



KINGS FOREST

PRECINCTS 1 - 5

THREATENED SPECIES MANAGEMENT PLAN

A Report Prepared for
Project 28 Pty Ltd

DECEMBER 2020

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DOCUMENT CONTROL

Document

Title	Precincts 1 - 5 Threatened Species Management Plan
Job Number	N97017
File Reference	N97017_Kings Forest\Management Plans (2020)\Precincts 1 - 5
Version and Date	RW7 03/12/20
Client	Project 28 Pty Ltd

Revision History (office use only)

Issue	Version	Draft /Final	Date Sent	Distributed To	No. Copies	Media	Delivery Method
1	RW1	DRAFT	14/01/20	JWA	1	PDF	Email
2	RW2	DRAFT	13/02/20	Client	1	PDF	Email
3	RW3	DRAFT	03/03/20	JWA	1	Word	Email
4	RW4	FINAL	14/04/20	Client	1	PDF	Email
5	RW5	FINAL	02/09/20	Client	1	PDF	Email
6	RW6	FINAL	13/11/20	Client	1	PDF	Email
7	RW7	FINAL	03/12/20	Client	1	PDF	Email

Client Issue

Version	Date	Author		Approved by	
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RW2	13/02/20	Nicole Davies/ Phoebe Chapman/ Adam McArthur	ND/ PC/ AM	Adam McArthur	AM
RW4	14/03/20	Belinda Whyburn/ Adam McArthur	BW/ AM	Adam McArthur	AM
RW5	02/09/20	Belinda Whyburn/ Adam McArthur	BW/ AM	Adam McArthur	AM
RW6	13/11/20	Belinda Whyburn/ Adam McArthur	BW/ AM	Adam McArthur	AM
RW7	03/12/20	Belinda Whyburn/ Adam McArthur	BW/ AM	Adam McArthur	AM

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1 INTRODUCTION

1.1 Background

JWA Pty Ltd have been engaged by Project 28 Pty Ltd (Project 28) to prepare a Threatened Species Management Plan (TSMP) for Precincts 1 - 5 of the Kings Forest project site. The Kings Forest site is 846 hectares in area and is located in the coastal zone of the Tweed Shire Local Government Area (LGA). The site was zoned for residential and commercial development in the early 1990's and has been subject to a lengthy Commonwealth, State and Council approval process. Numerous ecological studies have been completed on the site over the last 30 years including detailed flora, fauna and hydrological surveys.

The protection of threatened flora and fauna species and Endangered Ecological Communities (EECs) known to occur, or considered to be provided with suitable habitat, within Precincts 1 - 5 and associated Environmental Management Areas (EMAs), and the proposed East-West Corridor, are the focus of this TSMP. This TSMP provides specific measures for mitigating and/or minimising the potential impacts on threatened flora and fauna species and EECs within these areas as a result of development activities. Specific management actions discussed in this TSMP will be triggered and completed on a pre-construction, construction and operational phase basis.

This TSMP should be read in conjunction with the Precincts 1 - 5 VWMP (JWA 2020a) which provides general vegetation and fauna management strategies applicable to all species on site, as well as details of proposed protection and restoration works such as fencing and revegetation works.

In addition, it should be noted that specific management strategies for the koala and the wallum sedge frog are included separately within the Koala Plan of Management (KPoM) (JWA 2019) and the Wallum Sedge Frog Management Plan (WSFMP) (JWA 2020b) respectively and these documents should therefore also be read in conjunction with this TSMP.

1.2 Aim and Objectives

The aim of this TSMP is to provide guidelines, strategies and methods for the management of the threatened flora and fauna species and EECs recorded within Precincts 1 - 5 EMAs and the proposed East-West Corridor, such that species and ecological communities continue to persist and reproduce.

Specific objectives of the Precinct 1 - 5 TSMP include:

- Provide a summary of the EECs and threatened flora and fauna species occurring within Precincts 1 - 5 and associated EMAs, and the proposed East-West Corridor;
- Provide a profile for each EEC and threatened flora and fauna species occurring which includes:
 - A list of overall threats to the EEC/threatened species;
 - Recovery strategies for the EEC/threatened species including details of Approved Recovery Plans and/or Priority Actions;

- Devise management strategies to be implemented including:
 - Strategies for the protection of EEC/threatened species during the construction and operation stage of the development;
 - Weed control measures specific to areas containing listed threatened flora and fauna species;
 - Guidelines for the control of human and animal access to areas containing EECs/threatened species;
 - Strategies for the embellishment of threatened species habitat through revegetation works and/or the creation of compensatory habitat areas where required;
 - A monitoring and reporting program.

Implementation of this TSMP will ensure ongoing sustainable management of threatened species and EECs within Precincts 1 - 5 EMAs and the proposed East-West Corridor, and that land clearing and land modification activities associated with the development are effectively remediated.

1.3 Compliance with Relevant Approval Conditions

On the 19th January 2007, the NSW Minister for Planning authorised a Concept Plan (06_0318) for a proposed residential community at Kings Forest. The Minister for Planning granted part 3A approval (with conditions) for the Concept Plan for Kings Forest in August 2010. A Precincts 1 and 5 TSMP was prepared in accordance with the Concept Plan approval conditions.

The Kings Forest Stage 1 Project Application (MP 08_0194) was lodged in November 2011. The Project Application was approved (with conditions) on the 11th August 2013. Conditions of this approval required that all environmental management plans be revised.

On the 21st May 2015 the Commonwealth Department of Environment approved (with conditions) the Kings Forest residential development (EPBC 2012/6328). The Commonwealth approval is confined to the mitigation of impacts of the proposed development on the koala and wallum sedge frog, both of which are listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Species specific Management Plans have been prepared for the EPBC Act listed koala (*Phascolarctos cinereus*) and wallum sedge frog (*Litoria olongburrensis*) i.e. the Kings Forest KPOM (JWA 2019) and the Kings Forest WSFMP (JWA 2020b), and these documents should be read in conjunction with this TSMP. There are no additional specific EPBC Act approval conditions relating to other threatened species on the Kings Forest development site.

Since the Commonwealth approval decision Project 28 have been liaising with Tweed Shire Council (TSC) and the NSW Department of Planning, Industry and Environment (DPI&E) to reconcile all approval conditions.

This Precincts 1 - 5 TSMP has been prepared to comply with all relevant Commonwealth, State and Local Government approval conditions. **APPENDIX 1** contains the details of the following

relevant Consolidated Approval Conditions and also notes where they are addressed in this TSMP:

- Concept Plan 06_0318 Consolidated Approval Conditions incorporating the following:
 - Modification No. 1, approved on 22 December 2010;
 - Modification No. 2, approved on 11 August 2013;
 - Modification No. 3, approved on 16 May 2014;
 - Modification No. 4, approved on 20 November 2014;
 - Modification No. 5, approved on 10 November 2015;
 - Modification No. 8, approved on 24 May 2018;
- Project Approval 08_0194 Consolidated Approval Conditions incorporating the following:
 - Modification No. 1, approved on 16 May 2014;
 - Modification No. 2, approved on 20 November 2014;
 - Modification No. 3, approved on 20 February 2017;
 - Modification No. 6, approved on 21 December 2017; and
 - Modification No. 7, approved 24 May 2018.

JWA hereby certify that this TSMP has been prepared in accordance with the requirements of Condition C2 of Concept Plan Approval No. CP06_0318 (as modified) and generally in accordance with the requirements of Conditions 39 and 43 of Major Project Approval No. MP08_0194 (as modified) for Kings Forest Stage 1.

1.4 Related Management Plans Prepared for the Kings Forest Site

A number of management plans were completed for the Kings Forest Stage 1 Project Application and approved under Project Approval 08_0194. Subsequent to their approval, significant work has been completed on the site. Several of these management plans have therefore been amended (and others will need to be amended) as required by Condition 39 of MP 08_0194.

This TSMP should be read in conjunction with the following documents prepared for the Kings Forest development:

- Kings Forest Koala Plan of Management (KPoM) (JWA 2019);
- Kings Forest Wallum Sedge Frog Management Plan (WSFMP) (JWA 2020b);
- Kings Forest Precincts 1 - 5 Buffer Management Plan (BMP) (JWA 2020c);
- Kings Forest Precincts 1 - 5 Vegetation and Weed Management Plan (VWMP) (JWA 2020a);
- Kings Forest Flora and Fauna Monitoring Report (FFMR) (JWA 2020d);
- Kings Forest Feral Animal Management Plan (FAMP) (JWA 2020e);
- Kings Forest Stage 1 Bushfire Management Plan (BushfireSafe 2020);
- Kings Forest Koala Fire Management Plan (Wildsite 2020);

- Construction Environmental Management Plan (CEMP) (MUS 2020);
- Kings Forest Summary of Management Plans (SOMP) (G&S 2020a);
- Kings Forest Overall Water Management Plan (OWMP) (G&S 2020b); and
- Kings Forest Drainage Maintenance Management Plan (DMMP) (G&S 2020c).

APPENDIX 2 provides further details of these management plans and details of their relationship to the TSMP.

2 SITE DESCRIPTION

2.1 Location

Kings Forest is located on the far north coast of NSW in the Tweed local government area (LGA) approximately 20 km south of the Queensland/NSW border, 5 km north-west of the village of Bogangar and 4 km south-west of Kingscliff (**FIGURE 1**).

2.2 Subject Site

The Kings Forest site is comprised of fourteen (14) land parcels with a total area of 846 hectares:

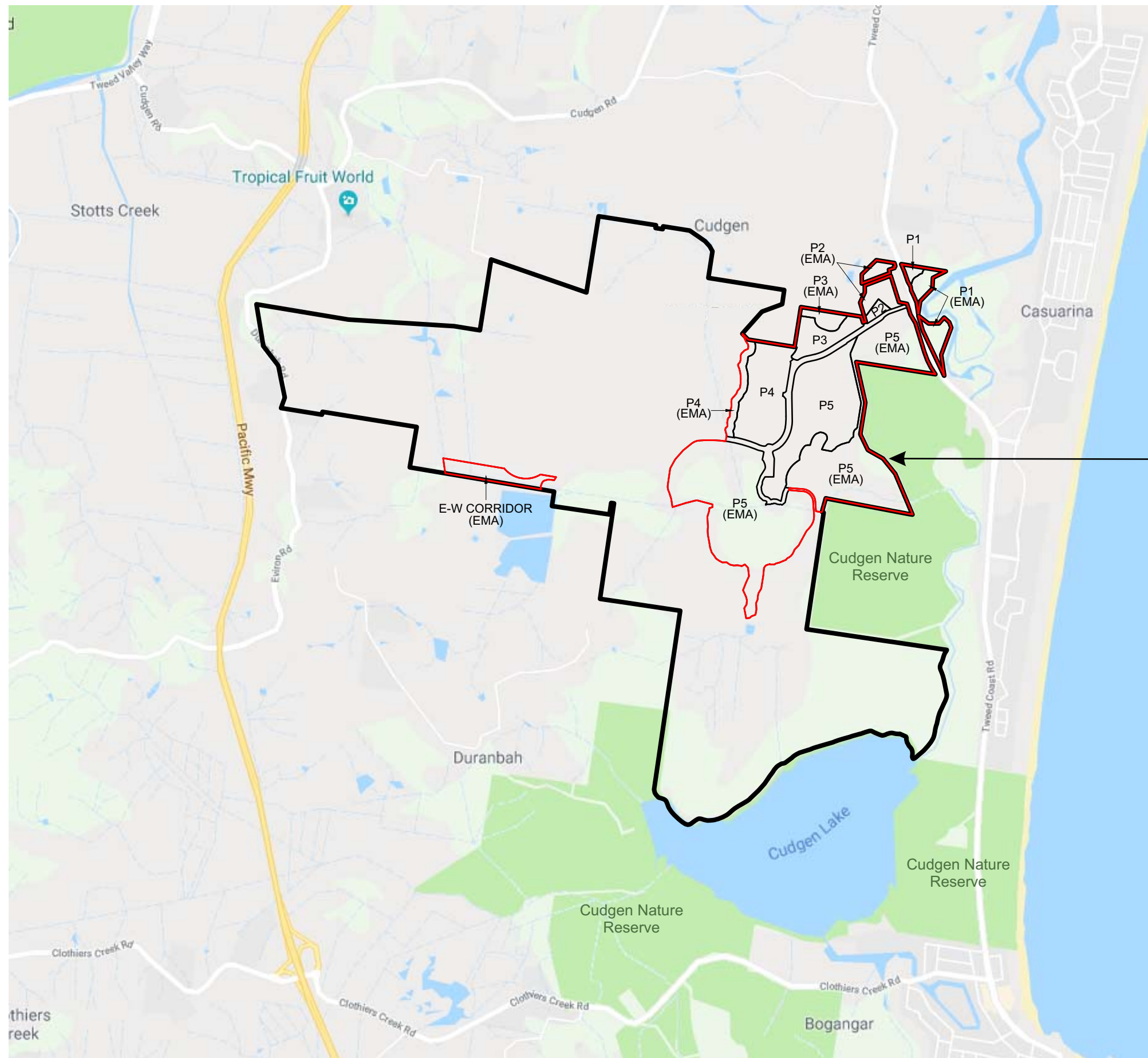
- Lot 76, 272, 323 and 326 in DP 755701;
- Lot 6 in DP 875446;
- Lot 2 in DP 819015;
- Lot 1 in DP 706497;
- Lot 40 in DP 7482;
- Lot 37A in DP 13727;
- Lot 38A in DP 13727;
- Lot 38B in DP 13727;
- Lot 1 in DP 129737;
- Lot 1 in DP 781633; and
- Lot 7 in DP 875447.

Project 28 Pty Ltd owns and manages the site which is currently used for cattle grazing and silviculture. The site consists of a mosaic of natural, partially natural, modified and regenerating plant communities including Heathland, Swamp sclerophyll (Paperbark) forest, Woodland, Pine plantation, Freshwater wetland and Pasture. The majority of the site is maintained as pasture for cattle grazing.

The Kings Forest site abuts agricultural and rural lands to the north, west and south west. Cudgen Nature Reserve (including Cudgen Lake and Cudgen Creek) abuts the site boundaries to the south and east. There are a small number of residential properties along Tweed Coast Road to the north of the site.

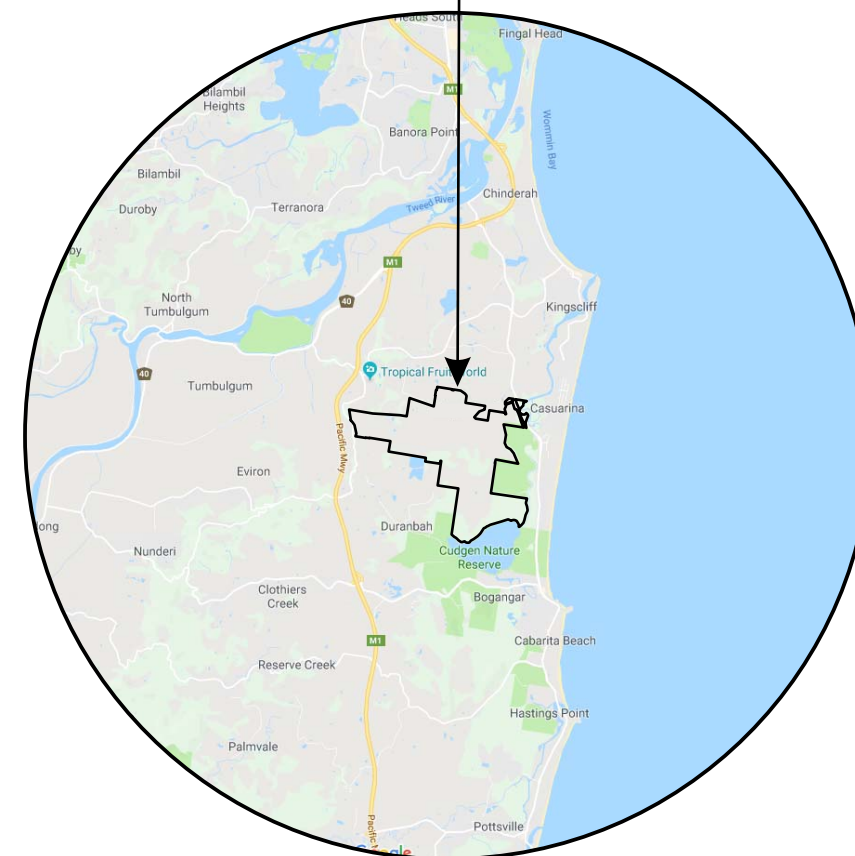
2.3 Conservation Reserves/Ecologically Significant Areas in the Locality

The Cudgen Nature Reserve adjoins the southern and (in part) eastern boundaries of the subject site (**FIGURE 2**). Stotts Island Nature Reserve is situated approximately 2 km to the north-west of the site.



LEGEND
 Area Subject to this Management Plan
 Kings Forest Boundary

SUBJECT SITE



0 750m
 1 : 30 000

SOURCE: Google Maps

SCALE: 1 : 30 000 @ A3

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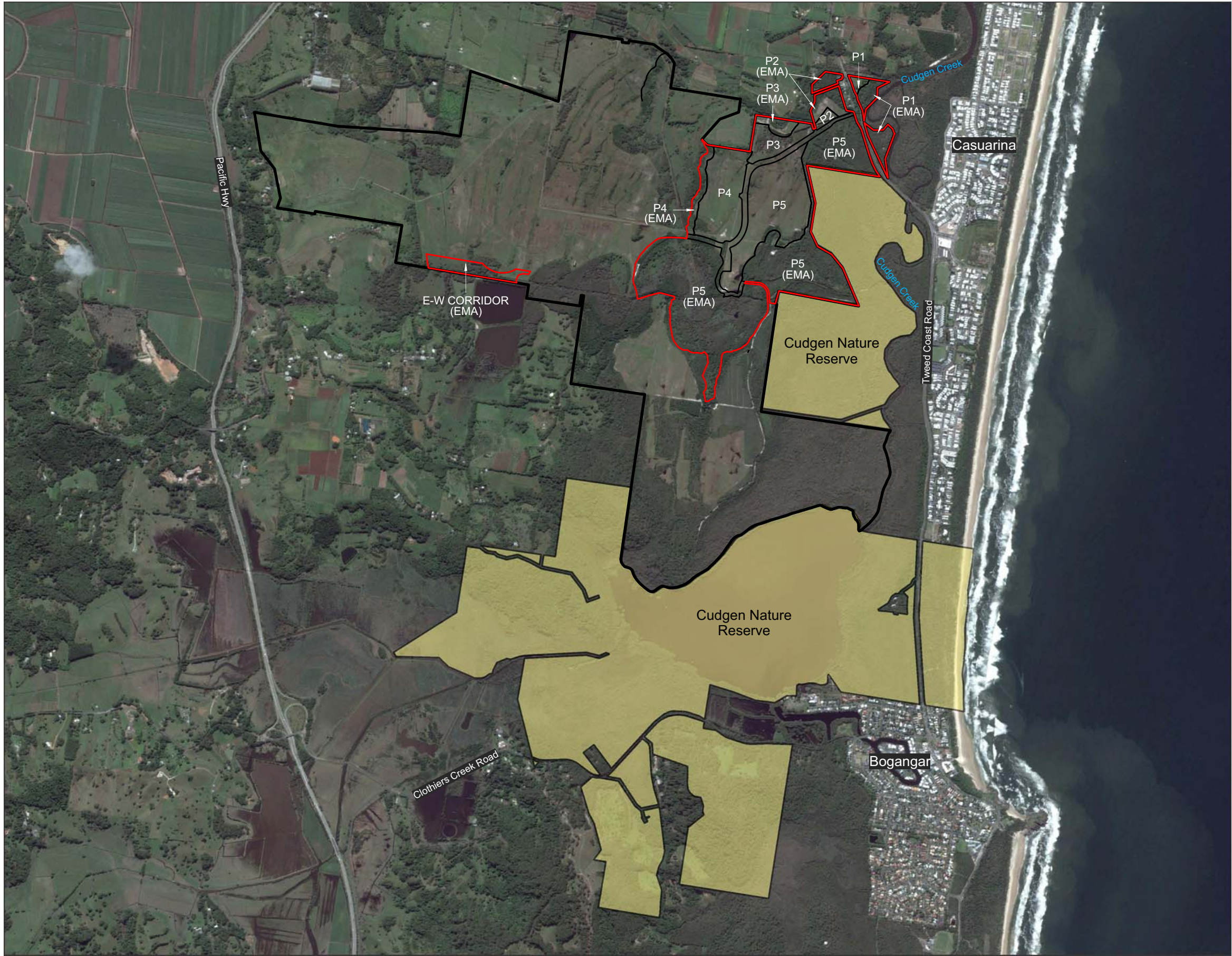
CLIENT
 Project 28 Pty Ltd
 PROJECT
 Threatened Species Management Plan
 Precincts 1 - 5 Kings Forest
 Melaleuca Drive, Duranbah, NSW
 Shire of Tweed

FIGURE 1

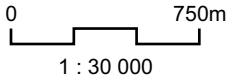
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TITLE

**LOCALITY
 PLAN**



- LEGEND**
- Cudgen Nature Reserve
 - Area Subject to this Management Plan
 - Kings Forest Boundary



SOURCE: NSW DPI Cadastre
Google Earth Apr 2017 Aerial
SCALE: 1 : 30 000 @ A3

JWA PTY LTD
Ecological Consultants

CLIENT
Project 28 Pty Ltd
PROJECT
Threatened Species Management Plan
Precincts 1 - 5 Kings Forest
Melaleuca Drive, Duranbah, NSW
Shire of Tweed

FIGURE 2

PREPARED: BW
DATE: 27 July 2020
FILE: N97017_Cudgen NR.cdr

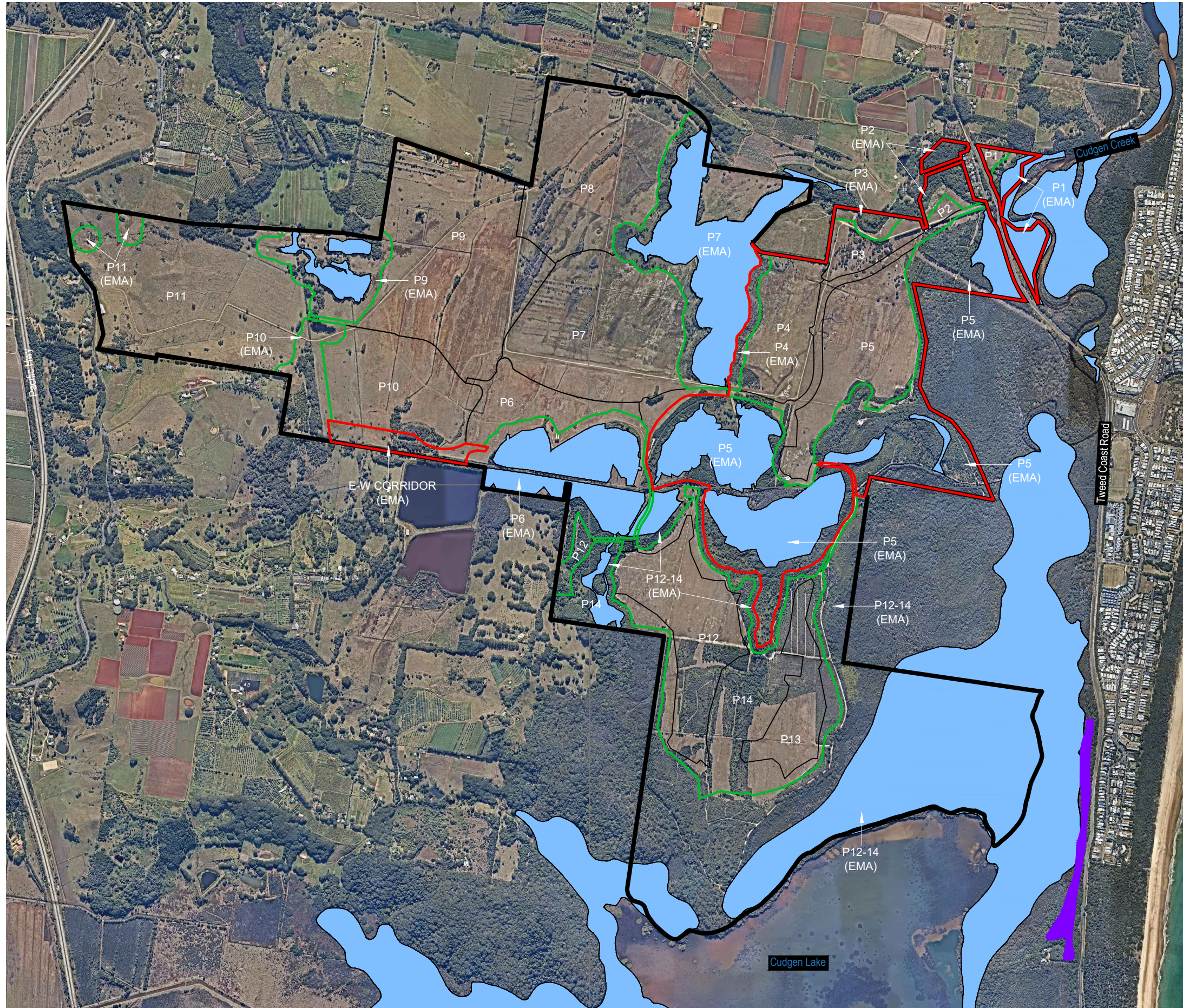
TITLE

**CUDGEN
NATURE
RESERVE**

Several Freshwater wetland and Littoral Rainforest areas protected under the (superseded) State Environmental Planning Policy (SEPP) 14 (Coastal Wetlands) and SEPP26 (Littoral Rainforests) exist within and near the site (**FIGURE 3**). These SEPP's have been superseded by State Environmental Planning Policy (SEPP) Coastal Management (2018). Whilst there are areas of discrepancy between the superseded and current SEPP wetland mapping on site, the wetlands generally occur in areas zoned for Environmental Protection on the NSW Planning SEPP Major Development 2005 - Kings Forest land zoning map (**FIGURE 4**). As all relevant approvals were granted prior to the gazettal of the Coastal Management SEPP reference to this mapping has not been shown to avoid confusion.

2.4 Land Use Zones

Land use zones over the Kings Forest development site are identified on the NSW Planning SEPP Major Development 2005 - Kings Forest land zoning map (**FIGURE 4**). SEPP 14 wetland areas, as well as a number of smaller wetland and Littoral rainforest parcels have been designated Environmental Protection (Wetlands and Littoral Rainforests) (7a) zones. Substantial buffer zones occur wherever the 2(c) lands abut neighbouring agricultural land (150 metres) and Environmental Protection zones (50 metre). Lands in the far south of the property are subject to clause 50b of the Tweed LEP, committing them to conservation. Apart from other smaller areas of Environmental Protection (Habitat) (7I), the remainder of the property is zoned Urban Expansion (2c).

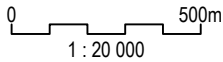


LEGEND

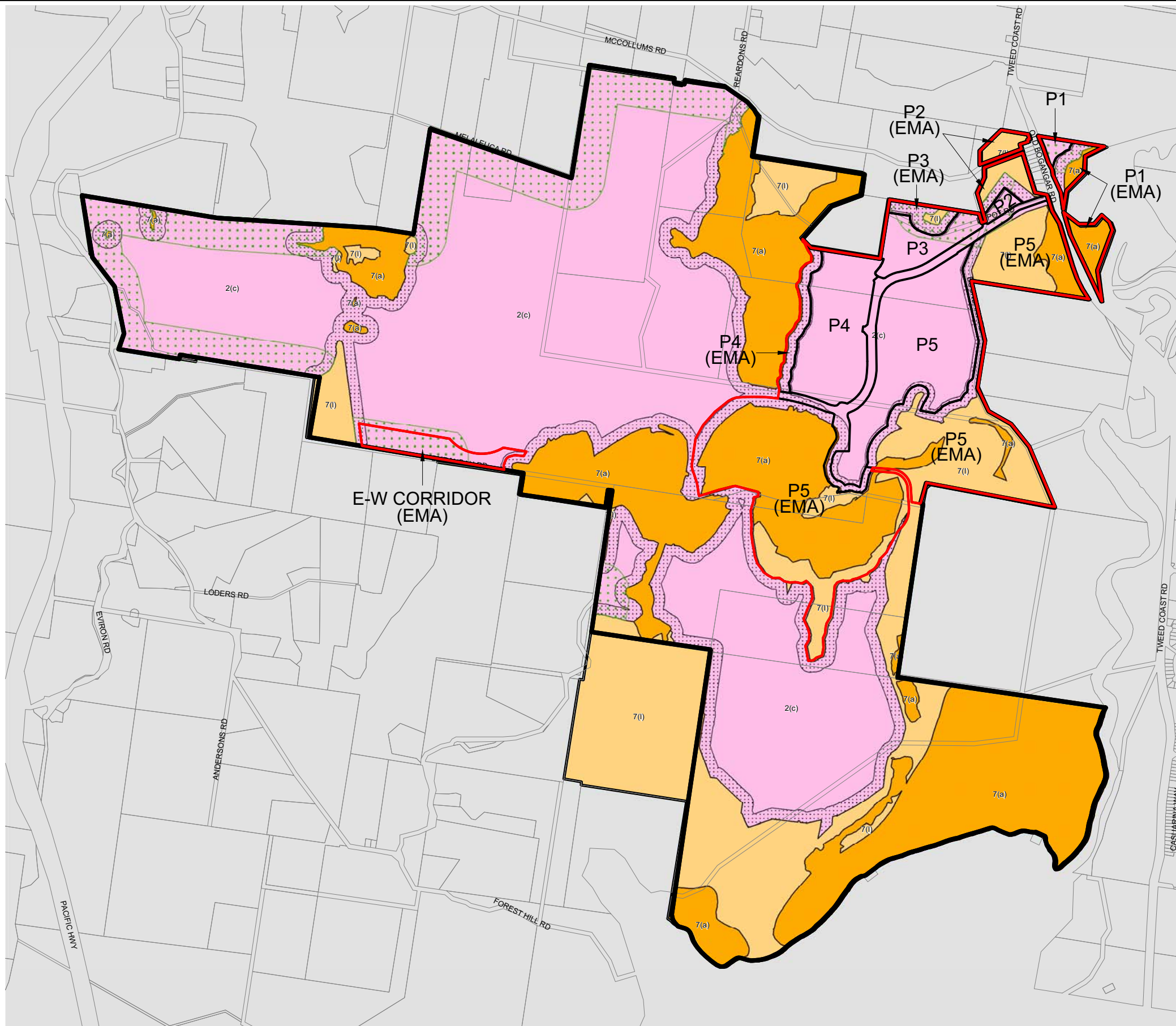
- SEPP 14 Coastal Wetlands (#1)
- SEPP 26 Littoral Rainforest (#1)
- Area Subject to this Management Plan
- Environmental Management Area (EMA) Boundary (#2)
- Precinct Boundary
- Kings Forest Boundary

Note 1:
These SEPP's have been superseded by State Environmental Planning Policy (SEPP) Coastal Management (2018). As all relevant approvals were granted prior to the gazettal of the Coastal Management SEPP, reference to the revised mapping has not been shown to avoid confusion.

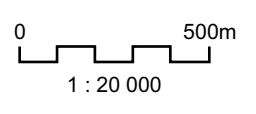
Note 2:
To assist in identifying the staging of rehabilitation and management actions, EPZs and buffer areas have been associated with a relevant development precinct and are collectively titled as Environmental Management Areas (EMAs).



SOURCE: Landpartners - SEPP14 Wetlands (Amendment 15) & SEPP26 Littoral Rainforest; Near Map 08/08/18 Aerial SCALE: 1 : 20 000 @ A3	CLIENT Project 28 Pty Ltd PROJECT Threatened Species Management Plan Precincts 1 - 5 Kings Forest Melaleuca Drive, Duranbah, NSW Shire of Tweed	FIGURE 3		TITLE SEPP No. 14 COASTAL WETLANDS & SEPP No. 26 LITTORAL RAINFOREST
		PREPARED: BW DATE: 29 January 2020 FILE: N97017_MP 1-5_20200727.dwg		
JWA PTY LTD Ecological Consultants				



- LEGEND**
- Area Subject to this Management Plan
 - Kings Forest Boundary
- ZONING**
- 2(c) Urban Expansion
 - 7(a) Environmental Protection (Wetlands & Littoral Rainforests)
 - 7(l) Environmental Protection (Habitat)
 - Agricultural Buffer (150m)
 - Ecological Buffer (50m)



SOURCE: NSW Planning SEPP (Major Development) 2005 - Kings Forest Land Zoning Map (Ref: SEPP_MD_KIF_LZN_001_20100201) SCALE: 1 : 20 000 @ A3 JWA PTY LTD Ecological Consultants	CLIENT Project 28 Pty Ltd PROJECT Threatened Species Management Plan Precincts 1 - 5 Kings Forest Melaleuca Drive, Duranbah, NSW Shire of Tweed	FIGURE 4	TITLE ZONING PLAN
		PREPARED: BW DATE: 27 July 2020 FILE: N97017_Zoning.cdr	

3 PROPOSED DEVELOPMENT

3.1 Background

The Kings Forest project is a master planned residential community. The total area of the proposed development is 422.32 ha and will include the following in accordance with the Concept Plan Approval (as modified Mods 1 to 5):

- Residential development for approximately 4500 dwellings;
- Town centre and neighbourhood centre for future retail and commercial uses;
- Community and education facilities;
- Employment land;
- 18 hole Golf Course;
- Open space;
- Wildlife corridors;
- Protection and rehabilitation of environmentally sensitive land;
- Utility services infrastructure;
- Water management areas and lake; and
- Roads and pedestrian and bicycle paths.

The proposed development comprises a total of fourteen (14) separate precincts (**FIGURE 5**) and development of the site will be completed on a precinct-by-precinct basis.

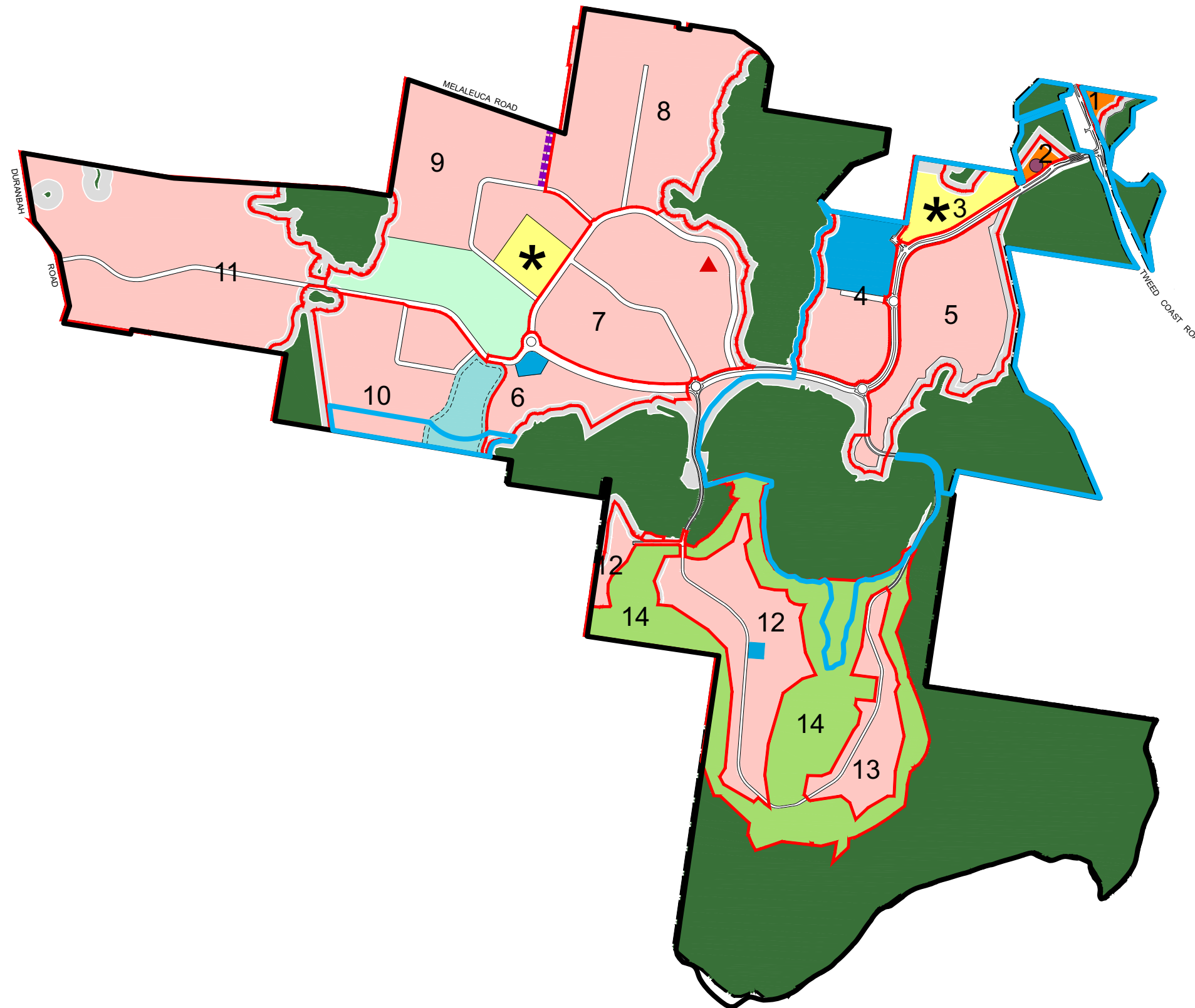
Retained vegetation and habitat areas across the site generally occur within Environmental Protection Zones (EPZs) and associated buffers. To assist in identifying the staging of rehabilitation and management actions, these EPZ and buffer areas have been associated with a relevant development precinct and are collectively titled as Environmental Management Areas (EMAs). Works within EMAs will be completed in accordance with the staging of the associated Precinct.

Precincts 1 - 5 and the proposed East-West Corridor are the subject of this TSMP. Precincts 1 - 5 occur in the north-eastern portion of the Kings Forest development site. The proposed East-West Corridor occurs in the central western portion of the Kings Forest development site.

3.2 Precinct Descriptions

3.2.1 *Precinct 1*

Precinct 1 occurs in the far east of the Kings Forest site. Tweed Coast Road traverses the western boundary of Precinct 1 and Cudgen Creek occurs offsite to the east. Precinct 1 is proposed to be developed for the purposes of a Service Station (**FIGURE 6**). An EPZ and associated 50 m buffer zone occur to the south of Precinct 1 (collectively referred to as the Precinct 1 EMA) in which no development works are proposed. Works within the Precinct 1 EMA will include:



- LEGEND**
- Area Subject to this Management Plan
 - Precinct Boundary
 - Kings Forest Boundary
- PRECINCT PLAN**
- Town Centre / Neighbourhood Centre
 - Residential
 - Community Facilities / Education
 - Employment Land
 - Structured Open Space (Active)
(Passive open space to council standards, location subject to urban design)
 - Environmental Protection Area
 - 50m Ecological Buffer
(Includes APZs & roads where approved)
 - * State School Site
 - Proposed Zone Substation
(Subject to Country Energy final approval)
 - ▲ Potential Affordable Housing Location
 - Potential Road Connection to Melaleuca Road
 - Private Open Space
 - Golf Course Area
(Encompassing ecological buffers where indicated)
 - Private Open Space including lake

IMPORTANT NOTE
This plan was prepared as a preliminary concept plan for planning purposes only. As such all particulars, including lot design, areas and densities, are subject to detailed survey, site investigations and to the requirements of council and any other authority which may have requirements under any relevant legislation.
This note is an integral part of this plan.

0 500m
1 : 20 000

SOURCE: RPS Precinct Plan Rev B
dated 05/12/13 (Ref: 113691-PSP-4b(PRECINCT
PLAN).dwg)
SCALE: 1 : 20 000 @ A3
JWA PTY LTD
Ecological Consultants

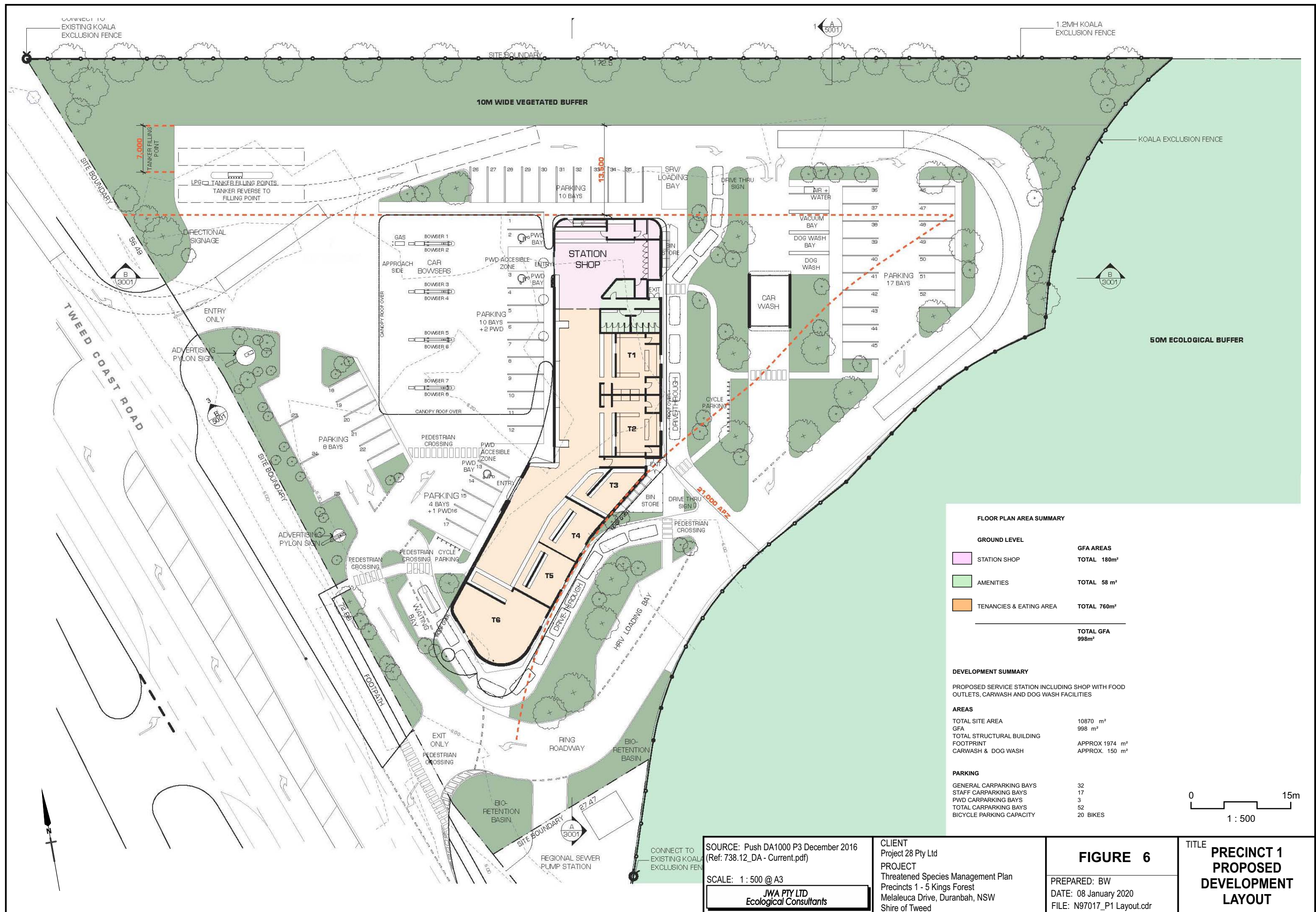
CLIENT
Project 28 Pty Ltd
PROJECT
Threatened Species Management Plan
Precincts 1 - 5 Kings Forest
Melaleuca Drive, Duranbah, NSW
Shire of Tweed

FIGURE 5

PREPARED: BW
DATE: 27 July 2020
FILE: N97017_Precinct Plan.cdr

TITLE

**PRECINCT
PLAN**



- Protection and maintenance of retained vegetation in accordance with the following documents where applicable:
 - Precincts 1 - 5 VWMP (JWA 2020a) - Section 6.7; and
 - Kings Forest KPoM (JWA 2019) - Section 7.5.
- Littoral rainforest regeneration/revegetation works in accordance with Section 6.9 of the Precincts 1 - 5 VWMP (JWA 2020a).

3.2.2 Precinct 2

Precinct 2 is located at the entrance to the Kings Forest site, to the west of Tweed Coast Road and north of the proposed Kings Forest Parkway. Precinct 2 is proposed to be developed for employment purposes. An EPZ and associated 50 m buffer zone occur to the north of Precinct 2 (collectively referred to as the Precinct 2 EMA) in which no development works are proposed. Works within the Precinct 2 EMA will include:

- Protection and maintenance of retained vegetation within the IPZ and OPZ in accordance with the following documents where applicable:
 - Precincts 1 - 5 VWMP (JWA 2020a) - Section 6.7; and
 - Kings Forest KPoM (JWA 2019) - Section 7.5.
- Regeneration/revegetation works (including compensatory koala habitat creation and heath regeneration/revegetation) in accordance with the following documents where appropriate:
 - Precincts 1 - 5 VWMP (JWA 2020a) - Section 6.9; and
 - Kings Forest KPoM (JWA 2019) - Section 7.6.

3.2.3 Precinct 3

Precinct 3 is proposed to be developed as a Community Facility/Education Precinct. A small EPZ and associated 50 m buffer occur adjacent to the central northern portion of the Precinct (collectively referred to as the Precinct 3 EMA) in which no development. Works within the Precinct 3 EMA will include:

- Protection and maintenance of retained vegetation in accordance with the following documents where applicable:
 - Precincts 1 - 5 VWMP (JWA 2020a) - Section 6.7; and
 - Kings Forest KPoM (JWA 2019) - Section 7.5.
- Regeneration/revegetation works (including compensatory koala habitat creation and heath regeneration/revegetation) in accordance with the following documents where appropriate:
 - Precincts 1 - 5 VWMP (JWA 2020a) - Section 6.9; and
 - Kings Forest KPoM (JWA 2019) - Section 7.6.

3.2.4 Precinct 4

Precinct 4 is located in the central portion of the Kings Forest site, to the east of the northern SEPP and west of the proposed Kings Forest Parkway. The northern portion of Precinct 4 is proposed to be developed as a Town Centre precinct while the southern portion is proposed to be developed as a residential precinct. A large EPZ associated with Precinct 7 occurs to the west of Precinct 4. A 50 m buffer (referred to as the Precinct 4 EMA) occurs between the Precinct 7 EPZ and Precinct 4 in which no development works are proposed.

Works within the Precinct 4 EMA will include:

- Protection and maintenance of retained vegetation in accordance with the following documents where applicable:
 - Precincts 1 - 5 VWMP (JWA 2020a) - Section 6.7; and
 - Kings Forest WSFMP (JWA 2020b) - Section 7.7.
- Regeneration/revegetation works (including compensatory koala and WSF habitat creation and heath regeneration/revegetation) in accordance with the following documents where appropriate:
 - Precincts 1 - 5 VWMP (JWA 2020a) - Section 6.9;
 - Kings Forest KPoM (JWA 2019) - Section 7.6; and
 - Kings Forest WSFMP (JWA 2020b) - Section 7.8.

3.2.5 Precinct 5

Precinct 5 is located at the entrance to the Kings Forest site to the west of Tweed Coast Road and south of the proposed Kings Forest Parkway. Cudgen Nature Reserve occurs to the east of Precinct 5 and Blacks Creek occurs to the south.

Precinct 5 is proposed to be developed as a residential precinct and will also include the construction of a significant portion of the proposed Kings Forest Parkway. Large areas adjacent to Precinct 5 will be retained within EPZs and associated 50 m buffer zones (collectively referred to as the Precinct 5 EMA). Where the 50 m buffer zones occur adjacent to development in Precinct 5, the outer 20 m zone will be utilised for stormwater conveyance and ancillary structures such as fauna exclusion fencing whilst the inner 30 m zone will be utilised for conservation purposes only such as revegetation and assisted regeneration works. Works within the inner 30 m of the Precinct 5 EMA will include:

- Protection and maintenance of retained vegetation in accordance with the following documents where applicable:
 - Precincts 1 - 5 VWMP (JWA 2020a) - Section 6.7;
 - Kings Forest KPoM (JWA 2019) - Section 7.5; and
 - Kings Forest WSFMP (JWA 2020b) - Section 7.7.
- Regeneration/revegetation works (including compensatory koala and WSF habitat creation and heath regeneration/revegetation) in accordance with the following documents where appropriate:

- Precincts 1 - 5 VWMP (JWA 2020a) - Section 6.9;
- Kings Forest KPoM (JWA 2019) - Section 7.6; and
- Kings Forest WSFMP (JWA 2020b) - Section 7.8.

FIGURE 7 shows the proposed development for Precinct 5.

3.2.6 East-West Corridor

The proposed East-West Corridor is located in the central west section of the Kings Forest site and extends along the southern boundary of Precinct 10. The proposed East-West Corridor will link the Precincts 6 and 10 EPZs and bolster movement/dispersal corridors in this portion of the Kings Forest site. Works within the Precinct 1 EMA will include compensatory koala habitat creation in accordance with Section 7.6 of the Kings Forest KPoM (JWA 2019).

3.3 Development Staging

The Kings Forest project will likely proceed over many years. The length of time will be dependent, to a certain degree, on the demand for land over time. The development of the site will be completed on a precinct-by-precinct basis in accordance with approved Precinct Plan (**FIGURE 5**). In relation to Precincts 1 - 5 (i.e. the subject of this TSMP) it is intended to construct the Kings Forest Parkway and develop Precincts 1, 2, 5 and the majority of Precinct 4 as Stage 1. Stage 2 of the development will include Precinct 3 and the remainder of Precinct 4.

RESIDENTIAL PRODUCT MIX

- TERRACES

- Build to both boundaries

- Rear loaded
- PLEXES

- Attached Dwelling

- Front loaded parking

- Min. Frontage : 18m , Corner : 20m

- Min. Depth : 20m
- ZERO - Lot Dwellings

- Detached Dwellings

- Build to one side boundary

- Front loaded parking

- Min. Frontage : 8m with rear lane : 10m with front access, Corner : 10m with rear lane, 12m with front access

- Min. depth : 24m
- TRADITIONAL Detached Dwelling

- Detached Dwelling

- Garage may Zero to side boundary

- Front loaded parking

- Min. Frontage : 15m, Corner : 18m

- Min. Depth : 25m

DEVELOPMENT SUMMARY			
LOT CATEGORY	NUMBER OF ALLOTMENTS	NUMBER OF DWELLINGS	PERCENTAGE OF DWELLINGS
TOWNHOUSES	1	20	5%
TERRACES	44	44	10%
PLEXES	25	54	13%
ZERO - LOT DWELLING	192	192	44%
TRADITIONAL DETACHED DWELLINGS	121	121	28%
TOTALS	383	431	100%

LEGEND :

ELECTRICAL TRANSFORMER (Pad Mount)



4 EXISTING SITE VALUES

4.1 Introduction

The following sections detail the existing ecological values contained within Precincts 1 - 5 and associated EMAs, and the proposed East-West Corridor. An aerial photograph of these areas is shown in **FIGURE 8**.

4.2 Vegetation

The Kings Forest site has a decades-long history of various land uses and land management practices, including pine plantation, sand mining, pasture improvement and turf production, dairy farming, small cropping and sugar cane production. It is presently used generally for cattle grazing. Over many years the land has been extensively cleared for these activities. There remain, however, large areas of undisturbed vegetation in the eastern and south-eastern portions of the property and within wetland areas throughout. These areas of the site are generally zoned for Environment Protection.

Vegetation at the subject site has been described in varying degrees of detail (Warren 2000, Kingston *et al.* 2004, Callaghan *et al.* 2005). The most comprehensive vegetation mapping over the Kings Forest site was completed by the Australian Koala Foundation (Callaghan *et al.* 2005). However, harvesting of areas of pine plantation, continued infestation of native vegetation with Slash pine (*Pinus elliottii*) wildings and areas of natural heath regeneration has occurred since the preparation of this map.

FIGURE 9 shows the vegetation communities occurring over Precincts 1 - 5 and associated EMAs, and the proposed East-West Corridor (as at July 2019) and has been adapted from the Callaghan *et al.* (2005) mapping combined with detailed remapping/ ground-truthing surveys completed by JWA between 2010 - 2019. In total, six (6) broad vegetation types have been mapped within Precincts 1 - 5 and associated EMAs, and the proposed East-West Corridor:

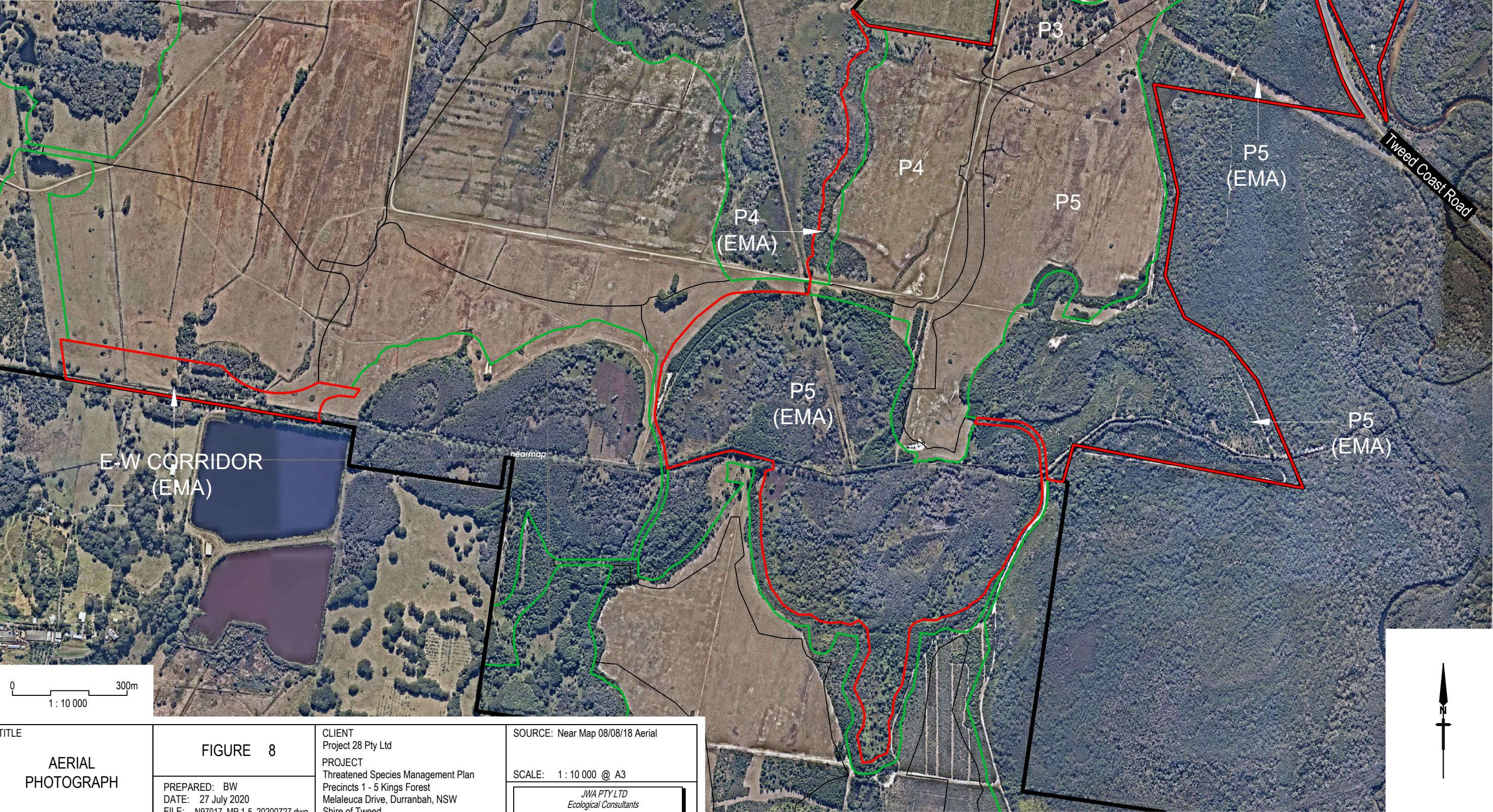
- Highly modified vegetation communities;
- Freshwater wetlands;
- Heathland and shrublands;
- Swamp sclerophyll floodplain forests;
- Dry to moist open forests; and
- Rainforest.

Vegetation community descriptions in this TSMP, including proposed offset/compensatory habitat areas, are discussed in relation to their closest Plant Community Type (PCT) descriptions which were accessed via the Biodiversity and Conservation Division (BCD) (formerly OEH) of the Environment, Energy and Science Group in the NSW DPI&E database (i.e. the BioNet Vegetation Classification System). PCTs are classified based on vegetation types occurring within the Interim Biogeographic Regionalisation for Australia (IBRA) subregions, as developed by the Commonwealth government. The IBRA framework divides Australia landscapes into bioregions and subsequently subregions based on common features such as climate, geology, landform, and vegetation.

LEGEND

- Area Subject to this Management Plan
- Environmental Management Area (EMA) Boundary (#)
- Precinct Boundary
- Kings Forest Boundary

Note:
To assist in identifying the staging of rehabilitation and management actions, EPZs and buffer areas have been associated with a relevant development precinct and are collectively titled as Environmental Management Areas (EMAs).



TITLE

AERIAL
PHOTOGRAPH

FIGURE 8

PREPARED: BW
DATE: 27 July 2020
FILE: N97017_MP 1-5_20200727.dwg

CLIENT
Project 28 Pty Ltd
PROJECT
Threatened Species Management Plan
Precincts 1 - 5 Kings Forest
Melaleuca Drive, Durranbah, NSW
Shire of Tweed

SOURCE: Near Map 08/08/18 Aerial

SCALE: 1:10 000 @ A3

JWA PTY LTD
Ecological Consultants

LEGEND

- Area Subject to this Management Plan
- Environmental Management Area (EMA) Boundary (#1)
- Precinct Boundary
- Kings Forest Boundary

VEGETATION COMMUNITIES (#2)

Community 1 - Highly Modified

- 1(a) Substantially cleared of native vegetation
- 1(b) Camphor laurel dominant closed forest (with rainforest species)
- 1(c) Native plantation/plantings
- 1(e1) Exotic pine plantation
- 1(e2) Exotic pine plantation (with heathland species)
- 1(f) Exotic grassland dominated (with heathland species)
- 1(g) Exotic grassland dominated (with regrowth Acacia & other native species)
- 1(h) Exotic pines with sedgeland/rushland/fernland
- 1(i) Exotic pines with swamp sclerophyll floodplain forest

Community 2 - Freshwater Wetland

- 2(b) Ponds & fringing wetland [PCT 1911, TVMS 701]
- 2(c1) Sedgeland/rushland/fernland [PCT 1911, TVMS 701/702]
- 2(c2) Sedgeland/rushland/fernland (with exotic pines) [PCT 1911, TVMS 701/702]

Community 3 - Heathland & Shrubland

- 3(a1) Dry coastal heathland to shrubland [PCT 663, TVMS 501]
- 3(a2) Dry coastal heathland to shrubland (with exotic pines) [PCT 663, TVMS 501]
- 3(b1) Wet coastal heathland to shrubland [PCT 1297, TVMS 502]
- 3(d) Regenerating wet/dry coastal heathland to shrubland [PCT 1297, TVMS 501/5022]
- 3(e) Regenerating wet/dry coastal heathland to shrubland (with exotic pines) [PCT 1297, TVMS 501/502]

Community 4 - Swamp Sclerophyll Floodplain Forest

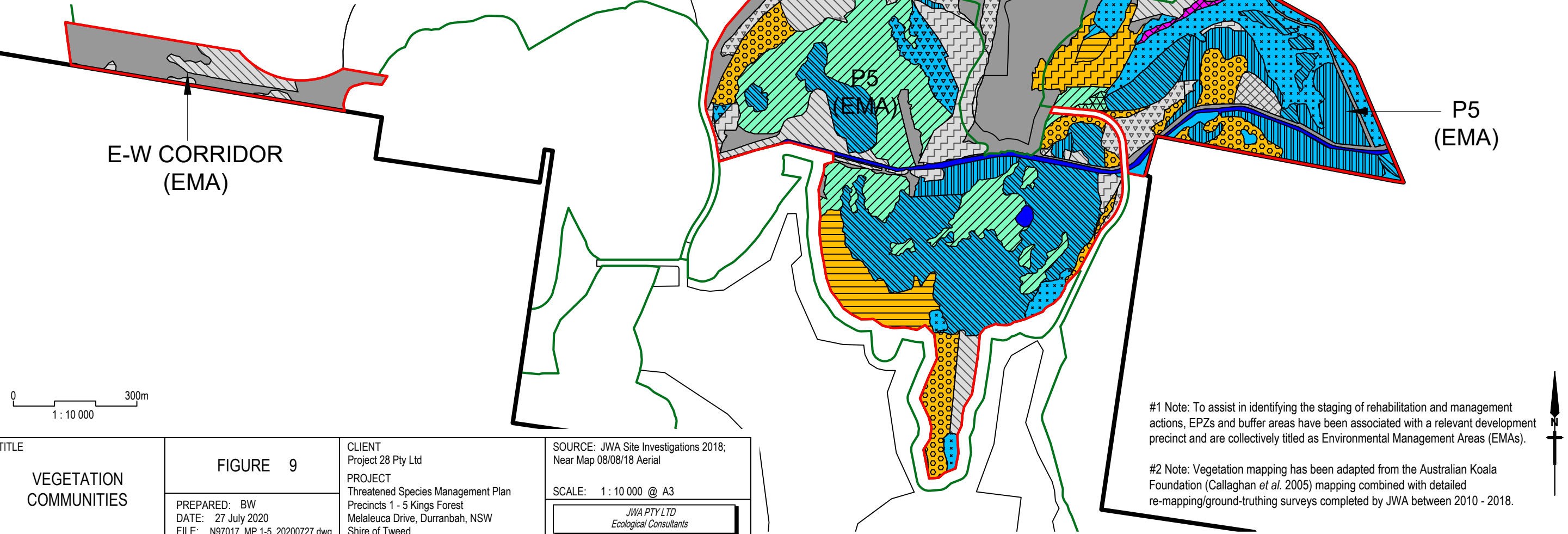
- 4(b) Swamp mahogany open forest to woodland & heathland species [PCT 1230, TVMS 305]
- 4(c) Scribbly gum/Swamp mahogany +/- Red mahogany, Swamp turpentine, Hard corkwood closed forest to woodland [PCT 1230, TVMS 305/306]
- 4(d) Swamp box open forest to woodland [PCT 1064, TVMS 309]
- 4(e) Broad-leaved paperbark closed forest to woodland [PCT 1064, TVMS 401]
- 4(g1) Broad-leaved paperbark closed forest to woodland (with rainforest species) [PCT 1064, TVMS 401]
- 4(i) Swamp sclerophyll & heathland species (with exotic pines) [PCT 1064, TVMS 403]
- 4(j1) Regenerating Broad-leaved paperbark closed forest to woodland & heathland species [PCT 1064, TVMS 403]
- 4(j2) Regenerating Broad-leaved paperbark closed forest to woodland & heathland species & exotic pines [PCT 1064, TVMS 403]
- 4(k) Regenerating Swamp mahogany open forest to woodland [PCT 1230, TVMS 305]

Community 5 - Dry to Moist Open Forest

- 5(d) Scribbly gum open forest to woodland [PCT 1136, TVMS 306]
- 5(e1) Regenerating Scribbly gum open forest to woodland & heathland species [PCT 1136, TVMS 306]
- 5(e2) Regenerating Scribbly gum open forest to woodland & heathland species & exotic pines [PCT 1136, TVMS 306]

Community 6 - Rainforest

- 6(a) Littoral rainforest [PCT 751, TVMS 101]
- Open water



TITLE VEGETATION COMMUNITIES	FIGURE 9	CLIENT Project 28 Pty Ltd	SOURCE: JWA Site Investigations 2018; Near Map 08/08/18 Aerial
	PREPARED: BW DATE: 27 July 2020 FILE: N97017_MP 1-5_20200727.dwg	PROJECT Threatened Species Management Plan Precincts 1 - 5 Kings Forest Melaleuca Drive, Durrabah, NSW Shire of Tweed	SCALE: 1 : 10 000 @ A3 JWA PTY LTD Ecological Consultants

It is noted however that PCT descriptions are still undergoing revision and many remain undescribed for the SEQ03 - Burringbar-Conondale Ranges IBRA subregion. Therefore, corresponding Tweed Vegetation Management Strategy 2004 (TVMS) codes have also been provided.

4.3 Endangered Ecological Communities

Two (2) Endangered Ecological Communities (EECs) as defined by the NSW *Biodiversity Conservation Act 2016* (BC Act) have been mapped within Precincts 1 - 5 and associated EMAs, and the proposed East-West Corridor (**FIGURE 10**):

- Freshwater wetlands on coastal floodplains of the NSW North Coast; and
- Swamp sclerophyll forest on coastal floodplains of the NSW North Coast.

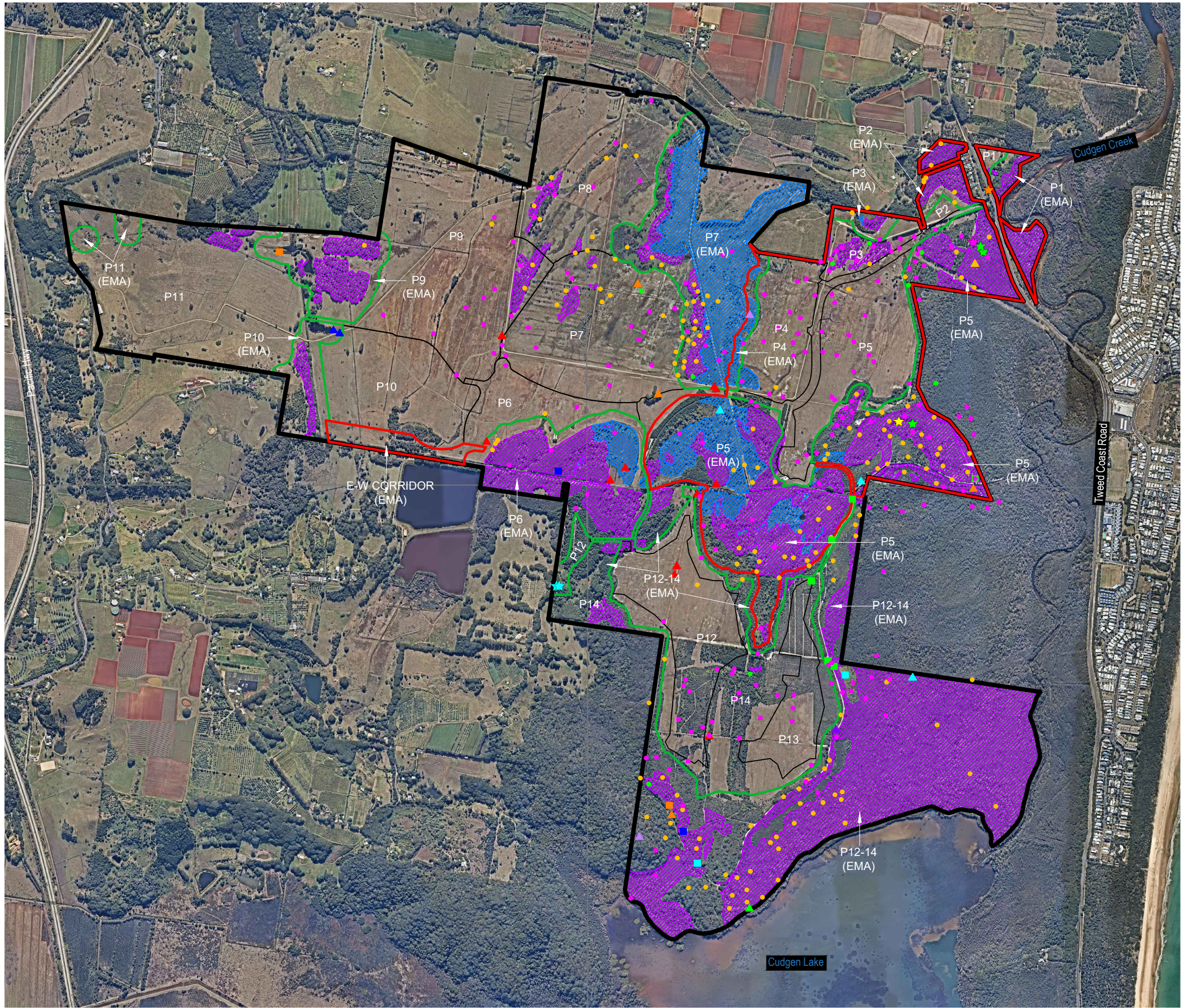
Descriptions of these EEC's are provided in **APPENDIX 3**.

4.4 Threatened Species and Habitat Values

A number of threatened flora and fauna species have been recorded across the Kings Forest site over the last 30 years. Current and historical records of these threatened species are shown in **FIGURE 10**.

TABLE 1 lists the threatened flora and fauna species which have been recorded within Precincts 1 - 5 and associated EMAs, and the proposed East-West Corridor. Also included in **TABLE 1** are species which are known to occur within the wider Kings Forest site and are considered to be provided with suitable habitat within the Precincts 1 - 5 and associated EMAs, and the proposed East-West Corridor. The conservation status of each species listed in **TABLE 1** is shown in accordance with the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the NSW BC Act.

TABLE 1 also summarises the suitable habitat occurring within Precincts 1 - 5 and associated EMAs, and the proposed East-West Corridor for each species. These habitat areas are depicted in **FIGURES 11 - 18**. Species profiles for the threatened flora and fauna species listed in **TABLE 1** including description, habitat requirements, status, existing and potential threats, recovery strategies are provided in **APPENDICES 4 and 5** respectively.



LEGEND

- Area Subject to this Management Plan
- Environmental Management Area (EMA) Boundary (#)
- Precinct Boundary
- Kings Forest Boundary

THREATENED FLORA RECORDS

- Green-leaved rose walnut (*Endiandra muelleri* subsp. *bracteata*) - Endangered (BC Act 2016)
- Southern swamp orchid (*Phaius australis*) - Endangered (BC Act 2016 & EPBC Act 1999)
- Stinking cryptocarya (*Cryptocarya foetida*) - Vulnerable (BC Act 2016 & EPBC Act 1999)
- White laceflower (*Archidendron hendersonii*) - Vulnerable (BC Act 2016)
- White yiel yiel (*Grevillea hilliana*) - Endangered (EPBC Act 1999)

THREATENED FAUNA RECORDS

Birds

- Black bittern (*Ixobrychus flavicollis*) - Vulnerable (BC Act 2016)
- Black-necked stork (*Ephippiorhynchus asiaticus*) - Endangered (BC Act 2016)
- Bush stone-curlew (*Burhinus grallarius*) - Endangered (BC Act 2016)
- Glossy-black cockatoo (*Calyptorhynchus lathami*) - Vulnerable (BC Act 2016)
- Grass owl (*Tyto longimembris*) - Vulnerable (BC Act 2016)
- Masked owl (*Tyto novaehollandiae*) - Vulnerable (BC Act 2016)
- Osprey (*Pandion haliaetus*) - Vulnerable (BC Act 2016)
- Pale-vented bush hen (*Amouronis moluccana*) - Vulnerable (BC Act 2016)

Mammals

- Common blossom bat (*Syconycteris australis*) - Vulnerable (BC Act 2016)
- Common planigale (*Planigale maculata*) - Vulnerable (BC Act 2016)
- Grey-headed flying-fox (*Pteropus poliocephalus*) - Vulnerable (BC Act 2016 & EPBC Act 1999)
- Koala (*Phascolarctos cinereus*) - Vulnerable (BC Act 2016 & EPBC Act 1999)
- Yellow-bellied sheathail bat (*Saccolaimus flaviventris*) - Vulnerable (BC Act 2016)

Amphibians

- Wallum froglet (*Crinia tinnula*) - Vulnerable (BC Act 2016)
- Wallum sedge frog (*Litoria longburnensis*) - Vulnerable (BC Act 2016 & EPBC Act 1999)

ENDANGERED ECOLOGICAL COMMUNITIES

- Freshwater wetlands on coastal floodplains of the NSW North Coast
- Swamp sclerophyll forest on coastal floodplains of the NSW North Coast

Note:
To assist in identifying the staging of rehabilitation and management actions, EPZs and buffer areas have been associated with a relevant development precinct and are collectively titled as Environmental Management Areas (EMAs).

0 500m
1 : 20 000

SOURCE: JWA Site Investigations;
Landpartners Revised TSMP & VMP (July
Near Map 08/08/18 Aerial

SCALE: 1 : 20 000 @ A3

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CLIENT
Project 28 Pty Ltd
PROJECT
Threatened Species Management Plan
Precincts 1 - 5 Kings Forest
Melaleuca Drive, Duranbah, NSW
Shire of Tweed

FIGURE 10

PREPARED: BW
DATE: 3 March 2020
FILE: N97017_MP 1-5_20200727.dwg

TITLE
THREATENED
FLORA & FAUNA RECORDS
& ENDANGERED
ECOLOGICAL
COMMUNITIES