of the Environment (Australian Government)	Ph: 1800 803 772 www.environment.gov.au
Development and planning processes	<i>Planning Act 2016</i> <i>State Development and Public Works Organisation Act 1971</i>	Department of State Development, Manufacturing, Infrastructure and Planning (Queensland Government)	Ph: 13 QGOV (13 74 68) www.dsdmip.qld.gov.au
Local government requirements	<i>Local Government Act 2009</i>	Department of Local Government, Racing and Multicultural Affairs (Queensland Government)	Ph: 13 QGOV (13 74 68) Your relevant local government office

1. In Queensland, all plants that are native to Australia are protected plants under the [Nature Conservation Act 1992](http://www.des.qld.gov.au), which endeavours to ensure that protected plants (whether whole plants or protected plants parts) are not illegally removed from the wild, or illegally traded. Prior to clearing, you should check the flora survey trigger map to determine if the clearing is within a high-risk area by visiting www.des.qld.gov.au. For further information or assistance on the protected plants flora survey trigger map for your property, please contact the Department of Environment and Science on 13QGOV (13 74 68) or email palm@des.qld.gov.au.

2. Contact the Department of Agriculture and Fisheries before clearing:

- Any sandalwood on state-owned land (including leasehold land)
- On freehold land in a 'forest consent area'
- More than five hectares on state-owned land (including leasehold land) containing commercial timber species listed in parts 2 or 3 of Schedule 6 of the Vegetation Management Regulation 2012 and located within any of the following local government management areas-Banana, Bundaberg Regional, Fraser Coast Regional, Gladstone Regional, Isaac Regional, North Burnett Regional, Somerset Regional, South Burnett Regional, Southern Downs Regional, Tablelands Regional, Toowoomba Regional, Western Downs Regional.

Wildlife Online Extract

Search Criteria: Species List for a Specified Point

Species: All

Type: All

Status: All

Records: All

Date: All

Latitude: -19.1419

Longitude: 146.5501

Distance: 5

Email: justin@urbansync.com.au

Date submitted: Thursday 22 Nov 2018 14:30:43

Date extracted: Thursday 22 Nov 2018 14:40:38

The number of records retrieved = 313

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.

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Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Bufonidae	<i>Rhinella marina</i>	cane toad	Y			9
animals	amphibians	Hylidae	<i>Litoria rothii</i>	northern laughing treefrog		C		4
animals	amphibians	Hylidae	<i>Litoria bicolor</i>	northern sedgefrog		C		3
animals	amphibians	Hylidae	<i>Litoria inermis</i>	bumpy rocketfrog		C		3
animals	amphibians	Hylidae	<i>Litoria rubella</i>	ruddy treefrog		C		4
animals	amphibians	Hylidae	<i>Litoria caerulea</i>	common green treefrog		C		5
animals	amphibians	Hylidae	<i>Litoria microbelos</i>	javelin frog		C		2
animals	amphibians	Hylidae	<i>Cyclorana alboguttata</i>	greenstripe frog		C		1
animals	amphibians	Hylidae	<i>Cyclorana novaeohollandiae</i>	eastern snapping frog		C		1
animals	amphibians	Hylidae	<i>Litoria fallax</i>	eastern sedgefrog		C		3
animals	amphibians	Hylidae	<i>Litoria wilcoxii</i>	eastern stony creek frog		C		2
animals	amphibians	Limnodynastidae	<i>Platyplectrum ornatum</i>	ornate burrowing frog		C		9/1
animals	amphibians	Myobatrachidae	<i>Uperoleia mimula</i>	mimicking gungan		C		3/1
animals	amphibians	Myobatrachidae	<i>Crinia deserticola</i>	chirping froglet		C		3
animals	birds	Acanthizidae	<i>Gerygone magnirostris</i>	large-billed gerygone		C		3
animals	birds	Acanthizidae	<i>Gerygone palpebrosa</i>	fairy gerygone		C		10
animals	birds	Acanthizidae	<i>Gerygone levigaster</i>	mangrove gerygone		C		4
animals	birds	Accipitridae	<i>Aviceda subcristata</i>	Pacific baza		C		7
animals	birds	Accipitridae	<i>Pandion cristatus</i>	eastern osprey		SL		9
animals	birds	Accipitridae	<i>Lophoictinia isura</i>	square-tailed kite		C		4
animals	birds	Accipitridae	<i>Accipiter fasciatus</i>	brown goshawk		C		4
animals	birds	Accipitridae	<i>Accipiter novaeohollandiae</i>	grey goshawk		C		1
animals	birds	Accipitridae	<i>Milvus migrans</i>	black kite		C		41
animals	birds	Accipitridae	<i>Haliastur indus</i>	brahminy kite		C		19
animals	birds	Accipitridae	<i>Haliastur spheonurus</i>	whistling kite		C		43
animals	birds	Accipitridae	<i>Haliaeetus leucogaster</i>	white-bellied sea-eagle		C		26
animals	birds	Accipitridae	<i>Aquila audax</i>	wedge-tailed eagle		C		7
animals	birds	Acrocephalidae	<i>Acrocephalus australis</i>	Australian reed-warbler		C		1
animals	birds	Aegothelidae	<i>Aegotheles cristatus</i>	Australian owl-nightjar		C		4
animals	birds	Alcedinidae	<i>Ceyx pusillus</i>	little kingfisher		C		4
animals	birds	Alcedinidae	<i>Ceyx azureus</i>	azure kingfisher		C		7
animals	birds	Anatidae	<i>Anas gracilis</i>	grey teal		C		3
animals	birds	Anatidae	<i>Nettapus coromandelianus</i>	cotton pygmy-goose		C		1
animals	birds	Anatidae	<i>Anas superciliosa</i>	Pacific black duck		C		25
animals	birds	Anatidae	<i>Chenonetta jubata</i>	Australian wood duck		C		10
animals	birds	Anatidae	<i>Dendrocygna arcuata</i>	wandering whistling-duck		C		27
animals	birds	Anhingidae	<i>Anhinga novaeohollandiae</i>	Australasian darter		C		7
animals	birds	Anseranatidae	<i>Anseranas semipalmata</i>	magpie goose		C		20
animals	birds	Apodidae	<i>Aerodramus terraereginae</i>	Australian swiftlet		C		12
animals	birds	Apodidae	<i>Hirundapus caudacutus</i>	white-throated needletail		SL		10
animals	birds	Apodidae	<i>Apus pacificus</i>	fork-tailed swift		SL		1
animals	birds	Apodidae	<i>Apus affinis</i>	house swift		C		1
animals	birds	Ardeidae	<i>Nycticorax caledonicus</i>	nankeen night-heron		C		4
animals	birds	Ardeidae	<i>Ardea alba modesta</i>	eastern great egret		C		21
animals	birds	Ardeidae	<i>Butorides striata</i>	striated heron		C		3
animals	birds	Ardeidae	<i>Egretta garzetta</i>	little egret		C		7

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Ardeidae	<i>Bubulcus ibis</i>	cattle egret		C		7
animals	birds	Ardeidae	<i>Ardea sumatrana</i>	great-billed heron		C		1
animals	birds	Ardeidae	<i>Ardea pacifica</i>	white-necked heron		C		13
animals	birds	Ardeidae	<i>Egretta sacra</i>	eastern reef egret		C		4
animals	birds	Ardeidae	<i>Egretta novaehollandiae</i>	white-faced heron		C		17
animals	birds	Ardeidae	<i>Ardea intermedia</i>	intermediate egret		C		16
animals	birds	Artamidae	<i>Cracticus nigrogularis</i>	pied butcherbird		C		29
animals	birds	Artamidae	<i>Artamus superciliosus</i>	white-browed woodswallow		C		1
animals	birds	Artamidae	<i>Artamus leucorhynchus</i>	white-breasted woodswallow		C		27
animals	birds	Artamidae	<i>Artamus cyanopterus</i>	dusky woodswallow		C		1
animals	birds	Artamidae	<i>Strepera graculina</i>	pied currawong		C		4
animals	birds	Artamidae	<i>Artamus personatus</i>	masked woodswallow		C		3
animals	birds	Artamidae	<i>Cracticus tibicen</i>	Australian magpie		C		33
animals	birds	Artamidae	<i>Artamus cinereus</i>	black-faced woodswallow		C		2
animals	birds	Artamidae	<i>Cracticus quoyi</i>	black butcherbird		C		7
animals	birds	Burhinidae	<i>Esacus magnirostris</i>	beach stone-curlew		V		7
animals	birds	Burhinidae	<i>Burhinus grallarius</i>	bush stone-curlew		C		32
animals	birds	Cacatuidae	<i>Cacatua galerita</i>	sulphur-crested cockatoo		C		33
animals	birds	Cacatuidae	<i>Eolophus roseicapilla</i>	galah		C		6
animals	birds	Cacatuidae	<i>Nymphicus hollandicus</i>	cockatiel		C		10
animals	birds	Cacatuidae	<i>Calyptorhynchus banksii</i>	red-tailed black-cockatoo		C		33
animals	birds	Campephagidae	<i>Coracina novaehollandiae</i>	black-faced cuckoo-shrike		C		25
animals	birds	Campephagidae	<i>Coracina papuensis</i>	white-bellied cuckoo-shrike		C		42
animals	birds	Campephagidae	<i>Lalage tricolor</i>	white-winged triller		C		4
animals	birds	Campephagidae	<i>Lalage leucomela</i>	varied triller		C		14
animals	birds	Caprimulgidae	<i>Caprimulgus macrurus</i>	large-tailed nightjar		C		14
animals	birds	Charadriidae	<i>Pluvialis squatarola</i>	grey plover		SL		1
animals	birds	Charadriidae	<i>Eiseyornis melanops</i>	black-fronted dotterel		C		8
animals	birds	Charadriidae	<i>Charadrius leschenaultii</i>	greater sand plover		V	V	7
animals	birds	Charadriidae	<i>Charadrius ruficapillus</i>	red-capped plover		C		13
animals	birds	Charadriidae	<i>Erythronyx cinctus</i>	red-kneed dotterel		C		4
animals	birds	Charadriidae	<i>Vanellus miles</i>	masked lapwing		C		35
animals	birds	Charadriidae	<i>Charadrius mongolus</i>	lesser sand plover		E	E	5
animals	birds	Ciconiidae	<i>Ephippiorhynchus asiaticus</i>	black-necked stork		C		16
animals	birds	Cisticolidae	<i>Cisticola exilis</i>	golden-headed cisticola		C		2
animals	birds	Columbidae	<i>Lopholaimus antarcticus</i>	topknot pigeon		C		1
animals	birds	Columbidae	<i>Ptilinopus superbus</i>	superb fruit-dove		C		1
animals	birds	Columbidae	<i>Geopelia humeralis</i>	bar-shouldered dove		C		44
animals	birds	Columbidae	<i>Geopelia striata</i>	peaceful dove		C		52
animals	birds	Columbidae	<i>Geophaps scripta</i>	squatter pigeon		C		1
animals	birds	Columbidae	<i>Ocyphaps lophotes</i>	crested pigeon		C		29
animals	birds	Columbidae	<i>Ducula bicolor</i>	pied imperial-pigeon		C		6
animals	birds	Coraciidae	<i>Eurystomus orientalis</i>	dollarbird		C		17
animals	birds	Corvidae	<i>Corvus coronoides</i>	Australian raven		C		2
animals	birds	Corvidae	<i>Corvus orru</i>	Torresian crow		C		25
animals	birds	Cuculidae	<i>Cacomantis variolosus</i>	brush cuckoo		C		14

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Cuculidae	<i>Centropus phasianinus</i>	pheasant coucal		C		24
animals	birds	Cuculidae	<i>Scythrops novaehollandiae</i>	channel-billed cuckoo		C		16
animals	birds	Cuculidae	<i>Chalcites minutillus russatus</i>	Gould's bronze-cuckoo		C		2
animals	birds	Cuculidae	<i>Chalcites sp.</i>					2
animals	birds	Cuculidae	<i>Eudynamys orientalis</i>	eastern koel		C		19
animals	birds	Cuculidae	<i>Cacomantis pallidus</i>	pallid cuckoo		C		17
animals	birds	Cuculidae	<i>Chalcites basalis</i>	Horsfield's bronze-cuckoo		C		2
animals	birds	Cuculidae	<i>Cacomantis flabelliformis</i>	fan-tailed cuckoo		C		2
animals	birds	Dicruridae	<i>Dicrurus bracteatus</i>	spangled drongo		C		44
animals	birds	Estrildidae	<i>Neochmia modesta</i>	plum-headed finch		C		2
animals	birds	Estrildidae	<i>Taeniopygia guttata</i>	zebra finch		C		10
animals	birds	Estrildidae	<i>Taeniopygia bichenovii</i>	double-barred finch		C		24
animals	birds	Estrildidae	<i>Neochmia temporalis</i>	red-browed finch		C		2
animals	birds	Eurostopodidae	<i>Eurostopodus mystacalis</i>	white-throated nightjar		C		2
animals	birds	Eurostopodidae	<i>Eurostopodus argus</i>	spotted nightjar		C		1
animals	birds	Falconidae	<i>Falco berigora</i>	brown falcon		C		1
animals	birds	Falconidae	<i>Falco longipennis</i>	Australian hobby		C		1
animals	birds	Falconidae	<i>Falco cenchroides</i>	nankeen kestrel		C		1
animals	birds	Falconidae	<i>Falco subniger</i>	black falcon		C		6
animals	birds	Gruidae	<i>Grus rubicunda</i>	brolga		C		17
animals	birds	Haematopodidae	<i>Haematopus longirostris</i>	Australian pied oystercatcher		C		12
animals	birds	Halcyonidae	<i>Dacelo novaeguineae</i>	laughing kookaburra		C		21
animals	birds	Halcyonidae	<i>Dacelo leachii</i>	blue-winged kookaburra		C		35
animals	birds	Halcyonidae	<i>Todiramphus sanctus</i>	sacred kingfisher		C		18
animals	birds	Halcyonidae	<i>Todiramphus macleayii</i>	forest kingfisher		C		34
animals	birds	Hirundinidae	<i>Hirundo neoxena</i>	welcome swallow		C		32
animals	birds	Hirundinidae	<i>Petrochelidon ariel</i>	fairy martin		C		17
animals	birds	Hirundinidae	<i>Petrochelidon nigricans</i>	tree martin		C		4
animals	birds	Hirundinidae	<i>Irediparra gallinacea</i>	comb-crested jacana		C		1
animals	birds	Jacaniidae	<i>Sterna hirundo</i>	common tern		SL		1
animals	birds	Laridae	<i>Sterna sumatrana</i>	black-naped tern		SL		1
animals	birds	Laridae	<i>Thalasseus bergii</i>	crested tern		SL		8
animals	birds	Laridae	<i>Chroicocephalus novaehollandiae</i>	silver gull				16
animals	birds	Laridae	<i>Sterna albifrons</i>	little tern		SL		4
animals	birds	Laridae	<i>Gelochelidon nilotica</i>	gull-billed tern		SL		7
animals	birds	Laridae	<i>Thalasseus bengalensis</i>	lesser crested tern		C		4
animals	birds	Laridae	<i>Hydroprogne caspia</i>	Caspian tern		SL		8
animals	birds	Maluridae	<i>Malurus amabilis</i>	lovely fairy-wren		C		2
animals	birds	Maluridae	<i>Malurus melanocephalus</i>	red-backed fairy-wren		C		28
animals	birds	Megaluridae	<i>Megalurus timoriensis</i>	tawny grassbird		C		2
animals	birds	Megapodiidae	<i>Alectura lathamii</i>	Australian brush-turkey		C		1
animals	birds	Meliphagidae	<i>Meliphaga notata</i>	yellow-spotted honeyeater		C		11
animals	birds	Meliphagidae	<i>Myzomela obscura</i>	dusky honeyeater		C		41
animals	birds	Meliphagidae	<i>Melithreptus albogularis</i>	white-throated honeyeater		C		34
animals	birds	Meliphagidae	<i>Gavicalis fasciogularis</i>	mangrove honeyeater		C		1
animals	birds	Meliphagidae	<i>Philemon citreogularis</i>	little friarbird		C		36

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Meliphagidae	<i>Myzomela sanguinolenta</i>	scarlet honeyeater		C		4
animals	birds	Meliphagidae	<i>Stomiopera flava</i>	yellow honeyeater		C		41
animals	birds	Meliphagidae	<i>Entomyzon cyanotis</i>	blue-faced honeyeater		C		35
animals	birds	Meliphagidae	<i>Philemon buceroides</i>	helmeted friarbird		C		40
animals	birds	Meliphagidae	<i>Stomiopera unicolor</i>	white-gaped honeyeater		C		2
animals	birds	Meliphagidae	<i>Lichmera indistincta</i>	brown honeyeater		C		32
animals	birds	Meliphagidae	<i>Melithreptus gularis</i>	black-chinned honeyeater		C		1
animals	birds	Meliphagidae	<i>Ramsayornis modestus</i>	brown-backed honeyeater		C		30
animals	birds	Meliphagidae	<i>Philemon corniculatus</i>	noisy friarbird		C		22
animals	birds	Meliphagidae	<i>Ramsayornis fasciatus</i>	bar-breasted honeyeater		C		2
animals	birds	Meropidae	<i>Merops ornatus</i>	rainbow bee-eater		C		43
animals	birds	Monarchidae	<i>Myiagra rubecula</i>	leaden flycatcher		C		35
animals	birds	Monarchidae	<i>Myiagra alecto</i>	shining flycatcher		C		2
animals	birds	Monarchidae	<i>Grallina cyanoleuca</i>	magpie-lark		C		40
animals	birds	Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian pipit		C		15
animals	birds	Nectariniidae	<i>Nectarinia jugularis</i>	olive-backed sunbird		C		49
animals	birds	Nectariniidae	<i>Dicaeum hirundinaceum</i>	mistletoebird		C		23
animals	birds	Neositidae	<i>Daphoenositta chrysoptera</i>	varied sittella		C		1
animals	birds	Oriolidae	<i>Oriolus sagittatus</i>	olive-backed oriole		C		25
animals	birds	Oriolidae	<i>Sphecotheres vieilloti</i>	Australasian figbird		C		33
animals	birds	Otididae	<i>Ardeotis australis</i>	Australian bustard		C		1
animals	birds	Pachycephalidae	<i>Colluricincla harmonica</i>	grey shrike-thrush		C		10
animals	birds	Pachycephalidae	<i>Pachycephala rufiventris</i>	rufous whistler		C		3
animals	birds	Pachycephalidae	<i>Colluricincla megarrhyncha</i>	little shrike-thrush		C		9
animals	birds	Pardalotidae	<i>Pardalotus striatus</i>	striated pardalote		C		18
animals	birds	Pelecanidae	<i>Pelecanus conspicillatus</i>	Australian pelican		C		17
animals	birds	Petroicidae	<i>Microeca flavigaster</i>	lemon-bellied flycatcher		C		14
animals	birds	Petroicidae	<i>Poecilodryas superciliosa</i>	white-browed robin		C		5
animals	birds	Phalacrocoracidae	<i>Phalacrocorax sulcirostris</i>	little black cormorant		C		5
animals	birds	Phalacrocoracidae	<i>Phalacrocorax varius</i>	pie'd cormorant		C		10
animals	birds	Phalacrocoracidae	<i>Microcarbo melanoleucos</i>	little pied cormorant		C		3
animals	birds	Phasianidae	<i>Pavo cristatus</i>	Indian peafowl	Y			2
animals	birds	Phasianidae	<i>Coturnix ypsilophora</i>	brown quail		C		7
animals	birds	Podargidae	<i>Podargus strigoides</i>	tawny frogmouth		C		18
animals	birds	Podicipedidae	<i>Tachybaptus novaehollandiae</i>	Australasian grebe		C		1
animals	birds	Psittacidae	<i>Trichoglossus haematodus moluccanus</i>	rainbow lorikeet		C		50
animals	birds	Psittacidae	<i>Platycercus adscitus</i>	pale-headed rosella		C		30
animals	birds	Psittacidae	<i>Aprosmictus erythropterus</i>	red-winged parrot		C		32
animals	birds	Psittacidae	<i>Trichoglossus chlorolepidotus</i>	scaly-breasted lorikeet		C		28
animals	birds	Ptilonorhynchidae	<i>Ptilonorhynchus nuchalis</i>	great bowerbird		C		36
animals	birds	Recurvirostridae	<i>Himantopus himantopus</i>	black-winged stilt		C		1
animals	birds	Rhipiduridae	<i>Rhipidura rufifrons</i>	rufous fantail		C	SL	1
animals	birds	Rhipiduridae	<i>Rhipidura rufiventris</i>	northern fantail		C		9
animals	birds	Rhipiduridae	<i>Rhipidura albiscapa</i>	grey fantail		C		15
animals	birds	Rhipiduridae	<i>Rhipidura leucophrys</i>	willie wagtail		C		16
animals	birds	Scolopacidae	<i>Xenus cinereus</i>	terek sandpiper		SL		2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Scolopacidae	<i>Tringa brevipes</i>	grey-tailed tattler		SL		8
animals	birds	Scolopacidae	<i>Tringa nebularia</i>	common greenshank		SL		1
animals	birds	Scolopacidae	<i>Numenius phaeopus</i>	whimbrel		SL		9
animals	birds	Scolopacidae	<i>Calidris acuminata</i>	sharp-tailed sandpiper		SL		3
animals	birds	Scolopacidae	<i>Calidris ruficollis</i>	red-necked stint		SL		1
animals	birds	Scolopacidae	<i>Numenius madagascariensis</i>	eastern curlew		E	CE	14
animals	birds	Scolopacidae	<i>Gallinago hardwickii</i>	Latham's snipe		SL		2
animals	birds	Scolopacidae	<i>Calidris tenuirostris</i>	great knot		E	CE	4
animals	birds	Scolopacidae	<i>Limosa lapponica baueri</i>	Western Alaskan bar-tailed godwit		V	V	5
animals	birds	Strigidae	<i>Ninox rufa queenslandica</i>	rufous owl (southern subspecies)		C		1/1
animals	birds	Sulidae	<i>Sula leucogaster</i>	brown booby		SL		1
animals	birds	Threskiornithidae	<i>Platalea regia</i>	royal spoonbill		C		6
animals	birds	Threskiornithidae	<i>Threskiornis spinicollis</i>	straw-necked ibis		C		27
animals	birds	Threskiornithidae	<i>Threskiornis molucca</i>	Australian white ibis		C		29
animals	birds	Threskiornithidae	<i>Platalea flavipes</i>	yellow-billed spoonbill		C		5
animals	mammals	Dasyuridae	<i>Planigale maculata</i>	common planigale		C		5
animals	mammals	Dasyuridae	<i>Sminthopsis murina</i>	common dunnart		C		2
animals	mammals	Delphinidae	<i>Orcaella heinsohni</i>	Australian snubfin dolphin		V		6/3
animals	mammals	Macropodidae	<i>Macropus giganteus</i>	eastern grey kangaroo		C		1/1
animals	mammals	Macropodidae	<i>Macropus agilis</i>	agile wallaby		C		7/1
animals	mammals	Muridae	<i>Rattus sordidus</i>	canefield rat		C		2
animals	mammals	Muridae	<i>Melomys cervinipes</i>	fawn-footed melomys		C		11
animals	mammals	Muridae	<i>Hydromys chrysogaster</i>	water rat		C		1
animals	mammals	Muridae	<i>Pseudomys delicatulus</i>	delicate mouse		C		11
animals	mammals	Muridae	<i>Melomys burtoni</i>	grassland melomys		C		7
animals	mammals	Peramelidae	<i>Isoodon macrourus</i>	northern brown bandicoot		C		2
animals	mammals	Phalangeridae	<i>Trichosurus vulpecula</i>	common brushtail possum		C		1/1
animals	mammals	Potoroidae	<i>Aepyprymnus rufescens</i>	rufous bettong		C		1/1
animals	mammals	Rhinolophidae	<i>Rhinolophus megaphyllus</i>	eastern horseshoe-bat		C		1
animals	mammals	Vespertilionidae	<i>Myotis macropus</i>	large-footed myotis		C		2
animals	mammals	Vespertilionidae	<i>Scotorepens sanborni</i>	northern broad-nosed bat		C		3
animals	mammals	Vespertilionidae	<i>Nyctophilus bifax</i>	northern long-eared bat		C		3
animals	ray-finned fishes	Melanotaeniidae	<i>Melanotaenia splendida splendida</i>	eastern rainbowfish				1/1
animals	reptiles	Agamidae	<i>Diporiphora australis</i>	tommy roundhead		C		5
animals	reptiles	Boidae	<i>Simalia kinghorni</i>	amethystine python (Australian form)		C		1
animals	reptiles	Boidae	<i>Morelia spilota</i>	carpet python		C		1/1
animals	reptiles	Cheloniidae	<i>Chelonia mydas</i>	green turtle		V	V	2
animals	reptiles	Colubridae	<i>Stegonotus australis</i>	slaty-grey snake		C		1
animals	reptiles	Colubridae	<i>Tropidonophis mairii</i>	freshwater snake		C		1
animals	reptiles	Colubridae	<i>Dendrelaphis punctulatus</i>	green tree snake		C		2
animals	reptiles	Gekkonidae	<i>Gehyra dubia</i>	dubious dtella		C		8/1
animals	reptiles	Gekkonidae	<i>Heteronotia binoei</i>	Bynoe's gecko		C		6
animals	reptiles	Pygopodidae	<i>Lialis burtonis</i>	Burton's legless lizard		C		2
animals	reptiles	Scincidae	<i>Cryptoblepharus virgatus sensu lato</i>			C		8
animals	reptiles	Scincidae	<i>Lygisaurus aeratus sensu lato</i>			C		1
animals	reptiles	Scincidae	<i>Carlia pectoralis sensu lato</i>			C		5

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	reptiles	Scincidae	<i>Morethia taeniopleura</i>	fire-tailed skink		C		3
animals	reptiles	Scincidae	<i>Ctenotus taeniolatus</i>	copper-tailed skink		C		3
animals	reptiles	Scincidae	<i>Tiliqua scincoides</i>	eastern blue-tongued lizard		C		2
animals	reptiles	Scincidae	<i>Ctenotus spaldingi</i>	straight-browed ctenotus		C		6
animals	reptiles	Scincidae	<i>Carlia schmelzii</i>	robust rainbow-skink		C		5
animals	reptiles	Scincidae	<i>Carlia jarnoldae</i>	lined rainbow-skink		C		5
animals	reptiles	Scincidae	<i>Carlia storri</i>	Storr's rainbow-skink		C		3
animals	reptiles	Scincidae	<i>Carlia sp.</i>			C		1
animals	reptiles	Scincidae	<i>Lygisaurus zuma</i>	sun-loving litter-skink		C		1
animals	reptiles	Typhlopidae	<i>Anilius sp.</i>					2/1
animals	reptiles	Typhlopidae	<i>Anilius unguirostris</i>	claw-snouted blind snake		C		2
animals	reptiles	Varanidae	<i>Varanus varius</i>	lace monitor		C		8
animals	reptiles	Varanidae	<i>Varanus gouldii</i>	sand monitor		C		6
plants	conifers	Podocarpaceae	<i>Podocarpus grayae</i>			C		1/1
plants	higher dicots	Asteraceae	<i>Centipeda borealis</i>			C		1/1
plants	higher dicots	Asteraceae	<i>Gnaphalium polycaulon</i>		Y			1/1
plants	higher dicots	Asteraceae	<i>Apowollastonia spilanthoides</i>			C		1/1
plants	higher dicots	Byttneriaceae	<i>Melochia corchorifolia</i>			C		1/1
plants	higher dicots	Cactaceae	<i>Hylocereus undatus</i>	night blooming cactus	Y			1/1
plants	higher dicots	Caesalpiniaceae	<i>Senna occidentalis</i>	coffee senna	Y			1/1
plants	higher dicots	Chenopodiaceae	<i>Suaeda arbusculoides</i>			C		1/1
plants	higher dicots	Dilleniaceae	<i>Hibbertia longifolia</i>			C		1/1
plants	higher dicots	Euphorbiaceae	<i>Euphorbia mitchelliana</i> var. <i>mitchelliana</i>			C		1/1
plants	higher dicots	Euphorbiaceae	<i>Euphorbia tannensis</i> subsp. <i>tannensis</i>		Y			1/1
plants	higher dicots	Fabaceae	<i>Indigofera tinctoria</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Aphyllodium biarticulatum</i>			C		2/2
plants	higher dicots	Fabaceae	<i>Indigofera linifolia</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Canavalia rosea</i>	coastal jack bean		C		1/1
plants	higher dicots	Lecythidaceae	<i>Planchonia careya</i>	cockatoo apple		C		2/1
plants	higher dicots	Mimosaceae	<i>Acacia leptocarpa</i>	north coast wattle		C		1
plants	higher dicots	Mimosaceae	<i>Acacia crassicaarpa</i>			C		1
plants	higher dicots	Mimosaceae	<i>Acacia leptostachya</i>	Townsville wattle		C		1/1
plants	higher dicots	Mimosaceae	<i>Leucaena leucocephala</i>		Y			1
plants	higher dicots	Mimosaceae	<i>Acacia flavescens</i>	toothed wattle		C		1
plants	higher dicots	Mimosaceae	<i>Acacia platycarpa</i>			C		1/1
plants	higher dicots	Mimosaceae	<i>Acacia aulacocarpa</i>			C		1/1
plants	higher dicots	Myrtaceae	<i>Eucalyptus tereticornis</i>	swamp box		C		1
plants	higher dicots	Myrtaceae	<i>Lophostemon suaveolens</i>	poplar gum		C		1/1
plants	higher dicots	Myrtaceae	<i>Eucalyptus platyphylla</i>			C		1
plants	higher dicots	Myrtaceae	<i>Melaleuca viridiflora</i>			C		1
plants	higher dicots	Myrtaceae	<i>Corymbia clarksoniana</i>			C		1
plants	higher dicots	Myrtaceae	<i>Corymbia dallachiana</i>			C		1
plants	higher dicots	Myrtaceae	<i>Eucalyptus drepanophylla</i>			C		1
plants	higher dicots	Onagraceae	<i>Ludwigia perennis</i>			C		1/1
plants	higher dicots	Phyllanthaceae	<i>Phyllanthus</i>			C		1/1
plants	higher dicots	Plantaginaceae	<i>Linnophila brownii</i>			C		1/1

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plants	higher dicots	Portulacaceae	<i>Portulaca pilosa</i>		Y			1/1
plants	higher dicots	Portulacaceae	<i>Portulaca</i>			C		1/1
plants	higher dicots	Proteaceae	<i>Grevillea pteridifolia</i>	golden parrot tree		C		2/2
plants	higher dicots	Proteaceae	<i>Grevillea glauca</i>	bushy's clothes peg		C		1/1
plants	higher dicots	Sapindaceae	<i>Dodonaea dodecandra</i>			C		2/2
plants	higher dicots	Sparmanniaceae	<i>Corchorus aestuans</i>			C		1/1
plants	higher dicots	Stylidiaceae	<i>Stylidium velleioides</i>			C		1/1
plants	higher dicots	Violaceae	<i>Afrotybanthus enneaspermus</i>			C		1/1
plants	lower dicots	Apocynaceae	<i>Alyxia spicata</i>			C		1/1
plants	lower dicots	Convolvulaceae	<i>Ipomoea violacea</i>			C		1/1
plants	lower dicots	Lamiaceae	<i>Vitex trifolia var. trifolia</i>			C		1/1
plants	lower dicots	Verbenaceae	<i>Stachytarpheta jamaicensis</i>	Jamaica snakeweed	Y			1
plants	monocots	Alismataceae	<i>Caldesia oligococca</i>			C		1/1
plants	monocots	Commelinaceae	<i>Cyanotis axillaris</i>			C		1/1
plants	monocots	Commelinaceae	<i>Commelina ensifolia</i>	scurvy grass		C		1/1
plants	monocots	Cyperaceae	<i>Fuirena umbellata</i>			C		1/1
plants	monocots	Cyperaceae	<i>Fimbristylis polytrichoides</i>			C		1/1
plants	monocots	Cyperaceae	<i>Fimbristylis dolera</i>			C		1/1
plants	monocots	Cyperaceae	<i>Bulbostylis barbata</i>			C		3/3
plants	monocots	Cyperaceae	<i>Cyperus scaber</i>			C		1/1
plants	monocots	Eriocaulaceae	<i>Eriocaulon</i>			C		1/1
plants	monocots	Hydrocharitaceae	<i>Blyxa aubertii</i>	red natal grass	Y	C		1/1
plants	monocots	Poaceae	<i>Melinis repens</i>	grader grass	Y			1
plants	monocots	Poaceae	<i>Themeda quadrivalvis</i>		Y			1
plants	monocots	Poaceae	<i>Eriachne triodioides</i>			C		2/2
plants	monocots	Poaceae	<i>Eragrostis pubescens</i>			C		1/1
plants	monocots	Poaceae	<i>Bothriochloa pertusa</i>		Y			1
plants	monocots	Poaceae	<i>Urochloa distachya</i>		Y			1/1
plants	monocots	Poaceae	<i>Paspalidium rarum</i>			C		1/1
plants	monocots	Poaceae	<i>Eragrostis exigua</i>			C		1/1
plants	monocots	Poaceae	<i>Sporobolus jacquemontii</i>		Y			1/1
plants	monocots	Poaceae	<i>Themeda triandra</i>	kangaroo grass		C		1
plants	monocots	Poaceae	<i>Megathyrsus maximus var. coloratus</i>		Y			1/1
plants	monocots	Poaceae	<i>Aristida holathera var. holathera</i>			C		1/1
plants	monocots	Poaceae	<i>Enneapogon robustissimus</i>			C		2/2
plants	monocots	Poaceae	<i>Setaria surgens</i>			C		1/1
plants	monocots	Poaceae	<i>Chloris inflata</i>	purpletop chloris	Y			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.