Title of Proposal - CURA A Residential Development, Cumbalum NSW, Ballina Shire

Section 1 - Summary of your proposed action

Provide a summary of your proposed action, including any consultations undertaken.

1.1 Project Industry Type

Residential Development

1.2 Provide a detailed description of the proposed action, including all proposed activities.

The proposed action is a low-medium density urban subdivision and associated revegetation works within the Cumbalum Urban Release Area – Precinct A (CURA A), located near Ballina in north eastern New South Wales (see Attachment A - Figure 1).

Although current proposed lots are shown in Attachment A - Figure 1, additional lots may be created within the large residual lots in the future. Hence, the large residual lots are labelled as ‘key sites for future subdivision’ within Attachment A - Figure 2. The key sites for future subdivision are considered as part of the clearing footprint.

The overall development proposes to cover 214 ha and currently includes a total of 457 residential allotments, nine future development lots, three residual rural lots, six open space lots, road construction, earthworks, stormwater management, infrastructure works, vegetation removal and other associated subdivision works. The project also includes approximately 100 ha of ecological community rehabilitation and management.

The proposed development is planned to occur over several years and be undertaken over 14 stages (Attachment A - Figure 2). Several stages of the proposed development are excluded from this referral (see Attachment A - Figure 3) because they do not have significant impacts to MNES, either in themselves or when considered in combination with the proposed action. Further information (including an MNES impact assessment) to justify why they are not part of this referral is provided in Attachment B – Table 1.

The development stages that are excluded from the referral include:
• 1A (this stage was the subject of Development Application (DA) 2016/576, which was approved by Ballina Shire Council on 8 December 2016)
• 2 (this stage was the part of DA 2016/184, which was approved by BSC on 22 June 2018)
• 3 (this stage was the part of DA 2016/184, which was approved by BSC on 22 June 2018)
• 4 (this stage was the part of DA 2016/184, which was approved by BSC on 22 June 2018)
• 5 (this stage was the part of DA 2016/184, which was approved by BSC on 22 June 2018)
• 6 (this stage was the part of DA 2016/184, which was approved by BSC on 22 June 2018)
• 7 (this stage was the part of DA 2016/184, which was approved by BSC on 22 June 2018)
• 10 (this stage was the part of DA 2016/184, which was approved by BSC on 22 June 2018)
• 11 (this stage was the part of DA 2016/184, which was approved by BSC on 22 June 2018)

The following stages are included as part of the proposed action described within this referral:

• 8 (construction commencement ~mid 2020)
• 9 (construction commencement ~mid 2020)
• 12 (construction commencement ~mid 2020)
• 13 (construction commencement ~mid 2020)
• 14 (construction commencement ~mid 2020)

Not all land within these stages will be used for development however (see clearing footprint in Attachment A - Figure 1).

Within this referral, the term ‘proposed action’ represents the activities and impacts associated with the included stages only. These are the stages that are the subject of this referral.

The proposed action therefore represents a portion of the overall CURA A development. The proposed action covers the five development stages mentioned above, which is an area of 181 ha. The proposed action proposes:
• a total of 164 residential allotments,
• seven future development lots,
• three residual rural lots,
• three open space lots,
• road construction, earthworks, stormwater management, infrastructure works, vegetation removal and other associated subdivision works.
• Ecosystem rehabilitation / management for conservation

The location and configuration of project infrastructure is within the GIS shapefiles provided (Attachment C: Project Data).

The ecosystem rehabilitation and associated management for conservation forms a large part of the action. Approximately 100 ha will be managed and restored for the long-term protection and enhancement of ecological values as guided by a Plan of Management (PoM) (Attachment d) which will be secured via a Section 88b instrument under the NSW Conveyancing Act 1919. Works undertaken in accordance with the PoM are considered part of the action as local government approval conditions require implementation of the plan as part of the development. Furthermore, elements of PoM implementation have the potential to impact on MNES. For instance:
- rainforest rehabilitation works within current areas where Arthraxon hispidus (Hairy-joint Grass) is present may result in loss of individual plants. This includes digging of holes for tube stock, use of herbicides and trampling by machinery / vehicular access.
- Slashing may also result in impacts to Hairy-joint Grass.
- Seed collection to support PoM-relates nursery activities prevent natural recruitment processes for threatened flora species.

Mitigation measures for these PoM activities are outlined in Section 4.

The PoM incorporates a 10-year establishment phase that will be undertaken by the developer. Management zones and associated management tasks have been determined by identifying the current ecological attributes on the site that will be maintained and enhanced into the future.

For all areas of ecological community revegetation or regeneration (see Attachment A – Figure 4), management works will seek to emulate the ecological communities that existed on the site

prior to clearing. The establishment phase incorporates site preparation, primary weed control, revegetation and maintenance across seven management zones:
• Freshwater Wetland – 3 ha
• Grassland (Existing Hairy-joint Grass habitat) – 12 ha
• Grassland (Proposed Hairy-joint Grass habitat) – 40 ha
• Lowland Rainforest Regeneration – 12 ha
• Lowland Rainforest Revegetation – 21 ha
• Swamp Sclerophyll Forest Regeneration – 11 ha
• Swamp Sclerophyll Forest Revegetation – 1 ha

As part of PoM implementation, a minimum of five Coolamon (Syzigium moorei), 15 Green-leaved Rose Walnut (Endiandra muelleri subsp. bracteata) and 50 Rough-shelled Bush Nut (Macadamia tetraphylla) are to be planted throughout the lowland rainforest revegetation area. These plants will be propagated from the plants currently occurring on or within ~10km of the site. Other threatened species that currently exist on site are also likely to be included in the planting palette.

The PoM advocates an adaptive management approach. Adaptive management entails monitoring the response of the environment to different management practices, identifying management issues as they arise and adapting the management of the site to achieve the best possible environmental outcome.

1.3 What is the extent and location of your proposed action? Use the polygon tool on the map below to mark the location of your proposed action.

Area	Point	Latitude	Longitude
Approximate Refferal Area. details in Attachment C: Project Data	1	-28.818290345948	153.54089474323
Approximate Refferal Area. details in Attachment C: Project Data	2	-28.818252743317	153.54085182789
Approximate Refferal Area. details in Attachment C: Project Data	3	-28.817801537365	153.54080891254
Approximate Refferal Area. details in Attachment C: Project Data	4	-28.815771086387	153.53969311359
Approximate Refferal Area. details in Attachment C: Project	5	-28.815470275468	153.53926396015

Area	Point	Latitude	Longitude
Approximate Refferal Area. details in Attachment C: Project Data	6	-28.815056659036	153.53831982258
Approximate Refferal Area. details in Attachment C: Project Data	7	-28.814154217483	153.53746151569
Approximate Refferal Area. details in Attachment C: Project Data	8	-28.813815799884	153.53750443104
Approximate Refferal Area. details in Attachment C: Project Data	9	-28.813326972524	153.53789066913
Approximate Refferal Area. details in Attachment C: Project Data	10	-28.81336457471	153.53836273792
Approximate Refferal Area. details in Attachment C: Project Data	11	-28.813477381187	153.53879189136
Approximate Refferal Area. details in Attachment C: Project Data	12	-28.81389100389	153.53909229877
Approximate Refferal Area. details in Attachment C: Project Data	13	-28.814116615582	153.53947853687
Approximate Refferal Area. details in Attachment C: Project Data	14	-28.813627789632	153.53986477497
Approximate Refferal Area. details in Attachment C: Project Data	15	-28.813402176882	153.5396072829
Approximate Refferal Area. details in Attachment C: Project Data	16	-28.813176563643	153.53917812946
Approximate Refferal Area. details in Attachment C: Project Data	17	-28.812800540493	153.53930687549

Area	Point	Latitude	Longitude
Approximate Refferal Area. details in Attachment C: Project Data	18	-28.812386913459	153.53965019825
Approximate Refferal Area. details in Attachment C: Project Data	19	-28.811822873948	153.54020809772
Approximate Refferal Area. details in Attachment C: Project Data	20	-28.811935682095	153.53990769031
Approximate Refferal Area. details in Attachment C: Project Data	21	-28.812687733283	153.53922104481
Approximate Refferal Area. details in Attachment C: Project Data	22	-28.813063756841	153.53909229877
Approximate Refferal Area. details in Attachment C: Project Data	23	-28.813026154546	153.5389206374
Approximate Refferal Area. details in Attachment C: Project Data	24	-28.813026154546	153.53866314533
Approximate Refferal Area. details in Attachment C: Project Data	25	-28.81291334758	153.53823399189
Approximate Refferal Area. details in Attachment C: Project Data	26	-28.81291334758	153.53767609241
Approximate Refferal Area. details in Attachment C: Project Data	27	-28.812950949916	153.53728985431
Approximate Refferal Area. details in Attachment C: Project Data	28	-28.813514983318	153.53677487018
Approximate Refferal Area. details in Attachment C: Project Data	29	-28.814455032202	153.53681778553

Area	Point	Latitude	Longitude
Approximate Refferal Area. details in Attachment C: Project Data	30	-28.814981455872	153.53733276966
Approximate Refferal Area. details in Attachment C: Project Data	31	-28.815620681036	153.53763317707
Approximate Refferal Area. details in Attachment C: Project Data	32	-28.816071896437	153.53844856861
Approximate Refferal Area. details in Attachment C: Project Data	33	-28.816335104518	153.53887772205
Approximate Refferal Area. details in Attachment C: Project Data	34	-28.817011922244	153.53952145222
Approximate Refferal Area. details in Attachment C: Project Data	35	-28.81712472477	153.53939270618
Approximate Refferal Area. details in Attachment C: Project Data	36	-28.816297503404	153.53810524586
Approximate Refferal Area. details in Attachment C: Project Data	37	-28.816936720491	153.53780483845
Approximate Refferal Area. details in Attachment C: Project Data	38	-28.816861518685	153.53759026172
Approximate Refferal Area. details in Attachment C: Project Data	39	-28.817350329457	153.53741860035
Approximate Refferal Area. details in Attachment C: Project Data	40	-28.817275127949	153.53698944691
Approximate Refferal Area. details in Attachment C: Project Data	41	-28.81753833299	153.53686070087

Area	Point	Latitude	Longitude
Approximate Refferal Area. details in Attachment C: Project Data	42	-28.817350329457	153.53561615589
Approximate Refferal Area. details in Attachment C: Project Data	43	-28.816259902277	153.53574490192
Approximate Refferal Area. details in Attachment C: Project Data	44	-28.815771086387	153.53561615589
Approximate Refferal Area. details in Attachment C: Project Data	45	-28.814379828604	153.53522991779
Approximate Refferal Area. details in Attachment C: Project Data	46	-28.812988552238	153.53527283314
Approximate Refferal Area. details in Attachment C: Project Data	47	-28.812161298021	153.53527283314
Approximate Refferal Area. details in Attachment C: Project Data	48	-28.811334037235	153.53544449451
Approximate Refferal Area. details in Attachment C: Project Data	49	-28.811221228437	153.53480076435
Approximate Refferal Area. details in Attachment C: Project Data	50	-28.810958007433	153.53484367969
Approximate Refferal Area. details in Attachment C: Project Data	51	-28.81088280131	153.53385662678
Approximate Refferal Area. details in Attachment C: Project Data	52	-28.811146022504	153.53389954212
Approximate Refferal Area. details in Attachment C: Project	53	-28.811409243032	153.53372788074

Area	Point	Latitude	Longitude
Data Approximate Refferal Area. details in Attachment C: Project	54	-28.811597257289	153.53274082783
Data Approximate Refferal Area. details in Attachment C: Project	55	-28.811597257289	153.53201126697
Data Approximate Refferal Area. details in Attachment C: Project	56	-28.811409243032	153.53076672199
Data Approximate Refferal Area. details in Attachment C: Project	57	-28.811935682095	153.53059506061
Data Approximate Refferal Area. details in Attachment C: Project	58	-28.812988552238	153.53085255268
Data Approximate Refferal Area. details in Attachment C: Project	59	-28.81366539171	153.53188252094
Data Approximate Refferal Area. details in Attachment C: Project	60	-28.81516946368	153.53278374317
Data Approximate Refferal Area. details in Attachment C: Project	61	-28.816447907778	153.53269791248
Data Approximate Refferal Area. details in Attachment C: Project	62	-28.815996694006	153.52939343097
Data Approximate Refferal Area. details in Attachment C: Project	63	-28.814755846053	153.52930760029
Data Approximate Refferal Area. details in Attachment C: Project	64	-28.81441743041	153.52952217701
Data Approximate Refferal Area. details in Attachment C: Project	65	-28.81419181937	153.52939343097

Area	Point	Latitude	Longitude
Approximate Refferal Area. details in Attachment C: Project Data	66	-28.81366539171	153.52905010822
Approximate Refferal Area. details in Attachment C: Project Data	67	-28.811522051627	153.52819180134
Approximate Refferal Area. details in Attachment C: Project Data	68	-28.811296434316	153.52832054737
Approximate Refferal Area. details in Attachment C: Project Data	69	-28.811146022504	153.52840637806
Approximate Refferal Area. details in Attachment C: Project Data	70	-28.809265856528	153.52741932514
Approximate Refferal Area. details in Attachment C: Project Data	71	-28.808701800118	153.52729057911
Approximate Refferal Area. details in Attachment C: Project Data	72	-28.808212948759	153.5273764098
Approximate Refferal Area. details in Attachment C: Project Data	73	-28.807648886649	153.52741932514
Approximate Refferal Area. details in Attachment C: Project Data	74	-28.8076112824	153.52729057911
Approximate Refferal Area. details in Attachment C: Project Data	75	-28.80828815681	153.52711891773
Approximate Refferal Area. details in Attachment C: Project Data	76	-28.8076112824	153.52703308704
Approximate Refferal Area. details in Attachment C: Project Data	77	-28.807310447917	153.52724766376

Area	Point	Latitude	Longitude
Approximate Refferal Area. details in Attachment C: Project Data	78	-28.807122425924	153.52750515583
Approximate Refferal Area. details in Attachment C: Project Data	79	-28.80682159003	153.52776264789
Approximate Refferal Area. details in Attachment C: Project Data	80	-28.806483148611	153.52780556324
Approximate Refferal Area. details in Attachment C: Project Data	81	-28.807536073861	153.53171085956
Approximate Refferal Area. details in Attachment C: Project Data	82	-28.801444001895	153.53295540455
Approximate Refferal Area. details in Attachment C: Project Data	83	-28.80227134121	153.53909229877
Approximate Refferal Area. details in Attachment C: Project Data	84	-28.80430205754	153.53874897602
Approximate Refferal Area. details in Attachment C: Project Data	85	-28.804978953449	153.54325508716
Approximate Refferal Area. details in Attachment C: Project Data	86	-28.814567839722	153.54145264271
Approximate Refferal Area. details in Attachment C: Project Data	87	-28.815056661259	153.54535793903
Approximate Refferal Area. details in Attachment C: Project Data	88	-28.818553548423	153.54497170093
Approximate Refferal Area. details in Attachment C: Project Data	89	-28.818290345948	153.54089474323

Area	Point	Latitude	Longitude
Data			

1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland).

The development is proposed to be located at Cumbalum Heights, approximately 1.5 km north of Cumbalum and 6 km north-west of Ballina, in New South Wales. The subject site is bordered by the Ballina Heights residential estate to the south and Sandy Flat Road and the undeveloped CURA – Precinct B to the north. The Ballina Nature Reserve (BNR) occurs to the east (approximately 0.33 km away) and the Pacific Highway and Emigrant Creek are to the west. The subject site is located within the North Coast Bioregion.

Refer to **Attachment A - Figure 1**

1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?

65 ha (clearing footprint) and 100 ha (ecosystem rehabilitation management).

1.7 Is the proposed action a street address or lot?

Lot

1.7.2 Describe the lot number and title. Lots 2 & 3 DP 823662; Lot 3 DP 517149; Lot 150 DP 755684; Lot 333 DP 755684; Lot 20 DP 1022777;

1.8 Primary Jurisdiction.

New South Wales

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

No

1.10 Is the proposed action subject to local government planning approval?

Yes

1.10.1 Is there a local government area and council contact for the proposal?

Yes

1.10.1.0 Council contact officer details

1.10.1.1 Name of relevant council contact officer.

Naomi McCarthy

1.10.1.2 E-mail

naomi.mccarthy@ballina.nsw.gov.au

1.10.1.3 Telephone Number

(02) 66861216

1.11 Provide an estimated start and estimated end date for the proposed action.

Start date 07/2019

End date 07/2024

1.12 Provide details of the context, planning framework and State and/or Local government requirements.

The site forms part of a planned residential land release (known as the Cumbalum Urban Release Area), which is detailed in the Cumbalum Structure Plan (Ballina Shire Council 2006). The Ballina Shire Local Environment Plan 2012 (BLEP 2012) and Ballina Shire Development Control Plan 2012 (BDCP 2012) also apply to the land. The proposed action is a local development assessed under Part 4 of NSW *Environmental Planning and & Assessment Act* 1979 and is also considered a Staged Development (via Section 83B). There are two Development Applications for the overall CURA A project:

- DA 2016/184 which applies to the proposed action, and also includes stages excluded from this referral (**Attachment E**); and,

- DA 2016/576 which applies to the stage 1A of the CURA A development which is among the stages excluded from this referral (see **Figure 3**).

Both Development Applications have received local government planning approval.

Further to this, land for which the PoM requires the long-term protection and enhancement of ecological values will be secured via a Section 88b instrument under the NSW *Conveyancing Act, 1919*.

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders.

The development applications for the proposed development were subject to public notification and advertising in accordance with the NSW *EP&A Act 1979* as described below.

1. The Development Application 2016/184 was lodged with the Ballina Shire Council on 15 April 2016.

2. On 2 May 2016, the Ballina Shire Council referred the Development Application to the Local Aboriginal Land Council, two local Aboriginal families, Department of Primary Industries Fisheries (***DPI Fisheries***), Office of Environment and Heritage (***OEH***), NSW Police Lismore Crime Prevention Officer, Rural Fire Service (***RFS***), Roads and Maritime Services (***RMS***), Department of Primary Industries Office of Water (***DPI Water)***, Richmond River County Council, Department of Industry Lands (***DoI Lands***).

3. The Development Application was placed on public exhibition from 11 May to 22 June 2016. A total of 260 property owners and occupants were notified of the Development Application by letter. Four signs were placed on the property (Sandy Flat Road, Ballina Heights Drive, Unara Parkway and Foley Avenue) and the Development Application was notified in the Ballina Advocate.

4. Due to an incorrect description of the Development in the 11 May 2016 advertisement and the initial notification letters sent to adjoining owners, additional letters were issued to adjoining owners with the correct description of the Development on 16 May 2016 (total of 169 letters) and a further advertisement was placed in the Ballina Advocate extending the public exhibition timeframe to 22 June 2016 (from the initial 8 June 2016).

5. A total of nine submissions and one petition were received in relation to the Development Application.

6. On 24 May 2016, the Ballina Shire Council issued a referral letter to the NSW National Parks and Wildlife Service (***NPWS***) regarding the Development and potential impacts on the Ballina Nature Reserve.

7. On 12 September 2016, Intrapac submitted a draft revised Statement of Environmental Effects (***SEE***), Plan Set and Technical Reports to the Ballina Shire Council.

8. On 4 November 2016, the Ballina Shire Council referred the revised proposal to the Local Aboriginal Land Council, two local Aboriginal families, DPI Fisheries, OEH, NSW Police Lismore Crime Prevention Officer, RFS, RMS, DPI Water, Richmond River County Council, DoI Lands and NPWS.

9. The revised Development Application was placed on public exhibition from 16 November 2016 to 2 December 2016. A total of 166 property owners and occupants were notified of the revised Development Application by letter. Four signs were placed on the property (Sandy Flat Road, Ballina Heights Drive, Unara Parkway and Foley Avenue) and the revised Development Application was notified in the Ballina Advocate.

10. A total of ten submissions and one petition were received in response to the exhibition of the revised Development Application.

11. On 19 April 2017, Intrapac filed amended plans and documentation with the Land and Environment Court.

The Subjects Lands are within the cultural heritage jurisdiction of the Jali Local Aboriginal Land Council (Jali LALC). The following consultation was undertaken by Everick Heritage Consultants with respect to indigenous stakeholders:

The Subject Lands were subject to a walkover field inspection on 8, 20 and 21 May 2007. The field inspection was undertaken by Everick Director Dr Richard Robins, Senior Archaeologist Adrian Piper and Jali LALC Sites Officer Marcus Ferguson. On 13, 14 and 15 August 2009, a public notice was placed in the Northern Star newspaper inviting Aboriginal persons/organisations, with cultural heritage interests in the Subject Lands, to advise Everick Heritage Consultants in writing. Letters were also issued to the following Government Departments who were invited to register their interest and / or nominate potential stakeholders:

a) Jali LALC;

b) Ballina Shire Council;

c) National Native Title Tribunal;

d) NSW Office of Environment and Heritage.

In accordance with the Office of Environment and Heritage (OEH) Aboriginal Cultural Heritage Consultation Requirements for Proponents (ACHCRP), Aboriginal parties were given a minimum of 14 days to register their interest. OEH provided a list to Everick of other Aboriginal persons/groups who may also be interested.

- Copies of the draft assessment report were distributed to the above Aboriginal stakeholders on 1 September 2009 with a request for written feedback on the adequacy of the assessment and proposed recommendations.

- An on?site community meeting was arranged for the 26 October 2009, and all registered Aboriginal stakeholders were invited to attend. During the meeting an inspection of the Subject Lands was undertaken.

- An additional site meeting was arranged for 16 December 2009 to discuss the report results and recommendations.

- On finalisation of the Development Application, Everick issued a copy of this assessment to all registered Aboriginal Stakeholders for comment and feedback on Monday, 26 October 2015. All stakeholders were provided with 30 days to review the document and requested to provide written comments. Everick contacted all stakeholders by telephone and email requesting feedback on the report. This report was finalised on 8 December 2015.

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project.

JWA Pty Ltd have undertaken extensive survey and assessment of the ecological values of the site from the original rezoning of the site through to the current development application (JWA 2017). Cumberland Ecology Pty Ltd and Eco Logical Australia Pty Ltd have also completed ecological surveys across the site throughout the approvals process, resulting in several reviews and addendum reports. Detailed data on the ecological values of the site are contained within these respective reports, with the key findings summarised below.

The Revised Ecological Assessment (JWA 2017) identified the following ecological values at the site:

- State Environmental Planning Policy (SEPP) 14 (now superseded by the Coastal Management SEPP) Wetland 88, occurs within the Ballina Nature Reserve immediately to the east of the CURA A Precinct;

- Nineteen vegetation communities and 271 (213 native and 58 exotic) flora species were recorded in the CURA A Precinct;

- Four State Listed Endangered Ecological Communities (EEC) were represented in the CURA A Precinct;

- Eight threatened plant species (5 listed under the EPBC Act) were identified within the CURA A Precinct;

- Eight amphibian, eight reptile, 85 bird and 14 mammal species were recorded on site, including six State listed threatened fauna species (one also listed under the EPBC Act); and

- Based on an assessment of available habitat, a further 13 threatened flora and 22 threatened fauna species are considered to possibly occur within the study area over time.

Assessments of significance (Section 5A of the EP&A Act) undertaken by JWA Pty Ltd (2017) for State listed threatened species and ecological communities concluded that the proposed development was unlikely to have a significant impact to species or communities known or potentially occurring at the site and that a Species Impact Statement was assessed as being not required.

The JWA (2017) report also included an assessment under the EPBC Act and concluded that the proposed development would not have a significant impact on matters of MNES.

Additional reports relevant to the EPBC Act

Eco Logical Australia Pty Ltd prepared a Hairy-joint Grass Addendum Report (ELA 2017b) further assessing potential impacts to *Arthraxon hispidus* (Hairy-joint Grass), taking into consideration the development of sports fields and providing a more detailed analysis of the distribution and presence within the study area, the locality and the region. The report also considered the proposed management works which will be undertaken under the Plan of Management (PoM) (ELA 2017e) in relation to *A. hispidus*. These actions seek to retain, enhance and recreate natural habitat (fringing areas of rainforest) whilst retaining and maintaining areas of derived habitat (paddocks) to ensure the long-term viability of *A. hispidus* in the project area. The report found the proposed development was unlikely to result in a significant impact (with reference to the NSW legislative framework) on Hairy-joint Grass as substantial areas of habitat will remain on the site and will be actively managed to maintain the viability of Hairy-joint Grass on the site.

Eco Logical Australia Pty Ltd prepared a Technical Note – Groundwater Dependent Ecosystems (GDEs) (ELA 2017d) to address concerns from Ballina Shire Council related to potential impacts to GDEs within the CURA A site due to the proposed development. Six sites were identified during the site survey; the assessment concluded that the sites have limited ecological value and the proposed development would not cause a significant impact to ecological values regulated under the NSW TSC Act.

A revised masterplan was adopted in early 2018. The JWA (2017) revised ecological assessment assessed a superseded design and is therefore not included as supporting information for this referral. Nonetheless, relevant baseline information from their report is included within this referral.

A Statement of Environmental Effects (Planners North 2017) was prepared as part of the development application and was updated as part of the latest (current) masterplan design. Eco Logical Australia Pty Ltd completed a Review of the Revised Masterplan (ELA 2018c) which identified that the revised masterplan introduced no new impacts to biodiversity values.

A Supplementary Ecological Assessment (ELA 2018a) was prepared to validate the extent of the Lowland Rainforest Threatened Ecological Community and record more details on paddock trees and Hairy-joint Grass habitat.

The relevant impacts of the proposed action on MNES are described in detail in Section 2.4.

A Plan of Management (PoM) (ELA 2018) has also been prepared to guide the protection, restoration and long-term management of the ecological values across approximately 100 hectares of land within the CURA A development. Implementation of the PoM is required as part of local government approval conditions. PoM requirements are discussed in detail in **Section 4.1**.

Relevant reports are included within **Attachment G** of this referral.

Assessments of significance for MNES potentially impacted by the proposed action have been completed as part of this referral and provided in **Attachment B.** These assessments concluded no significant impacts to MNES were likely to occur as a result of the proposed action.

1.15 Is this action part of a staged development (or a component of a larger project)?

Yes

1.15.1 Provide information about the larger action and details of any interdependency between the stages/components and the larger action.

The proposed action is part of a staged development. The proposed action (and hence this referral) does not apply to all stages of the proposed CURA A development and therefore the action is a component of a larger project. As such this referral is likely to be considered a 'split referral' in accordance with the EPBC Act Policy for Staged Developments.

A split referral is considered appropriate for CURA A as the excluded stages do not have significant impacts to MNES, either in themselves or when considered in combination with the referred action. As such, this split referral is not considered to circumvent controlling provisions and expose protected matters to unassessed significant impacts.

Consideration of impacts associated with the larger action is included in the assessments of significance in **Table 1** of **Attachment B**.

1.16 Is the proposed action related to other actions or proposals in the region?

Yes

1.16.1 Identify the nature/scope and location of the related action (Including under the relevant legislation).

The proposed action is part of broader development plans identified within the Ballina Shire Cumbalum Structure Plan (Ballina Shire Council 2006). Therefore, the proposed action is related to other residential subdivision developments in the Cumbalum Structure Plan area, in particular the developing Ballina Heights area to the south of the project area, and the proposed CURA B precinct to the north (both of which have proponents unrelated to this action).

This referral applies to a portion of the CURA A precinct, with some stages excluded as described in **Section 1.15** (see **Figure 3**).

Section 2 - Matters of National Environmental Significance

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The interactive map tool can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest. Consideration of likely impacts should include both direct and indirect impacts.

Your assessment of likely impacts should consider whether a bioregional plan is relevant to your proposal. The following resources can assist you in your assessment of likely impacts:

• Profiles of relevant species/communities (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;

• Significant Impact Guidelines 1.1 – Matters of National Environmental Significance;

• Significant Impact Guideline 1.2 – Actions on, or impacting upon, Commonwealth land and Actions by Commonwealth Agencies.

2.1 Is the proposed action likely to have ANY direct or indirect impact on the values of any World Heritage properties?

No

2.2 Is the proposed action likely to have ANY direct or indirect impact on the values of any National Heritage places?

No

2.3 Is the proposed action likely to have ANY direct or indirect impact on the ecological character of a Ramsar wetland?

No

2.4 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed species or any threatened ecological community, or their habitat?

Yes

2.4.1 Impact table

Species	Impact
The proposed action is likely to impact several threatened flora and fauna species and/or their known or potential habitats. These species	n/a

Species	Impact
were identified as ‘known to occur’ or ‘potentially occurring’ within JWA (2017) and the likelihood assessment undertaken as part of this referral. The likely impacts of the proposed action are summarised for each species in Table 2 of Attachment B. Assessments of significance for the listed species against the MNES Significant Impact Guidelines 1.1 (DoE 2013) have been undertaken for each listed species and are provided in Table 1 of Attachment B. Records of threatened species recorded within the CURA A area are provided in Figure 7 of Attachment A. Table 3. (a) and (b) assess the project’s impact to threatened species against the EPBC Act Significant Impact Guideline criteria. The project is unlikely to constitute a significant impact to the threatened species under the EPBC Act.	
TECs	The EPBC Act Protected Matters Report (DoE 2018) identifies three TECs likely to occur within 10 km of the proposed action: •Coastal Swamp Oak (Casuarina glauca) Forest of NSW and South East QLD – Endangered •Littoral Rainforest and Coastal Vine Thickets of Eastern Australia – Critically Endangered •Lowland Rainforest of Subtropical Australia – Critically Endangered No vegetation in the study area corresponds to Littoral Rainforest and Coastal Vine Thickets or Coastal Swamp Oak Forest. Lowland rainforest vegetation is present in the project area however no patches meet the condition threshold requirements for the EPBC Act listed Lowland Rainforest of Subtropical Australia community as they do not contain ? 30 native woody species as required in the listing advice for the ecological community (TSSC 2011). Surveys confirming the absence of EPBC Act listed Lowland Rainforest have been undertaken by JWA Pty Ltd (2017) and Eco Logical Australia Pty Ltd (2018a). Further to this, the Coastal Swamp Oak Forest TEC is likely to exist in the Ballina Nature Reserve (particularly in the eastern parts of the reserve, as indicated by Cumbalum Structure Plan Mapping 2005 – See Figure 5 of Attachment A). The western section of the Ballina Nature Reserve will be the receiving environment for some stormwater discharges

Species	Impact
	from Catchment A of the development (see Figure 6 of Attachment A). However, no indirect impacts to the Coastal Swamp Oak Forest TEC are expected because: 1.Catchment A is less than 1% of the BNR's catchment. 2.Effectively, there will be no change in hydrology at the boundary of the site in comparison to existing hydrological regime. 3.The Stormwater Quality Management Plan indicates that the proposed stormwater treatment devices will result in a reduction in pollutants that meet and exceed water quality objectives. 4.The stormwater discharges are not near the mapped extent of Swamp Oak Forest. Hydrological regimes are further described in Section 3.2 and Attachment G. No indirect impacts to the other TECS are expected. As such, the proposed action will not result in impacts to any EPBC Act listed TECs.
FLORA	FLORA
Smooth Davidson's plum (Davidsonia johnsonii) – Endangered Recorded on site. The CURA A Precinct overlaps a small population of Davidsonia johnsonii. Two stems occur within the PoM area. A further five stems were recorded adjacent to but outside the project area. There is no current policy advice about what comprises habitat critical to the survival of D. johnsonii.	Significant impacts to Davidsonia johnsonii are not expected to result from the proposed action for reasons summarised below. See Table 1 in Attachment B for more detail. -The two stems occurring within the footprint of the action Figure 7 of Attachment A) will be retained in residual lots (outside the clearing footprint), so the population and area of occupancy of the species will not decline. These two stems are within the proposed PoM rehabilitation areas and will not be adversely affected by the proposed action. -Approximately 2.5 ha of potential habitat for this species (Rainforest) will be removed by the proposed action, which is not significant given the extent of this species' habitat in the region. The proposed action will retain and rehabilitate 12 ha of suitable Lowland Rainforest habitat. An additional 21 ha of the site will be revegetated into Lowland Rainforest generating further potential habitat for this species. -Invasive plants are currently present on site. Weed and pest prevention and control measures will be implemented through the Plan of Management (PoM) to avoid risks to D. johnsonii from these species. -The proposed action will remove over-grazing impacts by domestic stock and significantly reduce risks associated with fire through the preparation of Bushfire Fuel Management Plans and

Species	Impact
	associated management measures. -The proposed action will reduce the likelihood of illegal collection for bush food and root suckers for propagation in comparison to the current situation (i.e. surveillance will be increased)
Rough-shelled bush nut (Macadamia tetraphylla) – Vulnerable Recorded on site. Eleven stems occur inside the proposed clearing footprint. One additional stem occurs within the study area outside the clearing footprint, and an additional six (6) stems occur adjacent to but outside of the study area. The study site provides habitat critical to the survival of the species (defined in the recovery plan as all areas currently occupied by the species and areas of native vegetation which provide linkages between populations). The recovery plan for the species states (Costello et al 2009): Given the fragmented and small nature of all populations, all populations are considered important for the survival of the species	Significant impacts to Macadamia tetraphylla are not expected to result from the proposed action for reasons summarised below. See Table 1 in Attachment B for more detail. - Eleven stems occur within the footprint of the proposed action and will be removed. These exist within a small patch of mixed rainforest vegetation (Figure 7 of Attachment A), with the exotic species Camphor Laurel dominating. - A viable local population will remain as an additional seven individuals will be retained within and adjacent to the study area. The species is able to pollinate over a distance of 2 km (Pisanu et al 2009) and their current configuration indicates that the species can survive as scattered individuals. - Fifty Macadamia tetraphylla (propagated from the plants currently on site) will be planted throughout the 20.5 ha of lowland rainforest revegetation area as part of the PoM, increasing the overall population size and reducing fragmentation. - Approximately 2.5 ha of potential habitat for this species (Rainforest) will be removed as a result of the proposed action, which is not significant given the available habitat in the region. The proposed development will retain and rehabilitate 12 ha of suitable Lowland Rainforest habitat. An additional 21 ha of the site will be revegetated to Lowland Rainforest generating further potential habitat for this species. - Invasive plants and pest animals are currently present on site. Weed and pest prevention and control measures will be implemented through the PoM to avoid risks to M. tetraphylla from these species. - The proposed action will remove over-grazing impacts by domestic stock and significantly reduce risks associated with fire through the preparation of Bushfire Fuel Management Plans and associated management measures. - Figure 8 and Figure 9 of Attachment A show the distribution of OEH BioNet records for the species, regionally and

Species	Impact
	at the local level. figure 8 shows the species occurs mainly in northern NSW, particularly in coastal areas (all extant BioNet records are displayed in Figure 8). Figure 9 shows there is a local population around Tintenbar, with approximately 143 known individuals within roughly 2 km of the CURA A site (this includes one BioNet point that contains 71 individuals, plus 72 other individuals around within roughly 2km of the CURA A site). With these factors in mind, the project is not considered to have a significant adverse effect on the local population (that exists within roughly 2 km). Furthermore, the action will result in a net benefit for habitat critical to the survival of the species, as well as a net increase in local population numbers.
Coolamon (Syzygium moorei) – Vulnerable Recorded on site. Three stems were recorded during field surveys and occur within or immediately adjacent to the project area. One stem has been removed as part of Stage 1A (this stage is not part of the proposed action that is the subject of this referral). The remaining two stems will not be directly impacted by the proposed action. There is no current policy advice about what comprises habitat critical to the survival of S. moorei.	Significant impacts to Syzygium moorei are not expected to result from the proposed action for reasons summarised below. See Table 1 in Attachment B for more detail. - No S. moorei will be removed by the proposed action. One stem was removed as part of the related Stage 1A (this stage is not part of the proposed action that is the subject of this referral). - One stem will be retained within the PoM rehabilitation areas, whilst the other stem is outside of the project area (Figure 7 of Attachment A). - S. moorei is included in the list of species to be planted among the 20.5 ha of lowland rainforest revegetation. A minimum of five S. moorei (propagated from the plants currently on/adjacent to the site) will be planted within lowland rainforest revegetation areas as part of the PoM. - Approximately 2.5 ha of potential habitat for this species (Rainforest) will be removed as a result of the proposed action, which is not significant given the available habitat in the region. The proposed action will retain and rehabilitate 12 ha of suitable Lowland Rainforest habitat. An additional 21 ha of the site will be revegetated to Lowland Rainforest generating further potential habitat for this species. - Invasive plants and pest animals are currently present on site. Weed and pest prevention and control measures will be implemented through the PoM to avoid risks to S. moorei from these species. - The proposed

Species	Impact
	action will remove over-grazing impacts by domestic stock and significantly reduce risks associated with fire through the preparation of Bushfire Fuel Management Plans and associated management measures. - The likelihood of illegal collection for horticulture will be reduced in comparison to the current situation (i.e. surveillance will be increased).
Hairy Joint Grass (Arthraxon hispidus) – Vulnerable Recorded on site. Total of 21.1 ha of known habitat in study area. No habitat critical to the survival of this species or important populations are identified in policy advice for A. hispidus. There is no adopted or made Recovery Plan for this species.	Significant impacts to A. hispidus are not expected to result from the proposed action for reasons summarised below. See Attachment B for more detail. - Arthraxon hispidus habitat covers approximately 21.1 hectares within the CURA A study area, of which approximately 5.5 ha will be removed by the proposed action (Figure 12 of Attachment A). - There is a relatively high abundance the species within the Ballina Local Government Area. Some 7872 records of this species occur within a 10km radius of the CURA A site (Bionet, 2017) with new recordings being regularly made in disturbed grassland areas indicating the extensive distribution of this species in the local area. Figure 10 and Figure 11 of Attachment A show the regional and local distribution of BioNet records. - Given the distribution and abundance of the species in the study are and the wider locality, Arthraxon hispidus plants within the clearing footprint are not considered to be part of an important population as they are unlikely to form part of a key source population for either for breeding or dispersal, are unlikely to be necessary for maintaining genetic diversity of the population, and are not near the limit of the species range. - The majority of habitat being removed in the locality is located on the proposed sporting fields (Figure 12 of Attachment A), with approximately 25% of the habitat in this area proposed to be removed. This habitat is similar to the extensive areas of habitat being retained and managed on the site and is not considered to be important to the long-term survival of this species in the locality given the extensive areas being conserved and managed. - A total of approximately 28 ha of the site be managed within onsite conservation areas to favour Hairy-joint Grass. This includes 15.6 ha of existing

Species	Impact
	habitat and 12.4 ha of potential habitat. Most of this area is under a current grazing regime. In addition to these areas, 33 ha will be managed as lowland rainforest revegetation, which is one of the species' natural habitat types (DEWHA 2008). - Lowland rainforest revegetation activities will avoid direct impacts to Hairy-joint Grass through contactor training in species identification and inspections prior to any ground works (i.e. any holes that are dug for the planting of rainforest flora species will avoid impacting the species). - The proposed action will remove grazing impacts by domestic stock and significantly reduce risks associated with fire through the preparation of Bushfire Fuel Management Plans and associated management measures. - The proposal will reduce impacts from weed invasion through slashing and brush-cutting exotic grasses during the winter months once Hairy-joint Grass has died off (in accordance with PoM requirements). This slashing is specifically targeted to decrease exotic biomass to favour germination success of A. hispidus. Other potential indirect impacts are discussed below. - Altered Hydrology. The conversion of agricultural land to a combination or urban and conservation lands is likely to alter the hydrology on the site. With regards to the urban area the increased paved areas are likely to increase the peak runoff flows. The import of water to the site and use of water to irrigate gardens etc. is likely to increase the 'trickle' flows during non-rainfall periods. The development includes an extensive series of Water Sensitive Urban Design (WSUD) measures. Most notably, flows from the urban area are stored in the water quality basins, nutrients are treated through biofiltration media and/or wetlands and flows are released gradually from the WSUD devices. The net result is likely to be a minor increase in low flows, increasing localised moist areas downstream from water release points within the study area. These minor increases are small in volume, will be completely contained within creek channels and are unlikely to have an indirect impact on Hairy-joint Grass habitat

Species	Impact
	as there is only a minimal amount of habitat that is located within the drainage lines. - Weed Invasion. The site is already dominated by exotic grasses due to the history of agriculture on the site. Despite, or possible due to, the exotic pasture this species has maintained its persistency across the site. Change in surrounding land use and management practices of Hairy-joint Grass habitat has the potential to encourage weeds that would be detrimental to this species. Weeds that prefer moist areas such as crofton weed, mist flower and lantana are of greatest concern. The potential for weeds to impact Hairy-joint grass is mitigated through the implementation of the PoM. - Human Activity. Increased human activity has the potential to impact on this species in the short and long term. In the short term, inadvertent impacts during the construction period are of greatest concern. These impacts will be mitigated through the requirement to prepare Construction Environmental Management Plans incorporating construction fencing and signage of Hairy-joint grass locations as ‘no go zones’. - Longer term access by the general public into the conservation areas of the site will be limited by fencing and the will incorporating signage identifying the conservation areas across the site. Educational signage in relation to Hairy-joint grass and is presence with the conservation areas will also be considered. In summary, indirect impacts will be mitigated through; - Construction of WSUD devices - Active management of the retained habitat on the site - Control of construction access through fencing and signage - Control of long term public access through fencing and signage
Stinking Cryptocarya (Cryptocarya foetida) – Vulnerable Recorded on site. Four individuals were recorded in the study area outside of the proposed clearing footprint. There is no current policy advice about what comprises habitat critical to the survival of C. foetida.	Significant impacts to Cryptocarya foetida are not expected to result from the development for reasons summarised below. See Table 1 in Attachment B for more detail. - No individuals of C. foetida are proposed to be removed (Figure 7 of Attachment A); known individuals will be retained within an area that will be rehabilitated and conserved. There will therefore be no impact to population size or area of occupancy. - Approximately 2.5 ha of potential habitat for

Species	Impact
	this species (Lowland Rainforest) will be removed as a result of the proposed action. The proposed action will retain and rehabilitate 12 ha of suitable Lowland Rainforest habitat. An additional 21 ha of the site will be revegetated to Lowland Rainforest generating further potential habitat for this species. - Invasive plants and pest animals are currently present on site. Weed and pest prevention and control measures will be implemented through the PoM to avoid risks to C. foetida from these species. - The proposed action will remove over-grazing and trampling impacts by domestic stock and significantly reduce risks associated with fire through the preparation of Bushfire Fuel Management Plans and associated management measures. - Cryptocarya foetida is included in the list of species to be planted among the 20.5 ha of lowland rainforest revegetation.
Southern swamp orchid (Phaius australis) – Endangered Potential to occur on site. Swamp sclerophyll and floodplain rainforest communities occurring in the study area represent suitable habitat for this species. The species has not been recorded despite targeted flora surveys being undertaken. There is no current policy advice about what comprises habitat critical to the survival of P. australis. The OEH database contained fourteen (14) records of this species within 10 kilometres of the subject site and ten (10) records within the Ballina LGA. It should be noted that this species has not been recorded within the study area despite comprehensive flora assessment including extensive targeted threatened species searches.	Significant impacts to Phaius australis are not expected to result from the proposed action for reasons summarised below. See Table 1 in Attachment B for more detail. - The species has not been recorded within the study area but has the potential to occur within 0.9 ha of habitat (swamp sclerophyll forest) that will be removed as a result of the proposed action. - The proposed action will retain and rehabilitate over 10 ha of suitable habitat for this species. - An additional 1 ha of the site will be revegetated as suitable vegetation communities for this species generating further potential habitat. - A Stormwater Management Plan (Knobel Consulting 2018) and associated Monitoring and Adaptive Framework Plan (Knobel 2017) will be implemented to ensure suitable water quality and hydrological regimes are maintained within freshwater wetlands in the project area and that no significant indirect impacts occur to adjacent suitable habitats in the Ballina Nature Reserve. - A Stormwater Quality Management Plan will be implemented to ensure suitable water quality and hydrological regimes are maintained within the freshwater wetland in the project area and that no significant indirect impacts occur to adjacent suitable habitats in the Ballina Nature Reserve. See Section 4. -

Species	Impact
	Risks associated with fire will be reduced through the preparation of Bushfire Fuel Management Plans and associated management measures. - The proposal will remove grazing and trampling impacts by domestic stock and feral pigs, as well as reduce impacts from weed invasion through the implementation of the PoM. - The likelihood of trail bike riders, rubbish dumping and other disturbance due to vehicles and/or people will be reduced through appropriate exclusion/protective fencing and educational signage around the rehabilitation areas.
FAUNA	FAUNA
Mitchell's Rainforest Snail (Thersites mitchellae) - Critically Endangered Potential to occur on site. The CURA A Precinct contains potential habitat for Mitchell's Rainforest Snail (Tall closed Forest, Very tall forest and Swamp Sclerophyll Forest); however, the species has not been recorded on site despite extensive searches. The OEH database contained three (3) records of this species within 10 kilometres of the subject site and three (3) records in the Ballina LGA. The nearest record occurs approximately 4km to the north-east of the subject site. Critical habitat for Mitchell's Rainforest Snail has been declared (under NSW legislation) on Stott's Island Nature Reserve, 60 km north of the project area. The study site does not contain habitat critical to the survival of the species.	Significant impacts to Mitchell's Rainforest Snail are not expected to result from the proposed action for reasons summarised below. See Table 1 in Attachment B for more detail. - The species has not been recorded on site despite extensive searches and the highest quality potential habitat in the project area will not be impacted by the proposed action. Approximately 1.4 ha of potential habitat (Tall Closed Forest and Swamp Sclerophyll Forest) will be impacted, however these areas are low quality potential habitat due to their size and poor connectivity and are considered unlikely to support the species. Therefore, an impact on population size or area of occupancy is not expected to occur. - Approximately 10 ha of suitable habitat for this species on the site will be retained and enhanced/protected within conservation areas, with an additional approximately 22 ha of adjoining habitats to be managed for regeneration into potential habitat (lowland rainforest and swamp sclerophyll forest). Large areas (approximately >400 ha) of suitable habitat are also present within the adjacent Ballina Nature Reserve. - No habitat critical to the survival of the species occurs on site. - Habitat for threatened fauna species on the site is already highly fragmented and has had a history of disturbance from land clearing, grazing, farm maintenance and other activities in the study area. The proposed action has been designed to utilise disturbed areas of the CURA A Precinct and is unlikely to contribute significantly to an increase in the fragmentation

Species	Impact
	of native vegetation communities. Additionally, the PoM works will result in consolidation of existing fragmented habitat patches over time. - Invasive plants and pest animals are currently present on site. Weed and pest prevention and control measures will be implemented through the PoM to avoid risks to Mitchell's Rainforest Snail from these species. - The proposed action will remove over-grazing impacts by domestic stock and significantly reduce risks associated with fire through the preparation of Bushfire Fuel Management Plans and associated management measures.
Grey-headed Flying Fox (Pteropus poliocephalus) – Vulnerable Recorded foraging on paperbark and mature figs across the CURA A Precinct (Figure 5 of Attachment A). No camps are present in the project area. The habitat on site meets the criteria for critical foraging habitat for the Grey-headed Flying Fox because it known to support populations of >30,000 individuals within a 50 km radius (the maximum foraging distance of an adult). A nationally significant camp of up to 50,000 Grey-headed Flying Foxes occurs at Rotary Park, Lismore (~23 km west of the site).	Significant impacts to the Grey-headed Flying Fox are not expected to result from the proposed action for reasons summarised below. See Table 1 in Attachment B for more detail. - No flying fox camps exist within CURA A. The closest known camp is at Little Fishery Creek, Ballina, 5.5 km south east of CURA A. The closest known nationally significant camp is located ~23 km west of CURA A. - The proposed action will result in the loss of 3.8 ha of potential foraging habitat (i.e. all treed communities are considered habitat) for the species. Large areas of suitable foraging habitat will remain within and adjacent to the study area, including the adjacent Ballina Nature Reserve (BNR) which, along with adjoining areas, provides an estimated 750 ha of suitable foraging habitat (paperbark forest). - The majority of vegetation to be removed from the site consists of fragmented and modified areas. The vegetation to be removed is unlikely to be important to any local population of Grey-headed Flying Fox when considering the small area of vegetation to be removed relative to the distance from the nearest camp, and the larger areas of suitable habitat proposed to be retained, rehabilitated and protected. - Invasive plants and pest animals are currently present on site. Weed and pest prevention and control measures will be implemented through the PoM to avoid risks to the Grey-headed Flying Fox habitat from these species. - Habitat for threatened fauna species on the site is already highly fragmented and has had a history of disturbance from land clearing, grazing, farm

Species	Impact
	maintenance and other activities in the study area. The proposed action has been designed to utilise disturbed areas of the CURA A Precinct and is unlikely to contribute significantly to an increase in the fragmentation of habitat. Additionally, the PoM works will result in consolidation of existing fragmented habitat patches over time.
Wallum Sedge Frog (Litoria olongburensis) – Vulnerable Potential to occur on site. The CURA A Precinct contains potential habitat for the Wallum Sedge Frog (marshy or swampy areas with emergent vegetation); however, the species was not recorded onsite despite targeted surveys. The habitat onsite meets the definition of habitat critical to the survival of this species, as it includes freshwater wetlands and associated vegetation communities occurring on low nutrient sandy soils. The species may utilise a range of vegetation types including melaleuca (paperbark) woodland, sedgeland, rainforest, eucalypt forest and heath.	Significant impacts to the Wallum Sedge Frog are not expected to result from the proposed action for reasons summarised below. See Table 1 in Attachment B for more detail. - The Wallum Sedge Frog has not been recorded onsite despite targeted surveys. - The proposed action will not reduce the area of potential habitat within the study area for this species as the freshwater wetland habitat and surrounding vegetation in the south east of the study area which represents potential habitat for the species is to be retained, and surrounding areas rehabilitated and managed. - The proposed action will remove grazing and trampling impacts by domestic stock. - A Stormwater Management Plan (Knobel Consulting 2018) and associated Monitoring and Adaptive Framework Plan (Knobel 2017) will be implemented to ensure suitable water quality and hydrological regimes are maintained within freshwater wetlands in the project area and that no significant indirect impacts occur to adjacent suitable habitats in the Ballina Nature Reserve. See Section 4. - Invasive plants and pest animals are currently present on site. Weed and pest prevention and control measures will be implemented through the PoM to avoid risks to the Wallum Sedge Frog from these species.
Regent Honeyeater (Anthochaera phrygia) – Critically Endangered Regent Honeyeater has not been recorded in the project area, however suitable habitat is present, and the species has potential to occur on site. The Swamp Mahogany woodland in the northern portion of the site may provide suitable foraging habitat. The habitat onsite meets the definition of critical habitat for the species, as it constitutes foraging habitat in an area where the species is likely to occur (as defined by the distribution map in the	Significant impacts to the Regent Honeyeater are not expected to result from the proposed action for reasons summarised below. See Table 1 in Attachment B for more detail. - The Swamp mahogany woodland (covering approximately 5 ha), which may provide occasional foraging opportunities, will be retained in the northern portion of the site and rehabilitated. - There are large areas of suitable habitat within the adjacent Ballina Nature Reserve. - The majority of vegetation to be

Species	Impact
National Recovery Plan). The OEH database did not contain any records of this species within 10 kilometres of the site or within the Ballina LGA.	removed from the site consists of highly disturbed vegetation. The importance of this vegetation is minor when compared to the areas of suitable habitat proposed to be retained, rehabilitated and protected. - Invasive plants and pest animals are currently present on site. Weed and pest prevention and control measures will be implemented through the PoM to avoid risks to the Regent Honeyeater from these species.
Australasian Bittern (Botaurus poiciloptilus) – Endangered Australasian Bittern has not been recorded in the project area, however suitable habitat is present, and the species has potential to occur on site. This species may utilise wetland habitats with tall, dense sedges and rushes of the nearby Ballina Nature Reserve (BNR) and swamps/wetlands provide potential habitat in the study area. There is no current policy advice about what comprises habitat critical to the survival of the Australasian Bittern. All suitable foraging habitat on site can be considered potential critical habitat, as it may be necessary for foraging, roosting and dispersal and for the long-term maintenance of the species' genetic diversity and evolutionary development. The OEH database contained six (6) records of this species within 10 kilometres of the subject site and six (6) records within the Ballina LGA, the nearest of which occurs approximately 2km to the east of the subject site.	Significant impacts to the Australasian Bittern are not expected to result from the proposed action for reasons summarised below. See Table 1 in Attachment B for more detail. - Suitable habitat for this species occurs in swamp/wetland areas of the site and will be retained. - High quality habitat occurs in parts of the adjacent Ballina Nature Reserve. - The proposed action will remove grazing and trampling impacts by domestic stock. - A Stormwater Management Plan (Knobel Consulting 2018) and associated Monitoring and Adaptive Framework Plan (Knobel 2017) will be implemented to ensure suitable water quality and hydrological regimes are maintained within freshwater wetlands in the project area and that no significant indirect impacts occur to adjacent suitable habitats in the Ballina Nature Reserve. See Section 4. - Invasive plants and pest animals are currently present on site. Weed and pest prevention and control measures will be implemented through the PoM to avoid risks to the Australasian Bittern from these species.
Australian Painted Snipe (Rostratula australis) – Endangered Australian Painted Snipe has not been recorded in the project area, however suitable habitat is present, and the species has potential to occur on site. This species may forage in open, shallow wetland habitats of the nearby Ballina Nature Reserve (BNR) and dams and wetlands provide potential habitat in the study area. There is no current policy advice about what comprises habitat critical to the survival of the Australian Painted Snipe. All suitable foraging habitat on site can be considered potential critical habitat, as it may be necessary for foraging, roosting and	Significant impacts to the Australian Painted Snipe are not expected to result from the proposed action for reasons summarised below. See Table 1 in Attachment B for more detail. - The majority of suitable habitat for this species occurs in the flood-prone portions of the site and will be retained. - There are large areas of suitable habitat within the adjacent Ballina Nature Reserve. - The proposed action will remove grazing and trampling impacts by domestic stock. - A Stormwater Management Plan (Knobel Consulting 2018) and associated Monitoring and Adaptive Framework Plan (Knobel 2017) will be implemented to ensure

Species	Impact
dispersal and for the long-term maintenance of the species' genetic diversity and evolutionary development. The OEH database contained two (2) records of this species within 10 kilometres of the subject site and two (2) records in the Ballina LGA. This record occurs approximately 5km to the south-east of the subject site.	suitable water quality and hydrological regimes are maintained within freshwater wetlands in the project area and that no significant indirect impacts occur to adjacent suitable habitats in the Ballina Nature Reserve. See Section 4. - Invasive plants and pest animals are currently present on site. Weed and pest prevention and control measures will be implemented through the PoM to avoid risks to the Australian Painted Snipe from these species.

2.4.2 Do you consider this impact to be significant?

No

2.5 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed migratory species, or their habitat?

Yes

2.5.1 Impact table

Species	Impact
Two listed migratory species were recorded in the study area during ecological assessments, and several other listed migratory species have potential to occur in the study area on occasion. Potential impacts to migratory species have been assessed using the significant impact criteria in the MNES Significant Impact Guidelines 1.1 (DoE 2013). The 'Draft referral guideline for 14 birds listed as migratory species under the EPBC Act' (DoE 2015). See Table 4. Impact table for migratory species.	n/a
Black-faced Monarch (Monarcha melanopsis) Potential to occur in forested areas of the site. Significant Impact Thresholds: Area: 2600 ha Population:465	Important habitat for the Black-faced Monarch is wet forests particularly rainforests and wet sclerophyll forests (DoE 2015). The project will result in clearing of 2.6 ha of potential habitat (forested areas). This impact will not exceed the clearing (2,600 ha) or population (465 individuals) thresholds for Black-faced Monarch as set out in the Draft referral guideline for 14 birds listed as migratory species under the EPBC Act' (DoE 2015)
Spectacled Monarch (Monarcha trivirgatus)	Important habitat for the Spectacled Monarch is

Species	Impact
Potential to occur on site in rainforest and swamp sclerophyll forest. Significant Impact Thresholds: Area: 2100 ha Population:650	dense vegetation, mainly in rainforests and wet sclerophyll forests (DoE 2015). The project will result in clearing of 2.6 ha of potential habitat (forested areas). This impact will not exceed the clearing (2,100 ha) or population (650 individuals) thresholds for Spectacled Monarch as set out in the Draft referral guideline for 14 birds listed as migratory species under the EPBC Act' (DoE 2015)
Satin Flycatcher (Myagra cyanoleuca) Potential to occur on site in rainforest and swamp sclerophyll forest. Significant Impact Thresholds: Area: 4400 ha Population: 1700	Important habitat for the Spectacled Monarch is dense vegetation, mainly in rainforests and wet sclerophyll forests (DoE 2015). The project will result in clearing of 2.6 ha of potential habitat (forested areas). This impact will not exceed the clearing (2,100 ha) or population (650 individuals) thresholds for Spectacled Monarch as set out in the Draft referral guideline for 14 birds listed as migratory species under the EPBC Act' (DoE 2015)
Fork-tailed Swift (Apus pacificus) Potential to occur on site as the species is exclusively aerial found across a range of habitats. Significant Impact Thresholds: Area: NA Population: 1000	Important habitat for the Fork-tailed Swift includes a variety of woodland and forest types (DoE 2015). The species is predominantly aerial. The project will result in modification of approximately 51 ha of potential habitat in the referral area. This impact is unlikely to represent substantial modification of important habitat and will not exceed the population threshold (1,000) for Fork-tailed Swift.
White-throated Needletail (Hirundapus caudacutus) Potential to occur on site as the species almost exclusively aerial and found across a range of habitats, especially wooded areas. Significant Impact Thresholds: Area: NA Population: 100	Important habitat for the White-throated Needletail includes a variety of woodland and forest types (DoE 2015). The species is predominantly aerial The project will result in modification of approximately 51 ha of potential habitat in the referral area. This impact is unlikely to represent substantial modification of important habitat and will not exceed the population threshold (100) for White-throated Needletail.
Glossy Ibis (Plegadis falcinellus) Recorded within the study area during surveys, suitable habitat in wetland areas. Significant Impact Thresholds: Area: NA Population: NA	The habitat onsite is not considered to represent an area of important habitat for the Glossy Ibis. The project will result in impacts to 0.7 ha of potential habitat (drainage lines and dams). There are no quantitative significant impact thresholds for impacts to Glossy Ibis habitat, but it is not expected that impacts from the limited amount of clearing would be significant; large areas of suitable habitat are available throughout the species' migratory

Species	Impact
	range and in the Ballina region. Significant impact thresholds for population numbers have not been defined for the Glossy Ibis. However, it is unlikely that an ecological significant proportion of the population occurs at the site. This impact is unlikely to represent substantial modification of important habitat for Glossy Ibis.
Rufous Fantail (Rhipidura rufifrons) Potential to occur on site in rainforest and swamp sclerophyll forest. Significant Impact Thresholds: Area: 2600 Population: 1100	Important habitat for the Rufous Fantail includes moist, dense habitats (DoE 2015). The project will result in clearing of 2.6 ha of potential habitat (forested areas). This impact will not exceed the clearing (2,600 ha) or population (1,100 individuals) thresholds for Rufous Faintail as set out in the Draft referral guideline for 14 birds listed as migratory species under the EPBC Act' (DoE 2015)

2.5.2 Do you consider this impact to be significant?

No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

No

2.7 Is the proposed action to be taken on or near Commonwealth land?

No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

No

2.9 Is the proposed action likely to have ANY direct or indirect impact on a water resource related to coal/gas/mining?

No

2.10 Is the proposed action a nuclear action?

No

2.11 Is the proposed action to be taken by the Commonwealth agency?

No

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage Place Overseas?

No

2.13 Is the proposed action likely to have ANY direct or indirect impact on any part of the environment in the Commonwealth marine area?

No

Section 3 - Description of the project area

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed in Section 2).

3.1 Describe the flora and fauna relevant to the project area.

Flora

The study area consists predominantly of cleared grazing land with scattered trees throughout, including some isolated patches of both remnant and regenerating native vegetation. Non-native and native plantings are also present on site.

A total of 271 flora species (213 native and 58 exotic) were recorded in the project area (JWA 2017). EPBC Act listed species are addressed in Section 2.

Fauna

The project area provides a variety of habitat types suitable for a range of fauna species, although previously cleared grazing land dominates the site. Key habitat types and features present are described below.

Swamp forest, freshwater wetlands, drainage lines, dams and low-lying land, in periods of inundation provide suitable habitat for amphibian species. One NSW listed species, *Crinia tinnula* (Wallum Froglet), was recorded. The introduced species *Bufo marinus* (Cane toad) was also present in the study area (JWA 2017). No threatened amphibians have been recorded within the project area.

The project area is considered to provide good quality habitat for reptiles due to the presence of the combination of shelter and basking sites. Rocky areas and fallen logs for shelter, the nearby forested areas (Ballina Nature Reserve) with good canopy and leaf litter development, availability of water, and reliable sources of prey in and around the site are also likely to provide good quality reptile habitat (JWA 2017). No threatened reptiles have been recorded within the project area.

The variety of habitats present in the project area provides suitable resources for a high diversity of resident and nomadic avifauna, with 85 species recorded (JWA 2017). Habitat types include vegetated wetland areas, rainforest patches, swamp forest, dams and grasslands. Key features such as hollow-bearing trees and a variety of food sources for insectivorous, nectarivorous and frugivorous bird species are also present. Two NSW listed threatened bird species were recorded, *Irediparra gallinacea* (Comb-crested Jacana) and *Ptilinopus regina* (Rose-crowned Fruit-dove) (JWA 2017), and another, *Antigone rubicunda* (Brolga), is known to occur in adjacent low-lying areas to the north east (ELA 2017a).

Trees with hollows were recorded within the project area, particularly in swamp sclerophyll, tall forest and woodland areas, providing potential habitat for hollow-dependent mammals including some species of microbats. Additionally, the project area may also represent important foraging habitat for hollow-dependent mammals resident in the nearby Ballina Nature Reserve (JWA 2017). The structural complexity and habitat diversity of the site and adjacent Paperbark wetland is considered likely to support a relatively moderate diversity and abundance of ground dwelling mammals (JWA 2017). The combination of relatively open habitats and adjacent forested areas was considered likely to support a relatively high diversity and abundance of native microbats, and four species were recorded (JWA 2017). Three NSW listed threatened mammal species were recorded in the study area, *Pteropus poliocephalus* (Grey-headed Flying Fox), *Miniopterus schreibersii oceanensis* (Eastern Bent-wing Bat) and *Miniopterus australis* (Little Bent-wing Bat).

A total of 115 fauna species were recorded across the project area, including 85 bird, 14 mammal, eight amphibian and eight reptile species (JWA 2017). EPBC Act listed species are addressed in Section 2.

3.2 Describe the hydrology relevant to the project area (including water flows).

There are three Catchments (A, B and C) within the development site (**Figure 6 of Attachment A**). Catchment A drains to the wetland at the southern limit of Lot 249 (DP 1117692) through a rural area, and then the flowpath heads North through the Ballina Nature Reserve and then East to North Creek. Catchment B and Catchment C drain North-West to Emigrant Creek.

Water levels downstream of the development site are dominated by floodwaters coming down the Richmond River, which has a very large catchment relative to the catchments within the development site. This dominance is illustrated in **Figure 13 of Attachment A**. It is not the local catchment within the development site that produces the peak flood level downstream. The peak level is achieved some time after the local catchment would have peaked, and results from a combination of flood and ocean sources dominated by the Richmond River. Again, this emphasises that for 5-year annual recurrence interval (“ARI”) floods and larger, it is not Catchment A that will be determining the downstream flood levels, it will be the Richmond River in combination with other sources. For all flood events greater than the 5-year ARI flood the development will have no significant impact on the Ballina Nature Reserve and adjoining areas because this area is completely inundated by flood water from the Richmond River during such events.

3.3 Describe the soil and vegetation characteristics relevant to the project area.

Soils

The majority of the study area occurs on the edge of an elevated sub-coastal plateau. This plateau is comprised of deep ferrosol soils and basalt boulders, a result of the volcanic flows

from Mount Warning in the Tertiary geological period. The lower slopes predominantly comprise cleared farmland that extend beyond the site to the margins of the Ballina Nature Reserve (BNR). The BNR is comprised of swamp sclerophyll forest and, along with adjacent low-lying areas, occurs on estuarine and floodplain terrain.

The Bangalow and Billinudgel landscapes, both erosional in nature, are the dominant landscapes mapped for the study site. The low rolling hills on Lismore basalts of the Bangalow soil landscape dominate in the southwestern section (Morand 1994). Soils in this landscape are moderately deep to deep, well drained kraznozems. Further north, the Bangalow landscape gives way to Billinudgel, characterised by very low to low hills on the metamorphic rocks of the Neranleigh?Fervale group. Soils are predominantly shallow to moderately deep podzols. Prior to clearing, the vegetation on these hills would have consisted of closed forest communities. Current vegetation is cleared sod grasslands with isolated closed forest communities.

The Tyragarah landscape is mapped in the most northern and eastern sections of the study site, with an additional appearance of this landscape and Variant A in the far south east. The landscape is described by Morand (1994) as gently undulating plains of quaternary estuarine alluvia overlain by Pleistocene sands originating from nearby beach sand ridge systems. Soils vary in accordance with associations to nearby geologies, with deep and moderately well drained prairie soils common near basaltic areas and deep, well drained podzols and peats near inner barrier dunal systems. Variant A of this unit is described as low lying and wetter areas within the soil landscape. The landscape supported tall open and closed swamp vegetation communities, regrowth of which remains within the area mapped as Variant A.

Vegetation

The study area consists predominantly of cleared grazing land with scattered trees throughout, including some isolated patches of both remnant and regenerating native vegetation. Non-native and native plantings are also present on site.

A total of 19 vegetation communities were mapped in the project area (JWA 2017). As per **Figure 14 of Attachment A**, these include:

1. Tall closed forest (Mixed rainforest species)

2. Mid-high closed forest *(Guioa semiglauca* ± mixed rainforest species)

3. Mid-high closed forest *(Cinnamomum camphora* ± mixed species)

4. Mid-high open forest *(Cupaniopsis anacardioides* ± mixed rainforest species)

5. a) Tall closed/open swamp sclerophyll forest (*Melaleuca quinquenervia* / *E. robusta* / *Lophostemon confertus*)

b) Tall swamp sclerophyll forest *(Melaleuca quinquenervia)*

c) Mid-high open swamp sclerophyll forest *(Melaleuca quinquenervia)*

6. Very tall forest *(Lophostemon confertus* ± Eucalypt, Corymbia and Melaleuca species)7. Tall woodland (*E. robusta* ± *Lophostemon confertus* ± *Endiandra sieberi*)8. Tall open palm forest (*Archontophoenix cunninghamiana*)9. Low woodland (Mixed species)10. Re-vegetation plantings (*Melaleuca quinquenervia* and Eucalyptus species)11. Re-vegetation plantings (Ornamental garden spp. ± various fruit trees)12. Tall open/closed herbland (various weed species)13. Low closed grassland (pastoral grasses) with scattered trees (mixed species)14. Tall closed rushland (*Typha orientalis*)15. Tall closed sedgeland (*Cyperus exaltatus*)16. Mid - high rushland (*Leersia hexandra, Eleocharis spp.*)17. Tall closed grassland/fernland/rushland (mixed species)18. Orchard (various fruit trees)19. Drainage Lines + Dams

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area.

The project area does not include any outstanding natural features.

3.5 Describe the status of native vegetation relevant to the project area.

No native vegetation in the study area corresponds to any EPBC Act listed TEC as described below.

The EPBC Act Protected Matters Report (DoE 2018) identifies three TECs likely to occur within 10 km of the proposed action:

- Coastal Swamp Oak (*Casuarina glauca*) Forest of NSW and South East QLD – Endangered- Littoral Rainforest and Coastal Vine Thickets of Eastern Australia – Critically Endangered- Lowland Rainforest of Subtropical Australia – Critically Endangered

No vegetation in the study area corresponds to Littoral Rainforest and Coastal Vine Thickets or Coastal Swamp Oak Forest.

Rainforest vegetation is present in the project area however no patches meet the condition threshold requirements for the EPBC Act listed community as they do not contain ? 30 native woody species as required in the listing advice for the ecological community (TSSC 2011). Surveys confirming the absence of EPBC Act listed Lowland Rainforest have been undertaken by JWA Pty Ltd (2017) and Eco Logical Australia Pty Ltd (2018a).

Several areas of native vegetation in the project area correspond to State listed Threatened Ecological Communities (TECs). The following TECs are present in the project area:

- Lowland Rainforest in NSW North Coast and Sydney Basin Bioregion

- Lowland Rainforest on floodplains in NSW North Coast and Sydney Basin Bioregion

- Swamp sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions

- Freshwater wetlands on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions

3.6 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

The majority of the study area occurs on the edge of an elevated sub-coastal plateau. The study area has been characterised and mapped as consisting of three general environmental / geomorphological areas: low rolling basalt and metamorphic hills, gently undulating sand plains and low-lying swamp areas which are a variation of the land plains. A topographic map is provided in **Attachment A**, **Figure 6**.

The western portion of the study area comprises rolling basalt and metamorphic hills with elevations up to 100 m. Low rolling hills dominate in the southwestern section, whilst further north the landscape is characterised by very low to low hills. The landscape of the most northern and eastern sections of the study area comprises gently undulating plains. The far south-east of the site is a low-lying variant of this landscape type.

3.7 Describe the current condition of the environment relevant to the project area.

The study area consists predominantly of grazing land with scattered trees throughout and includes isolated patches of both remnant and regrowth native vegetation with limited connectivity to areas of vegetation outside the study area. There are also several areas of revegetation plantings onsite, as well as non-native landscape and orchard plantings.

The level of weed invasion varies across the site between different vegetation communities and locations. The majority of the site is dominated by pastoral grasses including introduced species such as *Paspalum mandiocanum* (Broad-leaved Paspalum), *Pennisetum clandestinum* (Kikuyu), *Cynodon dactylon* (Couch Grass), *Chloris gayana* (Rhodes Grass), *Sporobolus* sp. (Parramatta Grass) and *Eragrostis curvula* (African Lovegrass).

Weeds within the rainforest and swamp sclerophyll forest communities on site include *Cinnamomum camphora* (Camphor Laurel), *Ageratina riparia* (Mistflower), *Lantana camara* (Lantana), *Asparagus aethiopicus* (Asparagus Fern) and *Psidium cattleianum var. cattleianum* (Cherry Guava). These species also occur to a lesser extent in other forest types on site, along with *Baccharis halimifolia* (Groundsel Bush), *Passiflora suberosa* (Corky Passionfruit) and *Ageratina adenophora* (Crofton Weed).

The south-east of the study area comprises an area of entirely exotic weed species which have colonised an area of disturbed land, including *Phytolacca octandra* (Inkweed), *Tagetes minuta* (Stinking Roger), *Gomphocarpus fruticosus* (Narrow-leaved Cotton Bush), *G. physocarpus* (Balloon Cotton Bush), *Solanum mauritianum* (Wild Tobacco), *Senecio madagascariensis* (Fireweed), *Ricinus communis* (Castor Oil Plant), and *Ipomoea cairica* (Coastal Morning Glory).

Invasive fauna species including rabbits, feral pigs, foxes and cane toads are known to be present on site.

3.8 Describe any Commonwealth Heritage Places or other places recognised as having heritage values relevant to the project area.

The project area does not contain Commonwealth Heritage Places or other places recognised as having heritage values.

3.9 Describe any Indigenous heritage values relevant to the project area.

An area in the south-east of the site has been identified in Ballina DCP 12 as containing cultural heritage values (see **Attachment A**, **Figure 4**). This sand rise area is considered reasonably likely to contain significant *in situ* deposits of sub?surface cultural material. During a surface field inspection by Everick Heritage Consultants, an Aboriginal stone artefact and shell scatter were located in this area. This area will not be directly impacted by the development proposal. The only permissible activity in this area is the continuance of low intensity grazing. Importantly, no disturbance to the soil is permitted. Any other proposed works in this area require consultation with Council and the local Aboriginal community before proceeding.

In addition, an isolated stone artefact was located by Everick Heritage Consultants in the northern part of the subject site. This was considered to be of low archaeological significance, being an isolated find of unknown origin, and was requested by indigenous stakeholders to be collected and displayed.

No additional Places of particular cultural significance were identified by indigenous stakeholders to be located within the Subject Lands.

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area.

The tenure of the project area is freehold land.

3.11 Describe any existing or any proposed uses relevant to the project area.

The project area is currently utilised as agricultural land (grazing) with areas of largely unmanaged remnant and regrowth native vegetation.

Section 4 - Measures to avoid or reduce impacts

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action.

A range of measures to avoid and/or reduce impacts have been integrated into the design of the project. These measures have largely been associated with designing the development footprint and locating proposed development (i.e. lots and infrastructure such as stormwater basins and roads) to limit ecological impacts. The intention to avoid large patches of existing vegetation can readily be seen in **Figure 12 of Attachment A**, which shows large areas of vegetation have purposefully been retained.

The implementation of the PoM also reduces the net impact of the action, and results in a net biodiversity gain for the action.

Stormwater infrastructure has been designed to avoid and minimise impacts to hydrology, water quality and wetlands. A Stormwater Quality Management Plan (Knobel Consulting, 8 May 2018, **Attachment G**) and hydrological assessment reporting has been undertaken to ensure significant impacts are avoided. The associated report in Attachment G note the following key outcomes:

1. Effectively, there will be no change in hydrology at the boundary of the site in comparison to existing hydrological regime.

2. The Stormwater Quality Management Plan A (Knobel Consulting, 8 May 2018, **Attachment G)** indicates that the proposed stormwater treatment devices will result in a reduction in pollutants that meet and exceed water quality objectives.

Monitoring of hydrology and downstream ecosystems (i.e. Ballina Nature Reserve) will also occur as a precaution. This is detailed in the **Monitoring and Adaptive Framework Plan (November 2018) – Appendix G**.

It is planned that extensive distributed detention storage will be provided on the development site by way of On-Site Detention (“OSD”) as an integral part of every residential lot. The OSD tanks will be installed by the developer during the construction phase of the project. The OSD tanks will ensure no-worsening in respect of peak flow rates leaving the development site. In

addition, the issue of stormwater runoff volume increase is intended to be addressed by increasing post-development recharge to the groundwater aquifer. The distributed OSD network ensures that the post-development hydrological response of the various catchments adequately mimics the existing site responses.

The results from the hydrological modelling undertaken demonstrate that no actionable flooding or drainage nuisance is created at the downstream boundary of each catchment for all events with recurrence intervals of 5 years or less. The combination of detention storage and infiltration capacity within the development site provide a suitable means to ensure that the development has no adverse impact on properties or vegetation communities internal or external to the site. As noted already in

Section 3.2, for larger floods, floodwaters from the Richmond River control flood levels at the development site and for all areas downstream of the development site.

Monitoring data from the water level gauges at the site show that the wetland ecosystems on and downstream of the development site exist within an ephemeral system, which means they are accustomed to natural variation in the frequency and length of hydro-periods.

A stormwater quality management plan was set up using Water Sensitive Urban Design principles and tested using the MUSIC water quality modelling tool. The MUSIC model was created following industry best practice and followed Council's standards. All water quality treatment devices are located outside of endangered ecological community areas.

The development site is underlain by groundwater aquifers in both the lower sandy alluvium and in the higher weathered basalt areas. There are a number of Groundwater Dependent Ecosystems ("GDEs") on and downstream of the site which are supported by discharge from this aquifer. These have been identified to ensure that these will be no adverse effects from the development.

Urban development has the potential to increase runoff and decrease recharge of this aquifer, which is why a principal component of the proposed stormwater management system is to incorporate a significant area of infiltration capacity across the catchment in order to maximise post-development recharge to the aquifer. This will be achieved by providing leaky bases to all of the proposed OSD systems. Geotechnical information was obtained to inform this hydrological assessment. This investigation focused on accurate determination of surface and near-surface hydraulic conductivity.

Detailed hydrological assessment (**Attachment G**) has demonstrated that the proposed solution will effectively mimic the response of the existing undeveloped site's surface runoff rates and groundwater infiltration characteristics. This development proposes a state-of-the-art stormwater management system using the best available stormwater management practices.

Other measures will be undertaken during construction to reduce the impact of the action. Relevant actions include:

- Any vegetation approved to be removed is to be clearly marked with flagging tape, prior to the commencement of work at the site.

- For patches of native vegetation, a suitably qualified ecologist will be employed to undertake pre?clearing surveys 48 hours prior to the commencement of clearing works on the development site. The surveys will be undertaken on two consecutive nights prior to the vegetation removal works. Any fauna residing in vegetation that is to be removed from the development site will be relocated under the supervision of the suitably qualified ecologist. All clearing works are to be suspended until recorded fauna has been relocated.

- A suitably qualified ecologist will be present on site during all vegetation removal works to inspect tree hollows and to rescue and relocate any fauna within in accordance with approved animal care and relevant ethics licencing.

- All vegetation and/or trees to be retained and/or areas to be subjected to restoration works which immediately adjoin any construction areas will be protected with temporary “No Go” fencing as required by the approved plan “Plan showing existing trees to be retained within the proposed residential lots”, prepared by Northern Rivers Land Solution and dated 22 February 2018. All “No Go” fencing will be established a minimum of 1 metre outside of the identified restoration area and/or root protection zone areas and/or drip line zone, whichever is greater. Signage depicting the purpose of the fencing will be installed on the fence. All construction plans for the project will identify the location and the purpose of the "No Go" fencing.

- Vegetation removal is to be undertaken in a manner that ensures the ongoing integrity of retained vegetation and/or adjacent native plants.

- Slashing will be undertaken in winter once mature specimens have died off and is specifically targeted to decrease exotic biomass to favour germination success of Hairy-joint Grass.

- Planting activities will avoid damage to existing Hairy-joint Grass by undertaking pre-digging surveys.

- Heavy machinery / vehicles will be excluded from areas that have known specimens of Hairy-joint Grass unless pre-clearing surveys confirm the plant is not present.

- To protect adjacent significant habitats, any soil imported to the worksite is to be certified as being weed free and is to have ongoing weed eradication works undertaken during and post construction.

- Fencing of all PoM management areas to restrict potential cattle and human access.

- A Native Fauna Relocation and Exotic Species Removal Plan has been prepared for the decommissioning of the existing dam in Catchment C and the existing Dam on proposed Lot 4-94 (see Attachment H). This has been prepared in consultation with the NSW Department of Primary Industries (Fisheries).

- In accordance with the PoM, a 15 m wide vegetated buffer adjacent the proposed sports field will be established to minimise visual disturbance to the adjacent wetland. The primary aim of this area is to reduce visual disturbance to potential Brolga habitat; however the buffer will also benefit other species.

- There is a risk that implementation of the PoM will result in land use conflicts between potential

new Flying Fox roosts locations and residential areas. With this in mind, most of the PoM areas have been buffered from future residential areas, or are situated away from revegetation areas. Furthermore, habitat created as part of the PoM will seek to avoid planting of common roost trees (e.g. Ficus sp.) close to residential areas to avoid potential future land use conflicts.

- Other key aspects of the PoM include:

· In accordance with the PoM an annual report will be prepared by the bush regeneration contractor. It will summarise the works that were carried out within the reporting year and observations of progress.

· The progress and compliance with the PoM will be monitored and reviewed annually. This process will involve the bush regeneration contractor, Intrapac or their appointed representative and a staff member from Ballina Council.

· Annual monitoring points will be established across the site to provide a reference of changes in the vegetation and Hairy-joint Grass abundance / distribution. Monitoring will occur for ten years, with a monitoring results report also produced each year.

· Alternative offsets (as per PoM) will be required if there is a 50% reduction in abundance of Hairy-joint Grass for two consecutive years. This will be measured as per the methodology in the PoM.

· An independent ecologist will be engaged to undertake an annual audit of the annual monitoring reports. The auditor is to be an OEH accredited BAM practitioner

· As this is a long-term project that will be implemented in stages over a number of years, an adaptive management approach will be implemented that enables the contractor to learn from and respond to successful and unsuccessful techniques used on the site.

4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved.

The overall outcomes for Smooth Davidson's plum *(Davidsonia johnsonii)* are:

- No *D. johnsonii* will be removed.

- Habitat critical to the survival of *D. johnsonii* will continue to be present on the CURA Precinct A site.

- A population of *D. johnsonii* will persist on and adjacent to the CURA Precinct A site.

- This species will be planted as part of PoM revegetation works.

- The project will not result in a significant impact to this species.

The overall outcomes for Rough-shelled bush nut *(Macadamia tetraphylla)* are:

- Eleven *M. tetraphylla* will be removed.

- Seven *M. tetraphylla* will be retained (one within the project area and six directly adjacent).

- A minimum of 50 *M. tetraphylla* (propagated from those occurring on the site) will be planted in the project area.

- Habitat critical to the survival of *M. tetraphylla* will continue to be present on the CURA Precinct A site.

- A population of *M. tetraphylla* will persist on and adjacent to the CURA Precinct A site and will also be supplemented by 50 additional plantings sourced from the existing population.

- The project will not result in a significant impact to this species.

The overall outcomes for Coolamon *(Syzygium moorei)* are:

- No *S. moorei* will be removed by the proposed action.

- Habitat critical to the survival of *S. moorei* will continue to be present on the CURA Precinct A site.

- A population of *S. moorei* will persist on and adjacent to the CURA Precinct A site and will also be supplemented by five additional plantings.

- The project will not result in a significant impact to this species.

The overall outcomes for Hairy Joint Grass *(Arthraxon hispidus)* are:

- 5.5 ha of habitat occupied by *A. hispidus* will be removed by the proposed action.

- 12 ha of existing *A. hispidus* habitat will be retained and managed to favour the species.

- A further 40 ha of potential grassland habitat will be managed to favour *A. hispidus* at the site.

- Habitat critical to the survival of *A. hispidus* will continue to be present on the CURA Precinct A site.

- With successful implementation of the PoM, *A. hispidus* will persist within the CURA A site,

whilst habitat adjacent to the CURA A site will also persist.

- The project will not result in a significant impact to this species.

The overall outcomes for Stinking Cryptocarya *(Cryptocarya foetida)* are:

- No *C. foetida* will be removed.\

- Habitat critical to the survival of *C. foetida* will continue to be present on the CURA Precinct A site.

- A population of *C. foetida* will persist on and adjacent to the CURA Precinct A site and will also be supplemented by additional plantings.

- The project will not result in a significant impact to this species.

The overall outcomes for Mitchell's Rainforest Snail (*Thersites mitchellae)* are:

- Potential habitat for Mitchell's Rainforest Snail will continue to be present on the CURA Precinct A site.

- The development of the CURA Precinct A site will not prevent the use of the area by Mitchell's Rainforest Snail.

- There will be a net increase in potential foraging habitat in the project area over time due to the PoM revegetation activities.

- The project will not result in a significant impact to this species.

The overall outcomes for Grey-headed Flying Fox *(Pteropus poliocephalus)* are:

- Foraging habitat critical to the survival of the Grey-headed Flying Fox will continue to be present on the CURA Precinct A site.

- The development of the CURA Precinct A site will not prevent the use of the area by the Grey-headed Flying Fox.

- There will be a net increase in potential foraging habitat in the project area over time due to the PoM revegetation activities.

- The project will not result in a significant impact to this species.

The overall outcomes for Wallum Sedge Frog *(Litoria olongburensis)* are:

- Habitat critical to the survival of the Wallum Sedge Frog will continue to be present on the CURA Precinct A site.

- The development of the CURA Precinct A site will not prevent the use of the area by the Wallum Sedge Frog.

- The project will not result in a significant impact to this species.

The overall outcomes for Regent honeyeater (*Anthochaera phrygia*) are:

- Foraging habitat critical to the survival of the Regent Honeyeater will continue to be present on the CURA Precinct A site.

- The development of the CURA Precinct A site will not prevent the use of the area by the Regent Honeyeater.

- There will be a net increase in potential foraging habitat in the project area over time due to the PoM revegetation activities

- The project will not result in a significant impact to this species.

The overall outcomes for Australasian bittern (*Botaurus poiciloptilus*) are:

- Habitat potentially critical to the survival of the Australasian bittern will continue to be present on the CURA Precinct A site.

- The development of the CURA Precinct A site will not prevent the use of the area by the Australasian bittern.

- The project will not result in a significant impact to this species.

The overall outcomes for Australian Painted Snipe (*Rostratula australis*) are:

- Habitat potentially critical to the survival of the Australian Painted Snipe will continue to be present on the CURA Precinct A site.

- The development of the CURA Precinct A site will not prevent the use of the area by the Australian Painted Snipe.

- The project will not result in a significant impact to this species.

Migratory species

The overall outcomes for migratory species known or potentially occurring in the project area including Black-faced Monarch (*Monarcha melanopsis*), Spectacled Monarch (*Monarcha trivirgatus*), Satin Flycatcher (*Myagra cyanoleuca*), Fork-tailed Swift (*Apus pacificus*), White-throated Needletail (*Hirundapus caudacutus*), Glossy Ibis (*Plegadis falcinellus*) and Rufous Fantail (*Rhipidura rufifrons*) are:

- Habitat for these species will continue to be present at the CURA Precinct A site.

- The development of the CURA Precinct A site will not prevent the use of the area by these species.

- The proposed action will not affect an ecologically significant proportion of the population, or an area of important habitat, for any of these species.

- The project will not result in a significant impact to these species.

Section 5 – Conclusion on the likelihood of significant impacts

A checkbox tick identifies each of the matters of National Environmental Significance you identified in section 2 of this application as likely to be a significant impact.

Review the matters you have identified below. If a matter ticked below has been incorrectly identified you will need to return to Section 2 to edit.

5.1.1 World Heritage Properties

No

5.1.2 National Heritage Places

No

5.1.3 Wetlands of International Importance (declared Ramsar Wetlands)

No

5.1.4 Listed threatened species or any threatened ecological community

No

5.1.5 Listed migratory species

No

5.1.6 Commonwealth marine environment

No

5.1.7 Protection of the environment from actions involving Commonwealth land

No

5.1.8 Great Barrier Reef Marine Park

No

5.1.9 A water resource, in relation to coal/gas/mining

No

5.1.10 Protection of the environment from nuclear actions

No

5.1.11 Protection of the environment from Commonwealth actions

No

5.1.12 Commonwealth Heritage places overseas

No

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action.

The following MNES do not occur within the project area and will not be impacted:

- World heritage properties

- National heritage places

- Wetlands of international importance

- Commonwealth marine environment

- Protection of the environment from actions involving Commonwealth land

- GBRMP

The following MNES are not relevant to this project

- A water course in relation to coal seam gas development and large coal mining development

- Protection of the environment from nuclear actions

- Protection from the environment from Commonwealth actions

- Commonwealth Heritage places overseas

Listed threatened and migratory species and their habitats occur within the project area, however key reasons as to why the proposed action is not likely to have a significant impact on these matters are:

Listed Threatened Species

The assessment found that six threatened flora species and six threatened fauna species listed under the EPBC Act may be impacted by the project. The assessment concluded that no significant impacts were likely to these species (see **Section 2.4**).

In accordance with the EPBC Act guidelines significant criteria, it was concluded that the action will not result in a significant impact for each threatened species identified in **Section 2.4**.

Listed Migratory Species

The assessment found that seven migratory bird species listed under EPBC Act may be impacted by the proposed action, however no significant impacts were likely to these species (see **Sections 2.5** and **4.2**).

In accordance with the EPBC Act guidelines significant criteria, it was concluded that the action;

- Will not 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

- Will not result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species

- Will not seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species

Section 6 – Environmental record of the person proposing to take the action

Provide details of any proceedings under Commonwealth, State or Territory law against the person proposing to take the action that pertain to the protection of the environment or the conservation and sustainable use of natural resources.

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Please explain in further detail.

Intrapac Property can demonstrate a strong history of responsible environmental management through our 30-year history of land development in Victoria, Queensland and New South Wales.

The following Intrapac Property projects have been recognised for business success and excellence in property development by the Urban Development Institute of Australia (UDIA) via their Excellence Awards:

- 2016: Somerfield, Keysborough, Vic

- 2008: The Quay, Torquay, Vic.

- 2002: Lorikeet Ridge, Doncaster, Vic.

- 1997: Oaktree Rise, Lysterfield, Vic.

- 1996: Churchill Park, Lysterfield, Vic.

Intrapac Property has recently achieved the UDIA Enviro Development Certification for the following residential projects:

- Banyan Hill, Cumbalum , NSW.

- Harvest Rise, Greenbank, Qld.

- The Quay II, Torquay, Vic.

The certification of these projects demonstrates the commitment Intrapac Property has made to achieve the following outcomes:

- The protection and enhancement of native ecosystems and ecological function, and rehabilitate degraded sites;

- Implementation of waste management procedures and practices to reduce the amount of waste to landfill and facilitate recycling;

- Inclusion of measures to optimise energy reduction across the project beyond current regulatory requirements;

- Utilisation of environmentally responsible materials and construction methods to lower environmental impacts of material usage;

- Reduce potable water use across the project beyond current regulatory measures; and

- Encourage healthy and active lifestyles, community spirit, local facilities, alternative transport modes and accessible and flexible design that welcomes a diversity of people and adapts to their changing needs.

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application.

Intrapac Property has not been involved with any proceeding of this type.

6.3 If it is a corporation undertaking the action will the action be taken in accordance with the corporation's environmental policy and framework?

Yes

6.3.1 If the person taking the action is a corporation, please provide details of the corporation's environmental policy and planning framework.

Intrapac Projects Pty. Ltd. is a firm specialising in property development. Intrapac Projects has not developed an Environmental Policy and Planning Framework. Nonetheless, Intrapac Projects adheres to all environmental and planning legislation and policies. Similarly, when developing projects, they aim to avoid and minimise impacts on environmental values at the design stage by incorporating these values into the development layout. When this is not possible, Intrapac Projects has offset any vegetation removal according to the national, state and local policies.

Below are examples to demonstrate Intrapac Project's environmental record.

Project Name: Greigs Road, Rockbank, Vic

Project Type: Industrial development

Project history: Intrapac Projects commissioned environmental consultants to undertake a Due Diligence assessment, followed by a Flora and Fauna Assessment to determine which environmental values were present in the subject land. Legislative requirements were outlined during these assessments, and measures to minimise the impact of the proposed development on the environmental values were identified.

Environmental Values:

- 238.42 hectares of Low Rainfall Plains Grassland (EVC 132_63)

- Natural Temperate Grassland of the Victorian Volcanic Plain is likely to be present.

- 13 listed flora species were considered likely to occur

- Two listed fauna were assessed as likely to occur.

Response:

- Intrapac Projects is involved in a Precinct Structure Planning exercise with the state government under the EPBC Act Strategic Impact Assessment for the future urban development areas around Melbourne. This process is consistent with the requirements of the Program Report and development prescriptions that sit within this assessment.

Project Name: 110 Cardinia Road, Officer, Vic

Project Type: Subdivision and residential development

Project history: Intrapac Projects commissioned environmental consultants to undertake a Growling Grass Frog assessment to determine whether a population of this listed species was present in the subject land.

Environmental Values:

- The assessment indicated that the subject land was an important stronghold for Growling Grass Frog; and

- The subject land supported core Growling Grass Frog habitat.

Response:

The original development layout was modified to incorporate mitigation measures to allow Growling Grass Frogs to survive alongside the development. These measures include:

Retention of the large dam known to be inhabited by Growling Grass Frogs;

- Provision of a 30 metre buffer around the dam between residential lots, roads or passive recreational infrastructure, to be revegetated with low shrub and tussock grass species to provide terrestrial non-breeding season hibernation habitat (along the southern edge of this a shared trail is to be provided);

- Revegetation of this area should comprise a mix of tussock grasses and low (<1.5m) shrubs) to reduce shading of the dam and fencing should be provided to exclude human access;

- Retention of linkages to habitats to the west along the northern boundary of the property, adjacent to the railway line, comparable in width and linking to similar links in planned development to the west (VicUrban);

- Establishing a north-south high-flow drainage link through the development to a proposed drainage retarding basin south of the study area (VicUrban) to facilitate frog movement to proposed new potential wetland habitats off-site, to be vegetated with grass; and

- Provision within this north-south link of ponds either side of the culvert under the proposed road, vegetated with dense sedges with rocky banks (approx. 40% of bank by area), providing cover for any frogs that move along the link.

Project Name: Somerfield Estate, Keysborough, Vic

Project Type: Residential development

Project history: Intrapac Projects commissioned environmental consultants to undertake a Native Vegetation assessment to identify the environmental values in the study area and recommend measures to minimise potential impacts to these.

Environmental Values:

- Patches of Plains Grassy Woodland;

- Large and very large trees

- Scattered very large, large, large, medium and small trees.

Response:

The project has been designed to minimise its impact through the adoption of the following specific design measures:

- The largest area of native vegetation was avoided and acted as an offset for the removal of native vegetation; and

- As many trees as possible were retained and incorporated into the development design in the areas of open space.

- Retention of the larger patches of vegetation north of Island Road in a proposed Council Reserve;

- Inclusion of tow large allotments (both >4,000 sq. m) in the northern part of the subdivision area;

- Protection of remnant native vegetation in the rear of these allotments in a Section 173 Agreement; and

- Adjustments to the road layout connecting the study area with adjacent areas proposed for subdivision to minimise the area of remnant native vegetation required to be removed for road works.

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

Yes

6.4.1 EPBC Act No and/or Name of Proposal.

The proponent has made referrals relating to other development projects as follows:

- EPBC2010/5729 – Residential Development at 110 Cardinia Road, Pakenham, Victoria

- EPBC2010/5791– Residential Development at Lot 11 Westmeadows Lane, Truganina, Victoria

- EBPC 2014/7269 - Residential Development at Lloyd Creek, Northern Territory

Section 7 – Information sources

You are required to provide the references used in preparing the referral including the reliability of the source.

7.1 List references used in preparing the referral (please provide the reference source reliability and any uncertainties of source).

Reference Source	Reliability	Uncertainties
Costello, G., Gregory, M. and Donatiu, P. 2009. Southern Macadamia Species Recovery Plan. Report to Department of the Environment, Water, Heritage and the Arts, Canberra by Horticulture Australia Limited, Sydney.	High	Recovery Plan prepared by experts and approved by Commonwealth agency
Cumberland Ecology. 2017. Cumbalum Urban Release Area (CURA) – Peer Review. Undertaken on behalf of Ballina Shire Council and Allens. Report no. 16118RP1.	High	Flora and fauna surveys have been undertaken according to best practice guidelines by suitably qualified personnel. Whilst there are always some uncertainties with ecological survey, the extent and frequency of survey and monitoring events reduces this uncertainty significantly in this instance. Specific survey limitations are presented in the reports. Overall, the information is considered appropriate for use in undertaking a comprehensive assessment of impacts to MNES.
Department of the Environment, Water, Heritage and the Arts. 2008. Approved Conservation Advice for Arthraxon hispidus (Hairy-joint Grass). Canberra: Department of the Environment, Water, Heritage and the Arts	High	Policy document prepared by Commonwealth agency
DoE 2013. Matters of National Environmental Significance Significant impact guidelines 1.1 Environment Protection and Biodiversity Conservation Act	High	Policy document prepared by Commonwealth agency

Reference Source	Reliability	Uncertainties
1999. Commonwealth Department of Environment, Canberra, ACT.		
DoE 2015. Draft referral guideline for 14 migratory birds listed under the EPBC Act. Commonwealth Department of Environment, Canberra, ACT.	High	Policy document prepared by Commonwealth agency
DoE 2018. EPBC Act Protected Matters Report. Commonwealth Department of Environment, Canberra, ACT.	High	Automatically generated report by Commonwealth agency based on site location, used for guidance on potential occurrence of MNES in project area.
Eco Logical Australia 2017a. Brolga Addendum Report, CURA A. Prepared for Intrapac	High	Flora and fauna surveys have been undertaken according to best practice guidelines by suitably qualified personnel. Whilst there are always some uncertainties with ecological survey, the extent and frequency of survey and monitoring events reduces this uncertainty significantly in this instance. Specific survey limitations are presented in the reports. Overall, the information is considered appropriate for use in undertaking a comprehensive assessment of impacts to MNES.
Eco Logical Australia 2017b. Hairy-joint Grass Addendum Report, CURA A. Prepared for Intrapac	High	Flora and fauna surveys have been undertaken according to best practice guidelines by suitably qualified personnel. Whilst there are always some uncertainties with ecological survey, the extent and frequency of survey and monitoring events reduces this uncertainty significantly in this instance. Specific survey limitations are presented in the reports. Overall, the information is considered appropriate for use in undertaking a comprehensive assessment of impacts to MNES.

Reference Source	Reliability	Uncertainties
Eco Logical Australia 2017c. Review of revised masterplan, CURA A. Prepared for Intrapac	High	Flora and fauna surveys have been undertaken according to best practice guidelines by suitably qualified personnel. Whilst there are always some uncertainties with ecological survey, the extent and frequency of survey and monitoring events reduces this uncertainty significantly in this instance. Specific survey limitations are presented in the reports. Overall, the information is considered appropriate for use in undertaking a comprehensive assessment of impacts to MNES.
Eco Logical Australia 2017d. Technical Note – Groundwater Dependent Ecosystems, CURA A. Prepared for Intrapac	High	Flora and fauna surveys have been undertaken according to best practice guidelines by suitably qualified personnel. Whilst there are always some uncertainties with ecological survey, the extent and frequency of survey and monitoring events reduces this uncertainty significantly in this instance. Specific survey limitations are presented in the reports. Overall, the information is considered appropriate for use in undertaking a comprehensive assessment of impacts to MNES.
Eco Logical Australia 2017e. CURA A Plan of Management. Prepared for Intrapac	High	Flora and fauna surveys have been undertaken according to best practice guidelines by suitably qualified personnel. Whilst there are always some uncertainties with ecological survey, the extent and frequency of survey and monitoring events reduces this uncertainty significantly in this instance. Specific survey limitations are presented in the reports. Overall, the information is considered appropriate for

Reference Source	Reliability	Uncertainties
		use in undertaking a comprehensive assessment of impacts to MNES.
Eco Logical Australia 2018a. Supplementary Ecological Report - Additional Vegetation, Paddock Tree and Hairy-Joint Grass Survey Results, CURA A. Prepared for Intrapac.	High	Flora and fauna surveys have been undertaken according to best practice guidelines by suitably qualified personnel. Whilst there are always some uncertainties with ecological survey, the extent and frequency of survey and monitoring events reduces this uncertainty significantly in this instance. Specific survey limitations are presented in the reports. Overall, the information is considered appropriate for use in undertaking a comprehensive assessment of impacts to MNES.
Eco Logical Australia 2018b. CURA A Plan of Management. Prepared for Intrapac.	High	Flora and fauna surveys have been undertaken according to best practice guidelines by suitably qualified personnel. Whilst there are always some uncertainties with ecological survey, the extent and frequency of survey and monitoring events reduces this uncertainty significantly in this instance. Specific survey limitations are presented in the reports. Overall, the information is considered appropriate for use in undertaking a comprehensive assessment of impacts to MNES.
JWA Pty Ltd, 2017. Revised ecological assessment. Precinct A Cumbalum Urban Release Area. A report prepared for Intrapac.	High	Flora and fauna surveys have been undertaken according to best practice guidelines by suitably qualified personnel. Whilst there are always some uncertainties with ecological survey, the extent and frequency of survey and monitoring events reduces this uncertainty significantly in this instance. Specific survey

Reference Source	Reliability	Uncertainties
		limitations are presented in the reports. Overall, the information is considered appropriate for use in undertaking a comprehensive assessment of impacts to MNES.
Meyer, E., Hero, J-M., Shoo, L. and Lewis, B. 2006. National recovery plan for the wallum sedge frog and other wallum-dependent frog species. Report to Department of the Environment and Water Resources, Canberra. Queensland Parks and Wildlife Service, Brisbane.	High	Recovery Plan prepared by experts and approved by Commonwealth agency
Pisanu, P., Gross, C. and Flood, L. 2009. Reproduction in wild populations of the threatened tree Macadamia tetraphylla: Interpopulation pollen enriches fecundity in a declining species. Biotropica 41(3): 391-398.	High	Peer reviewed published literature by independent researcher.
Planners North 2017. 2nd Updated Development Application, Banyan Hill, Ballina (Statement of Environmental Effects). Prepared for Intrapac.	High	Development application prepared by professional planning company with aid of relevant experts.
Threatened Species Scientific Committee (TSSC) 2011. Commonwealth Listing Advice on Lowland Rainforest of Subtropical Australia. Department of Sustainability, Environment, Water, Population and Communities. Canberra, ACT.	High	Development application prepared by professional planning company with aid of relevant experts.
Additional references are provided in the above ecology reports	High	Peer reviewed published literature and/or policy documents prepared by Commonwealth agency, including recovery plans, conservation advice and threatened species listing advice

Section 8 – Proposed alternatives

You are required to complete this section if you have any feasible alternatives to taking the proposed action (including not taking the action) that were considered but not proposed.

8.0 Provide a description of the feasible alternative?

Potential alternatives to the proposed action are:

- Not taking the action

- Alternative project design/footprint

‘Not taking the action’ is not considered feasible as the site has been identified as major future urban area under the Cumbalum Structure Plan, adopted by Ballina Shire Council in 2006. The Cumbalum area is also identified in Council’s ‘Urban Land Release Strategy’ (ULRS) (Ballina Shire Council 2000) as being of strategic importance to accommodating the future housing needs of Ballina Shire.

Potential alternative locations for urban development have been considered as part of the URLS. That is, the identification of the most suitable locations for future development in the shire was undertaken at a strategic level as part of the ULRS. The ULRS aimed to set the parameters for future growth of the urban areas within Ballina Shire in a responsible and sustainable manner. It sought to achieve this by ensuring that decisions regarding the release of urban land were founded on an underlying set of sound planning principles.

There was a further strategic planning process undertaken as part of the Cumbalum Structure Plan. The purpose of the Structure Plan was to broadly assess the capability of the subject land for urban development within the Cumbalum area and determine general land use suitability. Environmental factors were further considered in the Cumbalum Structure Plan during the identification process. This included consideration of guiding environmental principles to help site development in the area. The Plan identified the CURA A as a suitable area.

Alternative design and layout options were considered during the project’s design process. Design has taken into consideration expert reports from relevant disciplines with the aim of minimising the potential impact of the development, whilst also providing for other project goals. The result is a layout which significantly avoids patches of lowland rainforest vegetation, wetlands and swamp sclerophyll forest.

8.1 Select the relevant alternatives related to your proposed action.

8.27 Do you have another alternative?

No

Section 9 – Contacts, signatures and declarations

Where applicable, you must provide the contact details of each of the following entities: Person Proposing the Action; Proposed Designated Proponent and; Person Preparing the Referral. You will also be required to provide signed declarations from each of the identified entities.

9.0 Is the person proposing to take the action an Organisation or an Individual?

Organisation

9.2 Organisation

9.2.1 Job Title

State Development Manager QLD

9.2.2 First Name

Bill

9.2.3 Last Name

Knobel

9.2.4 E-mail

bknobel@intrapac.com.au

9.2.5 Postal Address

79 West Burleigh Road
Burleigh Heads QLD 4220
Australia

9.2.6 ABN/ACN

ACN

107291805 - INTRAPAC PROPERTY PTY LTD

9.2.7 Organisation Telephone

(07) 55350414

9.2.8 Organisation E-mail

info@intrapac.com.au

9.2.9 I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

Not applicable

Small Business Declaration

I have read the Department of the Environment and Energy's guidance in the online form concerning the definition of a small a business entity and confirm that I qualify for a small business exemption.

Signature:…… Date: ……

9.2.9.2 I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations

No

9.2.9.3 Under sub regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made

Person proposing the action - Declaration

I, Bill Knobel, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.

X Signature:…… Date: 19/11/2018

I, Bill Knobel, the person proposing the action, consent to the designation of Bill Knobel as the proponent of the purposes of the action describe in this EPBC Act Referral.

X Signature:…… Date: 19/11/2018

9.3 Is the Proposed Designated Proponent an Organisation or Individual?

Organisation

9.5 Organisation

9.5.1 Job Title

State Development Manager QLD

9.5.2 First Name

Bill

9.5.3 Last Name

Knobel

9.5.4 E-mail

bknobel@intrapac.com.au

9.5.5 Postal Address

2/79 West Burleigh Road
Burleigh Heads QLD 4220
Australia

9.5.6 ABN/ACN

ACN

107291805 - INTRAPAC PROPERTY PTY LTD

9.5.7 Organisation Telephone

107291805

9.5.8 Organisation E-mail

info@intrapac.com.au

Proposed designated proponent - Declaration

I, Bill Knobel, the proposed designated proponent, consent to the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.

× Signature:..... Date: 19/11/2018

9.6 Is the Referring Party an Organisation or Individual?

Organisation

9.8 Organisation

9.8.1 Job Title

Senior Ecologist

9.8.2 First Name

Steve

9.8.3 Last Name

Jarman

9.8.4 E-mail

stevej@ecoaus.com.au

9.8.5 Postal Address

PO Box 2040
Brisbane QLD 4000
Australia

9.8.6 ABN/ACN

ABN

87096512088 - ECO LOGICAL AUSTRALIA PTY LTD

9.8.7 Organisation Telephone

07 3239 9405

9.8.8 Organisation E-mail

stevej@ecoaus.com.au

Referring Party - Declaration

I, Steve Jarman, I declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence.

Signature: ..... Date: 5-12-2018

Appendix A - Attachments

The following attachments have been supplied with this EPBC Act Referral:

1. Attachment A - Maps package_va .pdf
2. Attachment B - Tables_v1.pdf
3. Attachment C - Project Data, ArcGIS shapefiles.zip
4. Attachment D -CURA A POM.pdf
5. Attachment E_1 - Development Approval.pdf
6. Attachment E_2 - Development Approval.pdf
7. Attachment H - CURA A Ntve Fauna Relctn&Extc Sp Rmvl Pln - Final.pdf
8. F.i. Impact Assessment Hairy Joint Grass Draft v2.0.pdf
9. F.ii_.ELA GDEs Tech Note 20170310 V2.pdf
10. F.iii_. Supplementary Ecological Report v0.a - sent to client.pdf
11. G.i.(a) Cumbalum Views - Revised Stormwater Final.pdf
12. G.i.(b) ANNEX A.pdf
13. G.i.(c).1 ANNEX B.pdf
14. G.i.(c).2 ANNEX B.pdf
15. G.i.(d) ANNEX C.pdf
16. G.i.(e) ANNEX D.pdf
17. G.i.(f).1 FIGS_PT_1.pdf
18. G.i.(f).2 FIGS_PT_1.pdf
19. G.i.(f).3 FIGS_PT_1.pdf
20. G.i.(g)FIGS_PT_2.pdf
21. G.ii_.(a) Cumbalum Views - Supplementary.pdf
22. G.ii_.(b) Annexure A-retracted.pdf
23. G.ii_.(b) Annexure A.pdf
24. G.ii_.(c).1 Annexure B.pdf
25. G.ii_.(c).2 Annexure B.pdf
26. G.ii_.(c).3 Annexure B.pdf
27. G.ii_.(d) Annexure C.pdf
28. G.ii_.(e) Annexure D.pdf
29. G.ii_.(f) Annexure E.pdf
30. G.ii_.(g) Annexure F.pdf
31. G.ii_.(h) Annexure G.pdf
32. G.ii_.(i).1 Annexure H.pdf
33. G.ii_.(i).2 Annexure H.pdf
34. G.ii_.(i).3 Annexure H.pdf
35. G.ii_.(i).4 Annexure H.pdf
36. G.ii_.(i).5 Annexure H.pdf
37. G.ii_.(i).6 Annexure H.pdf
38. G.ii_.(i).7 Annexure H.pdf
39. G.ii_.(i).8 Annexure H.pdf
40. G.ii_.(j).1 Annexure I.pdf
41. G.ii_.(j).2 Annexure I.pdf
42. G.ii_.(j).3 Annexure I.pdf
43. G.ii_.(k).1 Annexure J.pdf
44. G.ii_.(k).2 Annexure J.pdf
45. G.ii_.(k).3 Annexure J.pdf

46. G.ii_.(k).4 Annexure J.pdf
47. G.ii_.(k).5 Annexure J.pdf
48. G.ii_.(k).6 Annexure J.pdf
49. G.ii_.(k).7 Annexure J.pdf
50. G.ii_.(l).1 Annexure K.pdf
51. G.ii_.(l).2 Annexure K.pdf
52. G.ii_.(m) Annexure L.pdf
53. G.ii_.(n) Annexure M.pdf
54. G.ii_.(o).1 Figures.pdf
55. G.ii_.(o).2 Figures.pdf
56. G.iii_.(a) Cumbalum Views_Strmwtr Mgmt Matterrs Hydro Impacts.pdf
57. G.iii_.(b) Annexure A Curriculum Vitae Dr Stephen N Webb.pdf
58. G.iii_.(c) Annexure B Ecological Assessment by Eco Logical Australia.pdf
59. G.iii_.(d) Annexure C Updated MAFP November 2017.pdf
60. G.iii_.(e).1 Figures (2).pdf
61. G.iii_.(e).2 Figures (2).pdf
62. G.iii_.(e).3 Figures (2).pdf
63. G.iii_.(e).4 Figures (2).pdf
64. G.iii_.(e).5 Figures (2).pdf
65. G.iii_.(e).6 Figures (2).pdf
66. G.iii_.(e).7 Figures (2).pdf
67. G.iii_.(e).8 Figures (2).pdf
68. G.iv_.(a).1 2nd Joint Expert Report Hydrology_Final.pdf
69. G.iv_.(a).2 2nd Joint Expert Report Hydrology_Final.pdf
70. G.iv_.(a).3 2nd Joint Expert Report Hydrology_Final.pdf
71. G.iv_.(a).4 2nd Joint Expert Report Hydrology_Final.pdf
72. G.iv_.(a).5 2nd Joint Expert Report Hydrology_Final.pdf
73. G.iv_.(a).6 2nd Joint Expert Report Hydrology_Final.pdf
74. G.iv_.(a).7 2nd Joint Expert Report Hydrology_Final.pdf
75. G.iv_.(a).8 2nd Joint Expert Report Hydrology_Final.pdf
76. G.v.(a).1 K2984-0016-L.pdf
77. G.v.(a).2 K2984-0016-L.pdf
78. G.v.(a).3 K2984-0016-L.pdf
79. G.v.(a).4 K2984-0016-L.pdf
80. G.v.(a).5 K2984-0016-L.pdf
81. G.v.(a).6 K2984-0016-L.pdf
82. G.v.(a).7 K2984-0016-L.pdf
83. G.v.(a).8 K2984-0016-L.pdf
84. G.v.(a).9 K2984-0016-L.pdf
85. G.v.(a).10 K2984-0016-L.pdf
86. G.v.(a).11 K2984-0016-L.pdf
87. G.v.(a).12 K2984-0016-L.pdf
88. G.v.(a).13 K2984-0016-L.pdf
89. G.v.(a).14 K2984-0016-L.pdf
90. G.vi_. K2984-0113-MAFP_20181102.pdf