

Common Name	Scientific Name	Method of Observation
Superb Blue Wren	<i>Malurus cyaneus</i>	O
Torresian Crow	<i>Corvus orru</i>	O
Welcome Swallow	<i>Hirundo neoxona</i>	O
Whistling Kite	<i>Haliastur sphenurus</i>	O
White-faced Heron	<i>Ardea novaehollandiae</i>	O
White-headed Pigeon	<i>Columba leucomela</i>	O
Willie Wagtail	<i>Rhipidura leucophrys</i>	O
Mammals		
Cow*	<i>Bos taurus</i>	O

Key: O – Observed; W – Heard calling

* Introduced species

4.3 Threatened Species and Populations Found at the Subject Site

Threatened Species

No threatened fauna species were identified at the subject site during the field inspection.

Threatened Populations

No threatened fauna populations were detected (nor are they likely to occur) at the subject site

4.4 Fauna Habitat and Corridor Value of Subject Site

Due to the removal and disturbance of nearly all habitat from within Lot 1, there are few opportunities for fauna for breeding/roosting/nesting and few forage resources available over the majority of the site.

Most fauna groups within the locality are likely to forage widely and utilise better quality habitat, such as vegetation fringing North Creek Canal, or Swamp Oak vegetation within Lot 269 and adjacent to the site.

4.5 Likelihood of Occurrence of Threatened Fauna Species

While a number of listed fauna species have been recorded in the vicinity of the subject site (refer Table 2), the site in its current disturbed and highly modified condition is unlikely to provide any significant roosting, breeding or foraging habitat for any threatened fauna species, therefore no further assessment (i.e. Assessment of Significance) will be completed.

5. Impacts and Amelioration

5.1 Impacts

Most impacts on native terrestrial vegetation have already occurred, however further potential impacts that may occur during the development of the site include:

- Potential loss of up to 277 m² of the EEC 'Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner Bioregions' for the proposed Link Road. DA 2002/566 provides consent for the clearing of this vegetation, with a construction certificate issued by Ballina Shire Council in January 2008 (refer Appendix D).
- Loss of drainline environment, including limited aquatic vegetation;
- Loss of opportunistic foraging habitat for wetland bird species;
- Alterations to hydrology;
- Disturbance to native fauna through construction activities; and
- Potential for weed infestation due to increased nutrients and mechanical spread by machinery.

5.2 Amelioration

The following recommendations for amelioration apply:

- A variety of locally occurring native flora species to be utilised in landscaping and as street trees;
- Weed species should be controlled or removed anywhere on the site;
- The rehabilitation plantings identified in the VMP by James Warren & Associates (2006) should be established (and maintained) as soon as possible;
- Disturbed areas are to be watered regularly to minimise dust generation and transportation of sediment off the site; and
- Any earthmoving equipment brought to the site should be free from weed propagules.

6. Director General's Requirements

As stated in Section 1, the Director General requires further information in regard to the environmental values of the subject site. These are addressed below.

It is noted that the Director General has not specifically requested the completion of any Assessment of Significance (under Section 5A of the EPA Act 1979), or that any other legislative requirements (eg. SEPP 44, *Native Vegetation Act 2003*, *Environmental Planning and Biodiversity Conservation Act 1999*) are addressed.

9.1 *Outline potential impacts on aquatic and terrestrial flora and fauna and their habitats (within the meaning of the Threatened Species Conservation Act 1995 and the Fisheries Management Act 1994). Provide measures for their conservation, where relevant.*

As all terrestrial vegetation has been removed from Lot 1 of the site, the majority of the site consists solely of pasture, and thus few conservation measures are relevant. While up to 277 m² of the Endangered Ecological Community 'Swamp Oak Floodplain Forest' is likely to be removed for the proposed Link Road, the remainder of this community on Lot 269 (and adjoining land will be retained). It is noted that Council has approved the removal of the subject area of Swamp Oak (refer Appendix D).

In regard to aquatic vegetation occurring along modified drainlines, all of this vegetation has been removed and any regrowth will be lost due to the proposed infilling of drains. Any of the aquatic species formerly occurring at the site occur commonly in the locality and readily colonise drains and disturbed environments subject to inundation. No conservation measures are proposed, nor are considered relevant.

In regard to the *Threatened Species Conservation Act 1995*, the subject site is not considered to provide any habitat of significance to any threatened flora or fauna species. An Assessment of Significance under Section 5A of the EPA Act (1979) is not required for removal of the Endangered Ecological Community 'Swamp Oak Floodplain Forest' due to existing consent (refer Appendix D).

The *Fisheries Management Act 1994* aims to protect fish and fish stocks and protect threatened species, populations and ecological communities of fish and marine vegetation. The Act lists (Section 220C – Schedules 4 & 5) the following endangered and vulnerable species, populations and communities:

Endangered Species (Part 1 of Schedule 4) (*indicates species also listed under the EPBC Act)

* <i>Carcharias taurus</i>	Grey Nurse Shark
<i>Craterocephalus fluviatilis</i>	Murray Hardyhead
* <i>Maccullochella ikei</i>	Eastern Freshwater Cod
* <i>Maccullochella macquariensis</i>	Trout Cod
* <i>Nannoperca oxleyana</i>	Oxleyan Pygmy Perch
<i>Notopala sublineata</i>	River Snail
<i>Pristis zijsron</i>	Green Sawfish

Endangered populations (Part 2 of Schedule 4)

- Olive Perchlet (*Ambassis agassizii*), western NSW population.
- Purple Spotted Gudgeon (*Mogurnda adspersa*), western NSW population.

Endangered ecological communities (Part 3 of Schedule 4)

- Aquatic ecological community in the natural drainage system of the lower Murray River catchment; and
- Aquatic ecological community in the natural drainage system of the lowland catchment of the Darling River.

Vulnerable species (Schedule 5) (*indicates species also listed under the EPBC Act)

<i>Archaeophya</i> □ <i>damsii</i>	Adams Emerald Dragonfly
<i>Bidyanus bidyanus</i>	Silver Perch
<i>Branchinella buehneri</i>	Buchanans Fairy Shrimp
* <i>Carcharodon carcharias</i>	Great White Shark
<i>Epinephelus daemeli</i>	Black Cod
<i>Macquaria australasica</i>	Macquarie Perch
<i>Nannoperca australis</i>	Southern Pygmy Perch

None of the species listed above are likely to utilise the modified drainline environment at the subject site in any capacity.

In summary, none of the threatened species listed under the Act are considered likely to occur at the subject site. Furthermore, the listed endangered populations and endangered ecological communities (as outlined above) do not occur in north-eastern New South Wales.

Section 220ZZ of the *Fisheries Management Act 1994* lists the factors (Assessment of Significance) to be considered when determining whether a proposed action (development) is likely to have a significant effect upon threatened species, populations or ecological communities, and their habitats, therefore determining if a Species Impact Statement is required. This assessment is also a requirement under Section 5C of the EP&A Act. These factors are listed below:

- *If threatened species, populations or ecological communities, and their habitats occur at the study area;*

As stated above, this is not the case.

- *the proposal involves the alteration of the stream or waterbody, bank or bed;*

The infilling of the drainline community at the site will involve the alteration of a 'waterbody', and therefore an Assessment of Significance is required.

- *the proposal does not involve installation of a structure that will affect natural flow regimes.*

The infilling of the drainline community at the site will have a resultant effect on natural flow regime and therefore an Assessment of Significance is required.

An Assessment of Significance under Section 220ZZ of the *Fisheries Management Act 1994* and Section 5C of the *Environmental Planning and Assessment Act 1979*, and in accordance with the Threatened Species Assessment Guidelines prescribed by the Department of Environment and Climate Change (DECC 2007) has been completed, and is attached as Appendix E.

The Assessment of Significance concluded that no threatened aquatic species or populations are likely to be affected by the proposed works, as a result of the threatening process 'Instream structures and processes that alter natural flow'. Furthermore, it is considered that compensatory measures for diverting existing flows will adequately sustain similar environments adjacent to the site, and a Species Impact Statement (SIS) is not required.

9.2 *Outline measures for the conservation of existing wildlife corridor values and/or connective importance of any vegetation on the subject land.*

As all trees have been removed from the majority of the subject site, wildlife corridor values are very low. Existing vegetation to the east and west of the site will continue to provide stepping stone habitat for mobile fauna within the locality. Furthermore the site does not occur within a Regional or Sub-Regional Corridor mapped by the NPWS 'Key Corridors and Habitat' database. The two hectare vegetation rehabilitation area, recently planted perimeter trees around the proposed sportsfield, and utilisation of locally-occurring native trees in streetscapes and landscaping will provide some (albeit limited) stepping stone habitat for native fauna.

9.3 *Address measures to protect and manage existing vegetation both on the site and adjacent to it, including riparian vegetation and adjacent aquatic*

habitats. Note: Council state that if mangroves are proposed for removal, compensatory plantings should be identified.

The proposal will not have any impacts on any vegetation communities adjacent to the site (i.e. to the east and west). It is considered that the adjacent Swamp Oak and Mangrove communities to the east will continue to be adequately serviced by tidal flows from North Creek Canal and inundation from rainfall events. Therefore the infilling of the drainline community at the site is unlikely to result in any significant impacts on these communities. The drainage line on the adjacent western property is already linked with an existing drainage line running down the western boundary of Lot 2 to the south. It appears that this drainage line does not currently service Swamp Oak and Mangrove communities flanking the Ballina Sewage Treatment Works (STW) due to the feeder pipe being too high.

The floodway to be constructed through Lot 2 will direct water away from the site during times of heavy rainfall and divert it to North Creek Canal via culverts underneath the existing access track to the STW (refer Fig. 3). An existing floodgate occurs on North Creek Canal, and this will be used as the discharge point for any water diverted by the floodway. Periodic 'slugs' of fresh water in times of high rainfall are unlikely to have any impacts on estuarine mangrove environments within North Creek Canal.

No Mangroves are proposed to be removed from the site and therefore no compensatory plantings are required.

9.4 *Outline the potential impacts of the drainage swale on the North Creek Canal aquatic habitat and measures proposed to protect this habitat.*

The drainage swale to be constructed within Lot 2 will deliver runoff to North Creek Canal during high rainfall events, as discussed above. Impacts of this are primarily limited to the potential for delivery of excess sediment to this environment. However, as sediment containment structures will be in place during the construction process, the likelihood of this is fairly low.

North Creek Canal is a highly modified waterway and serves as the drainage point for stormwater from roads, adjacent dwellings and businesses. The proposed floodway is unlikely to result in any adverse impacts to the ecology of this environment from the input of additional runoff during rainfall events.

The proposed swale will terminate at a low grassy bench which is adjacent to a mangrove fringed drainage line and as such, no disturbance or removal of mangroves is required. Furthermore, no disturbance is likely to result to any of the existing vegetation fringing the North Creek Canal during construction activities.

Provision of sediment control devices following best practice guidelines will reduce the potential for any impacts to the aquatic environment within North Creek Canal and it is therefore likely that any impacts will be negligible. Additionally, it is recommended that high visibility temporary fencing is placed along the edge of the mangrove environment to protect against any accidental damage during works. Plant operators are also to be briefed on the importance of minimising disturbance to this sensitive environment prior to the commencement of works.

7. Conclusion

This flora and fauna assessment has been prepared to provide information to assist with the proposed subdivision of Lots 1, 2, 3 and 5 DP1074242 part Lot 269 DP755684 Pacific Highway, Ballina. It is submitted that:

- As all trees have recently been removed from Lot 1, the majority of the site consists of filled areas, pasture and highly disturbed drainline environments;
- No threatened flora or fauna species were recorded on the site. One Endangered Ecological Community - 'Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner Bioregions' occurs within Lot 269 of the site. Removal of 277 m² of Swamp Oak for the Link Road has existing consent from Ballina Shire Council, with a construction Certificate issued January 2008.
- The proposed development is not likely to result in a significant effect on any threatened species listed under the *NSW Fisheries Management Act 1994*, therefore a Species Impact Statement is not required; and
- The DGR's have been addressed as follows: no conservation measures apply to the site due to vegetation clearance and disturbance; the site has low value as a wildlife corridor; 2 hectares of revegetation is proposed on Lot 2 as part of a separate Vegetation Management Plan which has been approved by Ballina Shire Council; adjacent vegetation communities are unlikely to be impacted to any significant degree by the proposal; and the proposal does not require the removal of mangroves and therefore compensatory plantings are not required.

References

Department of Environment and Climate Change NSW, 2007, *Threatened Species Assessment Guidelines*.

<http://www.environment.nsw.gov.au/resources/threatenedspecies/tsaguide07393.pdf>

[Accessed February 2008].

James Warren & Associates, 2006, *Vegetation Management Plan: Lot 1 DP 1074242 Riveroaks Estate, Ballina*. Final report prepared for Rayshield Pty Ltd.

Appendices

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Appendix A – Consent for Clearing (DA 2006/650)



Rayshield Pty Ltd
69 Rio Vista Boulevard
BROADBEACH QLD 4218

DW
822530

enquiries refer

Mr Rod Willis

In reply please quote

DA-2006/650 (jmg)

**NOTICE TO APPLICANT OF DETERMINATION OF A
DEVELOPMENT APPLICATION**
(Issued under Section 81(1)(a) of the Environmental Planning and Assessment Act
1979)

Development Application No: DA 2006/650
Applicant: Rayshield Pty Ltd
Subject Land: Lot 1 DP 1074242, Pacific Highway
(North) Ballina
Development Proposal: Clearance of 1ha of Vegetation, Rubbish
Removal and Clearing of Drains
**Building Classification under the
Building Code of Australia:** N/A
Determination: The development application has been determined by
Ballina Shire Council on 11 May 2006 by way of: **the
grant of consent subject to the conditions specified
below:**

1. GENERAL CONDITIONS

General

- 1.1. Development being carried out generally in accordance with the plans
and associated documentation lodged by, or on behalf of, the applicant,
including plans prepared by Rayshield Pty Ltd, Drawing No. BA050024-
PL4B FIG3, Dated 20.2.2006, except as modified by any condition in
this consent.

cnr tamar & cherry streets,
p.o. box 450, ballina nsw 2478
dx 27789, ballina

ph • 02 6686 4444
fax • 02 6686 7035

email • Council@ballina.nsw.gov.au
web • ballina.nsw.gov.au
abn 53 929 887 369

1.2. **Potential acid sulfate soils**

The subject land has a high probability of containing acid sulfate soils. As the development may result in some disturbance of the soil profile, the developer shall properly deal with those soils in accordance with the *Acid Sulfate Soils Manual* (ASSMAC, 1998) so as to minimise any impact to the environment.

1.3. **No filling to cause flooding of adjoining properties**

No filling is to be placed on the site that is likely to cause surface water flooding of any adjoining property.

1.4. The works are to be undertaken in such a manner that no adverse impact occurs to other lands as a consequence of altering, blocking or obstructing drainage lines or flow paths.

1.5. A revegetation scheme is to be implemented in the locality to assist to off-set the loss of native vegetation from the site. Such is to be carried out in accordance with a plan prepared for the applicant by an experienced, qualified ecologist or revegetation specialist that is to be approved by Council prior to work commencing on the site. The plan will need to specify location, area, types of plantings, time of commencement, timeframe for vegetation establishment and other relevant details.

1.6. The scheme required by Condition above, if it meets the criteria of the terms of development consent 2002/56, condition nos. 1.70, 1.71 and 1.72, may be accepted by Council as comprising part of the requirements for the consent, should that consent be activated and implemented.

1.7. Upon discovery of any Aboriginal relics within the meaning of the National Parks and Wildlife Act, 1974 within the subject site, the operator shall immediately notify the National Parks and Wildlife Service (NPWS) and the Jall Local Aboriginal Land Council and shall cease operations within the vicinity thereof until such time as the consent from the NPWS is obtained for the destruction, removal or protection thereof and the landholder and operator have complied with the direction of the Service in that respect.

1.8. The cleared vegetation is to be disposed of to an approved waste facility. Alternatively, if it is intended to be burnt, no burning off is to occur in the absence of a fire permit. Generally, any fire is to be attended for the whole time it is burning and no fire is to be lit or kept alight if smoke is blowing towards the adjacent Pacific Highway.

1.9. The hours of operation for any noise generating activity on the proposed development are to be limited to within the following times:

Monday to Friday 7.00am to 6.00pm
Saturday 8.00am to 1.00pm

 (initial)
Assessment Officer

DA: 2006/650

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No noise generating activities are to take place on Sundays or public holidays.

- 1.10. Sediment and erosion control measures shall be installed and effectively maintained to control stormwater runoff. All disturbed areas shall be immediately stabilised and revegetated on completion of earthworks.

REASONS FOR CONDITIONS

- ensure compliance with the requirements of the Environmental Planning & Assessment Act, 1979;
- ensure compliance with the objectives of the Ballina Local Environmental Plan, 1987;
- ensure an appropriate level of amenities and services is available;
- protect the existing and likely future amenity of the locality;
- maintain, as far as practicable, the public interest;
- ensure compliance with the Building Code of Australia and relevant Australian Standards;
- ensure satisfactory compliance with relevant Council plans, codes and policies.

 (initial)
Assessment Officer

DA: 2006/650

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The consent shall lapse on **11 May 2011** unless the development has commenced in accordance with the provisions of section 95 of the Act.

Other Approvals: The following is a list of general terms of other approvals and their general terms which are integrated as part of the consent:

None applicable.

Signed: _____ on 11 May 2006

R A Willis
Regulatory Services
Group Manager
On behalf of Ballina Shire Council

Right of Appeal: If you are dissatisfied with this decision, Section 97 of the Environmental Planning and Assessment Act 1979 gives you, the applicant, the right to appeal to the Land and Environment Court within 12 months after the date on which you receive this notice or the date on which the application is taken to have been determined under Section 82(1).

Section 97 of the Environmental Planning and Assessment Act 1979 does not apply to the determination of a development application for local development that has been the subject of a Commission of Inquiry.

**Review of
Determination:**

Section 82A of the Environmental Planning and Assessment Act 1979 gives you, the applicant, the right to request the Council to review the determination of your application. This request must be made within the time prescribed by Section 82A(2A) and be accompanied by the fee prescribed by Section 257 of the EP & A Regulation 2000. Review provisions do not apply to:

- (a) a determination to issue or refuse to issue a complying development certificate, or
- (a) a determination in respect of designated development, or
- (b) a determination in respect of integrated development, or
- (c) a determination made by the Council under Section 116E in respect of an application by the Crown.

(initial)
Assessment Officer

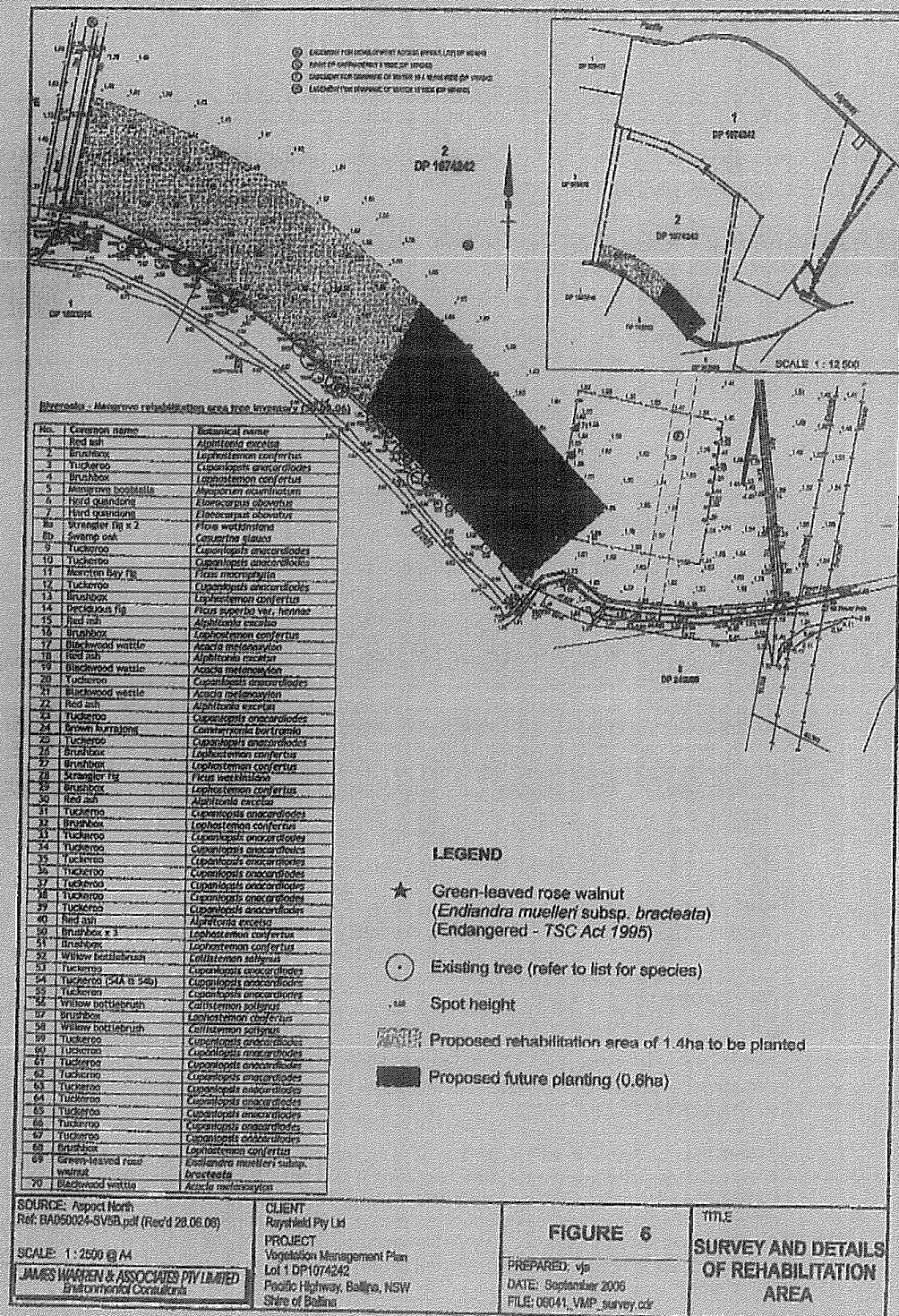
Appendix B - Vegetation Rehabilitation Area - Lot 2 DP1074242 (JWA 2006)

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Source : JWA (2006).

Appendix C – Flora species recorded

Flora Survey: 1, 3 and 5 DP1074242 Pacific Highway, Ballina
 Undertaken by: I. Colvin
 Methods: Random walking survey of the site
 Duration: 1 hour
 Date: 22nd June 2007

Botanical Name	Common Name	Occurrence (Very Common, Common, Occasional, Infrequent)
<i>Asclepias curassavica</i> *	Redhead Cotton Bush	O
<i>Avicennia marina</i>	Grey Mangrove	I
<i>Axonopus affinis</i> *	Carpet Grass	O
<i>Blechnum indicum</i>	Swamp Water Fern	I
<i>Casuarina glauca</i>	Swamp Oak	I
<i>Cinnamomum camphora</i> *	Camphor Laurel	I
<i>Commelina cyanea</i>	Commelina	O
<i>Conyza</i> sp.*	Fleabane*	I
<i>Cupaniopsis anacardioides</i>	Tuckeroo	I
<i>Cuphea carthagenensis</i> *	Cuphea	O
<i>Cynodon dactylon</i>	Couch	O – C
<i>Cyperus exaltatus</i>	Giant Sedge	O
<i>Eleocharis dulcis</i>	Eleocharis	O
<i>Erythrina X sykesii</i> *	Coral Tree	I
<i>Fimbristylis ferruginea</i>	Rusty Sedge	O
<i>Gomphocarpus physocarpus</i> *	Balloon Cotton Bush	O
<i>Hydrocotyle bonariensis</i> *	Pennywort	O
<i>Ipomoea cairica</i> *	Coastal Morning Glory	I
<i>Juncus usitatus</i>	Common Sedge	O
<i>Lantana camara</i> *	Lantana	I
<i>Lophostemon confertus</i>	Brushbox	I
<i>Maclura cochinchinensis</i>	Cockspur	I
<i>Onopordum acanthium</i> *	Scotch Thistle	O
<i>Parsonsia straminea</i>	Common Silkpod	O
<i>Paspalum</i> sp.*	Paspalum	C
<i>Persicaria decipiens</i>	Knotweed	O
<i>Phragmites australis</i>	Common Reed	I
<i>Plantago major</i> *	Plantain	O
<i>Ranunculus</i> sp.	Ranunculus	I
<i>Rumex crispus</i> *	Curled Dock	O
<i>Schinus terebinthifolius</i>	Pepper Bush	I
<i>Senecio madagascariensis</i> *	Fireweed	O
<i>Stenotaphrum secundatum</i> *	Buffalo	VC
<i>Trifolium repens</i> *	White Clover	O
<i>Typha orientalis</i>	Cumbungi	I

* Denotes exotic species

Appendix D - Construction Certificate for Bulk Filling of Link Road

D Kelly

DA 2002/566

22 January 2008

Ardill Payne & Partners
PO Box 20
BALLINA NSW 2478

Attention: Mr Evan Elford

Dear Evan,

Re: DA 2002/566 - Construction Certificate for Bulk Filling of the Link Road.
Riveroaks (Ferngrove) Development, Pacific Highway, North Ballina.

Please find enclosed Construction Certificate for the bulk earthworks and filling only on the "Link Road" site.

Note that all earthworks procedures and testing are to be in accordance with the 'Geotechnical Report Residential Foundation' prepared by Soil Surveys Engineering Pty Ltd dated January 2008.

Yours sincerely

David Kelly
Infrastructure Planning Manager
Civil Services Group

Encl.

D Kelly

DA 2002/566

CONSTRUCTION CERTIFICATE
(Issued under sections 109C(1)(b) and 81A(4) of the EP & A Act 1979)

APPLICANT'S NAME: Ardill Payne & Partners

ADDRESS: PO Box 20
Ballina NSW 2478

PROPERTY DESCRIPTION: 'Riveroaks' (Ferngrove), Pacific Highway, North Ballina.

DESCRIPTION OF DEVELOPMENT TO WHICH CONSTRUCTION CERTIFICATE APPLIES: Bulk earthworks and filling on the 'Link Road' site.

DETERMINATION DATE OF DEVELOPMENT CONSENT DA 2002/566 (Endorsement Date of Consent - 16 June 2003)

DRAWINGS AND SPECIFICATION TO WHICH THIS CONSTRUCTION CERTIFICATE APPLIES Ardill Payne & Partners - DA 2002/566
Rayshield Pty Ltd, Riveroaks Development
Pacific Highway, Ballina.

Parts of plans 6316 - LC 1 to LC 14
Plans are for bulk earthworks only and this does include any civil works associated with these plans (ie: drainage, pavement, road design & levels, sewer & water works etc).

'Geotechnical Report Residential Foundation" prepared by Soil Surveys Engineering Pty Ltd dated January 2008 for Riveroaks Development.

DETERMINATION DATE OF CONSTRUCTION CERTIFICATE 22 January 2008

I certify that the work if completed in accordance with these plans and specification will comply with the requirements of section 81A(5) of the Environmental Planning and Assessment Act 1979.

Prior to commencement of work ss.81A(2)(b) and (c), and/or 81A(4)(b) and (c) of the Environmental Planning and Assessment Act 1979 must be satisfied.

Council Officer: David Kelly..... Date: 22 January 2008

Appendix E – Assessment of Significance (Section 220ZZ Fisheries Management Act; Section 5C EP&A Act)

The proposal will involve the alteration of the modified drainline community on the site and hence an alteration to the natural flow regime. An Assessment of Significance under Section 220ZZ of the Fisheries Management Act and section 5C of the Environmental Planning and Assessment Act is completed below.

The Assessment has been completed in accordance with the Threatened Species Assessment Guidelines prescribed by the Department of Environment and Climate Change (DECC 2007).

Assessment of Significance

(a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.

No threatened fish species are likely to occur within the modified drainlines at the subject site.

(b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.

No endangered populations are likely to occur within the modified drainlines at the subject site.

(c) In the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

There are no endangered ecological (aquatic) communities within the North Coast Bioregion, therefore this does not apply.

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

Not applicable.

(d) In relation to the habitat of a threatened species, population or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and

The habitat to be removed (ie. the entire drainline community) does not have any relevance to any threatened species, population or endangered ecological community.

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

The proposed action will result in the fragmentation of the modified drainline community which passes through the site, by infilling, and effectively isolating similar communities to the east and west.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality,

The habitat to be removed (scattered freshwater macrophytes including *Phragmites australis*, *Cyperus exaltatus*, *Juncus usitatus*) has little value for the long-term survival of any threatened aquatic species, population or ecological community in the locality.

(e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),

No Critical Habitat has been declared under the Fisheries Management Act.

(f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,

Recovery Plans have been completed for four (4) threatened fish species (Trout Cod, Eastern Freshwater Cod, Oxleyan Pygmy Perch, and Silver Perch), however none of these species are likely to utilise the drainline environments at the subject site.

No finalised threat abatement plans have been produced to date.

(g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

A key threatening process is defined in the Fisheries Management Act as a process that adversely affects at least two listed threatened species, populations or communities, or could make others become threatened.

The current list of key threatening processes under the Fisheries Management Act, and whether the proposed activity is recognised as a threatening process is shown below.

Listed Key Threatening Process (as described in the final determination of the Scientific Committee to list the threatening process)	Is the development or activity proposed of a class of development or activity that is recognised as a threatening process?		
	Likely	Possible	Unlikely
Current shark meshing program in NSW waters			✓
Hook and line fishing in areas important for the survival of threatened fish species			✓
The introduction of fish to fresh waters within a river catchment outside their natural range			✓
The removal of large woody debris from NSW rivers and streams			✓
The degradation of riparian vegetation along NSW watercourses			✓
Instream structures and processes that alter natural flow	✓		
Introduction of non-indigenous fish and marine vegetation to the coastal waters of NSW			✓

The proposed activity constitutes the threatening process 'Instream structures and processes that alter natural flow'. While the proposal will block the current drainline environment, the drainline community to the west of the site will be diverted (i) to an existing constructed drainline environment within Lot 2 to the south of the site, a process which already currently occurs under normal conditions; and (ii) to a proposed constructed floodway to run east-west through Lot 2 which will discharge into North Creek Canal (refer Figure 3). It is considered that the existing Mangrove and Swamp Oak environments to the east will continue to be adequately serviced from a combination of tidal flow from North Creek Canal, and inundation from rainfall events.

While it is recognised that the recent clearing has resulted in the threatening process 'The degradation of riparian vegetation along NSW watercourses', these works were completed as part of a previous development application and therefore cannot be considered to apply to the current proposal.

Conclusion

The infilling of the drains at the subject site is unlikely to affect any threatened aquatic species or population. Furthermore, the proposed diversion of the drainline community is unlikely to result in any significant impacts to other adjacent aquatic systems to the east of the site and within North Creek Canal. As a result, a Species Impact Statement (SIS) is not required.