



Pormpuraaw Residential Subdivision
Ecological Assessment – Public Release Version



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1.0 Introduction

1.1 Background

4DBARU has been commissioned by Langtree Consulting Pty Ltd on behalf of the Queensland State Government, Department of Women, Aboriginal and Torres Strait Islander Partnerships and the Multiculturalism (DWATSIPM) to undertake an ecological assessment on two (2) proposed urban expansion areas to the north and south of the township of Pormpuraaw located on the central west coast of Cape York Peninsular.

An ecological assessment was undertaken in May 2023 for the proposal and in July 2024, the proposal gained approval under the Planning Act 2016 s64 with separate approvals for the northern subdivision (2402-39309 SRA) and the southern subdivision (2402-39321 SRA). Although the proposal is approved by SARA, this is subject to conditions including EPBC Act 1999 assessment and NC Act 1992 approval related to the Cooktown Orchid population that has been recorded on the project site.

This report relies on an ecological assessment completed in May 2024 (4 Elements 2024) and a protected plant survey report (4 Elements 2026). The field surveys in both assessments focused on ground verification of mapped regional ecosystems (REDD v13.1) in addition to identifying flora, fauna and ecological values/ecosystems within the Pormpuraaw Aboriginal Shire Council Area project site. For the combined urban expansion areas (see **Figure 1 and 2**) a total of 35 individual residential lots are to be established within the clearing footprint with an essential management clearing buffer (asset protection zone) of 22.5m surrounding the lots. The survey efforts for this report focused on identifying potential ecological impacts that may occur as a result of vegetation clearing in these areas and assesses the impact based on the clearance of the entire project site.

This report provides a detailed inventory of the flora and fauna species present, and the likelihood of matters of national significance and state species (MNES, MSES) that were recorded during the field assessment and are considered a potential to be present. The likelihood assessment takes into consideration vegetation communities and fauna habitat types present within the proposed urban expansion areas.

All data will be provided in the below report on threatened species recorded during the field survey. All species directly recorded within or considered at least a moderate potential to occur within the proposed urban expansion area clearing alignment will be assessed for impact under the *Environment Protection and Biodiversity Conservation Act 1999* and the *Nature Conservation Act 1992* as no works are proposed outside of these areas.

For the purpose of this report:

- ▶ Portion of Lot 511 SP327449 directly north of the Pormpuraaw township is referred to as the northern urban expansion area (see **Figure 1**).
- ▶ Portion of Lot 512 SP327448 directly south of the Pormpuraaw township is referred to as the southern urban expansion area (see **Figure 2**).

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- ▶ The combined northern and southern urban expansion areas and 100m buffer are referred to as the project site (see **Figure 3**).
 - ▶ The local Cooktown Orchid population is within 5km of the project site (Moonkan Creek to Chapman River)
 - ▶ All land within 10 km of the project site is referred to as the locality.
 - ▶ The Cape York Bioregion is referred to as “the region”.

1.2 Project Site Description

The Project site is within the Lands of the Thaayore, Wik, Bakanh and the Yir Yoront people (Pormpuraaw Aboriginal Shire Council local government area). The location of the project site is two (2) sections of land at both the northern and southern end of the Pormpuraaw township (see **Figure 1** & **Figure 2**).

The elevational range within the project site is between ~5 m and ~10 m above sea level. A single landform consisting of a deflated coastal sand dune supported coastal vine thickets with minor development of *Acacia crassicaarpa* open forest in exposed areas. *Melaleuca dealbata* open forest wetlands occurred in low lying depositional areas >50 m to the west of the project site subject to inundation during heavy rain. Approximately 150 m to the east, outside of the project site, estuarine wetlands supporting mangrove forest and salt marsh occurred and are subject to daily tidal inundation. No defined watercourses are present within the project site.

Much of the vegetation within the project site is mapped as regulated vegetation containing Category B remnant vegetation under the *Vegetation Management Act 1999*.

1.3 Project Description

The proposal seeks to establish a residential subdivision at both the northern and southern ends of the Pormpuraaw Township.

The northern expansion (see **Figure 1** below) proposes to establish:

- ▶ 15 residential lots
- ▶ Road and road reserve to service residential lots
- ▶ Essential management clearing buffer of 22.5 m (1.5 x canopy height of adjacent vegetation)

The southern expansion (see **Figure 2** below) proposes to establish:

- ▶ 20 residential lots
- ▶ Road and road reserve to service residential lots
- ▶ Essential management clearing buffer of 22.5 (1.5 x canopy height of adjacent vegetation)

1.4 Study Objectives

The objectives of this assessment were to:

- ▶ Classify vegetation into regional ecosystems as per REDD v13.1
- ▶ Map location of Cooktown Orchids (*Dendrobium bigibbum*) within the project site.

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- ▶ Estimate the extent and abundance of the local population of Cooktown Orchids
 - ▶ Review and identify species of flora and fauna occurring or considered likely to occur on/or within the project site.
 - ▶ Assess the likelihood of the proposed project to have a significant impact on any threatened vegetation community (TEC), or individual flora and fauna species or populations listed under Queensland's *Nature Conservation Act 1992* (NC Act 1992) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999).
 - ▶ Assess the impact of vegetation clearing as listed under the *Vegetation Management Act 1999* and determine the requirement for further assessment under the relevant SDAP 16 native vegetation clearing.
 - ▶ Provide recommendations to reduce impacts to environmental values, sensitive environments, and populations of threatened flora and fauna within potential vegetation clearing areas; and
 - ▶ identify the necessary approvals and any additional works required to meet ecological statutory requirements.



Figure 1 Proposed Northern Expansion Area Alignment including asset protection buffer



Figure 2 Proposed Southern Expansion Area Alignment Including Asset Protection zone (required clearing)



Figure 3 Project alignment and adjacent Regional Ecosystems (REs)

1.5 Legislative Context

The following legislation, provided in **Table 1**, are relevant to identifying ecological values, providing guidance for the assessment of potential project impacts and identifying environmental constraints to project activities. These legislation and guidance documents have been considered in this report and the appendices provided.

Table 1 Statutory Legislation Applied to the Project Site

Legislative Act	Brief Description
Commonwealth Legislation	
<i>Environment Protection and Biodiversity Conservation Act 1999</i>	The <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) provides a mechanism for assessing the environmental impact of activities and development where "Matters of National Environmental Significance" (NES) may be significantly impacted. The Act identifies nine matters of NES, which require consideration and analysis, namely: ▶ Ramsar wetland of international importance; ▶ World Heritage properties; ▶ National Heritage places; ▶ Commonwealth Marine areas; ▶ Great Barrier Reef Marine Park; ▶ Nationally listed threatened species and ecological communities; ▶ Nationally listed migratory species; ▶ Nuclear actions (including uranium mining); and ▶ Water resources in relation to coal seam gas and large coal mining development. Where a project or action is believed to potentially cause a significant impact on a matter of NES, it is to be referred to the Australian Government Department of Climate Change, Energy, Environment and Water (DCCEEW) for assessment as to whether the action is a 'controlled action' requiring Commonwealth approval for the proposed action. The EPBC Act processes also allow voluntary referral of a project to seek confirmation that a Project will not have significant impacts on matters of NES. Where an action requires Commonwealth approval, a formal assessment process is undertaken in accordance with provisions of relevant legislation.
State Legislation	
<i>Vegetation Management Act 1999</i>	The <i>Vegetation Management Act 1999</i> (VMA) is the planning initiative underlying regional management of vegetation in Queensland, including clearing of vegetation types, termed Regional Ecosystems (REs). The RE classification is a hierarchical system formed by a three-part code with the primary subdivision being bioregion, followed by land zone, and then vegetation. The biogeographic region or bioregion is the primary level of classification for biodiversity values in Queensland describing where the RE is found on a state-wide basis. Land Zones are geological and geomorphic categories that describe the major geologies and landforms of Queensland.

Legislative Act	Brief Description
	The system is based primarily on geology, with geologic age considered an important determinant. The status of REs is based on their pre-clearing and remnant extent and is gazetted under the Act and listed in the RE Description Database (REDD) maintained by the Queensland Department of Environment, Science and Innovation (DESI). The VMA aims to conserve remnant endangered and of concern REs, prevent land degradation and further loss of biodiversity, manage the environmental impacts of clearing vegetation and reduce of greenhouse emissions. The VMA status of a RE is described in line with the following: ▶ Endangered. A RE that is prescribed under the regulation and has either of the following attributes: ❖ Less than 10% of its pre-clearing extent remaining; or ❖ From 10% to 30% of its pre-clearing extent remaining and the remnant vegetation remaining is less than 10,000 ha. ▶ Of concern. A RE that is prescribed under the regulation and has either of the following attributes: ❖ From 10% to 30% of its pre-clearing extent remaining; or ❖ More than 30% of its pre-clearing extent remaining and the remnant vegetation remaining is less than 10,000 ha; or ▶ Least concern. A RE that is prescribed under the regulation and has more than 30% of its pre-clearing extent remaining and the remnant vegetation remaining is more than 10,000 ha; or ▶ The biodiversity status of a RE is classified by DES based on the condition of remnant vegetation. A RE will have a vegetation management status and/or a biodiversity status of endangered, of concern or least concern; or ▶ Essential Habitat. The VMA also has provision for the regulation of essential habitat for species of state significance. Essential habitat (mapped by DESI) is vegetation in which a listed species has been known to occur. Clearing or disturbance to areas of essential habitat will require compensatory habitat measures to be developed. For the project development area, core habitat has been used to describe the combination of critical or essential habitat for both national or state listed significant species.
<i>Planning Act 2016</i>	The Planning Act (2016) (Qld) establishes the framework for Queensland planning system. The purpose of the legislation is to establish an efficient and accountable system of land-use planning and development assessment that will lead to ecological sustainability. The Planning Act defines ecological sustainability as a balance between: ▶ The protection of ecological processes and natural systems at local, regional, state and national levels; ▶ Economic development; and ▶ The cultural, economic, physical and social wellbeing of Queenslanders. The Planning Regulation (2017) and the State Planning Policy (2017) are to guide local and state government in land use planning and development by defining the Queensland Government policies relating to matters of State interest.

Legislative Act	Brief Description
<i>Nature Conservation Act 1992</i>	The <i>Nature Conservation Act 1992 (NC Act)</i> aims to conserve nature through strategies such as dedicating and declaring protected areas for those parts of Queensland with outstanding biological diversity, natural features and wilderness values. The NC Act provides for the protection of special least concern, near threatened, vulnerable and endangered animals and plants. Nature Conservation (Animals) Regulation 2020 has replaced the Nature Conservation Wildlife Regulation (2006) and introduces a new wildlife licensing framework but incorporates and streamlines existing provisions from the regulations that it replaces. In general, an animal authority under the Animals Regulation must not be granted where activities are likely to adversely affect conservation or ecological sustainability of native wildlife. The demerit points system for offences against the Act has been retained. There is now one overarching offence provision for breaching the conditions of an authority, with a higher offence for failure to comply with a record-keeping or return of operations condition. Nature Conservation (Plants) Regulation 2020 transfers all existing plant provisions into a single stand-alone regulation that were contained in the previous Nature Conservation Wildlife Regulation (2006). The new Plants Regulation retains and streamlines many of the existing provisions in the Administration, Wildlife and Wildlife Management regulations. The allowances for taking protected plants, including under a conservation plan, an authority (such as a clearing permit) or an exemption are retained in the plants regulation and there are no significant amendments to these provisions.
<i>Queensland Fisheries Act 1994</i>	The <i>Fisheries Act 1994</i> (Fisheries Act) provides for the use, conservation and enhancement of the community's fisheries resources and fish habitat by providing for, amongst other things, the protection of fish habitats. The <i>Fisheries Act</i> has been integrated into the <i>Planning Act 2016</i> so that development permits under the Planning Act are required for certain operational works that are assessable development under the Planning Act. Operation works that are assessable development under the Planning Act include waterway barrier works and works in a declared fish habitat.
<i>Biosecurity Act (2014)</i>	The Queensland Government's <i>Biosecurity Act 2014</i> is administered by the Department of Agriculture and Fisheries (DAF). The Act provides management measures to protect agricultural and tourism industries and the environment from pests, diseases and contaminants. Under the Act, invasive plants and animals are categorised as either a 'Prohibited Matter' or a 'Restricted Matter' and replace the 'Declared' status under the Land Protection (Pest and Stock Route Management) Act 2002 which has been superseded.

Legislative Act	Brief Description
<i>Environmental Protection Act 1994</i>	The <i>Environmental Protection Act 1994</i> (EP Act) provides the key legislative framework for environmental management and protection in Queensland. The EP Act utilises a number of mechanisms to achieve its objectives. Relevant to this project is the requirement for the establishment of a general environmental duty, under Section 319 of the EP Act. Section 319 of the EP Act places a general environmental duty on Pormpuraaw Aboriginal Shire Council to ensure that 'it does not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm'. By undertaking the preparation of this detailed ecological investigation, Pormpuraaw Aboriginal Shire Council demonstrates that it is cognisant of the responsibilities for environmental protection and management in Queensland.
<i>Water Act 2000</i>	The purpose of the <i>Water Act 2000</i> is to provide for the sustainable management of water and other resources. Under Section 266 of the <i>Water Act 2000</i>, a riverine protection permit is generally required from the DNRW to: ▶ Destroy vegetation in a watercourse; ▶ Excavate in a watercourse; and ▶ Place fill in a watercourse. Additionally, water supply for construction purposes (e.g., access track construction/ compaction, dust suppression etc) may be required. Where this water supply is proposed to be sourced from nearby watercourses, a permit in accordance with Section 237 of the <i>Water Act 2000</i> will be required from DNRW prior to any water being extracted from the watercourse.

1.6 Weed Management Legislation

Invasive plant species can interrupt natural landscape function and may lead to significant economic impacts. Weeds are managed by being declared under one or all three relevant legislation and/or local laws outlined below.

1.6.1 Weeds of National Significance

The Australian state and territory governments have compiled a list of invasive plant species based on an assessment process that prioritised these weeds based on their invasiveness, potential for spread and environmental, social and economic impacts. Consideration was also given to their ability to be successfully managed. A list of 20 Weeds of National Significance (WoNS) was endorsed in 1999 and a further 12 were added in 2012.

1.6.2 Biosecurity Act 2014 (Queensland)

1.6.2.1 *Prohibited Invasive Plant*

Prohibited matter includes a range of invasive plants and invasive animals and other types of pests and diseases listed in the Act. These plants have the potential to have significant impacts and are currently not present or known to be present in Queensland. It is an offence to deal with prohibited matter or fail to report its presence.

1.6.2.2 *Restricted Invasive Plants*

These species are established in Queensland and seriously threaten Queensland's primary industries, natural environment, livestock, human health and people's livelihoods.

Under the *Biosecurity Act 2014*, there are 7 categories of restricted matter (i.e., restricted matter may include matter such as plants, animal diseases, noxious fish, insects, pest animals and weeds).

Restricted invasive plants may fall into 1, a combination or all of categories 1 to 5 (listed below). Under each category the restricted invasive plant has listed restrictions. The specific restriction requirements also apply to a person when dealing with restricted invasive plants unless they have a restricted matter permit.

Restricted invasive plant categories and restrictions:

- ▶ Category 1: not relevant as it does not relate to plant materials
- ▶ Category 2: the invasive plant must be reported within 24 hours Biosecurity Queensland on 13 25 23.
- ▶ Category 3: the invasive plant must not be distributed either by sale or gift or released into the environment.
- ▶ Category 4: the invasive plant must not be moved.
- ▶ Category 5: the invasive plant must not be kept

All landowners have a general biosecurity obligation (GBO) under the *Biosecurity Act 2014* to take reasonable and practical steps to minimise the risks associated with invasive plants and animals under their control *regardless of its category status*. Weeds that are not listed under the *Biosecurity Act 2014* may still be declared at the local government level.

1.6.3 Cook Shire Local Area Biosecurity Plan (2022-2026)

The Cook Shire Local Area Biosecurity Plan is to be used as a surrogate for weed assessment within the project site. This document covers the weed species that are likely to be present within the project site.

The Cook Shire Local Area Biosecurity Plan has been developed to provide a framework for management of declared and non-declared pest plants and animals in the Cook Shire local government area.

The plan also outlines areas of responsibilities for individuals, agencies and organisations involved in pest management. It provides landholders with strategic direction and some simple tools to enable them to set priorities for pest management on their own property.

Under the plan, weed species are prioritised by the Plan's working group alongside wider consultation with the LGA's stakeholders. Species considered a risk to the shire are allocated specific Priority Invasive Species Action Plans (BAPs), and an associated risk score. The higher the risk score, the greater the threat the species poses on the LGA's environment, economy and community. Additionally, a feasibility score for the likelihood of effective control is also assigned to each species, which in turn, triages the hierarchy of management control, ranging from delimitation, prevention, eradication, containment and asset protection.

The priority weeds and invasive animals, WoNS and declared weeds under the *Biosecurity Act 2014* occurring within or near the project site are listed in **Section 4.6**.

2.0 Methodology

2.1 Desktop Review

4D Baru completed a review of relevant mapping, databases, legislation and associated plans and policies to identify potential matters of ecological significance, including species and communities, and other ecological features, that may occur on or within proximity planned housing development. This review included an assessment of the following:

- ▶ Protected Matters database of MNES (**Appendix B**). This database applies a range of bio-models to predict the presence of species of flora and fauna and other MNES within a given 10 km radius of the centre of the project site (-14.89889, 141.62070) as cited under the Commonwealth's EPBC Act.
- ▶ Wildlife Online database of flora and fauna (**Appendix C**). This database holds records of plants and animals that have either been sighted or collected within a given a 10 km radius of the project site (-14.89889, 141.62070). The records held in this database are maintained by Department of Environment, Tourism, Science and Innovation.
- ▶ Australian Virtual Herbarium (for voucher notes and other details in relation to flora collections).
- ▶ Review of relevant legislation and associated plans and policies, including but not limited to the QLD NC Act, VM Act, EPBC Act, and the Water Act.
- ▶ State Planning Policy Mapping to identify and protect matters of environmental significance, which include Matters of State Environmental Significance (MSES) as defined under the State Planning Policy 2017 (SPP).
- ▶ Aerial Photograph Interpretation (API) to determine the broad categorisation of vegetation within and surrounding the site and to review the extent of historical clearing and land use, and any other significant environmental features such as watercourses and wetlands.
- ▶ Literature review. A range of scientific papers, recovery and conservation plans and other literature were reviewed for a number of related matters (such as targeted threatened species).
- ▶ Digital geological mapping on GeoResGlobe which details surface geology; and
- ▶ Australian Virtual Herbarium (for voucher notes and distribution and habitat records of threatened flora species).

2.2 Field Survey Methodology

2.2.1 Flora

Field surveys were undertaken on foot by Principal Ecologist Ryan Hughes over a period of 3 consecutive survey days between 22 and 24 May 2023. This survey aimed at recording the ecological character of the project site, and to search for conservation significant species of flora. Due to the presence of an abundant Cooktown orchid

population, a dedicated survey of the population was undertaken within the project site. All individuals were recorded across the project site with notes taken on host species,

This included the following objectives:

- ▶ Establishing the accuracy of the regional ecosystem (RE) mapping of 'remnant' vegetation communities, the associated description of these communities, and their landscape context, particularly in relation to the proposed alignment of the project site (urban expansion area).
- ▶ The identification of novel vegetation communities that could have the potential to be important wildlife refuges such as fire-proof niches, wetlands, and unique vegetation types.
- ▶ The compilation of a floristic checklist of vascular plants found within the project area, with specific emphasis placed on the floristic composition of representative vegetation communities affected by the predicted disturbance area.
- ▶ The ground-truthing of vegetation patterns depicted on aerial imagery, to inform the compilation of site-scale vegetation mapping.
- ▶ Map the location of Cooktown Orchids (*Dendrobium bigibbum*) within the project site.
- ▶ Record opportunistic observations of weeds while traversing the project site, targeting priority listed weeds under relevant legislation.
- ▶ Prepare vouchered flora specimens for any critically endangered, endangered, vulnerable, or near-threatened species for submission to the Queensland Herbarium.

The field survey was undertaken over three consecutive days on December 8 - 10 2025. The primary aims of this investigation are described below.

2.2.2 Supplementary Flora Survey

Due to the presence of an abundant Cooktown Orchid population identified in the original ecological assessment of the project site, an additional Protected Plant Survey was undertaken (December 2025). This included the completion of a Protected Plant Survey and wider distribution and abundance estimate of the local population for Cooktown Orchids within vine thicket communities between Chapman River and Moonkan Creek. The methodologies for these supplementary flora surveys are outlined below.

2.2.2.1 Timed meander survey

On the 8th and 9th of December 2025, a single timed meander (each comprising around 9 hours) was conducted separately at both the northern and southern urban expansion areas by ecologists Jasmine Di Valentine and Jack McCausland. This survey was undertaken under the direction of suitably qualified botanist Ryan Hughes. A 100 m radius of each of the planned vegetation clearance areas was searched (see **Figure 4** and **Figure 5**). The survey effort undertaken within the project site and CIA met the methodology required pursuant to the Flora Survey

Guidelines (protected plants). During timed meanders, the time was recorded approximately every 5 minutes while conducting a search for EVNT plant species. If no EVNT plant species are recorded, the search continues for 30 min or until the entire area is surveyed, whichever happens sooner. If EVNT plant species were recorded, the search would continue for at least 30 min after the last plant is recorded, or when the entire area is surveyed, whichever happens sooner.

For the southern expansion area, the entirety of the 100 m buffer could be accessed in the timed meander. For the north expansion area, access to the west of Pitthamp Street could not be accessed due to the potential of Estuarine Crocodiles being present at the time of survey. Attempts were made for access in the southern end of the meanders. However, the presence of dense continuous grass within the *Melaleuca* spp. swamp was not able to be safely traversed. Binocular searches targeting epiphytic orchids on canopy branches along Pitthamp Road did not record any additional threatened species. The vegetation community present (RE 3.2.3) was not considered suitable habitat for the Cooktown orchid which was entirely restricted to the semi deciduous vine thicket community (RE 3.2.2).

All vascular plant species observed in this meander survey were recorded to compile a list of all species detected (see **Appendix E**). For species that could not be identified confidently in the field, a voucher specimen was to be collected and used for later identification. No specimens were required to be sent to the Queensland Herbarium for verification and therefore no voucher specimens were lodged with the Queensland Herbarium to lodge occurrence records.

2.2.2.2 Local Population Surveys

A survey of the local Cooktown Orchid population within 5km of the township of Pormpuraaw was undertaken to capture data on the abundance and distribution of the species. Survey effort was applied between Moonkan River in the north and the Chapman River in the South and 5km to the east (see **Figure 6**). Desktop assessment and data collected from the field assessment (May 2023) determined that the local population of the Cooktown Orchid was restricted to the vine thicket community RE 3.2.2. All vine thicket (RE 3.2.2) was mapped prior to the survey to determine search areas. Vegetation mapping REDD v 13.1 was used to determine the extent of potential habitat. The local population for the Cooktown Orchid population was defined as occurring within ~247.9 ha of RE 3.2.2 as per REDD v13.1 (see **Figure 6**).

On the 10th of December 2025, 500 m² transects were positioned within suitable habitat for the Cooktown Orchid to the north and south of the township of Pormpuraaw. A total of four (4) transects were placed at the north and south of the project site within RE 3.2.2. A total of eight (8) transects were surveyed in total. For each plot, a 50 m transect was run in an approximate east to west orientation with 5 m either side of the transect marked out with flagging tape to define the 500 m² boundary. Two observers search the entire plot scanning limbs of all trees and recording number of individuals orchids on each tree and recording a GPS coordinate. The total

number of orchids recorded within each 500 m² plot was then recorded for each of the eight (8) plots to gain an average abundance of Cooktown Orchids within the local population.

2.2.2.3 Regional Ecosystem Verification

Delineation of regional ecosystem distributions across the project site was achieved using quaternary level assessments, or rapid plots, as per the QBEIS methodology v7.0 (Neldner et al. 2023). These assessments are designed to capture information quickly, targeting soils, landforms and key species within each vegetation structural layer. This information is generally sufficient to determine the identity of a regional ecosystem. This then allows the confirmation or alteration of regional ecosystem polygon boundaries when mapping vegetation communities across the project site. A total of 8 quaternary level assessments were undertaken throughout the project site.

This figure contains sensitive environmental information and has been excluded from the public review version of this report. The complete unredacted version has been supplied to DCCEEW for assessment.

Figure 4 Northern Project Alignment - locations of protected plants (*D. bigibbum*)

This figure contains sensitive environmental information and has been excluded from the public review version of this report. The complete unredacted version has been supplied to DCCEEW for assessment.

Figure 5 Southern project alignment – locations of protected plants (*D. bigibbum*)



Figure 6 Local Population Survey Area Including all mapped RE 3.2.2 and Transect Start Point Locations

2.3 General Fauna Habitat Searches

During the vegetation assessments undertaken throughout the property (**Figure 3**), data was collected on areas of the project site determined to be most likely to support threatened fauna species were targeted. Habitat searches were undertaken throughout the project site to determine suitability for potentially occurring threatened species. General fauna habitat condition recorded as below:

- ▶ Structural and floristic characteristics of the vegetation
- ▶ Disturbance history (fire/ flood/clearing/feral digging etc.)
- ▶ Presence/absence of suitable habitat for EVNT species
- ▶ Location of site within known distribution of the species
- ▶ Connectivity with habitat where species is known to occur
- ▶ Soil type and structure (visual only)
- ▶ Presence of water in any form e.g., rivers, dams, creeks, drainage lines, soaks
- ▶ Size and abundance of hollows and coarse woody debris (CWD)
- ▶ Presence of decorticated bark
- ▶ Presence of rock crevices, boulders, grass cover etc.
- ▶ Presence of sandbanks, shallow wading areas, rock walls, saltmarsh, roost areas, etc.
- ▶ Presence of mistletoe, nectar, gum, seed, sap sources, browse trees

Results of the field survey are provided in **Section 5.0**.

2.3.1.1 *Opportunistic Fauna Surveys* (diurnal)

All diurnal fauna observed on the project site were continuously recorded during the field survey in May 2023 and December 2025. A total of six (6) days data is recorded across the two (2) survey efforts. All visual and acoustic observations were recorded and attributed to the project site. Low wind and clear skies were constant throughout the survey effort resulting in ideal conditions for detection.

Results of the field survey are provided in **Section 5.0**.

3.0 Desktop Analysis Results

3.1 Matters of National and State Environmental Significance

Desktop searches for potentially occurring threatened species and habitats were conducted under both the *Environment Protection and Biodiversity Act 1999* (EPBC Act) and the *Nature Conservation Act 1992* (NC Act). Results from both databases (Protected Matters Search Tool and Wildlife Online Database) are detailed in **Appendix A**.

3.2 NC Act Wildlife Online

The Wildlife Online database search tool returned records for 42 NC Act listed species. These species comprised (12) birds, three (3) mammal, two (2) reptile and twelve (1) plant. See **Appendix C** for the complete search results.

3.3 EPBC Act Protected Matters Search Tool (Species)

Database searches under the Protected Matters Search Tool (PMST) returned a result of 29 listed threatened species. All marine turtles, cetaceans and shark species were discounted due to a distinct lack of suitable habitat within the terrestrial environment of the project site. The refined list for the potential occurrence assessment included a total of 14 species. This included eight (8) birds, four (4) mammal and two (2) plants. **Appendix B** provides the complete search results for the PMST search tool.

An assessment for the potential occurrence of these species on the project site, for both the EPBC and NC threatened species, is provided in **Appendix A**. **Table 2** below provides a summary list for these species and their relevant state and federal legislative listing.

Table 2 List of Potentially Occurring Threatened Species

Common Name	Scientific Name	Status EPBC Act	Status NC Act
Threatened Fauna			
Birds			
Red Knot	<i>Calidris canutus</i>	E	E
Curlew Sandpiper	<i>Calidris ferruginea</i>	CE	E
Great Knot	<i>Calidris tenuirostris</i>	CE	CR
Greater Sand Plover	<i>Charadrius leschenaultii</i>	V	-
Lesser Sand Plover	<i>Charadrius mongolus</i>	E	E
Red Goshawk	<i>Erythrotriorchis radiatus</i>	V	E
Beach Stone-curlew	<i>Esacus magnirostris</i>	-	V
White-throated Needletail	<i>Hirundapus caudacutus</i>	V	V

Common Name	Scientific Name	Status EPBC Act	Status NC Act
Bar-tailed Godwit (<i>baueri</i>)	<i>Limosa lapponica baueri</i>	V	V
Eastern Curlew	<i>Numenius madagascariensis</i>	CE	E
Golden Shouldered Parrot	<i>Psephotus chrysopterygius</i>	E	E
Australian Painted Snipe	<i>Rostratula australis</i>	E	V
Masked Owl (northern)	<i>Tyto novaehollandiae kimberli</i>	V	V
Reptiles			
Merten's Water Monitor	<i>Varanus mertensi</i>	-	E
Estuarine Crocodile	<i>Crocodylus porosus</i>	-	V
Mammals			
Northern Quoll	<i>Dasyurus hallucatus</i>	-	E
Ghost Bat	<i>Macroderma gigas</i>	V	E
Bare-rumped Sheath-tailed Bat	<i>Saccolaimus saccolaimus nudicluniatus</i>	V	E
Water Mouse	<i>Xeromys myoides</i>	V	V
Threatened Flora			
Cooktown Orchid	<i>Dendrobium bigibbum</i>	V	V
Chocolate Tea Tree Orchid	<i>Dendrobium johannis</i>	V	V
Key: Ex: extinct, CE/CR: Critically Endangered; E: Endangered; V: Vulnerable; NT: Near Threatened			

3.4 EPBC Act and MNES Search Tool (Places of Environmental Significance)

Matters of National Environmental Significance (MNES) are matters pursuant to the *EPBC Act 1999*. The results of the MNES search, which provides details on environmentally significant areas and habitat types, is provided in **Table 3** below. To conduct this search tool, a 10-kilometre radius buffer was added around a central point in the project site. This provides results for all possible MNES matters that may occur on the property.

Table 3 PMST results (Significant Places)

Category	Result
Matters of National Environmental Significance	
World Heritage Properties	None
National Heritage Places	None
Wetlands of International Importance	None
Great Barrier Reef Marine Park	None
Commonwealth Marine Area	1
Listed Threatened Ecological Communities	None

Category	Result
Listed Threatened Species	29
Listed Migratory Species	44
Other Matters Protected by the EPBC Act	
Commonwealth Land	None
Commonwealth Heritage Places	None
Listed Marine Species	77
Whales and other cetaceans	10
Critical Habitats (Marine Turtles)	2
Commonwealth Reserves Terrestrial	None
Commonwealth Reserves Marine	None
Nationally Important Wetlands	3

3.5 Migratory and Marine Species

A total of 23 migratory and/or marine species (adjusted for the exclusion of species solely dependent on aquatic marine habitats) listed under the *EPBC Act 1999* were identified in the Protected Matters Search Tool (PMST) search report. A summarised list of these species is provided in **Table 4** below. **Appendix B** Error! Reference source not found. provides the potential occurrence assessment results for each species listed under the PMST search tool.

Table 4 Migratory Species

Common name	Scientific name	EPBC Act Status	NCA Act status
Common Sandpiper	<i>Actitis hypoleucos</i>	Ma, Mi	SL
Common Noddy	<i>Anous stolidus</i>	Ma, Mi	SL
Fork-tailed Swift	<i>Apus pacificus</i>	Mi, Ma	SL
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	Ma, Mi	SL
Red Knot	<i>Calidris canutus</i>	E, Mi	E
Curlew Sandpiper	<i>Calidris ferruginea</i>	CE, Ma, Mi	E
Pectoral Sandpiper	<i>Calidris melanotos</i>	Ma, Mi	SL
Streaked Shearwater	<i>Calonectris leucomelas</i>	Ma, Mi	SL
Red-rumped Swallow	<i>Cecropis daurica</i>	Mi, Ma	SL
Greater Sand Plover	<i>Charadrius leschenaultii</i>	V, Ma, Mi	V
Oriental Cuckoo	<i>Cuculus optatus</i>	Mi	SL
Lesser Frigatebird	<i>Fregata ariel</i>	Mi, Ma	SL

Great Frigatebird	<i>Fregata minor</i>	Mi, Ma	SL
Latham's Snipe	<i>Gallinago hardwickii</i>	Ma, Mi	SL
Oriental Pratincole	<i>Glareola maldivarum</i>	Ma, Mi	SL
Barn Swallow	<i>Hirundo rustica</i>	Mi, Ma	SL
Bar-tailed Godwit (<i>baueri</i>)	<i>Limosa lapponica baueri</i>	V, Ma, Mi	V
Eastern Curlew	<i>Numenius madagascariensis</i>	CE, Ma, Mi	E
Eastern Osprey	<i>Pandion cristatus</i>	Ma, Mi	SL
White-tailed Tropic Bird	<i>Phaethon lepturus</i>	Ma, Mi	SL
Little Tern	<i>Sternula albifrons</i>	Ma, Mi	SL
Common Greenshank	<i>Tringa nebularia</i>	Ma, Mi	SL
Estuarine Crocodile	<i>Crocodylus porosus</i>	Ma, Mi	V
Key: Mi: Migratory, Ma: Marine, Ex: extinct, CR/CE: Critically Endangered; E: Endangered; V: Vulnerable; NT: Near Threatened, SL : Special Least Concern			

3.6 Regional Ecosystem Mapping

Table 5 Project site ground-verified Regional Ecosystems (REs) - northern and southern expansion areas combined

RE & VM Act / Biodiversity status ¹	Clearing Area m ²	Description (REDD v 13.1) ³	Structural density	Canopy height	Location	Site value ⁴	Project site photo
Cape York bioregion – Land Zone 2 – Quaternary coastal sand deposits							
RE 3.2.2 Least Concern / No Concern at Present	7.27 ha	Semi-deciduous vine thicket. Dominated by a mixture of deciduous and evergreen species with <i>Canarium australianum</i> , <i>Terminalia muelleri</i> , <i>Miliusa traceyi</i> , <i>Erythrina vespertilio</i> , <i>Mimusops elengi</i> , <i>Ficus virens</i> , <i>Millettia pinnata</i> the principal deciduous species. The evergreen species often include <i>Syzygium suborbiculare</i> , <i>Litsea glutinosa</i> , <i>Neofabricia myrtifolia</i> , <i>Archidendron grandiflorum</i> , <i>Thryptomene oligandra</i> , <i>Ganophyllum falcata</i> and <i>Cupaniopsis anacardioides</i> . Occasional emergents are present <i>Bombax ceiba</i> , <i>Maranthes corymbosa</i> <i>Ficus</i> spp. A subcanopy and/or shrub layer usually includes <i>Exocarpos latifolius</i> , <i>Eugenia reinwardtiana</i> , <i>Ixora timorensis</i> , <i>Manilkara kauki</i> and <i>Drypetes deplanchei</i> as well as canopy species. Thin stemmed vines such as <i>Abrus precatorius</i> , <i>Tinospora smilacina</i> , <i>Flagellaria indica</i> , <i>Cayratia cardiophylla</i> , <i>Hoya australis</i> and <i>Cissus adnata</i> are present in both the canopy and lower layers. The ground layer is very sparse and composed of predominantly graminoids. Occurs on beach dunes and ridges along more sheltered and fire protected areas that permit vine thicket development.	Dense	4-15 m	The dominant vegetation community within the direct clearing alignment (see Figure 7 and 8).	Potential habitat for NC Act listed species: <i>Dendrobium bigibbum</i> . Provides a highly complex habitat structure and diversity for a wide variety of flora and fauna. Pre-clear extent = 21 000 ha; 2021 extent = 21 000 ha	

RE & VM Act / Biodiversity status ¹	Clearing Area m ²	Description (REDD v 13.1) ³	Structural density	Canopy height	Location	Site value ⁴	Project site photo
RE 3.2.3 Least Concern / No Concern at Present	0.00 ha	<i>Melaleuca dealbata</i> and/or <i>Melaleuca leucadendra</i> open forest, commonly with a sub canopy of juvenile canopy species and <i>Lophostemon suaveolens</i> , <i>Acacia crassicaarpa</i> , and <i>Syzygium suborbiculare</i> . The very sparse to mid-dense shrub layer contains canopy species with occasional <i>Cyclophyllum coprosmoides</i> , <i>Timonius timon</i> , <i>Dillenia alata</i> , <i>Livistona muelleri</i> , <i>Pandanus cookii</i> . The dense to sparse ground layer contains <i>Imperata cylindrica</i> , <i>Ischaemum fragile</i> , <i>Sacciolepis myosuroides</i> , <i>Euploca ovalifolia</i> and <i>Lomandra</i> spp. Occurs in swales behind frontal dunes or in dune fields.	Mid-dense	15-20 m	Present outside of the direct clearing alignment. To the east of the northern expansion area (see Figure 3).	Pre-clear extent = 18 000 ha; 2021 extent = 17 000 ha	
RE 3.2.5a Least Concern / No Concern at Present	0.3 ha	<i>Acacia crassicaarpa</i> and/or <i>A. torulosa</i> open forest to woodland. <i>Syzygium suborbiculare</i> and <i>Parinari nonda</i> are occasional canopy trees. The ground layer is short and very sparse to mid-dense and contain <i>Schizachyrium fragile</i> , <i>Panicum</i> spp., <i>Heteropogon contortus</i> , <i>Eragrostis</i> spp., <i>Themeda arguens</i> associated with beach ridges that are subject to regular fire disturbance. Not a wetland.	Sparse	5-10m	Present within the direct clearing alignment in minor patches <10m ² in area (see Figure 3).	Pre-clear extent = 39 000 ha; 2021 extent = 39 000 ha	

RE & VM Act / Biodiversity status ¹	Clearing Area m ²	Description (REDD v 13.1) ³	Structural density	Canopy height	Location	Site value ⁴	Project site photo
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¹ VMA status/Biodiversity status: E=endangered, OC=of concern, LC=least concern (VMA only), NC=not of concern at present (biodiversity only). REs with a letter postfix are a sub-unit of the main RE e.g. 3.2.5a is sub-unit ‘a’ of RE 3.2.5 and has the same VMA and Biodiversity status as the main RE.

² Area proposed to be cleared. This is represented in hectares and is post RE ground truthing and remapping (4 Elements, 2023).

³ Regional Ecosystem Description Database version 13.1 (Department of Environment Science and Innovation, 2023).

⁴ Pre-clear and 2021 RE extents are from Regional Ecosystem Description Database version 13.1 (Department of Tourism, Environment, Science and Innovation, 2023).

3.7 Essential Habitat

Regulated vegetation (essential habitat) occurs within portions of the project site for the following species:

- ▶ Cooktown Orchid (*Dendrobium bigibbum*)

For the essential habitat mapping output see **Appendix D**.

3.8 Protected Plant Trigger Area

The entire project site is mapped within a high risk protected plant trigger area. Vegetation clearance within these areas will require a protected plant survey as per the Flora Survey Guidelines - Protected Plants will be required.

For the Protected Plant Trigger mapping output see **Appendix D**.

3.9 Invasive Weeds (Desktop)

Two (2) weeds of national significance (WoNS) were recorded in the desktop assessment – Hymenachne (*Hymenachne amplexicaulis*) and Rubber Vine (*Cryptostegia grandiflora*).

No prohibited invasive weeds, listed under the *Biosecurity Act 2014*, were recorded in the desktop assessment.

Two (2) category 3 restricted invasive weeds were recorded in the desktop assessment – Hymenachne (*Hymenachne amplexicaulis*) and Rubber Vine (*Cryptostegia grandiflora*).

Three (3) Cook Shire Area High Priority Invasive Plant was recorded in the desktop assessment – Leucaena (*Leucaena leucocephala*) (25), Hymenachne (*Hymenachne amplexicaulis*) (36) and Rubber Vine (*Cryptostegia grandiflora*) (32).

4.0 Field Survey Results (Flora)

4.1 Project site flora survey

A detailed vegetation assessment was undertaken within each of the proposed urban expansion areas (the project site). It was determined that two (2) Least Concern REs were present within the direct clearing alignment for both urban expansion areas (**Figure 3**). An additional RE was mapped outside of the project site which is also described below.

4.2 Northern Urban Expansion Area Vegetation Description

4.2.1 Semi-deciduous vine thicket – RE 3.2.2

The northern urban expansion area within well drained areas supports around 4.30 ha of vine thicket that is within the direct clearing alignment. Dominant canopy species comprise *Ganophyllum falcatum*, *Mimusops elengi*, *Gyrocarpus americanus*, *Ficus virens* and *Litsea glutinosa* as closed semi-deciduous vine thicket to a height of 12 m on old, deflated sand dunes (see **Plate 1** below). The understory was comprised of *Sersalisia sericea*, *Diospyros geminata*, *Pleurostyliia opposita*, *Miliusa traceyi* and *Phyllanthus novae-hollandiae* (2-4 m). Where the canopy cover was reduced, a ground layer of *Panicum* spp., *Dicliptera ciliata*, *Plumbago zeylanica* was present. Hollow-bearing trees were rarely encountered throughout the canopy layer. When present, they were generally dead standing trees. Coarse woody debris was frequently encountered in the ground layer. Vines were abundant and consisted predominantly of thin stemmed species *Pisonia aculeata*, *Abrus precatorius*, *Trophis scandens* and *Parsonsia velutina*. The dominant epiphyte was the Cooktown orchid (*D. bigibbum*) which was abundant in the lower structural layers of moderately open areas of vegetation.

4.2.2 *Acacia crassicaarpa* open forest and grassland – RE 3.2.5a

Where canopy gaps have formed through storm activity and vegetation clearing for vehicle tracks, areas of dry open forest and grassland occur. These areas were minor in occurrence and support *Acacia crassicaarpa* low open forest with a grassy understory supporting *Themeda arguens*, *Ectrosia leporina*, *Panicum trichoides* and *Perotis rara*. These areas were closely aligned with RE 3.2.5a and poorly developed, being minor in extent and comprising approximately 0.23 ha of the direct clearing alignment.

4.2.3 *Melaleuca* spp. open forest – RE 3.2.3

Outside of the direct clearing alignment, an ephemeral vegetated swamp community was present to the east of the northern urban expansion area. This community was representative of RE 3.2.3 (see **Plate 2** below). This

community supports an open forest with a canopy comprised of *Melaleuca dealbata* and *M. fluviatilis* to 15-18 m. An understory includes juvenile canopy trees *Planchonia careya*, *Syzygium suborbiculare*, *Syzygium eucalyptoides*, and *Pandanus spiralis* (4-8 m). A dense grassy ground layer was comprised of *Chrysopogon elongata* and *Pseudopogonatherum contortum*. This community which occurs outside of the proposed northern urban expansion area, is partially mapped as a High Ecological Significance (HES) wetland. No vegetation clearing is proposed within this vegetation community.



Plate 1 Semi-deciduous vine thicket (within the direct clearing alignment)



Plate 2 Ephemeral wetland with Melaleuca spp. open forest



Figure 7 Northern Urban Expansion Ground-verified Regional Ecosystem Map and trees bearing orchids within the proposed clearing area

4.3 Southern urban expansion area - vegetation description

4.3.1 Semi-deciduous vine thicket – RE 3.2.2

Within the direct clearing alignment of the southern urban expansion area, around 2.97 ha of semi-deciduous vine thicket is present. The canopy comprises *Ganophyllum falcatum*, *Mimusops elengi*, *Canarium australianum*, *Gyrocarpus americanus*, *Ficus virens* and *Litsea glutinosa* low closed semi-deciduous vine thicket to a height of 6-12 m on old, deflated sand dunes (see **Plate 3** below). The understory was predominantly comprised of *Sersalisia sericea*, *Aidia racemosa*, *Diospyros geminata*, *Thryptomene oligandra*, *Miliusa traceyi* and *Millettia pinnata* (2-4 m). Where the canopy cover was reduced a ground layer of *Panicum spp.*, *Dicliptera ciliata*, *Plumbago zeylanica* was present. Hollow bearing trees were rarely encountered throughout the canopy layer. When present, they were generally dead standing trees. Coarse woody debris was frequently encountered in the ground layer. Vines were abundant and consisted predominantly of thin stemmed species *Jasminum didymum*, *Abrus precatorius*, *Flagellaria indica* and *Parsonsia velutina*. The dominant epiphyte was the Cooktown orchid (*D. bigibbum*) was abundant in the lower structural layers of moderately open areas of vegetation.

4.3.2 *Acacia crassicarpa* open forest and grassland – RE 3.2.5a

Where canopy gaps have formed through storm activity and vegetation clearing for vehicle tracks, areas of dry open forest and grassland occur. These areas were minor in occurrence and support *Acacia crassicarpa* low open forest which was sparse to absent with a grassy understory supporting *Spermacoce stenophylla*, *Themeda arguens*, *Ectrosia leporina* and *panicum trichoides*.

4.3.3 *Melaleuca* spp. open forest – RE 3.2.3

Approximately 180 m west of the western project site boundary of the southern urban expansion area, a vegetated swamp is present (RE 3.2.3) (see **Plate 4** below). The swamp supports open forest with a canopy comprised of *Melaleuca bracteata* and *M. fluviatilis* to 15-18 m. An understory included juvenile canopy trees, *Planchonia careya*, *Syzygium suborbiculare*, *Timonius timon*, *Hakea persiehana* and *Pandanus spiralis* (4-8 m). A dense grassy ground layer was comprised of *Chrysopogon elongata* and *Pseudopogonatherum contortum*. This community is not mapped as a HES wetland.



Plate 3 Semi-deciduous vine thicket (direct clearing alignment)



Plate 4 Ephemeral wetland with Melaleuca spp. open forest



Figure 8 Southern Urban Expansion Ground-verified Regional Ecosystem Map

4.3.4 Southern Urban Expansion Area Vegetation Description

The southern urban expansion area (~3.04ha) within well drained areas supports (RE 3.2.2) *Ganophyllum falcatum*, *Mimusops elengi*, *Canarium australianum*, *Gyrocarpus americanus*, *Ficus virens* and *Litsea glutinosa* low closed semi-deciduous vine thicket to a height of 6-12 m on old, deflated sand dunes (see **Plate 3** below). The understory was predominantly comprised of *Sersalisia sericea*, *Aidia racemosa*, *Diospyros geminata*, *Thryptomene oligandra*, *Miliusa traceyi* and *Millettia pinnata* (2-4m). Where the canopy cover was reduced a ground layer of *Panicum spp.*, *Dicliptera ciliata*, *Plumbago zeylanica* was present. Hollow bearing trees were rarely encountered throughout the canopy layer. When present, they were small in aperture (< 5cm diameter) and with dead standing trees. Coarse woody debris was frequently encountered in the ground layer. Vines were abundant and consisted predominantly of thin stemmed species *Jasminum didymum*, *Abrus precatorius*, *Flagellaria indica* and *Parsonsia velutina*. The dominant epiphyte was the Cooktown Orchid (*Dendrobium bigibbum*) was abundant in the lower structural layers of moderately open areas of vegetation.

Where canopy gaps have formed through storm activity and vegetation clearing for vehicle tracks etc. areas of dry open forest and grassland occur. These areas were minor in occurrence and support *Acacia crassicarpa* low open forest which was sparse to absent with a grassy groundlayer supporting *Spermacoce stenophylla*, *Themeda arguens*, *Ectrosia leporina* and *panicum trichoides*.

Approximately 180m west of the western project site boundary of the southern urban expansion area, a swamp is present (RE 3.2.3) (See **Plate 4** below). The swamp supports open forest with a canopy comprised of *Melaleuca bracteata* and *M. fluviatilis* to 15-18 m. An understory included juvenile canopy trees, *Planchonia careya*, *Syzygium suborbiculare*, *Timonius timon*, *Hakea persiehana* and *Pandanus spiralis* (4-8 m). A dense grassy ground layer was comprised of *Chrysopogon elongata* and *Pseudopogonatherum contortum*. This community is not mapped as a High Ecological Significance wetland.

4.4 Native Flora

The vegetation assessment within both the northern and southern urban expansion areas recorded a total of 131 flora species represented by 56 families. The dominant plant families were Poaceae (16 species), Myrtaceae (6 species) and Rubiaceae (5 species). A full list of flora species is provided within **Appendix E** below.

4.5 Threatened Flora

A single threatened species was detected during the vegetation survey within the project site. The likelihood of occurrence of all other potential threatened species are assessed individually within **Appendix A**.

4.5.1 *Dendrobium bigibbum* – Endangered EPBC Act 1999 & NC Act 1999

Dendrobium bigibbum (Cooktown Orchid) is a member of the Orchidaceae family. It has a broad distribution occurring from Cairns through to Cape York (DCCEEW 2023). It is an epiphytic or lithophytic species that occurs within areas of the landscape sheltered from fire. This may include coastal scrub, stream bank vegetation, monsoon thickets and gullies in open forest (DCCEEW 2023). Within suitable vegetation communities it occurs in areas of moderate light intensity. This species is known to rapidly colonise disturbed sites (Jones 2010).

4.5.1.1 Project Site Population Assessment

The most recent field survey undertaken for the project (December 2025) recorded an abundant population of Cooktown Orchids (*Dendrobium bigibbum*) within the project site which includes a 100m buffer of the clearing alignment. A total of 2913 individuals were recorded and mapped for the assessment.

Within the direct clearing alignment, a total of 474 individuals were recorded in the northern expansion area, and 557 individuals were recorded in the southern expansion area within the direct clearing alignment (lots + 22.5m asset protection buffer) (refer **Figure 4** & **Figure 5**). Despite searches in adjacent habitat types, all Cooktown orchids were restricted to semi-deciduous vine thicket associated growing on old deflated coastal sand dunes dominated by a low closed forest canopy (10 m) *Ganophyllum falcatum*, *Mimusops elengi*, *Canarium australianum*, *Gyrocarpus americanus* and *Ficus virens*.

The Cooktown Orchids present were most frequently recorded between 1-3m above the ground on understory trees in areas in moderately light exposed situations see **Plate 5** and **Plate 6** below. Plants were absent from deeply shaded situations and very few individuals were recorded in areas of high exposed situation. Data collected for the original Ecological Assessment for the project (May 2023) determined that Cooktown Orchids were recorded growing epiphytically within a total 27 different tree species. The most common host tree was the Wild Prune (*Sersalisia sericea*) which hosted a total of ~50% of the individual Cooktown Orchids recorded in the project site. The location data, number of orchids and host tree data is located in **Appendix F**.

No other threatened flora species were located within the project site (direct clearing alignment or 100m search buffer). It is considered unlikely that any listed threatened flora species would have the potential to occur within the project site based on the potential occurrence assessment (see **Appendix A**).

4.5.1.2 Pormpuraaw Local Population

Targeted assessment of the local Cooktown orchid population undertaken in December 2025 mapped the extent of the population and provided an estimate of abundance. Absolute counts of Cooktown Orchids within the proposed clearing alignment and 100 m buffer determined an estimate of 148 individuals per hectare. Estimates of the wider population using 500m² transects determined an estimate of 330 individuals per hectare across 227 ha of suitable habitat RE 3.2.2 within the local population survey area (see **Figure 6**).



Plate 5 Flowering *Dendrobium biggibum* Located in the Southern Urban Expansion Area



Plate 6 Mature Flowering Epiphyte on the Low Branches of a *Terminalia muelleri*

4.6 Weeds

For the purpose of this report, weeds are defined as all species categorised as invasive under the *Qld Biosecurity Act 2014* and the Qld Herbarium (Brown & Bostock 2019). A list of all exotic species recorded within the project site is included in **Table 6**.

- ▶ No WoNS were recorded within the project site.
- ▶ No prohibited or restricted invasive species, *Biosecurity Act 2014*, were recorded within the project site.
- ▶ Sicklepod Category 3 Restricted Invasive
- ▶ No Cook Shire Priority listed weeds were recorded within the project site.

A notable characteristic of the project site is the general lack of weeds within remnant vegetation greater than 50 m from human disturbance. Weeds were mostly restricted to roadside vegetation and adjacent to residential dwellings. The most common weeds were Hyptis (*Mesosphaerum suaveolens*), *Sida acuta*, Neem (*Azadirachta indica*), Tridax Daisy (*Tridax procumbens*). Outside of disturbed areas the remnant vegetation was largely free of weeds with weed cover visually observed to be less than 1%.

The most significant weed recorded during the field survey was Neem (*Azadirachta indica*) (see **Plate 7**). This species was rarely present within the project site. Although it was recorded within remnant vine thicket vegetation more commonly than on the edges of human disturbance. This species was recorded in both the northern and southern urban expansion areas are listed in the below **Table 6**.

Table 6 Weed Species Recorded Within the Project Site

Scientific name	Common name	WONS listing	Biosecurity Act 2014 status
<i>Alternanthera ficoidea</i>	Joyweed	No	Not Listed
<i>Azadirachta indica</i>	Neem	No	Not listed
<i>Ipomoea triloba</i>	Ipomoea	No	Not Listed
<i>Macroptilium atropurpureum</i>	Siratro	No	Not listed
<i>Mesosphaerum suaveolens</i>	Hyptis	No	Not Listed
<i>Physalis angulata</i>	Physalis	No	Not Listed
<i>Rottboellia cochinchinensis</i>	Itch Grass	No	Not Listed
<i>Senna occidentalis</i>	Sicklepod	No	Category 3
<i>Tridax procumbens</i>	Tridax Daisy	No	Not listed



Plate 7 Neem Tree Growing in Remnant RE 3.2.2 in the Southern Expansion Area

5.0 Fauna Survey Results

5.1 Fauna Habitat Characteristics

A habitat characteristics survey was conducted following the *Queensland Terrestrial Vertebrate Fauna Survey Guidelines* to assess the abundance of crucial habitat characteristics, aiming to evaluate the potential value for threatened species on the property. The below **Table 7** identifies habitat attributes for threatened fauna and if present the assessment determines the site-specific value of these features to potentially occurring threatened fauna.

Table 7 Fauna Habitat Values of the Project Site

Habitat type	Project site	Potential value for threatened species
Connectivity	The project site is highly connected to the surrounding landscape. Land surrounding the Pormpuraaw township is dominated by remnant vegetation. Extensive and continuous stands of vine thicket RE 3.2.2 occur to the north and south of the urban expansion areas. To the east and west of the project site extensive estuarine and freshwater wetlands occur over vast low plains.	The proposed clearing alignment is located on the edge of the existing township and will not impact connectivity of threatened species within the locality. The project site provides connectivity in the locality for EPBC Act 1999 listed threatened species, • Cooktown Orchid • White-throated needletail (flyover only)
Vegetative ground cover	Within the vine-thicket, ground cover is present as herbaceous annuals in areas where canopy cover is low to allow sun penetration. Within the Melaleuca swamp, ground cover consists of dense stands of <i>Chrysopogon elongata</i> and <i>Pseudopogonatherum contortum</i> .	Generic foraging and dispersal habitat for • White-throated needletail (flyover only)

Habitat type	Project site	Potential value for threatened species
Leaf-litter	Leaf litter accumulation was moderate in dense canopy areas in both the vine thicket (RE 3.2.2) and Melaleuca swamps (RE 3.2.3). It was generally less than 20 mm in depth when present. In exposed situations where canopy cover was limited, leaf litter was generally absent being replaced with grass cover or bare sand.	Significant contribution to nutrient cycling. No specific threatened species value.
Coarse woody debris (CWD)	Coarse woody debris was frequent across the vine thicket communities (RE 3.2.2). Large logs >10cm diameter were commonly observed. Within the Melaleuca swamps RE 3.2.3, the sparse canopy and frequent fire interval reduces availability of this resource.	No specific threatened species value.
Tree hollows	Within the vine thicket communities RE 3.2.2 hollow bearing trees were rarely observed. When present they occurred in dead stags and complex aerial root structures of large <i>Ficus</i> spp. Large <i>Melaleuca dealbata</i> contained small (<5cm) diameter branch hollows.	No specific threatened species value.
Primary nectar sources	Within the vine thicket communities RE 3.2.2 a diverse mix of flowering trees were present.	No specific threatened species value.
Rock Outcrops and Boulder Piles	The coastal sands, alluvial sediments and estuarine sediments do not contain any large rock material.	No specific threatened species value.
Water Sources	Limited to ephemeral swamps within the Melaleuca swamps RE 3.2.3.	No specific threatened species value.

5.2 Opportunistic Fauna

A total of 36 fauna species were recorded during the field survey (1 reptile, 2 amphibians and 33 Birds) **Table 8** identifies all individuals detected during the survey period. No species listed under *Nature Conservation Act 1992* (NCA) and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) were recorded in the field survey of the project site.

Table 8 Opportunistic Fauna Records Northern and Southern Expansion Area Combined

Common Name	Scientific Name	EPBC Act Status	NC Act Status
Bird			
Australian Figbird	<i>Specotheres vielloti</i>	-	LC
Bar-shouldered Dove	<i>Geopelia humeralis</i>	-	LC
Black-faced Cuckoo-shrike	<i>Coracina novaehollandiae</i>	-	LC
Black Kite	<i>Milvus migrans</i>	-	LC
Black-throated Finch	<i>Poephila cincta</i>	-	LC
Blue-winged Kookaburra	<i>Dacelo leachii</i>	-	LC
Crimson Finch (white-bellied)	<i>Neochmia phaeton evangelinae</i>	-	LC
Double-barred Finch	<i>Stizoptera bichenovii</i>	-	LC
Forest Kingfisher	<i>Todiramphus macleayii</i>	-	LC
Galah	<i>Eolophus roseicapilla</i>	-	LC
Leaden Flycatcher	<i>Myiagra rubecula</i>	-	LC
Little Bronze Cuckoo	<i>Chrysococcyx minutillus</i>	-	LC
Little Egret	<i>Egretta garzetta</i>	-	LC
Little Friarbird	<i>Philemon citreogularis</i>	-	LC
Lovely Fairy-wren	<i>Malurus amabilis</i>	-	LC
Mistletoebird	<i>Dicaeum hirundinaceum</i>	-	LC
Olive-backed Oriole	<i>Oriolus sagittatus</i>	-	LC
Olive-backed Sunbird	<i>Cinnyris jugularis</i>	-	LC
Peaceful Dove	<i>Geopelia striata</i>	-	LC
Purple-wattled Brush Turkey	<i>Alectura lathamii purpureicollis</i>	-	LC
Rainbow Bee-eater	<i>Merops ornatus</i>	-	LC
Rainbow Lorikeet	<i>Trichoglossus haematodus</i>	-	LC
Red-browed Finch	<i>Neochima temporalis</i>	-	LC
Red-headed Myzomela	<i>Myzomela erythrocephala</i>	-	LC
Red-tailed Black Cockatoo	<i>Calyptorhynchus banksii banksii</i>	-	LC
Sahul BrushCuckoo	<i>Cacomantis variolosus</i>	-	LC

Common Name	Scientific Name	EPBC Act Status	NC Act Status
Torresian Imperial Pigeon	<i>Ducula spilorrhoa</i>	-	LC
Welcome Swallow	<i>Hirundo neoxena</i>	-	LC
Whistling Kite	<i>Haliastur sphenurus</i>	-	LC
White-bellied cuckoo shrike	<i>Coracina papuensis</i>	-	LC
White-breasted Woodswallow	<i>Artamus leucorhynchus</i>	-	LC
White-throated Honeyeater	<i>Melithreptus albogularis</i>	-	LC
Amphibians			
Ornate Burrowing Frog	<i>Platyplectrum ornatum</i>	-	LC
Green Tree Frog	<i>Ranoidea caerulea</i>	-	LC
Reptiles			
Six-toothed Rainbow Skink	<i>Carlia sexdentata</i>	-	LC
Mi: Migratory, Ma: Marine, CE: Critically Endangered, E: Endangered, V: Vulnerable, NT: Near Threatened, SLC: Special Least Concern			

5.3 Threatened Fauna

Based on the potential occurrence assessment of the clearing alignment a single threatened fauna species is considered a potential to occur within the vine thicket community of project site (see **Appendix A**). All suitable habitat for fauna species listed as CEEVNT under the EPBC Act 1999 and/or the Nc Act 1992 have been avoided in the design of the proposal. Avoidance of the *Melaleuca* spp. wetland community RE 3.2.3 was designed to avoid residual impacts on the High Ecological Significance Wetland (MSES) and the Crimson Finch (white-bellied) which was recorded in the community and listed under the NC Act and EPBC Act as Endangered in May 2023 and subsequently de-listed. The single fauna species considered a moderate potential to occur within the project site is described below.

5.3.1 White-throated needletail (*Hirundapus caudacutus*)

In Australia, the white-throated needletail is almost exclusively aerial, spending almost all of its life foraging up to more than 1000 m above the ground (Higgins, 1999). Because they are aerial, it has been stated that conventional habitat descriptions are inapplicable, but there are, nevertheless, certain preferences exhibited by the species. Although they occur over most types of habitat, they are probably recorded most often above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy (Higgins 1999).

There are four (4) records within 10 km of the project site and this species wide range of habitat preferences and ability to forage across various vast areas, it is likely that it would occur on the property. However, occurrence would be restricted to aerial foraging, given that roosting areas (larger, wooded patches) are absent from the

project's development footprint. Given this, a significant impact to this species resulting from the project's development, is unlikely.

5.4 Migratory Marine Species

A total of 21 *EPBC Act 1999* listed migratory and or marine species were considered individually for their potential to be present adjacent to the project during the field survey associated with the proposed clearing alignment. Based on the potential occurrence assessment of the clearing alignment a single migratory fauna species is considered a potential to occur within the vine thicket community of project site (see **Appendix A**). This species is described below.

- ▶ Fork tailed swift (*Apus pacificus*)

The Fork-tailed Swift is migratory species will not accumulate in significant numbers locally to lead to the project having a disturbance on large numbers of individuals. It is considered highly unlikely that the vegetation clearance, in an area of non-remnant vegetation, will impact on ecologically significant habitat for this species, such that it interferes with the breeding, foraging or roosting of migratory species.

The fork-tailed swift is largely an aerial species in Australia and is not recorded is occurring within semi-deciduous vine thicket vegetation that will be impacted as a result of the proposal. External to the project site, there are large tracts of available vegetation for these species to utilise. The results of this assessment determined that there is no reasonable likelihood of a significant impact on EPBC Act 1999 listed migratory species.

6.0 Significant Impact Assessment

6.1 Matters of National Environmental Significance (MNES) continued

The following table **Table 9** details the guidelines to which a certain application (trigger) may have a significant impact on a sensitive environmental matter pursuant under the EPBC Act.

Table 9 Matters of National Environmental Significance (MNES)

Matters of National Environmental Significance	Triggers
Listed Threatened Ecological Communities	
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.	Nil threatened Ecological Communities are considered a potential occurrence within the project site or greater project site under the <i>EPBC Act 1999</i>. No significant impact.
World Heritage Property/National Heritage Places	

Matters of National Environmental Significance	Triggers
An action is likely to have a significant impact on natural heritage values of a World Heritage property if there is a real chance or possibility that the action will: <u>Values associated with geology or landscape</u> ▶ damage, modify, alter or obscure important geological formations in a World Heritage property ▶ damage, modify, alter or obscure landforms or landscape features, for example, by excavation or infilling of the land surface in a World Heritage property ▶ modify, alter or inhibit landscape processes, for example, by accelerating or increasing susceptibility to erosion, or stabilising mobile landforms, such as sand dunes, in a World Heritage property ▶ divert, impound or channelise a river, wetland or other water body in a World Heritage property, and ▶ substantially increase concentrations of suspended sediment, nutrients, heavy metals, hydrocarbons, or other pollutants or substances in a river, wetland or water body in a World Heritage property. <u>Biological and ecological values</u> ▶ reduce the diversity or modify the composition of plant and animal species in all or part of a World Heritage property ▶ fragment, isolate or substantially damage habitat important for the conservation of biological diversity in a World Heritage property ▶ cause a long-term reduction in rare, endemic or unique plant or animal populations or species in a World Heritage property, and ▶ fragment, isolate or substantially damage habitat for rare, endemic or unique animal populations or species in a World Heritage property.	Great Barrier Reef Marine Park The project site does not intersect or contain an environmental area within the Great Barrier Reef Marine Park World Heritage Area. No significant impact
National Heritage Places	
An action is likely to have a significant impact on the National Heritage values of a National Heritage place if there is a real chance or possibility that it will cause: ▶ one or more of the National Heritage values to be lost ▶ one or more of the National Heritage values to be degraded or damaged, or ▶ one or more of the National Heritage values to be notably altered, modified, obscured or diminished.	Great Barrier Reef Great Barrier Reef World Heritage Area (Indigenous Values) and/or National Heritage Places are not present on the project site. No significant impact

6.2 Significant Impact Assessment for MNES

One (1) EPBC listed threatened species was confirmed present within the project site. The Cooktown Orchid (*Dendrobium bigibbum*) (Vulnerable) was confirmed present in abundance throughout the proposed clearing alignment.

A significant impact assessment (SIA) is provided below for the Cooktown Orchid population recorded within the project site at risk of direct and residual impact as a result of the proposal.

6.2.1 Threatened Species

The Department of Climate Change Energy Environment and Water (DCCEE) notes an action is likely to have a significant impact on a **vulnerable** species if there is a real chance or possibility that it will:

- ▶ Lead to a long-term decrease in the size of an important population.
- ▶ Reduce the area of occupancy of an important population.
- ▶ Fragment an existing population into two or more populations.
- ▶ Adversely affect habitat critical to the survival of a species.
- ▶ Disrupt the breeding cycle of an important population; and/or
- ▶ Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
- ▶ Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat;
- ▶ Introduce disease that may cause the species to decline, or
- ▶ Interfere substantially with the recovery of the species.

6.2.1.1 Important Population Definition (EPBC)

An 'important population' is a population that is necessary for a species' long-term survival and recovery.

This may include populations identified as such in recovery plans, and/or that are:

- ▶ Key source populations either for breeding or dispersal
- ▶ Populations that are necessary for maintaining genetic diversity, and/or
- ▶ Populations that are near the limit of the species range.

6.2.1.2 Cooktown Orchid (Vulnerable)

The Cooktown Orchid (*Dendrobium bigibbum*) listed Vulnerable under the *EPBC Act 1999*, was confirmed to occur within project site and was highly abundant within both proposed urban expansion areas. A total of 1031 individuals were recorded within the direct clearing alignment during the site assessment. The current combined clearing of suitable habitat for this species within the project site (northern and southern expansion areas) totals 7.27 ha of RE 3.2.2 and would remove all 1031 individuals within this area to establish residential lots. All individuals within the direct clearing alignment will be translocated as per an approved Impact Management Plan issues by the Qld Department of Environment, Tourism, Science and Innovation (DETSI). The Impact

Management Plan (4 Elements 2026) is yet to be approved by DETSI. All measures to successfully manage the Cooktown Orchid population and residual impacts of the proposal are summarised in **Section 8.0**.

Additional field survey of the local population has determined that a total of 227 ha of suitable habitat RE 3.2.2 is present between Moonkan Creek and Chapman River. A total of eight (8) 500m² plots directly counted individuals to estimate a population of 74,910 Cooktown orchids for the total local population. Therefore, a total of 1.34 % of the local population will be impacted by the proposal. A significant impact assessment is provided for the Cooktown Orchid.

Vappodes phalaenopsis syn. *Dendrobium bigibbum* (Cooktown orchid) Conservation Advice lists key threats as:

- ▶ Illegal collecting for horticulture
- ▶ Weed invasion resulting in inappropriate fire regimes
- ▶ Land clearing has previously been listed as a threat to the species

Lead to a long-term decrease in the size of an important population.

No.

A total of 227 ha of vine thicket (RE 3.2.2) is mapped across the local population area. This vegetation is estimated to provide habitat for a total of 74,910 individuals. The project seeks to impact a total 1,031 individuals and 7.27 ha of suitable habitat which is ~1.34 % of the individuals present in the local population and 3.2% of suitable habitat within the local population. All individuals will be translocated under a protected plant clearing permit that is issued by DETSI (Qld Government). This permit operates under the guiding principle that there will be no net loss of individuals within the population. With implementation of the translocation plan (see **Section 8.0** below) the proposal will not result in a long-term decrease in the size of an important population. Weed management will be implemented as per **Section 8.1.6** below which will prevent inappropriate fire regimes establishing in retained vegetation. The existing council fire management implements annual cool burns of grass on the edge of the township to maintain the existing edge of vine thicket and abundant Cooktown orchids. This is expected to occur at the new edge of clearing for the subdivision and will not lead to a long-term decrease in the size of the Cooktown Orchid population.

Reduce the area of occupancy of an important population

Yes.

The proposal seeks to remove a total of 7.27 ha of vine thicket RE 3.2.2 which contains a large population (1,031) Cooktown Orchids. The local population contains a total of 227 ha of vine thicket RE 3.2.2. Therefore, the proposal seeks to remove 4.38 % of the available area for the Cooktown orchid. As all individuals will be translocated as part of the approval, the number of individuals will remain stable. However, the removal of habitat is unavoidable and will result in a reduction in the area of occupancy of the Cooktown Orchid by 7.27 ha.

Fragment an existing population into two or more populations

No.

The proposal seeks to remove a total of 7.27 ha of vine thicket RE 3.2.2 which contains a large population (1031) Cooktown Orchids. The vegetation removal is limited to the northern and southern extent of the existing Pormpuraaw Township. Existing connectivity of the population is assumed to occur via wind dispersal of dehiscent fruits in the late dry season. Pollination is likely to be an insect vector that transfers pollinia between areas of suitable habitat. The existing gap between patches of RE 3.2.2 between the north and south of the township is ~260m. This distance will not be increased as a result of the proposal. It is expected that continued transfer of genetic material north to south will continue as a result of the proposal.

Adversely affect habitat critical to the survival of a species

No.

The removal of 7.27 ha of vine thicket RE 3.2.2 is required to establish the proposal. A total of 227 ha of suitable habitat is present within the local population with the proposal removing 7.27 ha of the edge of the existing township. The Cooktown orchid is recorded as rapidly colonising disturbed habitat as was evident in the field survey with individuals recorded growing on timber fences and trees within the cemetery and park within the township. It is expected that with the required clearing and translocation of all individuals impacted that the proposal will not adversely impact habitat critical to the survival of the species. The population will continue to be present within the estimated 237.17 ha that will remain after the establishment of the proposal.

Disrupt the breeding cycle of an important population; and/or Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

The proposal seeks to remove a total of 7.27 ha of vine thicket RE 3.2.2 which contains a large population (1031) Cooktown Orchids. The vegetation removal is limited to the northern and southern extent of the existing Pormpuraaw Township. Existing connectivity of the population is assumed to occur via wind dispersal of dehiscent fruits in the late dry season. Pollination is likely to be an insect vector that transfers pollinia between areas of suitable habitat. The existing gap between patches of RE 3.2.2 between the north and south of the township is ~260m. This distance will increase in some areas as a result of the proposal, however the updated clearance area for the northern alignment will minimise this distance due to larger corridors of vegetation being maintained in the most recent proposal. It is expected that continued transfer of genetic material north to south will continue as a result of the proposal. The proposal will not disrupt the breeding cycle of the important population to the extent that the species is likely to decline. Implementation of the translocation management plan will be a critical part of ensuring the viability of the population size.

Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable

species' habitat.

No.

A key threat to the species is introduction of weeds resulting in inappropriate fire regimes. The regular fire interval implemented by Pormpuraaw Council is considered appropriate to maintaining the RE 3.2.2 vine thicket habitat to support the Cooktown Orchid local population. The impact management plan that is to be approved by DETSI and implemented by the proponent requires that residual impacts be managed in the 100m buffer of retained vegetation around the proposal. This requires weed management as outlined in **Section 8.1.6** below. With weed management and continued regular low intensity fire management it is unlikely that the proposal will result in invasive species impacting the Cooktown Orchids habitat within the local population.

Introduce disease that may cause the species to decline.

No.

There are no known diseases that affect the Cooktown orchid that are likely to be introduced as a result of establishing the proposal. The existing Cooktown orchid population was abundant to the edge of the clearing alignment for the existing township extent. No signs of dieback of any vegetation including the Cooktown orchid was evident in the field survey. It is anticipated that the new edge of the vegetation clearing will result in the same trend of individuals colonising to the edge of existing RE 3.2.2 vegetation.

Interfere substantially with the recovery of the species.

No.

The species is not thought to be recovering from any specific impact within the local population. Current threats for the species across its distributional range include illegal collecting for horticulture and the threat of alteration of fire regimes through introduction of invasive plants is also considered a key threat.

The project seeks to maintain the current population total individuals through translocation and management of weeds in retained vegetation. Illegal collecting within the Pormpuraaw local population is not considered likely to be exacerbated by new clearing extents as the presence of abundant individuals in the existing clearing edge with the township suggests a lack of interest in collecting this species by existing residents. With the management of existing threats, the project will not impact on the recovery of the species.

The existing regular interval fire management that is currently undertaken by the local council has not resulted in impacts to the transitional boundary of the township and the Cooktown orchid population. Continued fire management by council is likely to maintain an appropriate fire regime to support stable habitat for the Cooktown Orchid local population.

6.2.2 Migratory Species

DCCEEW notes an action is likely to have a significant impact on a migratory species if there is a possibility it will:

- ▶ Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species.
- ▶ Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species; or
- ▶ Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

The species considered moderate and highly likely to occur on site are:

- ▶ White-throated Needletail (*Hirundapus caudacutus*)
- ▶ Fork-tailed Swift (*Apus pacificus*)

None of the above listed species accumulate in significant numbers locally to lead to the disturbance of large numbers of individuals because of the proposal. It is considered highly unlikely that a total vegetation clearance of 7.27 hectares for the proposal will impact on ecologically significant habitat to these species such that it interferes with the breeding, foraging or roosting of migratory species. External to the project site, there are large tracts of available vegetation for these species to utilise. The results of this assessment determined there will be no significant impact on threatened or migratory species.

7.0 Nature of impact and mitigation

To manage residual impacts on the population of *D. bigibbum* resulting from the development, the impact management plan below outlines protection and translocation methods to maintain the viability of the local *D. bigibbum* population.

7.1 Direct clearing impact

A total of 7.27 ha of direct land clearing is required for the establishment of 35 residential lots for the combined northern and southern expansion areas of the Pormpuraaw Township. Within the lot area and essential clearance area, there is therefore a requirement to remove a total of 1,031 *D. bigibbum* (see **Figures 4** and **5**). The vegetation clearing within this area will directly impact all orchids unless translocation is implemented to reintroduce individuals into the surrounding population (**Section 8.0**).

7.2 Indirect clearing impact (within CIA)

The CIA for both the northern and southern expansion areas include the potential for residual impacts on 28.3 ha of land. This area has recorded an additional 1882 *D. bigibbum* to the direct clearing area, but that are not directly impacted by those clearing works. Without management of residual impacts there is the potential for indirectly impacted by the movement of plant and infrastructure and exposure to weed or pest incursion, and habitat edge effects.

Tables 10 and 11 below outline the direct and indirect impacts to this species, as a result of the proposed development actions.

Table 10 Direct impacts to *D. bigibbum* resulting from the development

Threat	Potential impact	Project site mitigation
Direct removal of plants	A total of (1,031) individual plants are located within the proposed clearing alignment.	The successful translocation of these individuals to the retained vegetation in suitable outside of any planned future development. The selected recipient locations will be within a designated covenant or voluntary declaration to avoid future land use conflicts. Translocation and establishment of these individuals to suitable recipient sites will ensure that the planned works do not threaten the survival of the Cooktown orchid population locally.

Threat	Potential impact	Project site mitigation
Loss of habitat	A maximum total of 7.27 ha of native vegetation supporting a population of 1,031 <i>D. bigibbum</i> , is set to be cleared for the project.	Direct clearing of orchid-hosting trees is to be mitigated through the salvage and translocation of all Cooktown orchids from the direct clearing alignment into suitable recipient sites prior to clearing (RE 3.2.2). Translocation, adaptive monitoring and horticultural interventions will ensure no net loss of individuals from the population.

Table 11 Indirect impacts to *D. bigibbum* resulting from the development

Threat	Potential impact	Project site mitigation
Weed invasion	Disturbance of soil provides the opportunity for weed invasion. Weeds may also be transported to the site from vehicles, people (e.g. on clothing) and potentially via introduced fill material for civil works.	Existing weed incursion is relatively low within Cooktown orchid habitat and is largely restricted to minor edge effects at the edge of the existing residential development. To mitigate these impacts, all new equipment and personnel entering the work site should ensure their clothing and plant is free of weed seed, or propagules and that appropriate weed management controls are in place to minimise the risk of weed spread into remnant vegetation. Weed management will be monitored during construction and adaptive management will be employed to manage any new weed threats identified during the construction process.
Edge effects and fragmentation	The fragmentation and/or isolation of currently intact vegetation via partial/mosaic clearing and establishment of wider roads can lead to edge effects including: • ingress of weeds and pests into areas not previously found • alterations to microclimate i.e. drying, altered humidity levels, increases in light penetration • increased exposure to wind	The establishment of the proposal will essentially remove a maximum of 7.27 ha of native woody vegetation. The clearing will establish a new edge location but will not fragment <i>D. bigibbum</i> habitat from the broader population. Appropriate weed management will mitigate the impact of weed incursion effects into adjacent <i>D. bigibbum</i> habitat. Clearly delineated bunding to highlight Tree Protection Zones (TPZs) at the edge of the clearance area will protect uncleared vegetation against unintended damage. The edge of the clearing alignment is for the establishment of asset protection zones only. Therefore, the impact to host trees on the boundary of the proposed clearing alignment is to be entirely avoided. Removal of trees on the boundary of retained vegetation should be undertaken by use

		of a chainsaw to minimise residual impacts to retained vegetation areas.
Pollution	Pollution or contamination of aquatic ecosystems through spillage, or inappropriate usage of, petrochemicals, fertilisers, and herbicides. These chemicals generally reach adjacent habitats via contaminated runoff, groundwater, sedimentation, and erosion. Erosion and sedimentation can lead to eutrophication impacts and may occur at both the civil construction and individual establishment phases of the project.	To manage risks of pollution resulting from spills and contamination it is required that an approved Construction Environment Management Plan (EMP) be implemented to design appropriate environmental controls for the site.
Altered hydrological regimes	Alterations to topography and vegetative cover can increase water shedding rates, concentrate runoff, and affect flood peaks. Soil compaction and construction of hard surfaces can also influence these factors, reduce infiltration, and ultimately adversely affect plant growth and wetland regimes.	Some minor changes in hydrology may result from the planned works (minor road widening). These are not likely to negatively impact current hydrological regimes significantly to the extent that vine thicket vegetation communities essential to <i>D. bigibbum</i> will degrade. Stormwater within the project site will be managed so that outflow does not impact watercourse integrity downstream.
Erosion and sedimentation	Sedimentation and erosion impacts can occur both during the construction and establishment phases. Erosion and sedimentation may occur via fill material and disturbed soils, scouring of exposed soil, earthen banks, and habitats adjacent to the development area via stormwater flow.	Implementation of an Erosion and Sediment Control Plan (ESCP) will be required prior to commencement of works.

8.0 Management of Impacts

The primary aim of impact management for the project is to ensure “no net loss” of Cooktown orchids, as defined under the Nature Conservation (Wildlife Management) Regulation 2020 Protected Plants Assessment Guidelines. The following section will address how the resultant no net loss of *D. bigibbum* will be achieved for the existing population.

This proposed IMP will address the following mitigative measures for plants within the direct clearing alignment and CIA:

- ▶ Translocation of *D. bigibbum* directly impacted by vegetation clearing within the alignment
- ▶ Establishment of TPZs for host trees bearing *D. bigibbum* adjacent to retained vegetation
- ▶ Management of weed incursions and edge effects imposed by clearing adjacent to retained vegetation within 100m of the direct clearing alignment.

8.1 Translocation plan

Translocation is a key requirement for achieving no net loss of *D. bigibbum* within the alignment. Given that this species grows as an epiphyte, removal of whole plants is considered the most viable method of translocation for this species. Project scheduling currently places opportunities for translocation during the late wet season, before the species’ fruiting and flowering period. Any fruiting material present at the time of translocation will be retained on the plant for passive wind dispersal post translocation. No attempts to propagate seed within the project site or off-site will be attempted.

8.1.1 Expertise required

For a reasonable likelihood of success, the process of translocation must only be undertaken by experienced personnel with relevant experience in threatened plant propagation including qualifications in botany and/or horticulture.

8.1.2 Recipient site selection

A total of 1,031 *D. bigibbum* within the northern and southern development are considered for translocation in this IMP. To avoid a net loss of the local population it is recommended that translocation of all directly impacted plants be undertaken. Prior to translocation works, the selection of suitable recipient sites with similar vegetation community attributes (RE 3.2.2) is required (see **Section 4.0**). Suitable habitat is available outside of the CIA to the north and south of Pormpuraaw. Consideration of microhabitat factors such as aspect, host tree species, natural orchid density and light intensity is also critical to achieving a successful translocation project. All recipient

sites must also be permanently secured by Pormpuraaw Aboriginal Shire Council to ensure long term viability of the translocation project.

8.1.3 Salvage procedure

Four Elements recorded GPS locations for each host tree during field surveys and these are provided in **Appendix F**, and where practical, trees have been marked with pink flagging tape. The recipient sites will be entirely comprised of remnant vine thicket RE 3.2.2 (location yet to be confirmed), microhabitats will be determined firstly by closely matching existing light exposure, height and host tree species as indicated for each individual orchid. This will be done by collecting a set of current abiotic data such as light level, aspect, height and substrate type for each orchid, such that these conditions can be closely matched in the subject site by keeping the records on-hand during translocation.

All salvaged orchids are to be removed entirely from the host tree so that there is no disturbance to any aerial root material. It is highly likely that any damaged roots will die in the following dry season, potentially reducing survivorship. If the integrity of the root structure is maintained, a greater probability of success can be expected. Once dry season dormancy breaks with the commencement of summer rainfall.

Most Cooktown orchids within the direct clearing alignment are located at, or below 3 m in height making access for removal relatively easy. Removal of individuals from existing host trees will be achieved with the use of a chainsaw or hand saw to remove limbs containing Cooktown orchids. Cuts of branches are to be made approx. 20cm above and below the orchid attachment point to avoid root zone impacts. The removed plant will remain attached to the cut limb for translocation. Each plant will be temporarily stored in a shady and secure location prior to transport via vehicle to the selected recipient site (same day as salvage). Large branches and timber mounts may require splitting of the timber mount so that a combined weight of < 500g be achieved to reduce the chance of translocation failure.

8.1.4 Translocation procedure

It is recommended that translocation takes place during the winter dormancy period (late May - November) to limit disturbance impacts on translocated individuals. The salvaged plants will individually be attached to a selected recipient host tree. This will be achieved by securely tying individuals to new recipient host trees a dark cloth (cotton) horticultural tie. This is intended to be a semi-permanent mode of attachment that will eventually degrade in-situ, by which time the new aerial root growth of the translocated plant will have formed a supportive bond with the recipient tree. This will not damage the expanding cambium layer of the recipient host tree, nor will it crush the sensitive aerial roots of the orchids. Horticultural ties will be attached twice above and twice below the pseudobulbs of the plant so that they are securely fastened to the host tree. This will improve connectivity with the recipient host tree and provide a more secure access to moisture in the proceeding wet season to encourage development of new root growth.

On each recipient host tree, preference will be given for attachment points that are within moderate light environments (partial shade). All deeply shaded or highly exposed microhabitats are to be avoided. The highest

abundance of Cooktown orchids recorded during the field assessment was in areas of moderate light. Well developed canopy cover and highly exposed locations were associated with low Cooktown orchid abundance. Once each translocated plant is securely mounted, it will be numbered, GPS-located and photographed. All observations on plant health will also be documented in a Translocation Report document at this point to allow for the monitoring of progress over time and to ensure all procedures, abiotic data, and translocation process data is captured in one place. This data shall include total number and length of each translocated plant, the number of live pseudobulbs, number of leaves (if present), as well as notes on host tree species and tree condition and the number of orchids translocated.

8.1.5 Monitoring procedure

It is expected that monitoring will be relatively low frequency during the dormancy phase. It is proposed that after translocation, mounted plants be monitored after four (4) weeks. If translocation occurs prior to the wet season (November), no growth is expected during this period. This initial monitoring period will mostly check for successful attachment to the host trees to ensure that contact to the host tree is still adequate for when the wet season commences.

If plants are mounted well after the initial four (4) week monitoring period, a six (6)-monthly monitoring event will be carried out to ensure plants are establishing successfully. If all translocated plants are proceeding well at six (6) months post translocation, then the period between monitoring may be expected to extend to yearly intervals. After 24 months post translocation works, if all individuals are still attached to their selected recipient host tree, a final summary of results will be provided for review.

During monitoring rounds, all translocated individuals will be photographed and accounted for in each monitoring period for an annual summary of translocation results.

Monitoring will record:

- ▶ Presence of healthy meristematic growth (Y/N, and notes)
- ▶ Signs of disease or damage (Y/N, and notes)
- ▶ Signs of reproduction (Y/N and notes)
- ▶ New root development (Y/N and notes)

8.1.6 Contingency measures

Should the translocation not result in a survivorship of 100% (all translocated Cooktown orchids alive and attaching well at 24 months post translocation), then a secondary mitigation program will be enacted. This will primarily involve division of small aerial offsets (keikis) that are produced on old spent canes. Offsets will be removed from the translocated population in the second year of monitoring to re-establish into other recipient host trees to account for loss or death of any translocated plants. *Dendrobium* spp. readily form aerial offsets and this was readily observed within the field survey for the PPS (see **Plate 8**). The removal of aerial offsets and placing them into recipient trees will essentially be undertaken following the same process as that outlined in the above **Section 8.1.4**. These plants will however not be attached to an existing branch and will be directly

tied to the recipient host tree with a thin bed (1cm thick) of horticultural grade sphagnum moss and tied securely with horticultural ties. Monitoring of these individuals will be undertaken as per the above **Section 7.1.5**.



Plate 8 Mature Cooktown Orchid (Top of Image) and Aerial Offset Development below (Red Circle)

8.2 Tree Protection Zones (TPZs)

The management of residual impacts will primarily involve the protection of all retained vegetation. Due to the high density of Cooktown orchids present within RE 3.2.2 around the township of Pormpuraaw, avoidance of

unnecessary damage to vegetation is critical. All tree protection measures and TPZ fencing must be installed before any earthworks or construction activities commence. Fencing must clearly delineate approved vegetation clearing extent. Fencing will be installed directly below the drip-zone of all retained canopy vegetation (individual or community) and shall not disturb understorey vegetation. The TPZ fencing will ideally consist of 2-m-high weld mesh temporary builders' fence (relocatable panels) to the edge of proposed works (or as per Australian Standard 4970:2009, where applicable) with 'No entry' or 'No-go zone' signage attached. Alternative fencing materials will be utilised where specific site conditions (such as sloping, boggy or unstable ground) exist.

No ripping of root zones is to occur along the edge of the retained vegetation to prevent damage to TPZs. The ripping of tree roots will result in residual impacts beyond the existing clearing extent and must be avoided in all circumstances. Removal of trees along the boundary of retained vegetation should either retain individual trees or remove via above ground sawing.

8.3 Weed Management

A pre-start inspection shall be carried out to mitigate the impact of clearing and development works on CEEVNT vegetation adjacent to the CIA to ensure adequate protection measures are in place including awareness of protected plant locations (flagging), and appropriate avoidance measures. Tree fencing must not constitute a barrier to the dispersal of displaced fauna. Therefore, fencing must be installed in a fauna-friendly manner, i.e., at least 300 mm from ground-level.

General tree protection measures relevant to the project site are additionally listed below:

- ▶ Outline tree protection measures to all site personnel in induction prior to working on site
- ▶ Visibly delineate all vegetation requiring removal prior to works commencing
- ▶ Visually delineate TPZs of trees adjacent to works areas. High visibility bunting or fencing is required to prevent free movement of machinery into retained vegetation
- ▶ No parking of vehicles or machinery within the TPZ of any retained tree is to occur
- ▶ No storage of equipment or spoil materials from excavation within the TPZ of any retained tree
- ▶ All vegetation removal adjacent to retained trees must be cleared with chainsaws to avoid impacting root balls of retained trees
- ▶ Crown protection – if canopy branches of retained trees extend into the works area, they must be trimmed with a saw prior to machine access to prevent damage to retained vegetation
- ▶ Avoid all impact to buttress roots which are critical for the structural integrity of the tree
- ▶ Reporting of all tree damage/incursions into TPZs during works

Weed management resulting from construction related clearing and disturbance is predicted to be the main source of weed incursion for the project, that may indirectly impact *D. bigibbum* populations. Herbicide application is recommended as an effective means to manage new and existing weed incursions. Care must be

taken to reduce the overuse of herbicide however, as it can inhibit successful native vegetation management if used inappropriately, or if off-target or over-spraying occurs.

Specifically, the following recommendations are made for this project site:

- ▶ Baseline monitoring of existing weed incursions to occur prior to construction.
- ▶ Spray out herbaceous ground weeds at the edge of retained vegetation. Note that during windy periods, prior to rain forecast or within six (6) hours after rain, herbicide use is not recommended. Similarly, broadly or recklessly using such toxins in areas where native vegetation dominates or waterways exist, must be avoided. Weed control contractors and workers undertaking weed management will be suitably qualified in the areas of weed identification of target species and the appropriate level of control for each weed species.
- ▶ Containing existing weed incursion levels across the site is key to reducing weed control efforts during and post construction. Prior to vegetation clearing, an initial herbicide application will be undertaken on the edge of retained vegetation with a follow-up undertaken approx. 3-6 months after this. Key priority invasive plants tall exotic grasses, *Mesosphaerum suaveolens* (hyptis), *Macroptilium atropurpureum* (siratro) and *Azadirachta indica* (neem tree) will be targeted for control in each round with the aim of eradication. Care must be given not to impact the existing native vegetation in the riparian corridor. Any incursions which have spread into retained vegetation from the clearing alignment must also be treated as part of the management program to control residual impacts on retained populations.

9.0 Conclusion

A large population of Cooktown Orchids (*Dendrobium bigibbum*) listed Vulnerable under the EPBC Act 1999 was recorded within the project site which includes a 100 m buffer around the direct clearing alignment totalled 2913 individuals. Within the direct clearing alignment, a total of 474 individuals recorded in the northern expansion area and 557 individuals were recorded in the southern expansion area. Despite searches in adjacent habitat types, all individual Cooktown orchids were restricted to semi-deciduous vine thicket.

Targeted assessment of the local Cooktown orchid population undertaken in December 2025 mapped the extent of the population and provided an estimate of abundance. Absolute counts of Cooktown Orchids within the proposed clearing alignment and 100 m buffer determined an estimate of 148 individuals per hectare. Estimates of the wider population using 500m² transects determined an estimate of 330 individuals per hectare across 227 ha of suitable habitat RE 3.2.2 within the local population survey area.

A significant Impact Assessment was undertaken for the Cooktown orchid population, and it is considered that a significant impact is likely due to the loss of 7.27 ha of suitable habitat for the species. Although translocation will ensure no net loss of the population, the loss of 7.27 ha of vine thicket habitat will reduce the area of occupancy.

A pre-referral meeting is required to determine if a referral is required to DCCEW for this MNES matter.

No other threatened flora species were located within the project site (direct clearing alignment or 100m search buffer). It is considered unlikely that any listed threatened flora species would have the potential to occur within the project site based on the potential occurrence assessment.

A single (1) fauna species, listed under the *EPBC Act 1999* was deemed as moderately likely to occur within the project site. This species was recorded within the targeted fauna survey.

- ▶ White-throated Needletail (*Hirundapus caudacutus*) *Vulnerable EPBC Act and NC Act*

Due to the lack of suitable habitat for roosting, breeding or foraging on site it was determined that no significant impact is expected for any of these species as a result of the proposal.

- ▶ No migratory and/or marine *EPBC Act 1999* listed species were recorded within the project site during the field survey. There is no suitable habitat available for these species available within the project area or within close proximity.

10.0 References

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Appendix A Potential Occurrence Threatened and Migratory Species

Common Name	Scientific Name	Status EPBC Act	Status NC Act	Preferred Habitat	Likelihood of Occurrence Within Project Site
Threatened and or Migratory Fauna					
BIRDS					
Common Sandpiper	<i>Actitis hypoleucos</i>	Ma, Mi	SL	The Common Sandpiper is a migratory species to Australia and is found in coastal or inland wetland environments (DCCEEW 2022). This species can occur in stream deltas, estuaries, lakes, reservoirs, billabongs, dams, and banks upstream (Menkhorst & Knight 2010). Common Sandpipers forage on soft mud and in shallow water at the edges of wetlands (DCCEEW 2023).	Unlikely Although there are 15 records of this species within 10km of the township of Pormpuraaw, all records are associated with estuarine mudflats. There is a distinct lack of suitable habitat within the urban expansion areas. This species is not associated with coastal vine thickets RE 3.2.2. This species could utilise exposed mud flats within the <i>Melaleuca</i> spp. forest however the dense grass layer likely excludes this species. Exposed open situations are more typical of this species.
Common Noddy	<i>Anous stolidus</i>	Ma, Mi	SL	A gregarious species feeding on fish. This occurs mainly on offshore islands nesting in rocky substrates within the sub-tropical and tropical waters in the Queensland (DCCEEW 2023)	Unlikely There is a distinct lack of suitable habitat within the project site. No records present within 100km of the project site.

Common Name	Scientific Name	Status EPBC Act	Status NC Act	Preferred Habitat	Likelihood of Occurrence Within Project Site
Fork-tailed Swift	<i>Apus pacificus</i>	Ma, Mi	SL	This species is a non-breeding visitor to all states and territories of Australia where it is exclusively aerial. Rarely recorded on the western coast of Cape York Peninsular. This species is much more commonly encountered east of the greater dividing range. Occurs in inland plains, coastal cliffs and beaches. Sometimes recorded well out to sea.	Moderate 16 records are present within 10km of the project site. This species occurs across the project site through aerial foraging above all vegetation communities present within the urban expansion areas. The proposed urban expansion areas represent a very minor portion of a much larger foraging area. No roosting or foraging habitat will be impacted as a result of the proposal. Although this species will occur above the project site there is no reasonable of impact to this species.
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	Ma, Mi, V	V	The Sharp-tailed Sandpiper is a non-breeding migrant to Australia (Menkhorst & Knight 2010). Habitat preferences consist of wetland environments, both near the coast and inland, where it can be observed on the edge of salt lakes (Woinarski et al. 2014).	Unlikely Although there are 7 records of this species within 10km of the township of Pormpuraaw, all records are associated with estuarine mudflats. There is a distinct lack of suitable habitat within the urban expansion areas. This species is not associated with coastal vine thickets RE 3.2.2. This species could utilise exposed mud flats within the <i>Melaleuca</i> spp. forest however the dense grass layer likely

Common Name	Scientific Name	Status EPBC Act	Status NC Act	Preferred Habitat	Likelihood of Occurrence Within Project Site
					excludes this species. Exposed open situations are more typical of this species.
Red Knot, Knot	<i>Calidris canutus</i>	E, Mi	E	This is a highly migratory species, breeding in the high Arctic, then migrating south. Red Knots gather in large flocks with other waders. They walk fast, probing rapidly in soft sand and mud for worms and bivalves. They feed by both day and night, regulated by the tide. Coastal sandy estuaries with muddy tidal flats are their preferred habitat (Woinarski et al. 2014).	Unlikely Although there are 5 records of this species within 10km of the township of Pormpuraaw, all records are associated with areas of tidal influence. There is a distinct lack of suitable habitat within the urban expansion areas. This species is not associated with coastal vine thickets RE 3.2.2. This species could utilise exposed mud flats within the <i>Melaleuca</i> spp. forest however the dense grass layer likely excludes this species. Exposed open situations are more typical of this species.

Common Name	Scientific Name	Status EPBC Act	Status NC Act	Preferred Habitat	Likelihood of Occurrence Within Project Site
Curlew Sandpiper	<i>Calidris ferruginea</i>	CE, Ma, Mi	E	Curlew Sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters. Occasionally they are recorded around floodwaters (Higgins & Davies 1996).	Unlikely Although there are 8 records of this species within 10km of the township of Pormpuraaw, all records are associated with estuarine mudflats. There is a distinct lack of suitable habitat within the urban expansion areas. This species is not associated with coastal vine thickets RE 3.2.2. This species could utilise exposed mud flats within the <i>Melaleuca</i> spp. forest however the dense grass layer likely excludes this species. Exposed open situations are more typical of this species.
Pectoral Sandpiper	<i>Calidris melanotos</i>	Ma, Mi	SL	The Pectoral Sandpiper migrates from the northern hemisphere to Australia, where it spends winter within wetlands in northeast Australia.	Unlikely There is a distinct lack of suitable habitat within the project site. The nearest record is located near the township of Kowanyama !65km to the south of the project site. This record is associated with an ephemeral freshwater wetland RE 2.3.34 dominated by sedge and grasslands.
Streaked Shearwater	<i>Calonectris leucomelas</i>	Ma, Mi	SL	Nesting on offshore islands in burrows on forested hills. This species feeds in pelagic environments on fish and squid.	Unlikely There is a distinct lack of suitable habitat within the project site.

Common Name	Scientific Name	Status EPBC Act	Status NC Act	Preferred Habitat	Likelihood of Occurrence Within Project Site
Red-rumped Swallow	<i>Cecropis daurica</i>	Ma, Mi	SL	A small passerine bird that is a rare vagrant to northern Australia. This species is not known to breed on the Australian mainland.	Unlikely There is a distinct lack of proximate records in the region.
Great Knot	<i>Calidris tenuirostris</i>	CE, Ma, Mi	CR	In Australasia, this species typically prefers sheltered coastal habitats, with large intertidal mudflats or sandflats. This includes inlets, bays, harbours, estuaries and lagoons. They are occasionally found on exposed reefs or rock platforms, shorelines with mangrove vegetation, ponds in saltworks, at swamps near the coast, salt lakes and nontidal lagoons. The Great Knot rarely occurs on inland lakes and swamps (Higgins & Davies 1996)	Unlikely Although there are 18 records of this species within 10km of the township of Pormpuraaw, all records are associated with estuarine mudflats. There is a distinct lack of suitable habitat within the urban expansion areas. This species is not associated with coastal vine thickets RE 3.2.2. This species could utilise exposed mud flats within the <i>Melaleuca</i> spp. forest however the dense grass layer likely excludes this species. Exposed open situations are more typical of this species.
Greater Sand Plover	<i>Charadrius leschenaultii</i>	V, Ma, Mi	V	This species is almost entirely coastal, inhabiting littoral and estuarine habitats. They mainly occur on sheltered sandy, shelly or muddy beaches with large intertidal mudflats or sandbanks, as well as sandy estuarine lagoons, and inshore reefs, rock platforms, small rocky islands or sand cays on coral reefs.	Unlikely Although there are 11 records of this species within 10km of the township of Pormpuraaw, all records are associated with estuarine mudflats. There is a distinct lack of suitable habitat within the urban expansion areas. This species is not associated with coastal vine thickets RE

Common Name	Scientific Name	Status EPBC Act	Status NC Act	Preferred Habitat	Likelihood of Occurrence Within Project Site
					3.2.2. This species could utilise exposed mud flats within the <i>Melaleuca</i> spp. forest however the dense grass layer likely excludes this species. Exposed open situations are more typical of this species.
Lesser Sand Plover	<i>Charadrius mongolus</i>	E, Ma, Mi	E	This species usually occurs in coastal littoral and estuarine environments. It inhabits large intertidal sandflats or mudflats in sheltered bays, harbours and estuaries, and occasionally sandy ocean beaches, coral reefs, wave-cut rock platforms and rocky outcrops (DCCEEW 2022).	Unlikely Although there are 8 records of this species within 10km of the township of Pormpuraaw, all records are associated with estuarine mudflats. There is a distinct lack of suitable habitat within the urban expansion areas. This species is not associated with coastal vine thickets RE 3.2.2. This species could utilise exposed mud flats within the <i>Melaleuca</i> spp. forest however the dense grass layer likely excludes this species. Exposed open situations are more typical of this species.

Common Name	Scientific Name	Status EPBC Act	Status NC Act	Preferred Habitat	Likelihood of Occurrence Within Project Site
Oriental Cuckoo	<i>Cuculus optatus</i>	Mi	SL	The Oriental cuckoo is a regular migrant to Australia, where it spends the non-breeding season (Sept- May) in coastal regions across northern and eastern Australia as well as offshore islands. The species uses a range of vegetated habitats such as monsoon rainforest, wet sclerophyll forest, open woodlands and appears quite often along edges of forests, or ecotones between forest types (DCCEEW 2022).	Unlikely There is a distinct lack of suitable habitat within the project site.
Red Goshawk	<i>Erythroriorchis radiatus</i>	V	E	The Red Goshawk occurs in coastal and sub-coastal areas in wooded and forested lands of tropical and warm-temperate Australia (Marchant & Higgins 1993). It nests in large trees, frequently the tallest and most massive in a tall stand, and nest trees are invariably within 1 km of permanent water. Habitat must be open enough for fast attack and manoeuvring in flight but provide cover for ambushing of prey. Therefore, forests of intermediate density are favoured, or ecotones between habitats of differing densities, such as between rainforest and eucalypt forest, between gallery forest and woodland, or on edges of woodland and forest where they meet grassland,	Unlikely There is a distinct lack of suitable habitat within the project site.

Common Name	Scientific Name	Status EPBC Act	Status NC Act	Preferred Habitat	Likelihood of Occurrence Within Project Site
				cleared land, roads or watercourses (DCCEEW 2023)	
Beach Stone-curlew	<i>Esacus magnirostris</i>	-	V	This shy curlew can be observed utilising the sandy shorelines near and within estuaries, beaches and sand spits. It can also be encountered on floodplains, near permanent water bodies along the coastline and mudflats, such as those along the Cairns Esplanade (Garnett & Baker 2022).	Unlikely There is a distinct lack of suitable habitat within the project site.
Lesser Frigatebird	<i>Fregata ariel</i>	Mi, Ma	SL	The Lesser Frigatebird inhabits tropical to subtropical seas in Australia. They can be found flying near the coastlines where they forage for food, sometimes near fisherman and have a well-known behaviour of harassing other sea birds of their food.	Unlikely There is a distinct lack of suitable habitat within the project site.
Great Frigatebird	<i>Fregata minor</i>	Mi, Ma	SL	The Great Frigatebird has a wide distribution in tropical seas. In the Pacific Ocean, their range extends to Hawaii and in Australia, a few pairs have been observed nesting on islands in the coral sea (DCCEEW 2022).	Unlikely There is a distinct lack of suitable habitat within the project site.

Common Name	Scientific Name	Status EPBC Act	Status NC Act	Preferred Habitat	Likelihood of Occurrence Within Project Site
Latham's Snipe	<i>Gallinago hardwickii</i>	Ma, Mi, V	V	This migratory wader breeds in the northern hemisphere in the Russian arctic. In Australia, feeding habitat consists of intertidal mudflats in coastal areas and also within tidal and non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms (Garnett, Szabo et al. 2011). Less frequent inland records are within inundated wetlands with banks of sand or mud (Garnett, Szabo et al. 2011).	Unlikely Two generalised records for this species are provided near to the township of Pormpuraaw. This species is considered unlikely to occur within vine thicket (re 3.2.2) and unlikely to occur within the Melaleuca spp. swamp RE 3.2.3 due to the dense grassy understory preventing access to open mudflats and sandflats for foraging. This species is highly likely to occur occasionally within the estuarine tidal mudflats outside of the project site.

Common Name	Scientific Name	Status EPBC Act	Status NC Act	Preferred Habitat	Likelihood of Occurrence Within Project Site
White-throated Needletail	<i>Hirundapus caudacutus</i>	V, Ma, Mi	V	In Australia, the White-throated Needletail is almost exclusively aerial, from heights of less than 1 m up to more than 1000 m above the ground. Because they are aerial, it has been stated that conventional habitat descriptions are inapplicable, but there are, nevertheless, certain preferences exhibited by the species. Although they occur over most types of habitats, they are probably recorded most often above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy, but they are less commonly recorded flying above woodland (Garnett & Baker 2022).	Unlikely This species would likely occur during aerial foraging above all vegetation communities present within the urban expansion areas. The proposed urban expansion areas represent a very minor portion of a much larger foraging area. No roosting or foraging habitat will be impacted as a result of the proposal. Although this species will occur above the project site there is no reasonable of impact to this species.
Bar-tailed Godwit (<i>baueri</i>)	<i>Limosa lapponica baueri</i>	V, Ma, Mi	V	Bar-tailed Godwits inhabit estuarine mudflats, beaches and mangroves. They are common in coastal areas around Australia. They are social birds and are often seen in large flocks and in the company of other waders (Garnett et al. 2010).	Unlikely Although there are 5 records of this species within 10km of the township of Pormpuraaw, all records are associated with estuarine mudflats. There is a distinct lack of suitable habitat within the urban expansion areas. This species is not associated with coastal vine thickets RE 3.2.2. This species could utilise exposed mud flats within the <i>Melaleuca</i> spp. forest however the dense grass layer likely

Common Name	Scientific Name	Status EPBC Act	Status NC Act	Preferred Habitat	Likelihood of Occurrence Within Project Site
					excludes this species. Exposed open situations are more typical of this species.
Eastern Curlew	<i>Numenius madagascariensis</i>	CE, Ma, Mi	E	The eastern curlew is Australia's largest shorebird and a long-haul flyer. It is easily recognisable with its long, down-curved bill. The Eastern Curlew takes an annual migratory flight to Russia and north-eastern China to breed, arriving back home to Australia in August to feed on crabs and molluscs in intertidal mudflats. It is extremely shy and will take flight at the first sign of danger (Garnett et al. 2010).	Unlikely Although there are 25 records of this species within 10km of the township of Pormpuraaw, all records are associated with estuarine mudflats. There is a distinct lack of suitable habitat within the urban expansion areas. This species is not associated with coastal vine thickets RE 3.2.2. This species could utilise exposed mud flats within the <i>Melaleuca</i> spp. forest however the dense grass layer likely excludes this species. Exposed open situations are more typical of this species.
Golden-shouldered Parrot	<i>Psephotus chrysopterygius</i>	E	E	A small parrot to 260mm in length. Brilliantly coloured with bronze wings, turquoise body with a salmon belly. This species occurs from the headwater of the Moorehead River and the upper Staaten River NP.	Unlikely There is a distinct lack of suitable habitat within the urban expansion areas. Lack of proximate records.

Common Name	Scientific Name	Status EPBC Act	Status NC Act	Preferred Habitat	Likelihood of Occurrence Within Project Site
Eastern Osprey	<i>Pandion cristatus</i>	Ma, Mi	SL	The Osprey forages and nests in most coastal environments Australia wide. This marine raptor can also travel inland, wherever there are large stands of water or river environments in which to hunt.	Unlikely There is a distinct lack of suitable habitat within the urban expansion areas. May occur as an infrequent flyover when crossing between coastlines of the peninsula.
White-tailed Tropic Bird	<i>Phaethon lepturus</i>	Ma, Mi	SL	A small slender bird with highly elongated tail feathers. This species is largely pelagic and is rarely seen within inshore water (Higgins 1999). Known only to breed at Ashmore Reef west of the Kimberly.	Unlikely There is a distinct lack of suitable habitat within the urban expansion areas.
Australian Painted Snipe	<i>Rostratula australis</i>	E, Ma	V	The Australian Painted Snipe generally inhabits shallow terrestrial freshwater (occasionally brackish) wetlands. Typical sites include those with rank emergent tussocks of grass, sedges, rushes or reeds, or samphire; often with scattered clumps of lignum (<i>Muehlenbeckia</i>) or canegrass or sometimes tea-tree (<i>Melaleuca</i> spp). (Marchant & Higgins 1993).	Unlikely No records occur within 300km of the project site.

Common Name	Scientific Name	Status EPBC Act	Status NC Act	Preferred Habitat	Likelihood of Occurrence Within Project Site
Grey-tailed tattler	<i>Tringa brevipes</i>	Ma, Mi	SL	This wader is a vagrant in the East Asian-Australasian Flyway and is uncommon in Australia. Habitat for this species generally consists of rocky coastlines with reefs and platforms, points, spits, piers, offshore islands and shingle beaches or beds (DEE 2021).	Unlikely Sparsely recorded on the western coast of the CYP. Where it has been recorded, it is associated with exposed estuarine communities.
Common Greenshank	<i>Tringa nebularia</i>	Ma, Mi	SL	The Common Greenshank migrates to Australia as a non-breeding migrant during the boreal winters in the northern hemisphere. Away from the coast, this species inhabits several terrestrial wetland types, such as rivers, dams, billabongs etc. Along the coast it seeks sheltered environment near mudflats, lagoons and mangroves.	Unlikely This species would likely occur within the freshwater and estuarine swamp communities RE 3.2.3. All habitat where this species may occur has been avoided in the project design.
Masked Owl (northern)	<i>Tyto novaehollandiae kimberli</i>	V	V	In northern Australia, the Masked Owl has been recorded from riparian forest, rainforest, open forest, Melaleuca swamps and the edges of mangroves, as well as along the margins of sugar cane fields (Higgins 1999).	Unlikely There is a distinct lack of suitable habitat within the urban expansion areas. There are no records for this species on the west coast of CYP.
MAMMALS					

Common Name	Scientific Name	Status EPBC Act	Status NC Act	Preferred Habitat	Likelihood of Occurrence Within Project Site
Northern Quoll	<i>Dasyurus hallucatus</i>	E	LC	The distribution of this species in Queensland is poorly known, however they are mostly recorded in eucalypt forests and woodlands around Mareeba (Burnett 2001, Waller and Starr 2017), Cooktown (Starr, Waller et al. 2016, Starr, Diete et al. 2017), Weipa (Starr and Waller 2014) and sparsely across Cape York (Dixon and Huxley 1985). The conservation advice for the species suggests hollow availability is an important factor in their abundance.	Unlikely A single historic record occurs approximately 120km to the northwest of Pormpuraaw. This record is however located within RE 3.5.36 which is consistent with most records of Northern Quoll in CYP. There is a distinct lack of Eucalypt woodland within or proximal to the project site. This species is considered unlikely to occur within the project site as a result.
Ghost Bat	<i>Macroderma gigas</i>	V	E	The Ghost Bat occurs in Queensland from Cape York to Rockhampton with a wide ranging of foraging habitat ranging from arid woodland in the Pilbara to tropical woodlands and rainforests (DCCEEW 2022). Key to the ecology of this species is the presence of suitable roosting habitat consisting of deep cave structures and rock crevices with reports of the species utilizing abandoned mining excavations (DCCEEW 2022).	Unlikely Although suitable foraging habitat may be present there is unlikely to be any potential roosting habitat. There are no records for this species on the west coast of CYP.

Common Name	Scientific Name	Status EPBC Act	Status NC Act	Preferred Habitat	Likelihood of Occurrence Within Project Site
Bare-rumped Sheath-tailed Bat	<i>Saccolaimus saccolaimus nudicluniatus</i>	V	E	Occasional individuals have been collected from a narrow coastal region (less than 40 km inland) between Ayr and Cooktown, North Queensland, with one isolated specimen from north of Coen on Cape York Peninsula (DEE 2018). The species inhabits tropical woodland and tall open forests where it roosts in long, wide hollows in the trunks of various Eucalypts, especially <i>E. tetradonta</i> and <i>E. platyphylla</i> (DEE 2022).	Unlikely No records are known for this species along the west coast of the Cape York Peninsula. There is a distinct lack of roosting habitat present within the clearing alignment.
Water Mouse	<i>Xeromys myoides</i>	V	V	Although the Water Mouse had been documented in three distinct locations (Northern Territory, central south Queensland, south-east Queensland) they require similar habitat including mangroves and the associated saltmarsh, sedgelands, clay pans, heathlands and freshwater wetlands. The main habitat difference at each location is the littoral, supralittoral and terrestrial vegetation which differs in structure and composition. These differences dictate the species' nesting behaviour.	Unlikely There is a distinct lack of suitable habitat for this species within the project site.
Estuarine Crocodile	<i>Crocodylus porosus</i>	Ma, Mi	V	This species is found in Australian estuaries, coastal waters, lakes, marshes and inland swamps (DCCEEW 2022). The species can be located from Rockhampton in Queensland to Northern Territory and King Sound in Western Australia.	Unlikely Although a large population of Estuarine Crocodiles are present within the wetlands and estuaries of Pormpuraaw. There is a distinct lack of suitable habitat within the project site. Ephemeral wetlands may

Common Name	Scientific Name	Status EPBC Act	Status NC Act	Preferred Habitat	Likelihood of Occurrence Within Project Site
					provide habitat for this species during the summer wet season. However, all suitable habitat is entirely avoided as a result of the proposal.
Plants					
Cooktown Orchid	<i>Dendrobium bigibbum</i>	V	V	<i>Dendrobium bigibbum</i> grows on the branches of small trees in scrubby habitats, such as semi-deciduous vine forest and vine thickets, where fire cannot penetrate. It is particularly common in vine scrubs behind beaches and on rocky hillsides (Jones et al 2010).	Confirmed This species was recorded throughout the coastal vine thicket. This species was common and abundant in both the northern and southern urban expansion areas.
Chocolate Tea Tree Orchid	<i>Dendrobium johannis</i>	V	V	Occurs in open humid habitats, close to swamps, in pockets of monsoon forest, and on slopes in open woodlands. (AVH 2023).	Unlikely There is a distinct lack of suitable habitat within the urban expansion areas. This species was targeted within the Melaleuca Forest RE 3.2.3 adjacent to the proposed clearing alignment. No suitable habitat will be impacted as a result of the proposal.

Appendix B Protected Matters Database Search

Appendix C Wildlife Online (NC Act 1992)

Appendix D Vegetation Management Report

Appendix E Pormpuraaw Urban Expansion Areas Flora List

Family	Species	NC Act 1992	EPBC Act 1999	Qld Biosecurity Act 2014	RE 3.2.2	RE 3.2.3	RE 3.2.5
Acanthaceae	<i>Dicliptera spicata</i>	LC	-	-	+		
Acanthaceae	<i>Dicliptera ciliata</i>	LC	-	-	+		
Amaranthaceae	<i>Alternanthera ficoidea</i>	-		Env Weed			
Amaranthaceae	<i>Alternanthera nodiflora</i>	LC	-	-	+		
Annonaceae	<i>Miliusa traceyi</i>	LC	-	-	+		
Apocynaceae	<i>Parsonsia velutina</i>	LC	-	-	+		
Apocynaceae	<i>Alyxia spicata</i>	LC	-	-	+		
Apocynaceae	<i>Cynanchum viminale</i>	LC	-	-	+		
Aristolochiaceae	<i>Aristolochia pubera</i>	LC	-	-	+		
Asparagaceae	<i>Asparagus racemosus</i>	LC	-	-	+		
Asteraceae	<i>Tridax procumbens</i>	LC	-	Env Weed	+		
Bignoniaceae	<i>Pandorea pandorana</i>	LC	-	-	+		
Burseraceae	<i>Canarium australianum</i>	LC	-	-	+		
Cannabaceae	<i>Celtis paniculata</i>	LC	-	-	+		
Cannabaceae	<i>Trema tomentosa</i>	LC	-	-	+		
Cleomaceae	<i>Cleome viscosa</i>	LC	-	-	+		
Combretaceae	<i>Terminalia muelleri</i>	LC	-	-	+	+	+
Convolvulaceae	<i>Ipomoea pes-caprae</i>	LC	-	-			+
Convolvulaceae	<i>Merremia hederacea</i>	LC	-	-	+		
Cucurbitaceae	<i>Cucumis althaeoides</i>	LC	-	-	+		
Cucurbitaceae	<i>Diplocyclos palmatus</i>	LC	-	-	+		
Cyperaceae	<i>Cyperus trinervis</i>	LC	-	-		+	
Cyperaceae	<i>Rhynchospora subtenuifolia</i>	LC	-	-		+	
Cyperaceae	<i>Cyperus nervulosus</i>	LC	-	-		+	
Cyperaceae	<i>Cyperus polystachyos</i>	LC	-	-		+	
Dioscoreaceae	<i>Dioscorea transversa</i>	LC	-	-	+		
Ebenaceae	<i>Diospyros geminata</i>	LC	-	-	+		
Ebenaceae	<i>Diospyros compacta</i>	LC	-	-	+		
Euphorbiaceae	<i>Mallotus nesophilus</i>	LC	-	-	+		
Fabaceae	<i>Sesbania cannabina</i>	LC	-	-		+	
Fabaceae	<i>Macroptilium atropurpureum</i>	LC	-	Env Weed	+	+	+
Fabaceae	<i>Millettia pinnata</i>	LC	-	-	+		
Fabaceae	<i>Acacia crassicarpa</i>	LC	-	-		+	+
Flagellariaceae	<i>Flagellaria indica</i>	LC	-	-	+		
Hernandiaceae	<i>Gyrocarpus americanus</i>	LC	-	-	+		
Lamiaceae	<i>Premna serratifolia</i>	LC	-	-	+		
Lamiaceae	<i>Premna acuminata</i>	LC	-	-	+		
Lamiaceae	<i>Mesosphaerum suaveolens</i>	-		Env Weed			
Lamiaceae	<i>Clerodendrum costatum</i>	LC	-	-	+		
Lauraceae	<i>Litsea glutinosa</i>	LC	-	-	+		
Lauraceae	<i>Cassytha filiformis</i>	LC	-	-	+		
Lecythidaceae	<i>Planchonia careya</i>	LC	-	-	+	+	
Loganiaceae	<i>Strychnos lucida</i>	LC	-	-	+		
Loranthaceae	<i>Dendrophthoe curvata</i>	LC	-	-	+		
Lythraceae	<i>Ammannia muelleri</i>	LC	-	-		+	
Malvaceae	<i>Sterculia quadrifida</i>	LC	-	-	+		
Malvaceae	<i>Bombax ceiba</i>	LC	-	-	+		
Malvaceae	<i>Hibiscus meraukensis</i>	LC	-	-		+	
Meliaceae	<i>Azadirachta indica</i>	-	-	Env Weed	+		
Menispermaceae	<i>Stephania japonica</i>	LC	-	-	+		
Menispermaceae	<i>Tinospora smilacina</i>	LC	-	-	+		
Menispermaceae	<i>Pachygone ovata</i>	LC	-	-	+		
Moraceae	<i>Ficus virens</i>	LC	-	-	+		
Moraceae	<i>Ficus opposita</i>	LC	-	-	+		
Moraceae	<i>Trophis scandens</i>	LC	-	-	+		
Myrtaceae	<i>Thryptomene oligandra</i>	LC	-	-	+		
Myrtaceae	<i>Melaleuca viridiflora</i>	LC	-	-		+	
Myrtaceae	<i>Syzygium eucalyptoides</i>	LC	-	-		+	
Myrtaceae	<i>Melaleuca dealbata</i>	LC	-	-		+	

Myrtaceae	<i>Eugenia reinwardtiana</i>	LC	-	-	+		
Myrtaceae	<i>Syzygium suborbiculare</i>	LC	-	-		+	
Nyctaginaceae	<i>Pisonia aculeata</i>	LC	-	-	+		
Nyctaginaceae	<i>Boerhavia mutabilis</i>	LC	-	-		+	
Nymphaeaceae	<i>Nymphaea macrosperma</i>	LC	-	-		+	
Nymphaeaceae	<i>Nymphaea immutabilis</i>	LC	-	-		+	
Nymphaeaceae	<i>Nymphaea violacea</i>	LC	-	-		+	
Oleaceae	<i>Jasminum didymum</i>	LC	-	-	+		
Onagraceae	<i>Ludwigia octovalvis</i>	LC	-	-		+	
Opiliaceae	<i>Cansjera leptostachya</i>	LC	-	-	+		
Orchidaceae	<i>Dendrobium bigibbum</i>	Vulnerable	Vulnerable	-	+		
Pandanaceae	<i>Pandanus spiralis</i>	LC	-	-		+	
Phyllanthaceae	<i>Flueggea virosa</i>	LC	-	-	+		
Phyllanthaceae	<i>Phyllanthus novae-hollandiae</i>	LC	-	-	+		
Phyllanthaceae	<i>Bridelia tomentosa</i>	LC	-	-	+		
Plumbaginaceae	<i>Plumbago zeylanica</i>	LC	-	-	+		
Poaceae	<i>Themeda arguens</i>	LC	-	-			+
Poaceae	<i>Panicum trichoides</i>	LC	-	-			+
Poaceae	<i>Chrysopogon elongatus</i>	LC	-	-		+	
Poaceae	<i>Setaria surgens</i>	LC	-	-			+
Poaceae	<i>Perotis rara</i>	LC	-	-			+
Poaceae	<i>Schizachyrium fragile</i>	LC	-	-			+
Poaceae	<i>Rottboellia cochinchinensis</i>	LC	-	Env Weed		+	
Poaceae	<i>Heteropogon contortus</i>	LC	-	-		+	
Poaceae	<i>Sacciolepis myosuroides</i>	LC	-	-		+	
Poaceae	<i>Ectrosia leoprina</i>	LC	-	-		+	
Poaceae	<i>Aristida sp.</i>	LC	-	-			+
Poaceae	<i>Oryza meridionalis</i>	LC	-	-		+	
Poaceae	<i>Sacciolepis indica</i>	LC	-	-		+	
Poaceae	<i>Eriachne rara</i>	LC	-	-		+	
Poaceae	<i>Heteropogon triticeus</i>	LC	-	-		+	
Poaceae	<i>Cymbopogon refractus</i>	LC	-	-		+	+
Polygonaceae	<i>Persicaria attenuata</i>	LC	-	-		+	
Proteaceae	<i>Hakea persiehana</i>	LC	-	-		+	
Putranjivaceae	<i>Drypetes deplanchei</i>	LC	-	-	+		
Rhamnaceae	<i>Alphitonia excelsa</i>	LC	-	-	+		
Rubiaceae	<i>Spermacoce stenophylla</i>	LC	-	-	+	+	
Rubiaceae	<i>Timonius timon</i>	LC	-	-		+	
Rubiaceae	<i>Aidia racemosa</i>	LC	-	-	+		
Rubiaceae	<i>Spermacoce baileyana</i>	LC	-	-		+	
Rubiaceae	<i>Pavetta brownii</i>	LC	-	-	+		
Rutaceae	<i>Halfordia kendack</i>	LC	-	-	+		
Santalaceae	<i>Exocarpos latifolius</i>	LC	-	-	+		
Sapindaceae	<i>Ganophyllum falcatum</i>	LC	-	-	+		
Sapindaceae	<i>Cupaniopsis anacardioides</i>	LC	-	-	+		
Sapindaceae	<i>Dodonaea platyptera</i>	LC	-	-			+
Sapotaceae	<i>Mimusops elengi</i>	LC	-	-	+		
Sapotaceae	<i>Sersalisia sericea</i>	LC	-	-	+		
Smilacaceae	<i>Smilax calophylla</i>	LC	-	-	+		
Solanaceae	<i>Physalis angulata</i>	LC	-	-	+		
Violaceae	<i>Pigea enneasperma</i>	LC	-	-	+		
Vitaceae	<i>Causonis trifolia</i>	LC	-	-	+		
Vitaceae	<i>Cayratia acris</i>	LC	-	-	+		
Vitaceae	<i>Cayratia trifolia</i>	LC	-	-	+		
Vitaceae	<i>Tetrastigma petraeum</i>	LC	-	-	+		
Vitaceae	<i>Cissus pentaclada</i>	LC	-	-	+		
Vitaceae	<i>Cayratia cardiophylla</i>	LC	-	-	+		
Xyridaceae	<i>Xyris complanata</i>	LC	-	-		+	
Zygophyllaceae	<i>Tribulus cistoides</i>	LC	-	-			+

Appendix F Cooktown Orchid Raw Data

This table contains sensitive environmental information and has been excluded from the public review version of this report. The complete unredacted version has been supplied to DCCEEW for assessment.	
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Appendix G Orchids within Lot and Essential Clearing Boundaries

This table contains sensitive environmental information and has been excluded from the public review version of this report. The complete unredacted version has been supplied to DCCEEW for assessment.
