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PRELIMINARY DOCUMENTATION

ATTACHMENT B LANDSCAPE PLANS

0 10 20 30 40 50 m

N

Plant List				
ID	**Qty**	**Common Name**	**Botanical Name**	**Scheduled Size**
Trees				
Ban int	77	Coastal Banksia	Banksia integrifolia	100 litre
Euc pan	8	Grey Ironbark	Eucalyptus paniculata	100 litre
EuRo	11	Swamp Mahogany, Bengaly	Eucalyptus robusta	100 litre
Total	**96**			

LEGEND

- Trees to be retained
- 10m strip of retained trees as per DA
- EEC - Weed and APZ management as per VMP
- Revegetation - Northern Coastal Sands Shrub Forest mix. Grasses, herbs and scattered trees only in APZ
- Revegetation - Grasses sedges and herbs from Bangalay Paperbark Woodland Mix.
- Riparian flows
- Revegetation - sedges (4 sedges/ m2)
- Existing managed grass - APZ
- Turf grass - kikuyu
- Boardwalk
- Timber post and rail fence 1200 high
- Maintenance access gate
- Solid fence 1800 high
- EEC Fence - post and cable for wildlife access
- Boulder retaining wall (to form basins)
- Gabion stone wall
- Split faced concrete block wall
- Bollard
- EEC - Protect
- 25m EEC buffer - manage
- Hazard setback
- Root Barrier located as shown in details (length is half the width of mature tree)

Note:
Topsoil and mulch for use in revegetation shall be sourced from weed free areas of the site. Source locations to be verified by landscape architect on site and stockpiled seperately for re-use.

PRELIMINARY - NOT FOR CONSTRUCTION

issue
A 27 Nov 2017
B 8 July 2018 Engineers base amended, separated into stages
C 26 Mar 2019 Amended to suit engineers base
D 14 Oct 2019 Amended to suit revised basin design
E 22 Apr 2021 Amended to replace street trees with GGFF and add increase Banksias

Manyana Residential Subdivision

Berringer Road and Cunjarong Point Road Manyana

FOR **OZY HOMES P/L**

Landscape Plan - Stage 1

LD03

1:500 @A1 22 April 2021 status For CC issue **E**

Buffer/ Manyana/ Landscape 1 stage vw17 print date 22/Apr/21

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PRELIMINARY DOCUMENTATION

ATTACHMENT C DESIGN GUIDELINES

Design Guidelines

MANYANA BEACH ESTATE

Cunjurong Point Road

Lot 172, DP 755923

Quality Builders for generations to come

Ozy Homes Pty Ltd
ABN 27 163 519 079 / Builder's Lic No. 265018C
2A, 148-150 Canterbury Rd
Bankstown NSW 2200
1300 093 704
sales@ozyhomes.com.au
www.ozyhomes.com.au

Content page

1. Introduction

Development in Manyana has followed no particular form in its past. At present it is a mix of original 1950's style seaside cottageS, modern brick and tile suburban style houses as well as a limited number of architecturally designed modern coastal residence.

We see an opportunity in the Manyana Beach Estate(MBE) subdivision to create a contemporary design that that is in keeping with the unique costal location of the Manyana township.

The quality of life for future residence as well as long term value of homes in this estate will be enhanced by good design principles. It is our intension to create covenants requiring compliance with these design guidelines that will help to create homes and streetscapes which are sympathetic to the natural setting of the estate and its surroundings.

Key architectural elements proposed for the MBE estate are:

- Use a mixture of building materials including light exterior cladding that reinforces the "costal style" of Manyana.
- Articulation to the building façade/roof profile to produce weather protection e.g. verandas, awnings eaves and over hangs.
- Large recess under roof creating indoor/outdoor living spaces e.g. balconies, terraces and decks.
- A mix of articulation, architectural elements and exterior finishes will be encouraged to help reduce the bulk and scale of houses.

Final designs are to be approved by the developer prior to construction commencement. This should include building design as well as landscape plans.

2. Building form

It is intended that houses and streetscapes blend in with natural environment. Traditional urban style housing (using solid face brickwork facades and tile roofs) is not encouraged. This form of development is considered unsuitable for the coastal location of Manyana and is not keeping with the local character in the area.

Home owners are encouraged to use a variety of materials for facades with a minimum of two materials as desired.

Building design guidelines will encourage the following:

- Architecture that has a character representing the current intended local neighborhood-built form.
- Building of light weight construction will be encouraged.
- Designs that use a mix of articulation, architectural elements and exterior finishes to reduce the scale and bulk of building and reflect a coastal style.

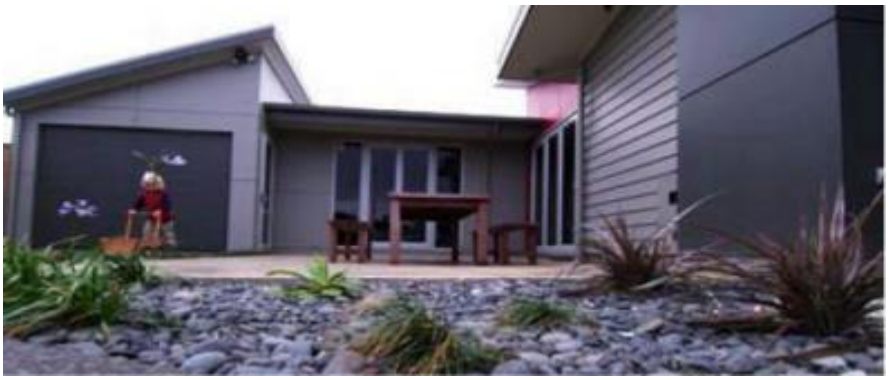
The following characteristics should be avoided

- Typical suburban brick and tile design and period style replicas such as Federation, Tuscan or Tudor style.
- Buildings that have a heavy and highly urbanized appearance through the use of masonry and concrete.

Final building design approval will be based on merit and architectural merit.

3. Solar Access & Energy Efficiency

All new houses in the estate will be required to conform with energy and water efficiency requirements under the Building Sustainability Index (BASIX).



4. Vehicle Accommodation

Streetscapes that are dominated by garages are repetitive and generally dominate street elevation with often poor quality facades. Garages will be required to be set back by at least 1 meter from the front façade to ensure that the garage is not in front of the bulk of the street elevation.

Timber or “Timber look” garage doors are most attractive option available on the market. Their use will be encouraged as is the reduction of the bulk of the appearance of a double garage door by using 2 single garage doors separated by a pier. A rear garage door through to the back yard is encouraged for the storage pf boats and trailers behind the building line. Boats, trailers and caravans will not be permitted to park on the street or in front of dwellings.

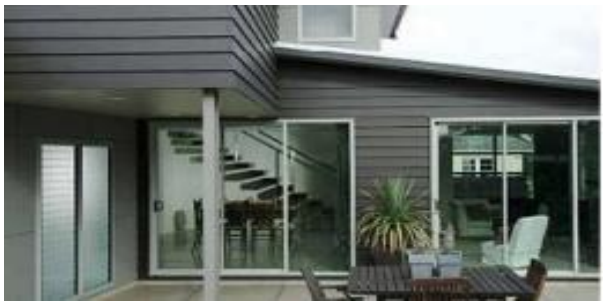
5. External Wall Finishes

Generally external walls should comprise a combination of materials to reduce the apparent height and bulk of building. It will be appropriate to use face brick work up to floor level with paler rendered or clad main walls to provide some contrast. This will also help to give an appearance of a solid base to a house.

External finishes should comprise earthly tones and use of traditional timber (weatherboard) as well as a more modern fibre cement panels should be encouraged. A color palate for brick colours shall be provided and colours such as red, orange and gold brick will not be permitted.

External wall finishes should generally encourage the following:

- A mix of building materials, comprising, weatherboards, light weight cladding, fibre cement panels and colourbond steel roofs
- Selection of bagged, face or rendered masonry where they are used as a feature and are not dominant feature.



Items to be avoided are as follows:

- Traditional suburban face brick and tile, concrete blockwork and tilt up construction.
- Overwhelming use of Solid brick facades or concrete.
- Large expansion of glass sheeting.

6.Roof profiles

It is intended to reinforce the use of pitched (gabled) roofscapes as the desirable character of the subdivision and to promote consistency in roofing materials. Hipped roofs are a feature of coastal villages and they give a general softer appearance to the landscape. All roofs shall incorporate overhangs or eaves to a minimum of 300mm and no eave-less roof construction will be permitted.

Should flat roofs be proposed this will be assessed based on the overall architectural merit of the home.

It is envisaged that roof tiles will not be permitted and that a preselected range of colour bond roofing will be offered to prospective purchasers as being a suitable form of roofing of the estate

In general roof profiles should encourage the following:

- Simple roof forms.
- Pitched roofs, hipped or gabled to provide air circulation and façade articulation.
- Gables are to be encouraged as they reflect the coastal environment.

In general the following roof profiles should be avoided:

- Complicated roof lines and applied decoration.
- Flat roofs and curved roof forms. This is assessed based on the overall design merit of the home.

7. Driveways

Driveways and footpath cross over must be constructed generally in plain concrete or exposed aggregate. The use of pavers and colored concrete treatment will not be permitted.

8. Letterbox

It is intended to design standardised letterboxes within the estate which will be designed at a later stage. All homes within the estate will be required to conform to the standard design.

9. Open Balconies & Balustrades

The following shall be encouraged

- Use of lightweight decks, balconies, terraces and **pergolas** for outdoor living and recreation suited to the coastal life style.
- Large outdoor spaces with good shade cover providing building articulation.
- The use of timber balustrades or timber frame with stainless steel / wire balustrades is preferred.

The following are to be avoided

- Blank unarticulated façades, complicated decoration and balustrades infills.
- Tubular steel railings with expansive glass paneling.

10. Awnings, Eaves, Overhangs, Shutters & Screens

The following should be encouraged:

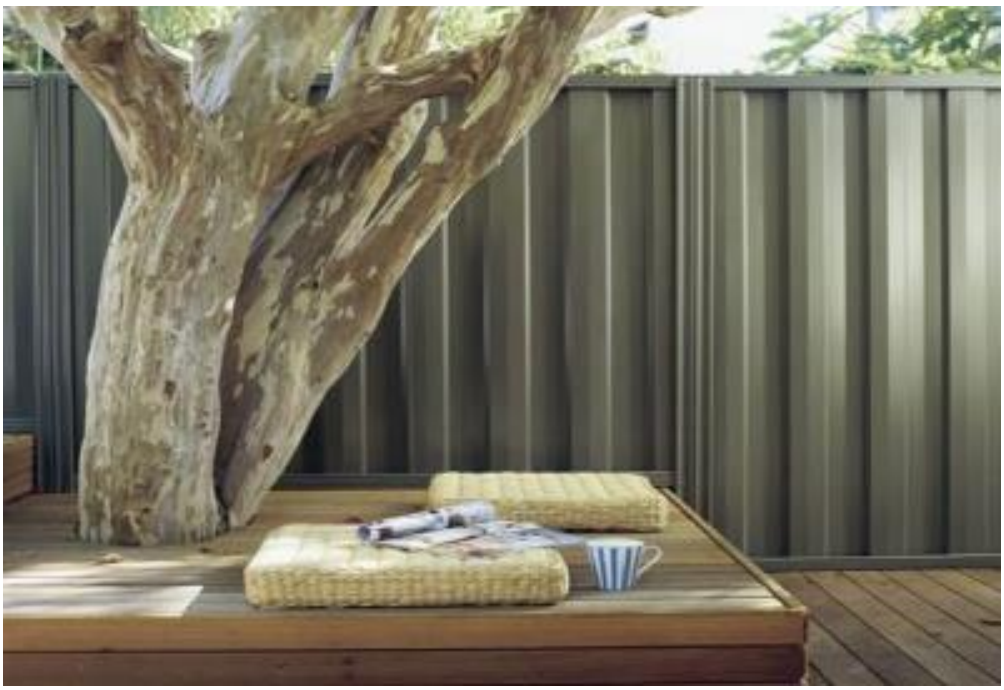
- Shutters and screens which protect doors and other openings for the purpose of providing protection from rain, sun and wind. They can be utilized in timber, metal or glass (louvres).
- Verandas, as a continuation of the roof form and integrated pergolas are encouraged.

The following should be avoided:

- Solid bulky structures with blank walls and no eaves

11. fencing & retaining walls

Stringent controls will be put in place to ensure that consistent internal dividing fencing are constructed within the subdivision. Fencing to the side and rear boundaries shall be constructed in colourbond and shall be “Grey Ridge” in colour.



Front fencing will not be permitted nor will boundary fencing proud of the building line. Fencing to the other side and rear boundaries will be required to be at a height of 1.8m. Fencing to corner lots will require special consideration and a timber fencing option will be required for these lots.

To further maintain consistency of quality and appearance throughout the estate, all retainer walls which will be visible from the street or public places, should be constructed of rendered masonry, rock or stone. Treated log or treated pine sleeper retainer walls should only be used if they are not visible from the street or public places.

12. Landscaping

Landscaping will be required to consist of a balance of soft and hard elements such as a tree and paving. The use of native trees and shrubs will be required to complement the surrounding bush setting. **A minimum of at least Three native trees capable of growing to a minimum height of 3 meters shall be planted within each home boundary as selected from the plant schedule (table 12.1)**. Native trees and shrubs also reduce maintenance as they do not require constant pruning, feeding or spraying. Palm trees are considered not compatible with the surrounding environment and therefore are not permitted.

Purchasers in the MBE subdivision will be offered a $5000 landscape rebate by the developer on satisfactory completion of the landscape works in accordance with the approved landscape plan and the selected minimum number of native trees as per the plant schedule detailed below (table 12.1).

Pathways should be constructed in similar or complementary materials to the driveway however permeable and segmented paving is desirable as it limits runoff and increases onsite water absorption.

Turf and landscaping will be required to be completed within 3 months of practical completion of the residence. Establishing lawns from seeds and runners are not preferred as it can take some time to properly establish.

Table 12.1 Plant Schedule

Native tree plantings must include at least ONE of the following species in the FRONT SETBACK:

- Coast Banksia (*Banksia integrifolia*)
- Spotted Gum (*Corymbia maculata*)
- White Box (*Eucalyptus albens*)
- Yellow Box (*Eucalyptus melliodora*)
- Grey Ironbark (*Eucalyptus paniculata*)
- Swamp Mahogany (*Eucalyptus robusta*)
- Forest Red Gum (*Eucalyptus tereticornis*)
- Turpentine (*Syncarpia glomulifera*)

Native tree plantings must include at least TWO of the following species in the (REAR BACKYARD):

- Coast Banksia (*Banksia integrifolia*)
- Spotted Gum (*Corymbia maculata*)
- White Box (*Eucalyptus albens*)
- Yellow Box (*Eucalyptus melliodora*)
- Grey Ironbark (*Eucalyptus paniculata*)
- Swamp Mahogany (*Eucalyptus robusta*)
- Forest Red Gum (*Eucalyptus tereticornis*)
- Turpentine (*Syncarpia glomulifera*)

THE MINIMUM NUMBER OF NATIVE TREE'S REQUIRED TO BE PLANTED SHALL BE STRICTLY ADHERED.

Native tree plantings are to be sourced from a local nursery and must be of local provenance (southern NSW at minimum).

13. Cooling, Heating & Water Storage

Air conditioners and solar collectors must not be visible from the streets. Generally, air conditioning units will not be encouraged as a well-designed architectural home can provide good cross flow of ventilation and breeze ways to capitalise on costal winds.

If air conditioning units are installed, consideration should be given to their location within the house site and in relation to noise transmission to adjoining properties. Roof mounted air conditioning units are not permitted. Water tanks and pump facilities should be carefully located to avoid disturbance of neighbors and should not be visible from public spaces.

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PRELIMINARY DOCUMENTATION

ATTACHMENT D EPBC ACT REFERRAL (2020/8704)

EPBC Act referral

Australian Government
Department of Agriculture, Water and the Environment

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Title of proposal	2020/8704 - Lot 172 DP 755923 Lot 823 DP 247285, Manyana, NSW

Section 1

Summary of your proposed action

1.1 Project industry type Res dent al Development

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

The subject land s located on Lots 172 & 823 wh ch compr se approx mately 20.4 ha of vacant freehold land s tuated to the west and north-west of Manyana v llage. The land s proposed for res dent al sub-d v s on and s currently zoned R2 – Low Dens ty Res dent al under the Shoalhaven Local Env ronmental Plan 2014 (LEP). At present, the two lots have approval to be sub-d v ded nto one hundred and e ghty-two (182) res dent al allotments. The subd v s on w ll be mplemented over 6 stages, w th each stage nclud ng the add t on of approx mately 30 lots.

The proposal w ll result n mpacts to 17.18 ha of vegetat on, compr s ng 5.39 ha of Bangalay Mo st Woodland Open Forest and 10.79 ha of Northern Coastal Sands Shrub/Fern Forest and 1 ha of d sturbed/cleared area. Approx mately 0.92 ha of Bangalay Paperbark Woodland (Endangered Ecolog cal Commun ty (EEC)) and 3 ha of Northern Coastal Sands Shrub/Fern Forest w ll be reta ned.Broad clear ng of trees s proh b ted under the project approval, w th vegetat on removal to be carr ed our commensurate w th the construct on of each stage.

The approval nclud ng the cond t ons and documents subm tted to obta n a construct on cert f cate expla n w th more prec se deta l assoc ated w th the act v t es.

However,the proposal ncludes:

(1) The staged subd v s on of Lot 172 DP // 755923 and Lot 823 DP // 247285 nto 182 res dent al lots, 1 playground space and playground area, 1 open space area nclud ng the EEC and ts assoc ated buffer zones, new roads and assoc ated nfrastructure and subd v s on works.

(2) Construct on of phys cal nfrastructure and serv ces, nclud ng nter-allotment dra nage, pedestr an/cycle pathways, bus stop and bus bay, safety control measures w th n the development and on Sunset Str p and a fully channel sed left turn lane on Berr nger Road.

(3) Construct on of water sens t ve urban des gn measures, nclud ng a stormwater qual ty system ncorporat ng on-s te detent on and nf ltrat on, 3 water qual ty control po nts, grassed road s de swales and b of ltrat on trenches and a gross pollutant trap.

(4) Landscap ng, vegetat on management and assoc ated works of the playground area, the EEC and assoc ated bushland reserve and publ c spaces along streets.

(5) Removal of trees w th n the res dent al lots (except the 10m buffer to rear of lots along proposed Road No. 4 and 6 wh ch back onto ex st ng res dent al propert es) and subject to (7), the t m ng of removal of trees shall be commensurate w th development of each stage of the project.

(6) Removal of trees for the purposes of construct on of c v l and nfrastructure works (as per Cond t on B7) and subject to (7), the t m ng of removal of trees shall be commensurate w th development of each stage of the project.

(7) Removal of trees and vegetat on dent f ed on Draw ng No.24256-07 – Tree Deta ls w th n the buffer referred to n (5) for the purpose of construct on of nfrastructure and serv ces s perm tted only w th the consent of Counc l.

(8) Removal of trees w th n reserves for the construct on of 3 water qual ty control po nts and commensurate w th the respect ve stage of the development.

(9) Revegetat on of the EEC and assoc ated ma ntenance as spec f ed n Cond t on E17.

The development w ll be constructed n s x (6) stages as follows (see Ecoplann ng 2019):

Stage 1 Subd v s on and creat on of 30 res dent al lots and pass ve open space, nfrastructure works, construct on of traff c, pedestr an and cycle safety measures, vegetat on management and rehab l tat on of EEC and assoc ated buffer zone, APZ, weed management, fenc ng and landscap ng n accord ng w th B8 and B9. Only th s stage has a construct on cert f cate at present. Construct on cert f cates w ll be needed before works commence on the further stages.

Stage 2 Subd v s on and creat on of 32 res dent al lots, nfrastructure works nclud ng earthworks, removal of trees, roads, stormwater and dra nage, serv ces, c v l works, pedestr an/cycle pathways.

Stage 3 Subd v s on and creat on of 29 res dent al lots, nclud ng earthworks, removal of trees, traff c calm ng dev ce on Road 4, stormwater and dra nage, serv ces, c v l works, water sens t ve urban des gn measures, pedestr an/cycle pathways.

Stage 4 Subd v s on and creat on of 31 res dent al lots and pass ve open space, nclud ng nfrastructure works, earthworks, removal of trees, roads, stormwater and dra nage, serv ces, a water qual ty control pond, c v l works, traff c calm ng dev ces on Road 3, pedestr an/cycle pathways, playground area walk ng paths and s gnage.

Stage 5 Subd v s on and creat on of 31 res dent al lots and pass ve open space, nclud ng nfrastructure works, earthworks, removal of trees, roads, stormwater and dra nage, serv ces, a water qual ty control pond, c v l works, traff c calm ng dev ces on Road 3, pedestr an/cycle pathways.

Stage 6 Subd v s on and creat on of 27 res dent al lots nclud ng nfrastructure works, earthworks, removal of trees, roads, stormwater and dra nage, serv ces, c v l works.

A Vegetat on Management Plan and an Env ronmental Management Plan has been prepared n accordance w th the

approval (cond t ons B8, B9, and B11), both of wh ch are to be compl ed w th dur ng construct on. The approval also conta ns extens ve protocols for deal ng w th trees w th hollows (cond t on D9). More deta ls s prov ded n Ecoplann ng (2019a. b).

1.3 What is the extent and location of your proposed action?

See Append x B

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)

Lots 172 & 823 compr se approx mately 20.4 ha of vacant freehold, vegetated land s tuated to the west and north-west of Manyana v llage. The s te s currently zoned R2 – Low Dens ty Res dent al under the Shoalhaven 2014 LEP. It s bounded by res dent al development n the south and east, by vegetated freehold land n the north and vegetated Crown land n the west. The northern boundary s demarcated by Berr nger Road and the western boundary by Cunjurong Po nt Road.

The s te l es at an alt tude of approx mately 20-30 m AHD and s gently-slop ng land w th a southerly aspect. Two low-ly ng ephemeral dra nage depress ons are located w th n the property. The most westerly dra nage runs south-easterly and the second runs through the centre of the property n a southerly d rect on. Only the westerly dra nage channel supports r par an vegetat on. Both dra nage l nes form part of the upper catchment of a small coastal lagoon that d scharges onto Manyana Beach (BES 2006).

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

The subject land s located on Lots 172 & 823 wh ch compr se approx mately 20.4 ha of vacant land.

The proposal w ll result n mpacts to 17.18 ha of vegetat on, compr s ng 5.39 ha of Bangalay Mo st Woodland Open Forest and 10.79 ha of Northern Coastal Sands Shrub/Fern Forest and 1 ha of d sturbed/cleared area. Approx mately 0.92 ha of Bangalay Paperbark Woodland EEC and 2.30 ha of Northern Coastal Sands Shrub/Fern Forest w ll be reta ned.

1.7 Proposed action location

Lot - Lot 172 // DP 755923 & Lot 823 DP // 247285, Manyana, NSW

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?

☐ Yes ☑ No

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

☐ Yes ☑ No

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

Start Date 23/07/2020
End Date 02/12/2030

1.12 Provide details of the context, planning framework and state and/or local Government requirements

The development was assessed pursuant to the then Part 3A of the NSW Env ronmental Plann ng and Assessment Act 1979 (EP&A Act) and determ ned by the M n ster for Plann ng.

Development consent was granted on 8 July 2008 (Determ nat on of Major Project No. 05-0059 – F le No. 9040674). Cond t ons of Consent (CoC) requ red the proponent to enter nto a Voluntary Plann ng Agreement w th Shoalhaven Counc l under Sect on 93F of the EP&A Act. (schedule 3, SOC 43-45. It also prov ded for works and costs to undertake the follow ng:

- Extens on of the Commun ty Hall, Yulunga Reserve ($36,134)
- Upgrade foreshore fac l t es, nclud ng prov s on of car park ng ($15,265)

- Upgrade works to Bendalong Road and Inyadda Dr ve ($56,160)
- Construct on of a rural road type B ntersect on, Bendalong Road and Inyadda Dr ve ($12,721).

It was requ red that the Plann ng Agreement was reg stered on the t tle of the land n accordance w th the Real Property Act 1900.

The CoC ncluded the requ rement for a Vegetat on Management Plan (VMP) (see B8 of the CoC) to be prepared for each stage of the subd v s on and a VMP to be spec f cally prepared and mplemented for the part of the s te conta n ng the EEC (see B9 of the CoC). The developer was requ red to ma nta n the EEC n accordance w th the recommendat ons of the approved VMP after ts ded cat on to Shoalhaven Counc l.

The developer was also requ red to prepare and embell sh all publ c reserves n accordance w th the VMP (for EEC) and deta led landscape des gn plans to be approved by Shoalhaven Counc l as part of the Construct on Cert f cate.

B11 of the CoC requ res the preparat on of an Env ronmental Management Plan (EMP)

B12 of the CoC requ res the prov s on of phys cal barr ers between the roads de per meter of the EEC and pass ve open space w th restr cted access for ma ntenance veh cle and separate access for pedestr ans at locat ons determ ned n the VMP. The prov s on of two w ldl fe cross ng s gns

C4 of the CoC spec f es that any clear ng to be undertaken for Stages 2, 3 or 4 of the development and affect ng Bangalay Mo st Woodland / Open Forest w ll not be undertaken between the beg nn ng of October and the end of February n any year to m n m se potent al mpacts on breed ng by m gratory spec es Black-faced Monarch (Monarcha melanops s) and Rufous Fanta l (Rh p dura ruf frons).

D9 of the CoC outl nes the protocols that must be followed for trees w th hollows dur ng construct on.

E16 of the CoC requ res the proponent to ded cate the EEC, assoc ated buffer area and bushland reserve upon reg strat on of the plan of subd v s on for Stage 1 and Stage 5 and the playground area and open space upon reg strat on of the plan of subd v s on for Stage 3.

E17 of the CoC requ res the proponent to manage and ma nta n the EEC, assoc ated buffer area and bushland area (nclud ng water ponds) n accordance w th the VMP for a per od of three years follow ng the reg strat on of the plan of the subd v s on for the f nal stage of the subd v s on.

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

G ven the project was assessed under Part 3A of the EP&A Act, publ c exh b t on of the Env ronmental Assessment (EA) was requ red, allow ng the publ c the opportun ty to comment on the proposal.

In relat on to Manyana, the Manyana D str ct C t zens Assoc at on was dent f ed as the Pr nc pal Consult ng Body by Shoalhaven Counc l. Meet ngs were arranged through the Secretary of th s Assoc at on and meet ngs were held on two occas ons. In cons der ng matters such as th s development proposal, the Manyana D str ct C t zens Assoc at on goes outs de of ts d rect members n order to obta n nput and feedback from a w der cross sect on of the commun ty. Th s sess on nvolved members of var ous groups w th n the commun ty nclud ng Manyana D str ct C t zens Assoc at on, Playgroup, Local Env ronment Group, Bushcare, local Rural F re Serv ce Br gade, and sport ng clubs nclud ng F sh ng, Soccer and Board-r ders (Cowman Stoddart Pty Ltd 2016).

Consultat on was also held dur ng the plann ng process w th the former Department of Env ronment and Conservat on (DEC) v a meet ngs and teleconference (see BES 2006). The Department of Health, Department of Educat on and Tra n ng and Infrastructure Serv ce Prov ders were also consulted (Cowman Stoddart Pty Ltd 2016).

Two meet ngs were held w th the then Department of Plann ng n August 2005 and December 2006.

Var ous staff at Shoalhaven Counc l were consulted over the l fe of the project nclud ng three meet ngs (Cowman Stoddart Pty Ltd 2016).

A summary of the outcomes of consultat on can be found n the EA (Cowman Stoddart Pty Ltd 2016).

As a CoC, the proponent was requ red to l a se w th the Jerr nja Local Abor g nal Land Counc l (LALC) and determ ne the course of act on to be taken for known surface artefacts found at the s te and n relat on to the salvage operat ons. Wr tten conf rmat on was to be obta n from the Jerr nja LALC as to the course of act on w th regard to Manyana 1. The proponent has conf rmed that th s l a son has been undertaken and wr tten conf rmat on can be prov ded f requ red.

South East Archaeology were engaged to do th s consultat on and t was part of the Cultural Her tage Management Plan wh ch outl nes the methodology of work at the Manyana 1 s te and the assoc ated scrape s tes A and B. Works around the Manyana 1 s te are not due to be undertaken unt l stage 2 of the project.

The CoC also requ re the proponent to not fy the LALC pr or to the commencement of works at each stage of the development and prov de t w th an opportun ty to v ew the works. The proponent has conf rmed the l a son attempts and has prov ded wr tten ev dence (th s can be prov ded f requ red). The LALC w ll be g ven the opportun ty to nspect the s te after vegetat on clear ng but pr or to any topso l str pp ng, wh ch s based on adv ce from South East Archaeology.

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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

The proposal was assessed under Part 3A of the NSW EP&A Act and determ ned by the M n ster for Plann ng. An EA was prepared nclud ng a Flora and Fauna Assessment (BES 2006). An EMP and FFMP (Ecoplann ng 2019a & b) were prepared and correspondence undertaken w th DoEE (Ecoplann ng 2018a & b). A further targeted MNES assessment was undertaken

n May-June 2020 (Ecoplann ng 2020).

Approx mately 17.18 ha of vegetat on, compr s ng 5.39 ha of Bangalay Mo st Woodland Open Forest, 10.79 ha of Northern Coastal Sands Shrub/Fern Forest and 1 ha of d sturbed/cleared area w ll be removed. 0.92 ha of Bangalay Paperbark Woodland and 2.30 ha of Northern Coastal Sands Shrub/Fern Forest w ll be reta ned. Impacts nclude removal of potent al hab tat for the Greater Gl der, GreyHeaded Fly ngFox, Sw ft Parrot, Black-faced Monarch, Rufous Fanta l and Sat n Flycatcher. Follow ng extens ve survey, the Southern Brown Band coot and Spotted-ta led Quoll were deemed unl kely to occur (Ecoplann ng 2020).

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

☐ Yes ☑ No

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

☐ Yes ☑ No

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Section 2

Matters of national environmental significance

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

☐ Yes ☑ No

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

☐ Yes ☑ No

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

☐ Yes ☑ 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 ☐ No

Species or threatened ecological community

Greater Gl der (Petauro des volans)

Impact

Greater Gl ders have been observed w th n the s te n 2005 by BES (2006). The proposed act on w ll remove approx mately 17.18 ha of vegetat on all of wh ch s cons dered potent al forag ng and/or low-qual ty denn ng hab tat for th s spec es. 3.45 ha of nat ve vegetat on s be ng reta ned ons te, wh ch ncludes Greater Gl der feed tree, Eucalyptus botryo des.

Records of th s spec es from Manyana (south of Bendalong Road nclud ng the forested lands mmed ately adjacent to the s te) occurred n 2004, 2005, and 2008. Most records n the w der local ty (5 km from the s te) over th s per od occurred n 2005, n the North Bendalong area. The only rel able post-2010 record of th s spec es n the Manyana-Bendalong area, or w th n approx mately 5 km of the s te, s from west of P ne Street, Bendalong n 2013. S nce 2013, there s only one record of the spec es w th n 5 km of the s te, n 2017, wh ch s located on the edge of the s te. The verac ty of th s record s unclear, as th s record was entered w th a s m lar source and t m ng to two other unusual records, nclud ng a Southern Brown Band coot record later downgraded from “s ght ng” to “poss ble ID” (Ecoplann ng 2020).

The pattern of Greater Gl der records n the Manyana-Bendalong area nd cates a marked decl ne n detect on of th s spec es from 2010 onwards. Wh le the causes of a decl ne n detect on of a spec es cannot be determ ned w th certa nty, as a number of factors could contr bute to a lack of spec es records n the B oNet database, the decl ne n detect on of Greater Gl ders n the Manyana-Bendalong area s temporally s m lar to populat on decl nes n Booderee Nat onal Park (approx. 20 km to the north east) reported by L ndenmayer et al. (2011), wh ch L ndenmayer et al. (2018) found could not be ant c pated or expla ned by any clear mechan sm.

Greater Gl ders requ re hollows of a s ze range >15 cm, and may requ re 2-4 l ve den trees for every 2 ha of su table forest (Eyre 2002). The s te conta ns few, low-qual ty den trees n the form of tree hollows of a s ze-class greater than 15 cm (as est mated from ground level). A max mum of 15 trees are est mated to conta n su table denn ng hab tat, across a s te that s approx mately 20 ha n s ze. The dens ty of tree hollows su table for the Greater Gl der (or other large arboreal fauna) s approx mately 0.75 hollow / ha (Ecoplann ng 2020).

Gold ngay (2012) reports Greater Gl der mean den use of 3.1 to 11 separate hollows, use of 4 to 6 dens per month, over a small home range of 1.2-4.1 ha, w th larger home ranges recorded n Queensland of up to 19.3 ha. Typ cally, 4 to 20 d fferent dens are used by nd v duals w th n the r home range (Comport et al. 1996; Sm th et al. 2007). Therefore, n cons derat on of th s spec es’ requ rement for a large number of denn ng s tes, the s te const tutes poor-qual ty denn ng hab tat (Ecoplann ng 2020).

The m n mum survey effort recommended to detect Greater Gl ders n accordance w th Southwell (2020) s f ve n ghts of spotl ght ng to ach eve a detect on probab l ty of 0.97. W ntle et al. (2005) further states that the Greater Gl der’s strong eye-

sh ne, propens ty to stare at ntruders, small home range s ze (ca. 2 ha), and relat vely h gh populat on dens t es (>0.8 nd v duals/ha), ncreases the detectab l ty of th s spec es, w th spotl ght ng be ng the preferred method of survey.

Ecoplann ng conducted f ve n ghts survey n pr mar ly favourable detect on cond t ons. Tak ng nto account the 95% cred ble ntervals on the mean est mates curve for probab l ty of detect on of Greater Gl ders, t s cons dered that Ecoplann ng's surveys on the s te have a probab l ty between 0.85 and 0.97 of detect ng Greater Gl der (W ntle et al. 2005). In add t on to Ecoplann ng's surveys, f ve n ghts of supplementary surveys were undertaken lead by ANU, and aga n by Ga a Research. Based on publ shed detectab l ty stud es, the overall survey effort for the s te has a probab l ty of detect ng Greater Gl ders of >0.97. Based on extens ve survey (114 person-hours; 10 n ghts), t was concluded the Greater Gl der was not present at the s te.

The s te does not represent a key source populat on for breed ng or d spersal. Further, the est mate of a max mum of 15 su table hollows present on s te means t s unl kely to be capable of support ng a source populat on for breed ng or d spersal of Greater Gl ders. In the absence of adequate denn ng hab tat, the s te s unl kely to support a breed ng populat on.

Species or threatened ecological community

Grey-headed Fly ng-fox (Pteropus pol ocephalus)

Impact

Small numbers (one nd v dual heard on each of two n ght's survey, out of a total of 10 survey-n ghts and 114 person-hours of nocturnal survey on the s te) of Grey-headed Fly ng-foxes were recorded forag ng on the s te dur ng nocturnal surveys. One dead Grey-headed Fly ng-fox was found opportun st cally on s te. The nearest roost camp record s at Yatte Yattah (DAWE 2020). No roost camps are found on s te or n the w der local ty.

The s te conta ns forag ng hab tat n the form of flower ng eucalypts, paperbarks, and other tree and shrub spec es. Trees such as L lly P lly (Acmena sm th) are found n the Bangalay Mo st Woodland/Open Forest and prov de fru ts on wh ch th s spec es may feed. A roost camp s not currently found on s te. Commun ty l a son conducted dur ng surveys nd cates that the s te s not known to have prev ously conta ned a roost camp (Ecoplann ng 2020).

The proposed act on w ll remove approx mately 17.18 ha of vegetat on. Th s broad rang ng spec es s not l kely to decl ne due to the removal of th s small area of nterm ttently used forag ng hab tat.

Due to the h gh mob l ty and regular genet c exchange of Grey-headed Fly ng-foxes through the spec es' ent re geograph c range, all nd v duals are cons dered part of one populat on. The populat on s d v ded nto spat ally structured colon es (DoEE 2020). The s te represents potent al forag ng hab tat ut l sed by the local colony (roost camp) of Grey-headed Fly ng-foxes, l kely nd v duals from the Yatte Yattah area or other nearby colon es.

The populat on n the Manyana area, or more broadly n the Shoalhaven LGA or surround ng reg on, has not been dent f ed as an mportant populat on n recovery plans. The s te s used only by forag ng nd v duals and, therefore, does not support a key source populat on for e ther breed ng or d spersal.

The s te s not necessary for breed ng, roost ng, or d spersal of th s spec es. The s te s ut l sed for forag ng, however, large areas of forag ng hab tat occur n the local ty, nclud ng areas of canopy unaffected by the Currowan f re (Ecoplann ng 2020).

The removal of a relat vely small area (when compared to the spec es broad range and h gh mob l ty) of nterm ttently used forag ng hab tat for th s spec es s not l kely to lead to a decrease n the s ze of the local populat on of th s spec es. Moreover, the local populat on of th s spec es does not const tute an mportant populat on (Ecoplann ng 2020).

Th s spec es s l kely to cont nue ut l s ng reta ned vegetat on on s te and n the surround ng local ty follow ng development act v ty on the s te (Ecoplann ng 2020).

Species or threatened ecological community

Sw ft Parrot (Lathamus d scolor)

Impact

Sw ft Parrots were not recorded on s te by BES (2006) or n the surround ng local ty dur ng any prev ous surveys. Only one Sw ft Parrot record ex sts n the local ty (5 km rad us). Th s record ncludes a note that the Sw ft Parrot was recorded n a m xed flock w th Ra nbow Lor keets, desp te Saunders & He nsohn (2008) l st ng Ra nbow Lor keets as a compet tor spec es wh ch have a negat ve effect on the l kel hood of Sw ft Parrot occurrence. B oNet records for the w der reg on (60 km rad us) show a pattern of Sw ft Parrot occurrence n the area mmed ately north of Bateman's Bay, however only w dely scattered records north of Ulladulla (Ecoplann ng 2020).

Records of s ght ngs publ shed by the Illawarra B rd Observers Club (IBOC) were rev ewed, nclud ng a search for all records of Sw ft Parrots for all years between 2007 and 2019. IBOC reports conta ned no s ght ngs n Manyana or w th n 5 km of the s te. B rdl fe Austral a's Woodland B rds for B od vers ty (WBFB) project conducts b annual nat onw de surveys for Sw ft Parrots. WBFB reports conta ned no s ght ngs n Manyana or w th n 5 km of the s te (Ecoplann ng 2020).

The s te could potent ally be used for forag ng act v t es dur ng w nter non-breed ng d spersal across ma nland SE Austral a, however the forag ng resources ava lable are low.

The s te could potent ally be used for forag ng act v t es dur ng w nter non-breed ng d spersal across ma nland SE Austral a,

however the forag ng resources ava lable are low. Of the tree spec es known to be mportant for forag ng, only Eucalyptus robusta may occur on s te n low numbers (though none could be found n BES (2006) or Ecoplann ng (2020) surveys).

The pattern of records, nclud ng observat ons n the KBA of forag ng almost exclus vely on Spotted Gum, Broad-leaved Ironbark and lerp, wh ch were not observed on s te, does not nd cate that the s te or surround ng local ty may const tute an area of mportant forag ng hab tat for Sw ft Parrots dur ng the r rregular movements nto the South Coast of NSW (Ecoplann ng 2020).

Should the Sw ft Parrot use the s te for forag ng, w nter forag ng act v t es n the reg on are not l kely to be s gn f cantly affected by the loss of poor-qual ty forag ng hab tat on s te, and Sw ft Parrots are l kely to pers st n the area as s gn f cant forag ng resources w ll rema n on s te and areas of unburnt canopy vegetat on n the local ty.

Ex st ng records nd cate that the s te and surround ng local ty are unl kely to be used by large proport ons of the populat ons. Large movements of Sw ft Parrots have been recorded n the South Coast reg on only south of Ulladulla and only n assoc at on w th large flower ng events of Spotted Gum. Only s ngle b rds have been observed n the Manyana local ty. Further af eld, the nearest record of a larger flock, 26 b rds n Yatte Yattah, s approx mately 8km from s te w th b rds seen forag ng n a paddock n Eucalyptus teret corn s, wh ch s known to be a key tree spec es (Saunders and Tzaros 2011) and wh ch does not occur on s te.

No Sw ft Parrot records from approx mately Ulladulla north to the Illawarra nd cate a pattern of s te f del ty anywhere n th s reg on. Records n th s reg on show only sporad c occurrence of Sw ft Parrots, generally s ngle b rds or small numbers, and no records of repeat v s ts of flocks to the same locat on across seasons.

The s te does not conta n s gn f cant hab tat features for Sw ft Parrots, s not located n a reg on known to be mportant for Sw ft Parrots, and does not have a recorded pattern of v s tat on wh ch would nd cate the presence of s gn f cant hab tat on s te or n the surround ng area. The s te s not l kely to be ut l sed as a s te of s gn f cant forag ng or as a s te of refug a for the Sw ft Parrot populat on. The s te s not l kely to conta n large numbers of flower ng eucalypts at a t me co nc dent w th Sw ft Parrot movements nto the area and the s te has not supported s gn f cant Sw ft Parrot feed ng behav our as documented n any of the rev ewed database or reg onal sources (Ecoplann ng 2020).

2.4.2 Do you consider this impact to be significant?

☐ Yes ☑ 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 ☐ No

Migratory species

Black-faced Monarch (Monarcha melanops s)

Impact

Th s spec es was recorded on s te by BES (2006) n the Bangalay Mo st Woodland Open Forest n the north east of the s te. BES (2006) reported potent al breed ng act v ty on s te. The Black-faced Monarch are assumed to be us ng the s te for breed ng due to prev ous records. The s te does not support an ecolog cally s gn f cant proport on of the populat on or a s gn f cant area of mportant hab tat for th s spec es (Ecoplann ng 2020).

The s te conta ns known breed ng hab tat for th s spec es n the dense mes c understorey vegetat on of Bangalay Mo st Woodland Open Forest. The ent re s te const tutes potent al forag ng hab tat for th s nsect vorous spec es of wh ch 17 ha w ll be removed for the proposal.

The hab tat on s te does not support an ecolog cally s gn f cant proport on of the populat on, s not of cr t cal mportance to the spec es l fe-cycle stages, s not near the l m t of the spec es' range, and s not w th n an area where the spec es s decl n ng, and therefore s not cons dered mportant hab tat for th s spec es. The area of hab tat for th s spec es l kely to result n a s gn f cant mpact f affected s 260 ha to const tute nat onal s gn f cance or 2,600 ha to const tute an nternat onally s gn f cant mpact (DoE 2015). The area of hab tat to be cleared on s te, 17 ha, s well below these thresholds (Ecoplann ng 2020).

Black-faced Monarchs are not known to occur n dense aggregat ons and the area of vegetat on to be cleared cannot support an ecolog cally s gn f cant proport on of Black-faced Monarchs, wh ch s def ned as 460 nd v duals to be s gn f cant nat onally and 4,600 nd v duals to be s gn f cant nternat onally (DoE 2015). Therefore, the proposed act on w ll not ser ously d srupt the l fecycle of an ecolog cally s gn f cant proport on of the populat on (Ecoplann ng 2020).

Migratory species

Rufous Fanta l (Rh p dura ruf frons)

Impact

Rufous Fanta l was observed dur ng surveys by BES (2006) n the north-eastern part of the study area. They m grate from th s south-eastern reg on to w nter north n Austral a and New Gu nea.

The study area s w th n a reg on w dely used by th s spec es and ev dence of breed ng act v t es have been observed. Hence the study area s cons dered hab tat for th s m gratory spec es (Ecoplann ng 2018a).

The proposal s unl kely to substant ally mod fy an area of mportant hab tat for th s m gratory spec es. The ex st ng dra nage l ne and vegetat ve buffer w ll be ma nta ned and w ll prov de vegetat ve connect v ty through the study area. It w ll be managed by a Flora and Fauna Management Plan to ensure vegetat on cond t on and hydrology s not s gn f cantly mpacted dur ng and post construct on. Th s vegetat ve corr dor w ll l nk to extens ve hab tat north of the study area. Add t onally, two water qual ty fac l t es w ll be ntegrated nto the water management wh ch w ll control sed ment and pollutant f ltrat on and water levels. Th s w ll ensure the hab tat for th s m gratory b rd spec es s ma nta ned at a h gh level of res l ence.

The study area covers a small area of hab tat that prov des breed ng and forag ng potent al for th s m gratory spec es. Due to ts s ze, the study area cannot support an ecolog cally s gn f cant proport on of the populat on of th s spec es. The retent on and management of the vegetat ve corr dor through the study area w ll ensure that the spec es can cont nue to use the study area for forag ng and breed ng act v t es.

Migratory species

Sat n Flycatcher (My agra cyanoleuca)

Impact

Sat n Flycatcher s w despread n eastern Austral a and n NSW they are most common on and east of the Great D v d ng Range. Sat n Flycatcher has not been recorded n the study area but has been recorded substant ally n the south-eastern reg on (Atlas of L v ng Austral a 2018). The spec es m grates north over w nter to Northern Austral a and New Gu nea.

The study area s w th n a reg on w dely used by th s spec es and ev dence of breed ng act v t es have been observed. Hence the study area s cons dered hab tat for th s m gratory spec es (Ecoplann ng 2018a).

The proposal s unl kely to substant ally mod fy an area of mportant hab tat for th s m gratory spec es. The ex st ng dra nage l ne and vegetat ve buffer w ll be ma nta ned and w ll prov de vegetat ve connect v ty through the study area. It w ll be managed by a Flora and Fauna Management Plan to ensure vegetat on cond t on and hydrology s not s gn f cantly mpacted dur ng and post construct on. Th s vegetat ve corr dor w ll l nk to extens ve hab tat north of the study area. Add t onally, two water qual ty fac l t es w ll be ntegrated nto the water management wh ch w ll control sed ment and pollutant f ltrat on and water levels. Th s w ll ensure the hab tat for th s m gratory b rd spec es s ma nta ned at a h gh level of res l ence.

The study area covers a small area of hab tat that prov des breed ng and forag ng potent al for th s m gratory spec es. Due to ts s ze, the study area cannot support an ecolog cally s gn f cant proport on of the populat on of th s spec es. The retent on and management of the vegetat ve corr dor through the study area w ll ensure that the spec es can cont nue to use the study area for forag ng and breed ng act v t es.

2.5.2 Do you consider this impact to be significant?

☐ Yes ☑ No

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

☐ Yes ☑ No

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

☐ Yes ☑ No

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

☐ Yes ☑ No

2.9 Is the proposed action likely to have any direct or indirect impact on a water resource from coal seam gas or large coal mining development?

☐ Yes ☑ No

2.10 Is the proposed action a nuclear action?

☐ Yes ☑ No

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

☐ Yes ☑ No

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage place overseas?

☐ Yes ☑ 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?

☐ Yes ☑ No

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Section 3

Description of the project area

3.1 Describe the flora and fauna relevant to the project area

1 BES (2006)
2 Ecoplann ng (2020)

The s te covers app. 20.4ha of vacant vegetated land. Flora and fauna surveys detected 184 flora spec es and 69 fauna spec es. Three vegetat on commun t es were dent f ed1.

The proposal w ll mpact (n ha) 17.18 of vegetat on, compr s ng 5.39 of Bangalay Mo st Woodland Open Forest and 10.79 of Northern Coastal Sands Shrub/Fern Forest and 1 of d sturbed/cleared area. Approx mately 0.92 of Bangalay Paperbark Woodland EEC, l sted under the TSC Act, and 2.3 of Northern Coastal Sands Shrub/Fern Forest w ll be reta ned.

No vegetat on on s te s character st c of a Threatened Ecolog cal Commun ty (TEC) l sted under the EPBC Act (see Ecoplann ng 2018b). L ttoral Ra nforest (RF) and Coastal V ne Th ckets of Eastern Austral a s l sted under the EPBC Act as 'cr t cally endangered'. Wh lst some ra nforest elements are present ons te, these are assoc ated w th Bangalay Mo st Woodland/Open Forest, and a rat onale for these areas not be ng L ttoral RF under the TSC Act s prov ded n BES (2006). EPBC Act L ttoral RF CEEC was l sted n 2008, but s noted to be cons stent w th TSC Act l sted (TSSC 2008).

The Bangalay Paperbark Woodland w th n the study area was determ ned to compr se the endangered ecolog cal commun ty Swamp sclerophyll forest on the coastal floodpla ns as l sted on the NSW TSC Act1.

Surveys by BES concluded that no threatened flora spec es were present ons te desp te ntens ve survey and they are not expected to occur1.

The flora survey effort employed a total of 27.5 person-hours and fauna survey effort totalled 61.75 person hours and 231 trap n ghts1.

Surveys target ng threatened spec es resulted n the detect on of four threatened spec es l sted under the TSC Act, the Greater Broad-nosed Bat, Gang-gang Cockatoo, Powerful Owl and SquareTa led K te and two m gratory spec es, the Black-faced Monarch (BFM) and Rufous Fanta l, l sted on the EPBC Act, w th n the study area1. The Greater Gl der (GG) was recorded at the s te by BES (2006) but was not l sted under the EPBC Act at the t me.

BES (2006) recorded 40 trees conta n ng hollows of vary ng s zes some of wh ch could prov de nest s tes for b rds such as the Gang-gang Cockatoo and Glossy Black-cockatoo, or mammals nclud ng the Common Brushta l Possum or Common R ngta l Possum, wh ch were both recorded n the study area. Several very large hollows prov de potent al roost ng or nest ng s tes for forest owls such as the Powerful Owl1.

Hab tat for a number of MNES was present at the s te. However, many were cons dered unl kely to occur due to targeted survey. Further survey was undertaken n 2020 to further ass st n determ n ng the r l kel hood of occurrence of the GG, Southern Brown Band coot (SBB), Spotted-ta led Quoll (SQ) and Sw ft Parrot (SP).

Extens ve surveys were undertaken to conf rm presence/absence. None were recorded at the s te and none were cons dered l kely to occur (see Ecoplann ng 2020). No further cons derat on of the SBB nor SQ has been undertaken and s not cons dered necessary. However, as a precaut on, mpacts to potent al hab tat for GG and SP have been cons dered.

Grey-headed Fly ng-fox was were recorded on s te as was the BFM and Rufous Fanta l1,2. BFM are assumed to be us ng the s te for breed ng due to prev ous records2.

An assessment pursuant to NSW SEPP 44–Koala Hab tat Protect on was carr ed out by BES, wh ch concluded that the study area d d not conta n core Koala hab tat (BES 2006). The s te s mapped as P nk on the NSW SEPP 2019–Koala Hab tat Protect on, Koala Development Appl cat on Map. Desp te the presence of a number of Koala Feed trees l sted for the South Coast under the SEPP, there are no Koala records w th n a 10 km rad us of the s te w th n the past 10 years. The most recent record s 44 km away from 2020 and the closest record 11.3 km away from 2004 (DPIE 2020). Further, th s spec es was not recorded dur ng extens ve surveys of the s te (see Ecoplann ng 2020).

The Koala Hab tat Assessment Tool (DotE 2014) was completed as a precaut on.

Koala Occurrence – Low (0): No ev dence of Koalas w th n 5km of the s te w th n the past 2 or 5 years; Vegetat on compos t on – H gh (2+): Has forest or woodland w th 2 or more known koala food tree spec es; Hab tat connect v ty – H gh (2+): The s te s part of a cont guous landscape 500 ha; Key ex st ng threats – Low (0): Areas wh ch score 0 for koala occurrence and are l kely to have some degree dog or veh cle threat present; Recovery value – Low (0) There are no records of th s spec es from w th n a 10 km rad us of the s te n the last 20 years and they have not been recorded on s te dur ng past and recent surveys.

TOTAL = 4

Based on the EPBC Koala Hab tat Assessment Tool the s te would not be cons dered hab tat cr t cal to the surv val of the Koala (scored <5). Further the Koala s very unl kely to occur at the s te and there s no further cons derat on of mpacts to th s spec es.

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

The study area l es at an alt tude of approx mately 20-30 m Austral an He ght Datum (AHD) and s gently-slop ng land w th an aspect generally to the south. Two low-ly ng ephemeral dra nage depress ons are located w th n the property. The most westerly dra nage runs n a south-easterly d rect on. The second dra nage runs through the centre of the property n a southerly d rect on. Only the westerly dra nage l ne supports vegetat on assoc ated w th dra nage l nes to any substant al

degree. Both dra nage l nes form part of the upper catchment of a small coastal lagoon that d scharges onto Manyana Beach (BES 2006).

Storm Consult ng Pty Ltd were engaged to nvest gate the mpact of the proposed development on surface and groundwater and the reta ned vegetat on w th n the EEC. Th s report recommended the prov s on of constructed wetlands to prov de a h gh level of treatment of runoff, gross pollutant traps to allow for the collect on of pollut on and coarse sed ment, the prov s on of detent on on all proposed allotments, the use of swale dra ns where grades allow, nf ltrat on trenches adjacent to the EEC area to ensure appropr ate dra nage s ma nta ned and the use of recycled water from the Conjola Reg onal Sewerage Scheme for outdoor use and to let flush ng. These measures also amel orate the mpacts of ncreased run off dur ng peak flows (Cowman Stoddart 2006).

The proposal ncludes measures to ma nta n water qual ty by the prov s on of water qual ty control ponds and other dra nage nfrastructure. Refer to Sect on 6.8 of the EA for further deta ls and the attached Storm Consult ng Report (2007).

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

The study area appears to be underla n by Tert ary und fferent ated sed ments compr s ng gravel, sand, clay, quartz te, sandstone and conglomerate (Ulladulla 1:250000 Geolog cal Ser es Sheet S1 56-13). These have weathered to form red loamy and sandy so ls typ cal of the Manyana area. So ls throughout much of the study area are covered by a th ck humus layer (BES 2006).

Northern Coastal Sands Shrub/Fern Forest (descr pt on taken from BES 2006)

Th s commun ty occurs across the major ty of the study area on sandy clay so ls. The commun ty compr ses an open-forest dom nated by Eucalyptus p per ta, E. p lular s, and Corymb a gumm fera but also ncludes E. eugen o des, E. globo dea, E. pan culata subsp. pan culata and E. botryo des. The canopy he ght s approx mately 25 m w th fol age project ve cover of approx mately 35 %.

There s a sub-canopy dom nated by Syncarp a glomul fera subsp. glomul fera, to a he ght of approx mately 14 m w th var able fol age project ve cover rang ng between approx mately 5-25%. W th n th s sub-canopy, there are dense, almost closed stands of Turpent ne n places. Other sub-canopy spec es generally occur very sporad cally.

Parts of the commun ty have been affected by relat vely recent prescr bed burn ng and consequently the understorey s often dom nated by Dodonaea tr quetra.

The understorey s usually to a he ght of up to 4-6 m w th fol age project ve cover of approx mately 25-40%. In the southern parts of the study area spec es such as Psychotr a lon cero des, Synoum glandulosum subsp. glandulosum Elaeocarpus ret culatus, Notelaea venosa, Breyn a oblong fol a and Rapanea var ab l s also occur patch ly n the understorey.

The groundcover ncludes a d verse range of nat ve grasses, shrubs, ferns, forbs and cl mbers and Blechnum cart lag neum to a he ght of approx mately 1.5 m w th fol age project ve cover of approx mately 30-40%.

The understorey also ncludes a var ety of cl mbers.

Bangalay Mo st Woodland/Open Forest (descr pt on taken from BES 2006)

Th s commun ty occurs n the eastern, pr mar ly north-eastern, parts of the study area and for the purposes of th s report the commun ty s descr bed as Bangalay Mo st Woodland / Open Forest.

The canopy s dom nated by E. botryo des but also ncludes E. p lular s, E. eugen o des, E. pan culata subsp. pan culata and Angophora flor bunda to a he ght of approx mately 20 m w th fol age project ve cover of approx mately 20-30%. There s a mo st sub-canopy to a he ght of approx mately 10-15 m w th fol age project ve cover of approx mately 20-40%. Parramatta Green Wattle s often present to approx mately 15 m w th fol age project ve cover of approx mately 10%.

The understorey s dom nated by Black Fru ted Saw-sedge, Rough-fru t P ttosporum P ttosporum revolutum, Scentless Rosewood, Bolwarra Eupomat a laur na, Senna Senna ssp., Coffee Bush and Wallaby Weed Olear a v sc dula to a he ght of approx mately 2.5 m w th fol age project ve cover of approx mately 60%.

Groundcovers ncluded a var ety of nat ve spec es to a he ght of approx mately 1.5 m w th fol age project ve cover of approx mately 40-60%. Cl mbers and scramblers are present.

In the north-eastern extrem t es of the study area there s an area of approx mately 0.15 ha where there s a closed sub-canopy dom nated by L lly P lly to a he ght of approx mately 6 m. The understorey and groundcover s very sparse.

Bangalay Paperbark Woodland (descr pt on taken from BES 2006)

Th s commun ty occurs pr mar ly n westerly dra nage l ne wh ch dra ns the western parts of the study area, flow ng to the southern study area boundary. Th s commun ty s character st c of the EEC Swamp Sclerophyll Forests on the coastal floodpla ns of the NSW North Coast, Sydney Bas n and South East Corner B oreg ons l sted under the TSC Act.

The upper stratum s dom nated by E. botryo des wh ch forms a canopy to a he ght of approx mately 22 m w th fol age project ve cover of approx mately 25%. There s a sub-canopy to a he ght of 12 m w th fol age project ve cover of between approx mately 20-30% dom nated by Melaleuca l nar fol a w th Allocasuar na l ttoral s occurr ng occas onally on the commun ty marg ns.

The understorey s generally dense to a he ght of 4 m w th fol age project ve cover of approx mately 40%. The understorey s dom nated by Gahn a clarke wh ch s abundant n clumps to approx mately 2.5 m.

The groundcover ncludes a range of nat ve predom nately forbs, ferns and cl mbers to a he ght of approx mately 1 m. The dens ty of the groundcover s nfluenced by the dens ty of the understorey but s generally very sparse w th fol age project ve cover averag ng approx mately 5%. Cl mbers nclude are present and th s commun ty also ncludes several nd v duals of Calanthe tr pl cata.

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

NA

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

The Bangalay Paperbark Woodland on the s te s character st c of the EEC Swamp Sclerophyll Forests on the coastal floodpla ns of the NSW North Coast, Sydney Bas n and South East Corner B oreg ons l sted under the TSC Act. No threatened ecolog cal commun t es l sted under the EPBC Act occur on s te.

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

The s te l es at an alt tude of approx mately 20-30 m AHD and s gently-slop ng land w th a southerly aspect.

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

The 20.4 ha s te s pr mar ly vegetated w th the except on of about 1 ha of cleared / d sturbed land. The s te was not burnt dur ng the most recent 2019/2020 f re event on the NSW South Coast. The vegetat on s relat vely ntact, w th l m ted weed nvas on. There are about 40 trees conta n ng hollows of vary ng s zes across the s te (BES 2006). The s te s bounded by res dent al development n the south and east, by vegetated freehold land n the north and vegetated Crown land n the west.

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

Her tage Impact Assessment has been undertaken by South-East Archaeology nvest gat ng the her tage s gn f cance of the s te and the presence of nd genous cultural tems. Th s work revealed the ex stence of two s tes, one nd genous (artefact scatter) and one non- nd genous (t mber weekender/f sherman's hut) (Cowman Stoddart 2006).

3.9 Describe any Indigenous heritage values relevant to the project area

One nd genous s te, compr s ng an artefact scatter (dent f ed as S te Manyana 1) was located n the south-eastern port on of the s te. S te Manyana 1 s cons dered to have a low to moderate s gn f cance n a local context (see Cowman Stoddart 2006)

It was noted that there rema ns some potent al for other nd genous tems to be found should add t onal nvest gat ons, nclud ng sub-surface excavat ons be undertaken. Desp te th s however, the nature of the s te w th no rel able water supply, l m ted food source coupled w th ts relat ve remoteness from the coast, s such that other s tes n the mmed ate v c n ty located closer to the coast would have been cons dered more attract ve (Cowman Stoddart 2006).

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

The land s freehold t tle and owned by Manyana Coast Pty Ltd (ACN 617 758 915; ABN 92 617 758 915).

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

The land s freehold t tle and owned by Manyana Coast Pty Ltd. Future land use w ll enta l res dent al subd v s on. See Sect on 1.2 and 1.15.1 of th s Referral for a descr pt on of the proposed land uses for each stage of the subd v s on.

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Section 4

Measures to avoid or reduce impacts

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

Areas of the EEC have been avo ded and reta ned on s te.

The follow ng l sts the Cond t ons of Consent (nclud ng m t gat on measures) for the proposal relevant to MNES and ecology:

The CoC nclude the requ rement for a Vegetat on Management Plan (VMP) (see B8 of the CoC) to be prepared for each stage of the subd v s on and a VMP to be spec f cally prepared and mplemented for the part of the s te conta n ng the EEC (see B9 of the CoC). The developer s requ red to ma nta n the EEC n accordance w th the recommendat ons of the approved Vegetat on Management Plan after ts ded cat on to Shoalhaven Counc l.

The developer s also requ red to prepare and embell sh all publ c reserves n accordance w th the VMP (for EEC) and deta led landscape des gn plans to be approved by Shoalhaven Counc l as part of the Construct on Cert f cate.

B11 of the CoC requ res the preparat on of an Env ronmental Management Plan (EMP)

B12 of the CoC requ res the prov s on of phys cal barr ers between the roads de per meter of the EEC and pass ve open space w th restr cted access for ma ntenance veh cle and separate access for pedestr ans at locat ons determ ned n the VMP. The prov s on of two w ldl fe cross ng s gns.

C4 of the CoC spec f es that any clear ng to be undertaken for Stages 2, 3 or 4 of the development and affect ng Bangalay Mo st Woodland / Open Forest w ll not be undertaken between the beg nn ng of October and the end of February n any year to m n m se potent al mpacts on breed ng by m gratory spec es Black-faced Monarch (Monarcha melanops s) and Rufous Fanta l (Rh p dura ruf frons).

D9 of the CoC outl nes the protocols that must be followed for trees w th hollows dur ng construct on.

E16 of the CoC requ res the proponent to ded cate the EEC, assoc ated buffer area and bushland reserve upon reg strat on of the plan of subd v s on for Stage 1 and Stage 5 and the playground area and open space upon reg strat on of the plan of subd v s on for Stage 3.

E17 of the CoC requ res the proponent to manage and ma nta n the EEC, assoc ated buffer area and bushland area (nclud ng water ponds) n accordance w th the VMP for a per od of three years follow ng the reg strat on of the plan of the subd v s on for the f nal stage of the subd v s on..

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

Potent al hab tat for all relevant MNES w ll rema n at the s te w th n an area to be protected and managed under a VMP. Th s land w ll eventually be ded cated to Shoalhaven Counc l. The developer s requ red to ma nta n the conserved land n accordance w th the recommendat ons of the approved Vegetat on Management Plan after ts ded cat on to Shoalhaven Counc l. It was requ red that the Plann ng Agreement was reg stered on the t tle of the land n accordance w th the Real Property Act 1900.

Extens ve areas of potent al hab tat for all spec es also occur adjacent to the s te and w th the local ty. Assessment of the l kely mpacts of the proposal on MNES found that the act on s unl kely to s gn f cantly mpact any MNES protected under the EPBC Act.

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Section 5

Conclusion on the likelihood of significant impacts

5.1 You indicated the below ticked items to be of significant impact and therefore you consider the action to be a controlled action

- ☐ Wor d Her tage propert es
- ☐ Nat ona Her tage p aces
- ☐ Wet ands of nternat ona mportance (dec ared Ramsar wet ands)
- ☐ L sted threatened spec es or any threatened eco og ca commun ty
- ☐ L sted m gratory spec es
- ☐ Mar ne env ronment outs de Commonwea th mar ne areas
- ☐ Protect on of the env ronment from act ons nvo v ng Commonwea th and
- ☐ Great Barr er Reef Mar ne Park
- ☐ A water resource, n re at on to coa seam gas deve opment and arge coa m n ng deve opment
- ☐ Protect on of the env ronment from nuc ear act ons
- ☐ Protect on of the env ronment from Commonwea th act ons
- ☐ Commonwea th Her tage p aces overseas
- ☐ Commonwea th mar ne areas

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 proposal s unl kely to be a controlled act on nor have s gn f cant mpacts on any MNES g ven t s unl kely to substant ally mod fy an area of mportant hab tat for any threatened or m gratory spec es or place any mportant populat ons at r sk of ext nct on (see Sect on 2.5 and 2.5 of th s referral for further just f cat on). It s cons dered unl kely that the Greater Gl der occurs on the s te follow ng 10 n ghts and 114 person-hours of spotl ght ng survey, unl kely that the Sw ft Parrot would regularly ut l se or rely on the s te due to unsu table phenology of flower ng eucalypts on s te and no breed ng hab tat for the Grey-headed Fly ng-fox occurs on s te and some areas of potent al forag ng hab tat w ll rema n. Wh lst hab tat for the Black-faced Monarch, Sat n Flycatcher and Rufous Fanta l are present on the s te, and would be mpacted, areas of potent al hab tat w ll be conserved and managed ons te, prov de ongo ng hab tat for these spec es, and the area of hab tat removed cannot support an ecolog cally s gn f cant proport on of the populat on of these spec es at a nat onal or nternat onal level. Furthermore, extens ve areas of potent al hab tat for all spec es occurs adjacent to the s te and throughout the local ty, nclud ng an est mated 812 ha of hab tat w th n 5 km of the s te follow ng the 2019-20 bushf res.

A more comprehens ve treatment of the potent al mpacts to MNES are prov de d n Ecoplann ng (2020).

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Section 6

Environmental record of the person proposing to take the action

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

Yes – There have never been any proceed ngs aga nst the person propos ng to take the act on.

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

NA

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 ☑ No

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 ☑ No

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Section 7

Information sources

Reference source

Bushf re and Env ronmental Serv ces (BES) (2006). Flora and Fauna Assessment – Proposed Subd v s on Lot 172 DP 755923 and Lot 823 DP 247285, Berr nger Road, Cunjurong Po nt Road and Sunset Str p, Manyana. Prepared for Malbec Propert es Pty Ltd.

Reliability

Good, from a reputable consult ng company

Uncertainties

N l

Reference source

Comport, S. S., Ward, S. J., and Foley, W. J. (1996). Home ranges, t me budgets and food tree use n a h gh dens ty trop cal populat on of greater gl ders, Petauro des volans m nor (Pseudoche r dae: Marsup al a). W ldl fe Research 23, 401-419.

Reliability

Good, sc ent f c journal art cle.

Uncertainties

N l

Reference source

Cowman Stoddart Pty Ltd (2006). Env ronmental Assessment Report – Project Approval 179 Lot Res dent al Subd v s on. Lot 172 DP 755923 and Lot 823 DP 247285, Berr nger Road, Cunjurong Po nt Road and Sunset Str p, Manyana

Reliability

Unknown, assumed good.

Uncertainties

N l

Reference source

Department of Agr culture Water and the Env ronment (DAWE) (2020). Interact ve Fly ng-fox Web V ewer. http://www.env ronment.gov.au/b od vers ty/threatened/spec es/fly ng-fox-mon tor ng. Accessed June 2020.

Reliability

Good, government department appl cat on.

Uncertainties

N l

Reference source

Department of the Env ronment (DoE) (2015). The Draft referral gu del nes for 14 b rds l sted as m gratory spec es under the EPBC Act. Commonwealth of Austral a 2015.

Reliability

Good, publ shed government document.

Uncertainties

N l

No e: PDF may con a n f e ds no re evan o your app ca on. These f e ds w appear b ank or un cked. P ease d sregard hese f e ds.

Reference source

Ecoplann ng (2018a). Response to letter from Department of the Env ronment and Energy, regard ng 182 lot sub-d v s on, Berr nger and Cunjurong Roads, Manyana. Letter to Jeff Bulf n, Prec se Plann ng Pty Ltd, 17 Apr l 2018.

Reliability

Good, from a reputable consult ng company

Uncertainties

N l

Reference source

Ecoplann ng (2018b). Response to the Department of the Env ronment and Energy request ng add t onal nformat on regard ng EPBC Act appl cat on to the 182 lot res dent al subd v s on at Berr nger and Cunjurong Po nt Roads, Manyana. Letter to Ghaz Sangar , Ozy Homes Pty Ltd, 27 July 2018.

Reliability

Good, from a reputable consult ng company

Uncertainties

N l

Reference source

Ecoplann ng (2019a). Env ronmental Management Plan Lot 172 // DP 755923, Lot 823 // DP 247285, Berr nger Road, Cunjurong Po nt Road and Sunset Str p, Manyana, NSW. Prepared for Prec se Plann ng Pty L m ted, on behalf of Ozy Homes.

Reliability

Good, from a reputable consult ng company

Uncertainties

N l

Reference source

Ecoplann ng (2019b). Flora and Fauna Management Plan, Lot 172 // DP 755923 & Lot 823 DP // 247285, Berr nger Road, Cunjurong Po nt Road and Sunset Str p, Manyana (v. 2.3). Prepared for Prec se Plann ng.

Reliability

Good, from a reputable consult ng company

Uncertainties

N l

Reference source

Eyre, T. J. (2002). Hab tat preferences and management of large gl d ng possums n southern Queensland. Ph.D. thes s, Southern Cross Un vers ty, L smore

Reliability

Good, PhD Thes s

Uncertainties

N l

Reference source

Gold ngay, R. L. (2012). Character st cs of tree hollows used by Austral an arboreal and scansor al mammals. Austral an Journal of Zoology 59, 277-294.

Reliability

Good, sc ent f c journal art cle.

Uncertainties

N l

Reference source

Kev n M lls & Assoc ates (KMA) (1999), Vegetat on Map – Coastal Shoalhaven Reg on. Prepared for Shoalhaven C ty Counc l.

Reliability

Good, from a reputable consult ng company

Uncertainties

N l

Reference source

Kev n M lls & Assoc ates (KMA) (1995), The Vegetat on: Cudm rrah Nat onal Park, Conjola Nat onal Park, and Cudm rrah Nature Reserve. A report prepared for the Nat onal Parks and W ldl fe Serv ce of New South Wales.

Reliability

Good, from a reputable consult ng company

Uncertainties

N l

Reference source

L ndenmayer, D. B., J. T. Wood, L. McBurney, C. MacGregor, K. Youngentob, and S. C. Banks. (2011). How to make a common spec es rare: A case aga nst conservat on complacency. B olog cal Conservat on 144:1663-1672.

Reliability

Good, sc ent f c journal art cle.

Uncertainties

N l

Reference source

L ndenmayer, D. B., J. Wood, C. MacGregor, C. Foster, B. Scheele, A. Tulloch, P. Barton, S. Banks, N. Rob nson, N. Dexter, L. S. O'Loughl n, and S. Legge. (2018). Conservat on conundrums and the challenges of manag ng unexpla ned decl nes of mult ple spec es. B olog cal Conservat on 221:279-292.

Reliability

Good, sc ent f c journal art cle.

Uncertainties

N l

Reference source

M lls, K. 1998. Vegetat on Survey Methods and Natural Vegetat on Types n the Coastal Parts of the C ty of Shoalhaven, New South Wales. Illawarra Vegetat on Stud es (7), Coachwood Publ sh ng, Jamberoo, NSW.

Reliability

Good, from a reputable consult ng company

Uncertainties

N l

Reference source

NSW Off ce of Env ronment and Her tage (OEH) (2020a). Atlas of NSW W ldl fe. http://www.b onet.nsw.gov.au/. Accessed May 2020

Reliability

Good, government agency database.

Uncertainties

N l

Reference source

Sm th, G. C., Math eson, M., & Hogan, L. (2007). Home range and hab tat use of a low-dens ty populat on of Greater Gl der, Petauro des volans (Pseudoche r dae: Marsup al a), n a hollow-l m t ng env ronment. W ldl fe Research 34, 472-483.

Reliability

Good, sc ent f c journal art cle.

Uncertainties

N l

Reference source

Saunders, D.L. and Tzaros, C.L. (2011). Nat onal Recovery Plan for the Sw ft Parrot Lathamus d scolour. B rds Austral a, Melbourne.

Reliability

Good, publ shed document from government agency.

Uncertainties

N l

Reference source

Thomas, V., Gell e, N. and Harr son, T. 2000. Forest Ecosystem Class f cat on and Mapp ng for the Southern CRA Reg on. Volume II Append ces. NSW Nat onal Parks and W ldl fe Serv ce Southern D rectorate.

Reliability

Good, publ shed document from government agency.

Uncertainties

N l

Reference source

W ntle, B.A., Kavanagh, R.P., McCarthy, M.A., and Burgman, M.A. (2005). Est mat ng and deal ng w th detectab l ty n occupancy surveys for forest owls and arboreal marsup als. Journal of W ldl fe Management 69: 905-917.

Reliability

Good, sc ent f c journal art cle.

Uncertainties

N l

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Section 8

Proposed alternatives

Do you have any feasible alternatives to taking the proposed action?

Yes ☑ No

Australian Government
Department of Agriculture, Water and the Environment

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Section 9

Person proposing the action

9.1.1 Is the person proposing the action a member of an organisation?

☑ Yes ☐ No

Organisation

Organisation name	[redacted]
Business name	
ABN	[redacted]
ACN	
Business address	[redacted]
Postal address	
Main Phone number	[redacted]
Fax	
Primary email address	[redacted]
Secondary email address	

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

☐ Sma bus ness
☑ Not app cab e

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

☐ Yes ☑ No

9.1.3 Contact

First name	[redacted]
Last name	[redacted]
Job title	[redacted]
Phone	
Mobile	[redacted]
Fax	
Email	[redacted]
Primary address	[redacted]
Address	

Declaration: Person proposing the action

I, , 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 or for the benefit of any other person or entity.

Signature: ..... Date: .....

I, , the person proposing the action, consent to the designation of as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature:.....Date: .....

Australian Government
Department of Agriculture, Water and the Environment

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Proposed designated proponent

9.2.1 Is the proposed designated proponent a member of an organisation?

☑ Yes ☐ No

Organisation

Organisation name	[redacted]
Business name	
ABN	[redacted]
ACN	
Business address	[redacted]
Postal address	
Main Phone number	[redacted]
Fax	
Primary email address	[redacted]
Secondary email address	

9.2.2 Contact

First name	[redacted]
Last name	[redacted]
Job title	[redacted]
Phone	[redacted]
Mobile	
Fax	
Email	[redacted]
Primary address	[redacted]
Address	

Declaration: Proposed Designated Proponent

I, ,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: .....

Australian Government
Department of Agriculture, Water and the Environment

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Referring party (person preparing the information)

9.3.1 Is the referring party (person preparing the information) a member of an organisation?

☑ Yes ☐ No

Organisation

Organisation name	[redacted]
Business name	
ABN	[redacted]
ACN	
Business address	[redacted]
Postal address	
Main Phone number	[redacted]
Fax	
Primary email address	[redacted]
Secondary email address	

9.3.2 Contact

First name	[redacted]
Last name	[redacted]
Job title	[redacted]
Phone	[redacted]
Mobile	
Fax	
Email	[redacted]
Primary address	[redacted]
Address	

Declaration: Referring party (person preparing the information)

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: .....

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Appendix A

Attachment

Document Type	File Name
act on area mages	F gure 1 D sturbance and Avo dance 20200617.pdf
pub c consu tat on reports	Env ronmenta Assessment Report.pdf
govt approva cond t ons	1452 - Deve opment consent.pdf
support ng tech reports	Ecop ann ng 2018 - Manyana - Response to EPBC etter 20180727.pdf
support ng tech reports	BES 2006 F ora and Fauna Assessment.pdf
support ng tech reports	Ecop ann ng 2018 - Manyana EPBC Act etter 20180417 - reduced s ze.pdf
support ng tech reports	Ecop ann ng 2020 - MNES Assessment.pdf
support ng tech reports	Ecop ann ng 2020 - MNES Assessment n CV .pdf
support ng tech reports	Ecop ann ng 2020 - MNES Assessment 230602020.pdf
support ng tech reports	Ecop ann ng 2020 - MNES Assessment 230602020 v2.pdf
hydro nvest gat on f es	Storm consu t ng Water Cyc e Management.pdf

Appendix B

Coordinates

Area 1
-35.25418471171,150.50753091417
-35.254188281616,150.50755723595
-35.254192680662,150.50758967124
-35.254253443911,150.50803770107
-35.254256222207,150.50805818677
-35.254257914403,150.50807066416
-35.254265711915,150.50812815914
-35.254267080849,150.50812924919
-35.254271548075,150.50813280634
-35.25428234856,150.50814140881
-35.254300565716,150.50815731638
-35.254308342514,150.50816410718
-35.254568051036,150.50811176608
-35.25470984732,150.50808318856
-35.254909119019,150.50804302755
-35.254991063941,150.50803083833
-35.255073561498,150.50802715955
-35.255156017997,150.50803201747
-35.255170040051,150.50803430787
-35.255192381456,150.50803795479
-35.255237840156,150.50804537716
-35.255318439255,150.50806714253
-35.255341900952,150.50807607939
-35.25535249742,150.50808011572
-35.255397235375,150.508097157
-35.255423506981,150.50811023591
-35.255473661564,150.50813520462
-35.255476544322,150.50813700107
-35.255547167924,150.50818101167
-35.255614509932,150.50823218496
-35.255617225374,150.50823424862
-35.255643550317,150.50825619592
-35.255678365481,150.50828522188
-35.255916978693,150.50848415833
-35.256095832469,150.50863327308
-35.256300815208,150.50880417315
-35.256319838152,150.50882003318
-35.256373909457,150.5088651146
-35.256379788641,150.50887006565
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PRELIMINARY DOCUMENTATION

ATTACHMENT E ENVIRONMENTAL MANAGEMENT PLAN

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Environmental Management Plan

Lot 172 // DP 755923, Lot 823 // DP 247285

Berringer Road, Cunjurong Point Road and Sunset Strip, Manyana, NSW 2539

Prepared for: Precise Planning Pty Ltd, on behalf of Ozy Homes

30 April 2021

PROJECT NUMBER	2017-144		
PROJECT NAME	Environmental Management Plan		
PROJECT ADDRESS	Lot 172 // DP 755923, Lot 823 // DP 247285, Berringer Road, Cunjurong Point Road and Sunset Strip, Manyana, NSW 2539		
PREPARED FOR	Precise Planning, on behalf of Ozy Homes		
AUTHOR/S	WI		
REVIEW	LM BS		
VERSION	**Version**	**Draft/Final**	**Date to client**
	1.0	Draft	8 October 2018
		Final	18 January 2019
	1.1	Draft/ Final	30 April 2021

This report should be cited as: *Ecoplanning (2019). Environmental Management Plan Lot 172 // DP 755923, Lot 823 // DP 247285, Berringer Road, Cunjurong Point Road and Sunset Strip, Manyana, NSW. Prepared for Precise Planning Pty Limited, on behalf of Ozy Homes.*

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Glossary and abbreviations

Abbreviation	Description
BBAM	BioBanking Assessment Methodology
EEC	Endangered Ecological Community
DCP	Development Control Plan
DPI	Department of Primary Industries
EMP	Environmental Management Plan
FFMP	Flora and Fauna Management Plan
HBT	Hollow Bearing Tree/s
LGA	Local Government Area
NPWS	National Parks and Wildlife Service
VMP	Vegetation Management Plan
WoNS	Weeds of National Significance
*	Denotes exotic species

Contents

Figures

Tables

1 Introduction

This environmental management plan (EMP) has been prepared to fulfil consent condition B11 of the approved residential subdivision of Lot 172 // DP 755923 & Lot 823 // DP 247285 Berringer Road, Cunjurong Point Road and Sunset Strip, Manyana, within the Shoalhaven Council Local Government Area (LGA) (Determination of Major Project No. 05-0059, File No. 904674, 8 July 2008).

The EMP addresses each stage of development and is structured as follows:

- introduction
- description of the project
- statement of commitments
- schedule of works
- contact details
- qualifications
- site plans
- weed control measures
- monitoring requirements
- survey data sheets

The EMP has also been prepared with consideration of Chapter S2 of the Shoalhaven Development Control Plan (DCP) and the supporting document *Environmental Management Plan Guide*.

2 Description of the project

The approved development, which will be constructed according to the determination of the major project and approved plans, includes:

- (1) The staged subdivision of Lot 172 DP // 755923 and Lot 823 DP // 247285 into 182 residential lots, 1 playground space and playground area, 1 open space area including the Endangered Ecological Community and its associated buffer zones, new roads and associated infrastructure and subdivision works.
- (2) Construction of physical infrastructure and services, including inter-allotment drainage, pedestrian/cycle pathways, bus stop and bus bay, safety control measures within the development and on Sunset Strip and a fully channelised left turn lane on Berringer Road.
- (3) Construction of water sensitive urban design measures, including a stormwater quality system incorporating on-site detention and infiltration, 3 water quality control points, grassed road side swales and biofiltration trenches and a gross pollutant trap.
- (4) Landscaping, vegetation management and associated works of the playground area, the Endangered Ecological Community and associated bushland reserve and public spaces along streets.
- (5) Removal of trees within the residential lots (except the 10m buffer to rear of lots along proposed Road No. 4 and 6 which back onto existing residential properties) and subject to (7), the timing of removal of trees shall be commensurate with development of each stage of the project.
- (6) Removal of trees for the purposes of construction of civil and infrastructure works (as per Condition B7) and subject to (7), the timing of removal of trees shall be commensurate with development of each stage of the project.
- (7) Removal of trees and vegetation identified on Drawing No.24256-07 – Tree Details within the buffer referred to in (5) for the purpose of construction of infrastructure and services is permitted only with the consent of Council.
- (8) Removal of trees within reserves for the construction of 3 water quality control points and commensurate with the respective stage of the development.
- (9) Revegetation of the Endangered Ecological Community and associated maintenance as specified in Condition E17.

The development will be constructed in six (6) stages, which are detailed in B1 of the determination of major project and are summarised as follows:

Stage 1 Subdivision and creation of 30 residential lots and passive open space, infrastructure works, construction of traffic, pedestrian and cycle safety measures, vegetation management and rehabilitation of EEC and associated buffer zone, weed management, fencing and landscaping in according with B8 and B9.

Stage 2 Subdivision and creation of 32 residential lots, infrastructure works including earthworks, removal of trees, roads, stormwater and drainage, services, civil works, pedestrian/cycle pathways.

Stage 3 Subdivision and creation of 29 residential lots, including earthworks, removal of trees, traffic calming device on Road 4, stormwater and drainage, services, civil works, water sensitive urban design measures, pedestrian/cycle pathways.

Stage 4 Subdivision and creation of 31 residential lots and passive open space, including infrastructure works, earthworks, removal of trees, roads, stormwater and drainage, services, a water quality control pond, civil works, traffic calming devices on Road 3, pedestrian/cycle pathways, playground area walking paths and signage.

Stage 5 Subdivision and creation of 31 residential lots and passive open space, including infrastructure works, earthworks, removal of trees, roads, stormwater and drainage, services, a water quality control pond, civil works, traffic calming devices on Road 3, pedestrian/cycle pathways.

Stage 6 Subdivision and creation of 27 residential lots including infrastructure works, earthworks, removal of trees, roads, stormwater and drainage, services, civil works.

3 Statement of Commitment

The Statement of Commitment is provided in **Table 3.1** and includes the relevant commitments outlined in the Amended Statement of Commitment submitted to council by Cowman Stoddart Pty Ltd dated November 2007.

The Statement of Commitment provides targeted management outcomes specific to the values of the site and includes:

- A statement of commitment to protect each particular feature or value from the impacts associated with the development,
- The key strategies that will be used to achieve each commitment, and
- The performance measure that will demonstrate the agreed commitments have been met for the site.

Actions that are necessary to achieve the commitment are actions that will be implemented by Precise Planning.

Table 3.1: Statement of Commitment

Environmental attribute	Commitment	Key strategies	Performance target
Endangered Ecological Community (EEC) (Swamp Sclerophyll Forest)	Retain and protect the EEC and buffer zone	The extent of clearing accurately surveyed and marked on the ground with temporary barrier fencing or similar visible material. Temporary fencing is installed prior to works around all areas of vegetation / trees to be retained and is to be taken down after works have been completed. Retention of all areas of EEC and dedication to Council along with the buffer zone as a Bushland Reserve. Permanent fencing erected around the EEC and buffer zone Control of potential hydrology impacts on the EEC through installation of open wetlands. Management of the fire regime for conservation of the EEC. Identification of the location of the Asset Protection Zones. Sediment and erosion controls are installed according to approved plans prior to works commencing. Control of target weeds in accordance with the FFMP. Prohibition of the parking of machinery and vehicles or the storing of building or landscaping materials, soil, spoil, or rubbish, within the fenced area around trees to be retained. Monitoring and reporting.	Vegetation clearance is contained within the proposed clearance area. EEC to be retained is protected from direct and indirect impacts of clearing activities, fire and drainage/hydrology. The Bushland Reserve is dedicated to Council. The buffer zone to be retained and protected from indirect impacts of clearing activities. 90% of targeted weeds are removed following initial weed control treatment prior to commencement of stage 1. Weeds are maintained at less than 10% in treatment areas by ongoing weed control for 3 years post dedication to Council.

Environmental attribute	Commitment	Key strategies	Performance target
Threatened flora and fauna habitat	Protection of threatened flora and fauna habitat	Temporary fencing is installed prior to works around all areas of vegetation / trees to be retained and is to be taken down after works have been completed. Tree protection zone fencing is established around all important food trees for Grey-headed Flying-fox identified by Ecologist and marked by Arborist prior to ground disturbance works in the vicinity of these trees. Sediment and erosion controls according to approved plans are installed prior to works commencing and are to operate during operation of the road. Clearing of trees with hollows to be undertaken according to the pre-clearance and fauna management protocol in this EMP. Restriction of clearing to avoid impacts on breeding habitat of migratory birds. Clear identification the extent of vegetation clearance including for bushfire requirements.	No damage to threatened fauna species or their habitat as a result of clearing.

4 Schedule of works

Table 4.1: Schedule of works

Commitment 1: **Endangered Ecological Communities will be protected**	**Performance target:**
	Vegetation clearance is contained within the proposed clearance area
	EEC to be retained is protected from indirect impacts of clearing activities
	Potential impacts from hydrology and drainage are managed

Map Symbol	Action detail	Location	Responsibility	Priority	Timeframe to complete	References
EEC vegetation and buffer to be retained	Install protective fencing around vegetation and trees to the retained around the drip-line (outer edge of canopy)	All Swamp Sclerophyll Forest vegetation and buffer as identified in the FFMP.	Developer/Project Manager	HIGH Prior to any clearing and construction works.	Prior to commencement of stage 5 and 6.	DCP Chapter S2 Consent condition D8
EEC vegetation and buffer to be retained	Prohibit the parking of machinery and vehicles or the storing of building or landscaping materials, soil, spoil, or rubbish, within the fenced area around the trees to be retained	All Swamp Sclerophyll Forest vegetation and buffer as identified in the FFMP.	Developer/Project Manager	HIGH Prior to any clearing and construction works.	Prior to commencement of each stage.	DCP Chapter S2
EEC vegetation and buffer to be retained	Prune or trim trees (if required) in accordance with AS 4373-1996 “Pruning of Amenity Trees”	All Swamp Sclerophyll Forest vegetation and buffer as identified in the FFMP.	Developer/Project Manager	HIGH Prior to any clearing and construction works.	Prior to commencement of each stage.	DCP Chapter S2
Temporary fences	Accurately survey and clearly mark the extent of clearing on the ground with temporary barrier fencing or similar visible material and identify the EEC and / or buffer with tape	All Swamp Sclerophyll Forest vegetation and buffer as identified in the FFMP.	Developer/Project Manager	HIGH Prior to any clearing and construction works.	Prior to commencement of each stage.	Approved plans Flora and Fauna Assessment (BES 2006a)
Water Quality Facilities	Install water quality facilities which will consist of open wetlands with the following key features: 1. Open water inlet area to collect sediment, 2. Maintenance access to allow for collection of accumulated sediment, 3. Shallow water reed bed area to provide surface area for pollutant filtration, and 4. Water level control at the outlet.	Basins A, B and C	Developer/Project Manager	HIGH Prior to any clearing and construction works.	Prior to commencement of each stage.	Flora and Fauna Assessment (BES 2006a)
Sediment and erosion controls	Install appropriate sediment control measures according to the (Landcom 2004) the ‘Blue Book’.	Downslope of each stage ad between basin batters and EEC	Developer/Project Manager	HIGH Prior to any clearing and construction works.	Installed immediately following clearing and on the same day as clearing works commence and maintained for the life of the construction period and until runoff catchments are stabilised.	Flora and Fauna Assessment (BES 2006a) Flora and Fauna Management Plan (ELA 2018)

Commitment 1: Endangered Ecological Communities will be protected	Performance target:
	Vegetation clearance is contained within the proposed clearance area
	EEC to be retained is protected from indirect impacts of clearing activities
	Potential impacts from hydrology and drainage are managed

Map Symbol	Action detail	Location	Responsibility	Priority	Timeframe to complete	References
N/A	Do not carry out vegetation clearing and construction during or within 2 days of heavy rainfall events of over 30 millimetres to avoid or mitigate the potential impact of erosion and discharge	Each stage	Developer/Project Manager	HIGH Prior to any clearing and construction works.	Prior to and during all stages.	Approved plans
Bushland Reserve	Dedicate the Bushland Reserve to Shoalhaven City Council as Public Reserve, in accordance with Council's contributions plan pursuant to Section 94 of the EP&A Act, including the 2.5 ha of Public Reserve containing the Swamp sclerophyll forest and its vegetated buffer.	Bushland Reserve	Developer/Project Manager	MEDIUM	Once construction has been completed	Flora and Fauna Assessment (BES 2006a)
Trees to be retained	Fell trees to be cleared so that they fall within the development area and do not damage trees to be retained.	Each stage and the boardwalk that will be installed across the EEC	Developer/Project Manager	MEDIUM	During clearing	Flora and Fauna Management Plan (ELA 2018)
Trees to be retained	Do not excavate inside the drip-line of trees unless essential, in which case excavation will be undertaken by hand to protect and retain tree roots	All stages	Developer/Project Manager	MEDIUM	During clearing	Condition consent B7
Basins A, B and C	Revegetate the three basins and their batters according to the FFMP	Three basins and their batters	Developer/Project Manager	MEDIUM	After construction of the three basins	Consent condition B9 Flora and Fauna Management Plan (ELA 2018)
Photo points	Commence weed control as per techniques in the FFMP and commence monitoring including photo monitoring	EEC, buffer and basins A, B and C	Developer/Project Manager	MEDIUM	One year prior to initiation of Stage 1 and 3 years post the dedication of the Bushland Reserve to Council.	Consent condition B9 Flora and Fauna Management Plan (ELA 2018)
N/A	Ensure native species are used in landscaping in areas that abut native vegetation, including species listed in Table 4 of BES (2007). Do not plant environmental weeds or known invasive plants	All areas of the site	Developer/Project Manager	MEDIUM	During all stages.	Flora and Fauna Assessment (BES 2006a) Flora and Fauna Management Plan (ELA 2018)
N/A	Clean machinery, vehicles and footwear of vegetation, mud and seeds prior to entering site	All areas of the site	Developer/Project Manager	MEDIUM	Prior to and during all stages.	N/A
N/A	Prohibit the parking of machinery and vehicles or the storing of building or landscaping materials, soil, spoil, or rubbish, within the fenced areas around EEC and buffer	EEC and buffer	Developer/Project Manager	MEDIUM	During all stages	N/A
N/A	Ensure that all clearing works are supervised by an ecologist, who will submit clearing report to Council	N/A	Developer/Project Manager/Ecologist	MEDIUM	Within 14 days of clearing	N/A

Commitment 1: Endangered Ecological Communities will be protected	Performance target:
	Vegetation clearance is contained within the proposed clearance area
	EEC to be retained is protected from indirect impacts of clearing activities
	Potential impacts from hydrology and drainage are managed

Map Symbol	Action detail	Location	Responsibility	Priority	Timeframe to complete	References
N/A	Submit annual report to Council	N/A	Developer/Project Manager	LOW	Annual reports are required prior to release of subdivision certificate for each stage and must be provided annually for a minimum 5-year period.	*Environmental Management Plan Guide*

Commitment 2: Protection of threatened flora and fauna habitat	Performance target: Vegetation clearance is contained within the proposed clearance area No damage to threatened fauna species or their habitat as a result of clearing					
Map Symbol	**Action detail**	**Location**	**Responsibility**	**Priority**	**Timeframe to complete**	**References**
Temporary fences	Accurately survey and clearly mark the extent of clearing on the ground with temporary barrier fencing or similar visible material and identify the EEC and / or buffer with tape	All Swamp Sclerophyll Forest vegetation and buffer as identified in the FFMP.	Developer/Project Manager	HIGH Prior to any clearing and construction works.	Prior to commencement of each stage.	Approved plans Flora and Fauna Assessment (BES 2006a)
N/A	An environmental induction will be undertaken for all workers on the site	Entire site	Developer/Project Manager	HIGH Prior to any clearing and construction works.	Prior to commencement of each stage.	Flora and Fauna Assessment (BES 2006a)
Sediment and erosion controls	Install appropriate sediment control measures according to the (Landcom 2004) the 'Blue Book'.	Downslope of each stage ad between basin batters and EEC	Developer/Project Manager	HIGH Prior to any clearing and construction works.	Installed immediately following clearing and on the same day as clearing works commence and maintained for the life of the construction period and until runoff catchments are stabilised.	Flora and Fauna Assessment (BES 2006a) Flora and Fauna Management Plan (ELA 2018)
Trees to be retained	Retain trees where possible.	Bushland Reserve and remainder of the site	Developer/Project Manager	HIGH Prior to any clearing and construction works.	Prior and during clearing	Flora and Fauna Assessment (BES 2006a)
Tree protection zone fences	Identify all important food trees for Grey-headed Flying-fox within and adjacent to the area of proposed clearing. Install tree protection zone fencing.	Each stage	Developer/Project Manager/ Ecologist/Arborist		Prior to commencement of each stage.	Flora and Fauna Management Plan (Ecoplanning 2019)
Stages	Carry out clearing commensurate with each stage	Entire site / each stage	Developer/Project Manager	HIGH Prior to any clearing and construction works.	Prior and during clearing	Consent condition B7
Trees and vegetation to be retained	Do not excavate inside the drip-line of trees unless essential, in which case excavation will be undertaken by hand to protect and retain tree roots	Entire site / each stage	Developer/Project Manager	HIGH Prior to any clearing and construction works.	During clearing	Flora and Fauna Assessment (BES 2006a)

Commitment 2: Protection of threatened flora and fauna habitat	Performance target: Vegetation clearance is contained within the proposed clearance area No damage to threatened fauna species or their habitat as a result of clearing					
Map Symbol	**Action detail**	**Location**	**Responsibility**	**Priority**	**Timeframe to complete**	**References**
Hollow bearing trees subject to removal	Felling will be supervised by a fauna specialist appropriately licensed under the NSW National Parks and Wildlife Act 1974, for the purpose of rescuing displaced fauna. The fauna specialist will be suitably attired with protective clothing and have suitable equipment to undertake the work. A "green card" from an Occupational Health and Safety Induction Training Course for Construction Work will also be held by the fauna specialist, who may also need to be suitably vaccinated (especially if there is potential for handling bats). An appropriately skilled local wildlife carer must be notified at least 24 hours prior to the tree felling, that animals may be captured and that these animals may need care.	Entire site, each stage	Developer/Project Manager	HIGH Prior to any clearing and construction works.	Prior to commencement of clearing and during clearing.	Flora and Fauna Assessment (BES 2006a)

Hollow bearing trees subject to removal	Follow pre-clearing process for removal of hollow bearing trees: • Any non-hollow-bearing trees around those with tree hollows to be felled will be removed first. At least one day will be left between clearing of the non-hollow-bearing trees and the hollow-bearing trees to allow fauna time to vacate the trees. • Prior to felling of the identified and marked hollow-bearing trees, the trees will be shaken or nudged by tree-felling equipment to encourage any fauna to vacate the trees. • If no animals emerge from the hollows after shaking or nudging, then the tree will be felled and lowered to the ground if possible. • If an animal emerges from a hollow following shaking or nudging of the tree, then at least 30 minutes will be allowed for the animal to leave the tree. If the animal comes to the ground, or when it is on the lower trunk, attempts will be made to capture the animal using a net. Captured animals will be immediately transferred to a suitably sized cotton bag and checked for obvious injury during the transfer process. • Captured animals will be placed in individual bags unless they are a family group to which separation would risk the survival of the young (i.e. a lactating female with young). • Once the tree has been felled, a search will be made of the branches around the tree for any fleeing fauna and hollows should be inspected with a torch for the presence of any animals. Attempts will be made to capture any fleeing fauna with a net, and animals inside hollows should be extracted by hand. Captured animals will be immediately transferred to a suitably sized cotton bag and checked for obvious injury during the transfer process. • Injured, shocked or immature captured animals will be placed in a cotton bag secured at the top. Bags will be wrapped in appropriate insulating material such as blankets and placed in a quiet, warm and preferably dark place until the wildlife carer can collect them. Details on the location of the capture and proposed release areas will be provided to the wildlife carer. • Uninjured animals will be released in appropriate habitat as soon as practicable (at night for nocturnal species).	Entire site, each stage	Developer/Project Manager	HIGH Prior to any clearing and construction works.	Prior to commencement of clearing and during clearing.	Flora and Fauna Assessment (BES 2006a)
Christmas Orchid	Individuals within the study area will be retained and protected within a vegetated corridor along Drainage A (Bushland Reserve).	Bushland Reserve	Developer/Project Manager	HIGH Prior to any clearing and	Prior to construction	Flora and Fauna Assessment (BES 2006a)

Commitment 2: Protection of threatened flora and fauna habitat	Performance target: Vegetation clearance is contained within the proposed clearance area No damage to threatened fauna species or their habitat as a result of clearing					
Map Symbol	**Action detail**	**Location**	**Responsibility**	**Priority**	**Timeframe to complete**	**References**
(*Calanthe triplicata*)				construction works.		
Bangalay Moist Woodland/Open Forest	Any clearing of this vegetation type in the north-eastern parts of the study area will not be undertaken between the beginning of October and the end of February in any year to minimise potential impacts on breeding by the migratory species Black-faced Monarch and Rufous Fantail. If any clearing is to be undertaken during the breeding season, then it will be preceded by targeted surveys for these species to assess potential impacts on breeding habitat.	North-eastern part of the site	Developer/Project Manager/Ecologist	HIGH Prior to any clearing and construction works.	Prior to commencement of clearing and during clearing.	Flora and Fauna Assessment (BES 2006a)
Nest boxes	Install and monitor nest boxes as per the FFMP (Ecoplanning 2018)	Entire site	Developer/Project Manager/Ecologist	HIGH Prior to any clearing and construction works.	Prior to commencement of clearing and during clearing.	Flora and Fauna Management Plan (Ecoplanning 2018)
Asset Protection Zones	Identify the location of the Asset Protection Zones according to the Bushfire Assessment (BES 2006b)	Entire site	Developer/Project Manager/Ecologist	HIGH Prior to any clearing and construction works.	Prior to commencement of clearing and during clearing.	Bushfire Assessment (BES 2006b)

5 Contact details

Developer	Allen Price & Scarretts Pty Ltd
Project manager/Site manager	To be updated
Environmental consultant	Ecoplanning Pty Ltd
Bush regenerators	To be updated
Qualifications of author:	WI Bachelor of Science in Environmental Biology 1993 (University of Technology, Sydney). Master of Science (thesis) 2004 (University of Technology, Sydney)

6 References

Bushfire Environmental Services (2006a) *Flora and Fauna Assessment. Proposed subdivision Lot 172 DP 755923 & Lot 823 DP 247285 Berringer Road and Cunjurong Point Road. Manyana.* Prepared for Malbec Properties Pty Ltd.

Bushfire Environmental Services (2006b) *Bushfire Protection Assessment. Proposed subdivision Lot 172 (Portion 173) and Lot 823 Manyana.* Prepared for Malbec Properties Pty Ltd.

Cowman Stoddart (2006) *Environmental Assessment Report. Project Approval 179 Lot Residential Subdivision, Lot 172 DP 755923 & Lot 823 DP 247285 Berringer Road, Cunjurong Point Road and the Subset Strip Manyana.* Prepared for Manyana Estates Pty Ltd.

Ecoplanning (2018). *Flora and Fauna Management Plan Lot 172 // DP 755923 & Lot 823 DP // 247285 Berringer Road, Cunjurong Point Road and Sunset Strip, Manyana, NSW*. Prepared for Precise Planning.

Shoalhaven City Council (2015) Environmental Management Plan Guide Shoalhaven City Council.

Appendix A: Site plan

Figure 6.1: Site plan displaying the extent of the development and environmental values.

Appendix B: Monitoring requirements

The bush regeneration contractor and the land owner will monitor the vegetation and habitat for changes over time during construction and weed control. Monitoring will be undertaken every three months prior to and during all stages and 3 years post subdivision certificate.

Monthly monitoring and reporting will be documented and compiled into an annual report to determine the effectiveness of the works undertaken. Site conditions will be recorded on the work plan template at the beginning and end of on-ground works. This data should be included in the annual report.

Monitoring photo points should be established at along monitoring transects and additional monitoring points as per Figure 3.4 of the FFMP (Ecoplanning 2018).

Monitoring should include:

- Works carried out, including weed species targeted and their location
- An approximation of the time spent on each task
- Any observations, such as the occurrence of new weed species
- Rates of regeneration of native species
- A description of any problems encountered and how they were overcome
- A summary of how the site-specific objectives have been met (or not)
- Herbicide and other chemicals used, including quantity, dilution rate and other relevant information
- Weed control mechanisms used during the period
- Photos
- Climatic conditions which may have influenced weed germination and growth
- Performance criteria and success
- If required, maps of weed distribution and density.

Monitoring will be adaptive. If new weeds species are observed or if the cover and abundance of weeds increases, then the qualified bush regenerator will liaise with the Project Manager in order respond so that weed control is effective.

In addition, all clearing works will be supervised by an ecologist, who will submit clearing report to Council within 14 days of clearing.

Appendix C: Survey data sheets

Table 6.1 provides a survey data sheet to be used at monitoring points which are not vegetation monitoring points (Ecoplanning 2018). Data for vegetation monitoring points will be collected using the BBAM as per the FFMP (Ecoplanning 2018).

This will be used to keep track of the effectiveness of weed spread and abundance at key locations. It is the tool for adaptive monitoring. If weed spread and abundance has increased, then measures will be undertaken to ensure effective ween control.

Table 6.1: Monitoring report template.

Date			
Name of Contractor:			
Hours worked on site since last monitoring report:			
Site Condition:	Location		
	Weed and % cover		
	Herbicide used (in Litres)		
	Other		
Describe relevant weed management techniques used:			
Describe problems; e.g. weed invasions, damage to planted material, etc.:			

Photographic evidence:			
Performance criteria: Has weed cover and abundance increased?			
Planned work before next monitoring report to maintain effective weed control:			