Ardill Payne & Partners

Civil & Structural Engineers, Project Managers
Surveyors & Town Planners

ENVIRONMENTAL IMPACT STATEMENT

EXTRACTIVE INDUSTRY (SAND QUARRY)

Lot 32 DP 1151612
Newrybar Swamp Road, Lennox Head

for
Ballina Sands Pty Ltd

May 2013

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EXECUTIVE SUMMARY

Development Application and Environmental Impact Statement for Extractive Industry

Background

Ardill Payne & Partners has been commissioned by Ballina Sands Pty Ltd to act as Town Planning Consultants to prepare and lodge a development application and environmental impact statement to obtain approval for an extractive industry (sand quarry) on land at Newrybar Swamp Road, Lennox Head.

Statutory Framework

The proposed development comprises designated development for the purposes of Section 77A of the EP & A Act 1979 because it meets the criteria for an "extractive industry" as defined in Schedule 3 of the EP & A Regulation 2000.

The proposed development is of a type listed in Schedule 4A of the EP & A Act 1979 and thus the Northern Region Joint Regional Planning Panel is the consent authority, pursuant to Part 4 of State Environmental Planning Policy (State and Regional Development) 2011.

The land is zoned RU1 – Primary Production Zone under the provisions of the Ballina Local Environmental Plan 2012 (BLEP). The proposed development is permissible with consent within and is consistent with the objectives of the zone under the BLEP.

The following planning instruments and policies are also relevant to the proposal:

- *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development*
- *State Environmental Planning Policy No. 44 – Koala Habitat Protection*
- *State Environmental Planning Policy No. 55 – Remediation of Land*
- *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*
- *State Environmental Planning Policy (Rural Lands) 2008*
- *State Environmental Planning Policy (State and Regional Development) 2011*

The development also comprises "integrated development" for the purposes of Section 91 of the EP & A Act 1979 as it requires approval under the:

- *Protection of the Environment Operations (POEO) Act 1997*
- *Water Management Act (WMA) 2000*

Subject Land

The subject land is described in real property terms as Lot 32 DP 1151612, Newrybar Swamp Road, Lennox Head.

The subject land has been largely disturbed by prior agricultural activities. The western section of the land contains sugar cane cropping with the south-eastern section being mostly cleared but supporting some scattered native vegetation. The land is dissected by a number of agricultural drains.

The site has a total area of 48.68ha. That part of the site that is subject to proposed extractive operations comprises a cleared partially elevated sand ridge. The proposed operational areas of the site have an approximate area of 15ha.

A number of other sand quarries exist in the immediate locality with one adjoining the subject land to the north (being situated on Lot 33 DP 1151612).

*It should be noted that extraction and haulage operations proposed by this application will **not** commence until the cessation of extraction and haulage from the existing operation on Lot 33.*

Proposed Development

Development consent is sought for the extraction of sand. The quarry will produce high quality fill sand for use in the development and building industries.

The material will be extracted via mechanical means (no blasting required), stockpiled and loaded into haulage trucks for dispatch to market.

Machinery will include excavators, dozers, front end loaders and haulage trucks. Hours of operation will be from 7.00am to 6.00pm Monday to Friday and 8.00am to 1.00pm Saturday.

Consent is sought to extract up to 80,000m^3/annum (in situ) with a total extractable resource amount of 610,000m^3 (in situ). Due to the likelihood that the maximum extraction rate will not be achieved every year (likely due to market fluctuations), consent is sought to operate the quarry for a maximum 15 year period or until a total of 610,000m^3 has been removed, whichever occurs first.

Upon completion of extractive operations, the extraction area will be allowed to fill with water (effectively becoming a fresh water lake) with planting of appropriate native species being undertaken around the periphery of such.

Environmental Impacts

Stormwater/Erosion and Sediment Control

A Soil and Water Management Plan (SWMP) has been prepared by Ardill Payne & Partners (APP).

The SWMP contains erosion and sediment controls and surface/stormwater management and controls which include:

- *construction of a sediment basin and grading of operational areas to drain to such*
- *construction of bunds around the site (including containment areas and stockpile areas)*
- *construction of earthen mounds and plantings around the periphery of the site*
- *monitoring and testing of waters to ensure discharge criteria are met (including up-stream and down-stream after specific rainfall events)*

The SWMP has been incorporated into the project design and operation to mitigate the potential for impacts from stormwater and erosion and sediment on downstream receiving environments.

Groundwater

A detailed groundwater assessment (GA) has been prepared by Douglas Partners.

The GA involved desk-top study supported by field investigation (including drilling, monitoring and sampling of bores).

The GA provided a number of recommendations which have been incorporated into the project design and operation to mitigate impacts on groundwater including:

- *dewatering into void areas of the pit*
- *operation of the pit during the drier months of the year or as weather permits*
- *maintenance of surface water monitoring program*
- *routine monitoring of groundwater (including sampling and analysis)*
- *collation, analysis and annual reporting of all monitoring data*

Acid Sulfate Soils

An Acid Sulfate Soil Assessment and Management Plan (ASSAMP) has been prepared by Ardill Payne & Partners (APP).

The ASSAMP involved field testing and laboratory analysis of the soil samples.

The investigation confirmed that acid sulfate soils are present across the site at varying depths and severity.

The ASSAMP has been incorporated into the project design and operation to manage and control the acid sulfate soils (which includes bunding of the site, application of lime, sampling of material and further liming if required).

Air Quality/Dust

A Dust Management Plan (DMP) has been prepared by Ardill Payne & Partners (APP).

Dust has the potential to be generated by operational activities (extraction, stockpiling loading and haulage) and haulage.

The DMP contains a number of control measures that are to be implemented by the operator and include the following:

- *construction of landscaped earthen mounds around the operational areas*
- *controls on stockpiling*
- *planting of strategic windbreaks*
- *provision of a water-cart on site*
- *restricting internal speeds and covering all laden trucks*

The DMP has been incorporated into the project design and operation to mitigate potential impacts on air quality, particularly from dust.

Flooding

The land is mapped as being subject to the 1 in 100 year flood event, however has levels that are above the required minimum fill level.

The proposed development is not such that will be adversely impacted by or adversely impact local flooding.

Noise

A detailed Environmental Noise Impact Assessment has been undertaken by CRG Acoustics Pty Ltd (CRG).

The development has the potential to generate noise from plant and machinery and haulage trucks used for transporting the extracted material.

Three existing dwellings are situated between 80-130m away from the subject land. The other closest dwellings (being 3 of) are situated between 500-600m away.

CGR's proposed mitigation measures (including the construction of an earthen mound between 2.5-3.5m high along the southern and south-eastern boundaries of the site) have been incorporated into the project design and operation to mitigate the potential for acoustic impacts on adjacent sensitive receivers.

The truck movements generated by the development will not have significant noise impacts on dwellings (due largely to the fact that they will replace the movements of the adjoining quarry to the north when it ceases operation/haulage) and will remain within the required noise criterion from the "NSW Road Noise Policy".

Traffic Generation/Roads

A detailed Traffic Impact Study has been undertaken by Ardill Payne & Partners (APP).

Based on a typical annual (average) extraction rate of 41,000m^3 (in situ), a total of 12 truck loads (being 24 movements) will be generated on a daily basis.

Truck movements are to be limited to 9 loads (18 movements) per hour, which if operating at this rate, would result in a production rate of 2,000m^3/day, equating to 100 truck loads (200 movements) per day.

Extraction at this rate would only be achievable for a period of 40 days as the maximum extractable amount of 80,000m^3 would be attained in that shorter period of time.

The safety and efficiency of the local road network will not be adversely impacted due to the limited number of truck movements that will be generated by the proposal, which will effectively replace the movements that are currently generated by the existing extractive operation on the adjoining land (Lot 33).

The development will not alter the level of service of the local road network, and will have an imperceptible impact on the service levels of the Pacific Highway and The Coast Road.

Sufficient sight distance is available to the proposed vehicular access point to the site along Newrybar Swamp Road. This road is not highly trafficked and is of a standard that is sufficient to accommodate the expected daily vehicle movements.

Heavy vehicle haulage warning signs will be displayed along Newrybar Swamp Road when the quarry is operating.

Laden haulage trucks will have their loads covered prior to dispatch from the site and entry onto the local road network.

Flora and Fauna

A detailed specialist ecological/flora and fauna assessment has been prepared by Australian Wetlands Consulting Pty Ltd (AWC).

As a consequence of preliminary assessments of the site (in Dec 2010 and Aug 2011), a number of potential issues were identified with the scope and footprint of the original proposal in respect of:

- *potential Koala habitat*
- *habitat for the Wallum Froglet*
- *microchiropteran bats*
- *occurrence of Endangered Ecological Communities*

Based on the findings of these preliminary assessments, the scope and footprint of the proposed works was modified, so as to remove operations from and mitigate impacts on the sensitive areas of the site.

Investigations involved desk-top assessment (searches of NSW Wildlife Atlas, review of results of other proximate studies) and site surveys (involving targeted searches, trapping, spot-lighting, call play-back etc).

No threatened flora species were recorded. Eight threatened fauna species were recorded with potential for several other threatened species to occur on an opportunistic/seasonal basis.

An assessment under SEPP 44 – Koala Protection confirmed that core Koala habitat does not occur on the site.

Assessments of Significance completed for EEC's and threatened flora and fauna species determined that the impacts would not be significant and thus a Species Impact Statement is not required.

The proposed works are unlikely to have any significant impact on any Matters of Environmental Significance and hence referral to the Minister is not required.

AWC's proposed mitigation measures have been incorporated into the project design and operation to mitigate the potential for ecological/F&F impacts.

Contamination

A Stage 1 preliminary contamination investigation has been undertaken by Ardill Payne & Partners.

Investigations involved desk-top site history assessment, site visit and soil sampling/analysis.

The findings of the contamination investigation confirmed that the site is suitable for the proposed use and no further investigation is required.

Cultural Heritage

A detailed Cultural Heritage Assessment has been undertaken by Everick Heritage Consultants Pty Ltd.

Investigations involved desk-top assessment involving searches of relevant Aboriginal and historic registers and other proximate studies and site surveys (including inspection with Jali LALC Sites Officer).

The results of the Cultural Heritage Assessment are:

- *no Aboriginal Objects or Places were identified in the Project Area*
- *it is considered that the Project Area may contain cultural heritage materials due to its proximity to registered sites and other observed cultural heritage materials*
- *consultation with the Jali LALC identified no places of cultural (spiritual) significance*
- *no items of historic heritage significance were identified in the Project area*

Everick's recommended mitigation measures have been incorporated into the project design and operation to mitigate the potential for impacts on items of cultural heritage.

Visual

The subject land is situated in a rural locality that is topographically characterised as a coastal plain at the eastern base of the foothills of the Newrybar Escarpment.

The site is not highly visible in the immediate local context as a consequence of the flat topography and when mature sugar cane existing on adjoining properties.

A number of measures are proposed to minimise the visual impact of the development including construction of earthen mounds and landscaping/planting around sections of the site which will screen/buffer views of the site.

Having regard to the above, it is contended that there will be a low to nil visual impact during extractive operations.

Social Considerations

Due to the location of the site and its relative isolation from dwelling houses and urban environments, it is contended that the proposal will not injuriously impact the amenity of the locality, the social fabric or the public health of the local community, subject to all of the proposed mitigation measures contained in the EIS (and future plan of management) being implemented and diligently complied with.

In an attempt to monitor and manage this situation into the future, the Plan of Management will contain provisions for complaint reporting and resolution.

Economic Considerations

The proposal will enable the extraction of a substantial resource that is of significant benefit to the local and regional economy.

Extraction of the resource can be undertaken in an environmentally sensitive, responsible and efficient manner.

Subject to the implementation of proposed mitigation measures contained in this EIS, the proposal will not adversely impact adjoining rural land uses.

Ameliorative Measures

Quarrying activities by their nature have impacts upon the natural and man-made environment.

A summary of the main proposed ameliorative measures are:

- *Not commencing extraction and haulage until extraction and haulage from Lot 33 has ceased.*
- *Operating the quarry in accordance with an approved Plan of Management (which includes on-going monitoring and reporting as well as complaint management systems).*
- *Construction of a sediment basin and bunding around the site and draining of site to the sediment basin.*
- *Compliance with the other plans of management and recommendations contained in this EIS.*
- *Construction of earthen mounds and wind-break trees/site landscaping.*
- *Implementation of dust suppression and air quality control measures.*
- *Implementation of water management measures.*
- *Implementation of erosion and sedimentation control measures.*
- *Restricting site access to a single access to Newrybar Swamp Road with no haulage via Martins Lane.*
- *Securing and covering the loads of laden haulage vehicles prior to dispatch from the site.*
- *Display of heavy vehicle haulage warning signs in Newrybar Swamp Road during extractive haulage operations.*
- *Cessation of work immediately and contact the Department of Environment and Conservation (NPWS) and the Jali Local Aboriginal Land Council should any artefacts be discovered during extractive operations.*

Conclusion

The proposed development is permissible with consent under the provisions of the BLEP 2012 and other relevant State Environmental Planning Policies.

The development has been subject to rigorous environmental assessment under a raft of applicable environmental planning instruments.

The development is capable of being operated and managed in an environmentally responsible manner such that potential adverse impacts will be minimised.

The extractive material is of significant value and benefit to the local and regional economy.

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1 INTRODUCTION

This section introduces the proposal and provides a general overview of the project, including the planning and land use history of the site. Details of public authority and community consultations that have been undertaken in conjunction with preparation of this EIS are also provided.

1.1 Background

Ardill Payne and Partners (APP) has been engaged by Ballina Sands Pty Ltd to act as Town Planning Consultants to prepare and lodge a development application (DA) and environmental impact statement (EIS) with Ballina Shire Council.

It is proposed to extract a sand resource by excavating below the existing ground surface. It is proposed to extract up to a maximum 610,000m^3 (in situ) of sand at an annual maximum extraction rate of up to 80,000m^3 (in situ), being an equivalent total resource of 1.2 million tonnes and 160,000 tonnes per annum respectively.

At the proposed maximum annual extraction rate, the quarry would be expected to have a life of 7.6 years. However due to fluctuations in demand in the market-place, a maximum life of 15 years is proposed.

This proposed operation will be similar in size and nature to the existing extractive operation on adjoining Lot 33 DP 1151612. Operations will involve stripping of topsoil (for use in minor site works and the construction of earthen acoustic/visual mounds), extraction via mechanical means (excavators), stockpiling and loading into haulage trucks for dispatch to market.

In respect to employment (construction and operation), 2-4 on-site personnel are envisaged (including plant operators) as well as drivers of haulage trucks.

In addition to seeking development consent, this DA and EIS establishes a sustainable operational methodology and framework for a Plan of Management that will be developed and implemented to control extractive operations and in doing so, protect the local area and minimise environmental impacts.

Figure 1 is an aerial photograph that shows the locational context of the site. Figure 2 is an aerial photograph of the subject and adjoining land.

In assessing this development application and environmental impact statement, it must be noted that the extraction and haulage of sand proposed herein will not commence on the subject land until such time as the extraction and haulage of sand from adjoining Lot 33 DP 1151612 (that is being conducted under the terms and conditions of DA 2001/326 as amended) has ceased.

1.2 Structure and Scope of Report

Section 1 introduces the proposal and provides a general overview of the project, including the planning and land use history of the site and details of public authority and community consultations.

Section 2 describes the physical characteristics of the subject land and its local and regional environmental context.

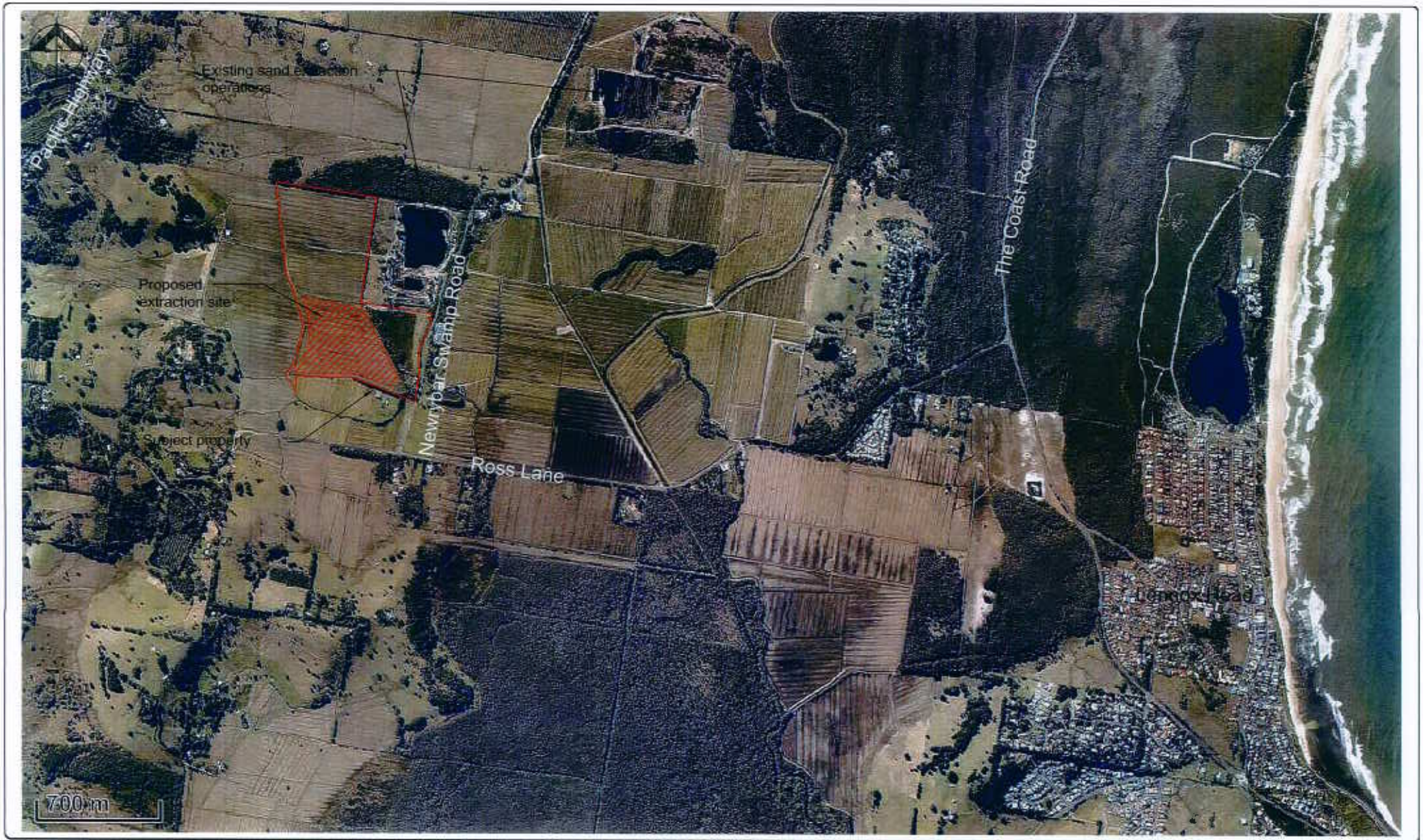
Section 3 describes the development proposal in detail.

Section 4 reviews the key environmental interactions and proposed management measures.

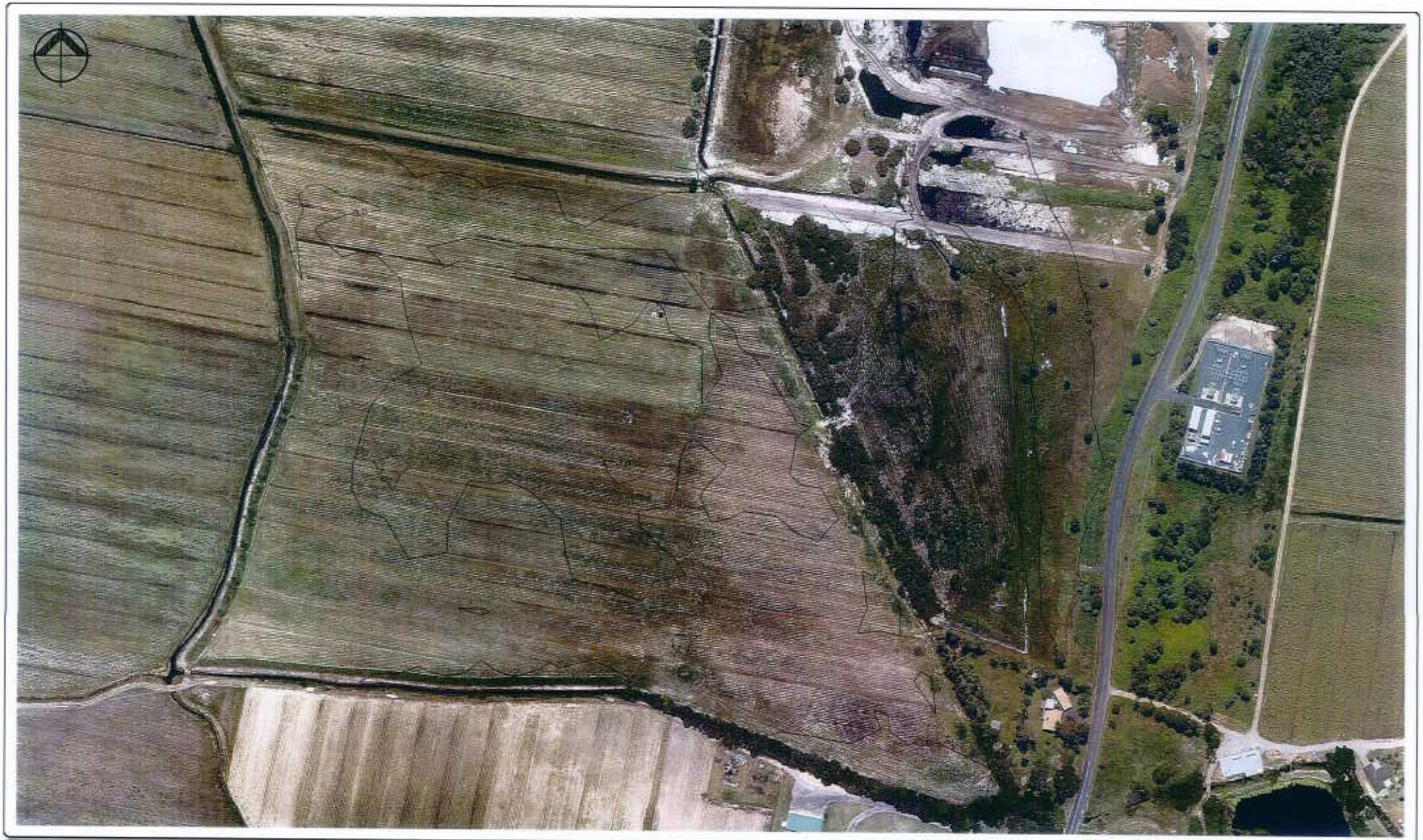
Section 5 lists each identified potential environmental impact and the proposed method of monitoring, managing and ameliorating such impact. This Section also provides the framework for a plan of management and annual reporting.

Section 6 reviews the statutory and planning policy provisions applying to the project.

Section 7 provides a summary and conclusions.



Project: Lot 32 DP 1151612 Newrybar Swamp Road Lennox Head	Client: Ballina Sands Title: Site Locality Plan	**ARDILL PAYNE & PARTNERS** Consulting Civil & Structural Engineers Project Managers Town Planners & Surveyors 79 Tamar Street P.O. Box 20 BALLINA NSW 2478 Telephone: 02 6686 3280 Facsimile: 02 6686 7920 Email: info@ardillpayne.com.au Website: www.ardillpayne.com.au	Design: RMcG; Drawn: RMcG; Date: 16.01.2013; Checked: Scale at A3: As shown; Datum: A.H.D; Filename: 6542 SLP; Approved: Job No: 6542; Dwg. No. FIG1; Issue:



Project:

Lot 32 DP 1151612
Newrybar Swamp Rd
Lennox Head

Client: Ballina Sands

Title:

Site Plan
Showing Contours

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Design RMcG	Scale at A3 1:2500	Date 17.10.2012	
Drawn RMcG	Datum AHD		
Checked	Acad file 6542 Contours		
Approved	Cad file		
Job No. 6542	Dwg. No. FIG.2	Issue	

A number of appendices form part of this EIS which are identified below:

Appendix A Development application form (including landowner's consent) and EIS Certification Form

Appendix B Copy of deposited plan and plan showing contours

Appendix C Public authority consultation responses (includes copy of DGRs)

Appendix D Community consultation responses

Appendix E Site, extraction and rehabilitation plans

Appendix F Ecological assessment

Appendix G Soil and water management plan

Appendix H Environmental noise impact assessment

Appendix I Traffic impact study

Appendix J Land contamination assessment – Stage 1 preliminary investigation

Appendix K Cultural heritage assessment

Appendix L Groundwater assessment

Appendix M Greenhouse emissions assessment

Appendix N Acid sulfate soil management plan

Appendix O Particle size distribution report

1.3 Planning and Regulatory History

Ballina Council granted deferred commencement development consent to Development Application No. 2001/326 on the 13th December 2001. Consent was granted to establish and operate an extractive industry (sand quarry) and to carry out minor filling works on land described as Lot 30 DP 1102964.

Ballina Council granted consent to Development Application No. 2008/677 on the 28th July 2008. Consent was granted to *"Undertake a Three Lot Rural Subdivision by way of Boundary Adjustment to Create 1 x 57.12ha, 1 x 50ha and 1 x 20ha Allotments"*. The consent approved the re-subdivision of Lots 1 and 2 DP 1032658 and Lot 30 DP 1102964.

As a consequence of DA 2008/677:

- the land subject of this application was created – being Lot 32 DP 1151612
- the land upon which the extractive operation that was approved under the terms and conditions of DA 2001/326 was created – being Lot 33 DP 1151612

Ballina Council granted consent to an application pursuant to Section 96(2) of the EP & A Act 1979 on the 24th September 2009. The effect of the approval was to increase the total extractable amount of sand from the pit from 340,000m^3 (in situ) to 500,000m^3 (in situ), whilst maintaining the same extraction footprint/envelope and extraction rates.

Ballina Council granted consent to a further application pursuant to Section 96(2) of the Act on the 15th November 2012. The effect of the approval was to enable quarrying on the land until the 31st December 2014 or a total extraction of 500,000m^3 (in situ), whichever occurs first, whilst maintaining the same extraction footprint/envelope and extraction rates.

1.4 Land Use History

Lot 32 was created for the purpose of rationalising the existing lot boundaries and to improve the road frontage and access situation for the subject lot.

The subject land has historically been used for sugar cane, cattle grazing and low-intensity farming. The current landowner has owned the property for approximately 24 years.

Numerous attempts to establish sugar cane farming within that part of the site proposed for extractive operations have been made, all of which have been unsuccessful. It is understood that this is largely due to the composition and elevation of the sand ridge which traverses the land.

1.5 Overview of Statutory Framework

The proposed development comprises designated development for the purposes of Section 77A of the EP & A Act 1979 because it meets the criteria for an "extractive industry" as defined in Schedule 3 of the EP & A Regulation 2000.

The proposed development does not meet the extractive industry thresholds listed in Schedule 1 of State Environmental Planning Policy (State and Regional Development) 2011 (SEPP SRD) and is thus not State Significant Development.

The proposed development is of a type listed in Schedule 4A of the EP & A Act 1979 and thus the Northern Region Joint Regional Planning Panel is the consent authority, pursuant to Part 4 of SEPP SRD.

The development also comprises "integrated development" for the purposes of Section 91 of the EP & A Act 1979. The following approvals are required in addition to development consent before the development can be carried out:

- Controlled Activity approval under Part 3, Chapter 3 of the Water Management Act 2000, and
- Environmental Protection Licence under the Protection of the Environment Operations Act 1997

Section 6 of this report includes a detailed commentary of the environmental planning instruments and controls applying to the project.

1.6 Consultation

Ardill Payne & Partners sought the Director-General's Requirements (DGR's) for an environmental impact statement (EIS) in respect of an extractive industry on the subject land by letter dated 16th October 2012.

DGR 520 was first issued by the Department of Planning on the 13th September 2010 and lapsed on the 13th September 2012. The DA/EIS was not able to be lodged during this period, largely as a consequence of issues identified during environmental investigations on the site (particularly ecological/flora and fauna).

Due to the lapsing of DGR 520, the Department of Planning by letter dated 15th November 2012 re-issued DGR 520, a copy of which is provided at **Appendix C1**.

One of the requirements of DGR 520 is that the during the preparation of the EIS, consultation must be undertaken with relevant local, State and Commonwealth government authorities (including Ballina Shire Council), service providers and community groups and any issues that they raise are to be addressed in the EIS. In particular, consultation is required with surrounding landowners and occupiers that are likely to be impacted by the proposed development.

Details of the consultations that were undertaken by APP during the preparation of this EIS are as follows:

Government Agencies – APP wrote to the following Government Agencies (letter dated 11 December 2012) requesting the provision of any requirements they may have for the preparation of the DA/EIS:

- Ballina Shire Council
- Roads and Maritime Services
- Industry & Investment – Minerals and Energy Division
- NSW Office of Water
- Department of Environment, Climate Change & Water – Environment Protection and Regulation
- Rural Fire Service

Formal responses were received from the following:

- Department of Primary Industries – Office of Water – **Appendix C2**
- Trade & Investment – Resources & Energy – **Appendix C3**

- Environment Protection Authority – **Appendix C4**
- Roads & Maritime Services – **Appendix C5**
- Ballina Shire Council – **Appendix C6**

At the time of finalising this EIS, no response had been received from the NSW RFS.

Where applicable and appropriate, the requirements stipulated in these responses have been duly addressed in the EIS.

Aboriginal Land Council

APP wrote to the Jali LALC on the 11th December 2012 requesting the provision of any comments that Jali may have in respect of the proposed development. At the time of finalising this EIS, no response had been received from Jali.

It should be noted that Jali LALC was integrally involved in the cultural heritage assessment that was undertaken to inform this EIS, a copy of which is provided at **Appendix K**. Provided at Appendix A to **Appendix K** is a letter from Jali (dated 1st November 2011) which confirms that the *"Jali Local Aboriginal Land Council supports the proposal of Watson's Sandpit and concurs with the findings outlined in the report.."*.

Neighbouring Land Owners

APP obtained contact information (being both house and postal addresses) for adjoining and adjacent property owners and occupiers who may be impacted by the proposal from Council on the 22nd November 2012.

All such persons were formally notified by letter dated 11th December 2012, with a total of twenty (20) letters being dispatched via Australia Post. Of these letters:

- 14 were to landowners
- 5 were to "The Occupier"
- 1 was to the Jali LALC

A total of two (2) responses were received by Ardill Payne, with a summary of the comments made therein being provided below. Two of the "The Occupier" letters were 'returned to sender' by Australia Post. Full copies of these submissions are provided at **Appendix D**.

Submission 1 (letter dated 17 January 2013)

- A number of concerns were raised about the environmental impacts on waterways, land surface and roads (particularly on the Nature Reserve and private property), being:
  - excess water pumped from the site into waterways north of Ross Lane travels south to Deadmans Creek has contributed to water quality, sediment and colour changes and noticeable reduction in fish and bird-life in/around Deadmans Creek
  - new plant/weed growth has appeared in the waterway south of Ross Lane which has washed down from the north of Ross Lane
  - rising water levels have been noticed in dry weather conditions – in times of excess rainfall, water levels rise more quickly, causing increased flooding and for longer periods – excess water pumped from extraction site may contribute to these water levels
  - increased truck movements on Ross Lane could impact the unstable road surface
  - there is a need to monitor truck noise and water pump noise – need to restrict and monitor so as not to impact nearby residents

Submission 2 (letter dated 18 January 2013)

- A number of concerns were raised including a need to ensure that future operations do not adversely impact the local area, being:
  - existing quarry operations are audible at the submitter's residence – concern that the proposed quarry will be closer to the dwelling than the existing operation
  - expect that the proposed operation will adhere to operating hours and that such will be complied with – there have been incidents in the past of working outside of stated hours of operation
  - need to ensure that the quarry adheres to and works within all guidelines of any authority
  - require effective and efficient noise attenuation mounds with landscaping (as sight and sound barriers) to be established on the northern boundary of the proposed quarry – also interim noise protection/reduction measures in place until the vegetated noise attenuation mounds are established

- expect that the proposed operation will continue with past practice of reducing dust from stockpiles and along the working-face of the pit
- ensure that sand trucks continue to use Ross Lane from Newrybar Swamp Road and not use Martins Lane as an access to the Pacific Highway
- need to improve the quarry access to Newrybar Swamp Road by road widening and creation of passing lanes
- need to designate posted speed limit of 80km/hr on Newrybar Swamp Road
- need to widen and lengthen the turning bays on Ross Lane to better accommodate heavy vehicles
- there has been a long term hydrological impact to private property from the existing sand pit – 2 springs that existed on adjacent private property and were used to water stock have dried up
- in order to limit further damage to ground water supplies, expect that the operation will adhere to and comply with all guidelines of all relevant authorities
- with the operation moving closer to private property, concerns about detrimental effects on the environment and overall sustainability of property to continue as a viable primary production business

The above comments have been provided by local residents and are matters that these residents have requested be addressed in the EIS. Some of the issues raised have been based on their experiences and assumptions that some of the impacts that they have experienced have resulted from the existing extractive operation on Lot 33.

1.7 Specialist Technical Advice

Specialist technical advice was obtained from the following sources in the preparation of this EIS. The findings and recommendations of these reports are included in the relevant sections of this report:

- Ardill Payne (Paul Snellgrove) – Statutory planning/EIS
- Ardill Payne (Tony Cromack) – Traffic impact study
- Ardill Payne & Partners (Rob Jacob) – Site survey
- Ardill Payne (James Foster) – Soil and water (including acid sulfate soils, erosion and sediment controls, groundwater, flooding, air/dust)

- Ardill Payne (James Foster) – Contamination/SEPP 55
- Ardill Payne (Maddy Payne) – Greenhouse emissions assessment
- Ardill Payne (James Foster) – Acid sulfate soil management plan
- Everick Heritage Consultants (Tim Robins) – Cultural heritage assessment
- Australian Wetlands Consulting (Ian Colvin) – Ecological/F&F
- CRG Acoustical Consultants (Matthew Lopez) – Environmental noise impact assessment
- Douglas Partners (Iain Hair) – Groundwater assessment

Should Council or any other Statutory Authority require any additional information or require further clarification on any matter raised in this submission or to the exhibition of the DA/EIS, it is requested that contact be made in the first instance with Paul Snellgrove of Ardill Payne and Partners prior to final determination of the application.

1.8 Landowner and Applicant Details

The land that is subject of this application is owned by Mr RI and Mrs CM Watson, 171 Ross Lane, Tintenbar. The landowner's consent to the lodgement of this application is provided in **Appendix A**.

The project proponent is Ballina Sands Pty Ltd, Newrybar Swamp Road, Lennox Head.

The project applicant is Ardill Payne & Partners, PO Box 20, Ballina.

2 THE SITE AND ITS CONTEXT

This section describes the subject land and identifies the geographical context of the site and its relationship to the surrounding locality.

2.1 Location and Property Description

The land is described in real property terms as Lot 32 DP 1151612, LGA Ballina, Locality Tintenbar. A copy of the deposited plan is provided at **Appendix B**.

Figure 1 is a map that shows the locational context of the site. **Figure 2** is an aerial photograph of the subject and adjoining land.

The subject land has a frontage of 350.52m to and is accessed via Newrybar Swamp Road. The land is situated approximately 3.6km to the north-west of Lennox Head.

2.2 Site Analysis

The subject land is irregular in shape with an area of 48.69ha. The western section of the lot is used for sugar cane production with the south-eastern corner predominantly cleared but with some scattered vegetation. A number of agricultural drains traverse the land.

2.2.1 Topography

The subject land is flat and level, being situated on a low remnant dunal sand ridge which falls gently to the west.

As evidenced on the contour plan at **Appendix B**, elevations of the site range between approximately 3-5m AHD.

2.2.2 Geology and Soils

Douglas Partners 2013 (DP 2013) (refer **Appendix L**) undertook site investigations and confirmed that the geology of the site is characterised by Pleistocene/Holocene dune sands and coastal deposits, which are dominated by fine to medium grained sands with layers of indurated coffee rock, with this sequence having a thickness of at least 15m at the site.

The stratigraphy interpreted from boreholes referenced in Douglas Partners 2013 (refer **Appendix L**) is summarised as follows:

- generally the site is overlain by a fine, loose, silty sand
- some boreholes also contained sand in their top layers, although no spatial pattern can be inferred from the borehole logs with respect to the clay
- the loose, finer layer was generally confined to the topsoil, but tended to extend to greater depths (up to 1.5 mbgl) on the western side of the site
- at depth, the entire site is underlain by clean, fine-grained sands with little to no fines
- the soil can be generally described as non-plastic with no dry strength
- the sand became increasingly dense down the soil profile – indurated sand was observed at the base of BH1, BH5, BH2.6, BH2.7, BH2.10 and BH2.13
- striated indurated sand was observed at the base of BH2.2, BH2.3 and BH2.8
- indurated material (both 'blocks' and 'striations') was encountered at shallower depths in BH1, BH2, BH2.12 and BH2.13

The bulk of the land is mapped by Morand (1994) as "ty – Tyagarah" landscape. A thin strip of land along the eastern boundary is mapped as "waa – Wardell" landscape variant. These landscapes are described as follows:

Tyagarah

Landscape – sediment basins of mixed estuarine and Aeolian origin forming level to gently undulating plains. Relief is <3m, elevation <5m and slopes <1%. Extensively cleared open and closed forest.

Soils – deep (>150cm), moderately well-drained minimal Prarie Soils near basaltic areas. Deep (>150cm), well-drained Podzols and Acid Peats near barrier systems. Deep (>200cm), poorly drained Peaty Podzols near Tuckean soil landscape.

Wardell variant

Landscape – very low transgressive dune.

Soils – deep (>300cm), well-drained Podzols. Deep (>300cm), poorly drained Peaty Podzols and Acid Peats in low-lying, poorly drained areas.

2.2.3 Groundwater

Douglas Partners 2013 (DP 2013) (refer **Appendix L**) reported that results of drilling programs conducted on the site confirm that it is underlain by a sequence of coastal dune sands and sediments which are at least 15m thick. All of the bores that were drilled intersected the groundwater table at a shallow depth. The bores that were drilled during May 2011 intersected the groundwater table at an average depth of 1.0m (range between 0.7-1.2m).

DP 2013 confirms that the dune sands/coffee rock sequence hosts a significant groundwater resource. The sequence is saturated from -1m below ground, as at May 2011. Groundwater level monitoring shows that groundwater flow is from the north-west to the south-east across the site at a gradient of approximately 1 in 1000.

Hydraulic testing shows that the aquifer at the site has moderate to high transmissivity and hydraulic conductivity. Groundwater is hydraulically connected to the surface water in drains and creeks which comprise the western, southern and eastern boundaries of the site. Recharge from rainfall events is rapid and the aquifer is unconfined.

Groundwater is acidic and of very low salinity. Sodium and sulphate are the dominant ions in groundwater, with magnesium and chloride also prominent. A comparison of water quality with drinking water guidelines shows that groundwater at the site is near potable. Guideline values for pH, aluminium and iron are exceeded. Arsenic concentrations may be above drinking water guideline values in some areas.

2.2.4 Acid Sulfate Soils

The subject land is identified on Council's Acid Sulfate Soils Planning Maps as being Class 3 land. Consent is thus required for:

- works beyond 1m below the natural ground surface
- works by which the watertable is likely to be lowered beyond 1m below natural surface

Sampling of boreholes on the land undertaken by Ardill Payne (refer **Appendix N**) confirmed that the majority of soils on the site are moderately to highly acidic in their present state with a higher potential for acid generation at depth.

2.2.5 Visual Context

The subject land is situated within a rural environment on the Newrybar coastal plain. The visual character of the locality is predominated by sugar cane production, stands of bushland and scattered rural buildings.

Mid-range views of the site exist from the west when travelling along the Pacific Highway. The site is also visible from the elevated land on the eastern side of the Newrybar escarpment. The site is not highly visible in the immediate local context as a consequence of the flat topography and when mature sugar cane exists on adjoining/adjacent properties.

2.2.6 Climate

According to the Australian Bureau of Meteorology, the Ballina region has a sub-tropical climate. Moderate humidity and moderate temperatures are experienced all year round and rainfall is highest during the summer months.

The hottest temperatures typically occur in January (ranging between 20°C to 28°C) with coldest temperatures typically occurring in July (ranging between 9°C to 19°C).

Annual average rainfall is approximately 1760mm with 55% of such occurring during January to May. Total annual evaporation is approximately 1510mm. Evaporation exceeds rainfall only during the period August to December.

Long term average monthly climate statistics (BOM, 2011 – Ballina Airport AWS) are detailed in Table 1 below:

Table 1: Weather Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainfall (mm)	184	205	220	180	187	159	119	92	72	95	110	139
Evaporation (mm)	174	139	134	104	81	70	79	104	130	155	161	180
Max Daily Temp (^{O}C)	27.9	27.5	26.6	24.6	22.0	19.7	19.4	20.7	22.7	24.5	26.0	27.3
Min Daily Temp (^{O}C)	19.6	19.5	18.4	15.6	12.7	10.4	9.3	9.8	12.2	14.6	16.7	18.5

(The above has been sourced from Douglas Partners 2013 – refer Appendix L).

2.2.7 Flora and Fauna

Australian Wetlands Consulting 2013 (refer **Appendix F**) undertook detailed site investigations in respect of flora and fauna and reported that the site has been significantly disturbed with much of the native vegetation and habitat removed or modified.

AWC 2013 identified a total of eight (8) vegetation communities on the site, being:

1. Open Forest (Scribbly Gum)
2. Open Forest (Swam Mahogany)
3. Open Forest (Broad-leaved Paperbark)
4. Closed Forest (Camphor Laurel, Brush Box, Riberry)
5. Fernland/Sedgeland (Swamp Water Fern, Blume Rush, Twig-Rush, Swamp Grass-Tree)
6. Windrow
7. Closed Grassland (Mixed Species)
8. Reedland/Swamp Grassland (Frogsmouth, Spike-Rush)

A map showing the extent and location of the above is provided as Figure 3-1 – Vegetation Community Map at **Appendix F**. The land that is proposed to be subject of extractive operations is identified as comprising a mixture of Communities 1, 2, 3, 5, 7 & 8 with the actual extraction footprint/area being situated on Community 7 land.

AW 2013 reported that eight (8) threatened fauna species were recorded on the site, being:

- Wallum Froglet
- Olongburra Frog
- Masked Owl
- Grey-headed Flying-fox
- Eastern Long-eared Bat
- Spotted Harrier
- Greater Broad-nosed Bat
- Little Bentwing-bat

with potential for several other threatened species to occur on an opportunistic/seasonal basis.

2.2.8 Air

The subject land is situated within a rural environment that is characterised by productive agriculture (predominantly sugar cane, macadamias and cattle grazing), a number of extractive industries (sand quarries), other commercial uses (swimming pool, dog food factory, scaffold depot) and scattered rural dwelling houses and sheds.

Primarily as a consequence of cane farming operations, large expanses of land in the area are from time to time left fallow, resulting in large areas of land being exposed/not covered with vegetation, and thus as a consequence of wind, the area is subject to dust issues.

2.2.9 Cultural Heritage

Everick Heritage 2013 (refer **Appendix K**) undertook a cultural heritage assessment of Aboriginal and non-indigenous (historic) cultural heritage for the proposed development, which included a site survey on the 24th August 2011 for historic and Aboriginal cultural heritage by:

- Everick Senior Archaeologist, Mr Adrian Piper and
- Jali LALC Sites Officer, Mr Marcus Ferguson

A letter from Jali LALC (dated 1 November 2011) was also provided (refer Appendix A at **Appendix K**) which confirmed that Jail LALC supports the proposed sandpit and concurs with the findings outlined in Everick 2013, being that:

- *No Aboriginal Objects or Places were identified within the Project Area.*
- *It is considered that the Project Area may contain cultural heritage materials due to its closeness to registered sites and other observed cultural heritage materials.*
- *Consultation with the Jali LALC identified no places of cultural (spiritual) significance.*
- *No items of historic heritage significance were identified within the Project Area.*

2.2.10 Contamination

As a consequence of prior agricultural use of the land, Ardill Payne 2012 (refer **Appendix J**) undertook a Stage 1 Preliminary Contaminated Site Investigation which involved:

- desk-top site history assessment
- research of historical records and site history statement from current owner
- site inspection
- systematic soil sampling due to prior agricultural use (sugar cane and cattle grazing)

None of the soil samples submitted for testing had levels reaching or exceeding the relevant assessment criteria and were consistent with background levels.

2.2.11 Flooding

The subject land is mapped as being subject to the 1 in 100 year flood event. The BLEP 2012 maps the minimum required fill levels over the site (for residential development) as being between 2.4-2.6m AHD.

On the basis that the land has levels in the order of 3-5m AHD (refer **Appendix B**), it is not actually subject to inundation by the 1 in 100 year flood event.

2.2.12 Agricultural Suitability

The NSW Department of Agriculture Agricultural Land Class Map (1998) maps the subject property as a combination of Class 3, 4 and 5 land with the proposed extractive and operational areas being effectively mapped as Class 3 and 5.

NSW Agriculture's Agricultural Land Classification (Agfact AC.25) guide defines Class 3 & 5 agricultural lands in the following manner:

Class 3: *Grazing land or land well suited to pasture improvement. It may be cultivated or cropped in rotation with sown pasture. The overall production level is moderate because of edaphic factors or environmental constraints. Erosion hazard, soil structure breakdown or other factors including climate may limit the capacity for cultivation, and soil conservation or drainage works may be required.*

Class 3 lands have generally moderate levels of social, economic or physical limitations, restricting the extent of arable agriculture. For example, erosion hazard, soil structure breakdown or other factors including climate may limit the capacity for cultivation, and soil conservation or drainage works may be required.

Class 5: *Land unsuitable for agriculture, or at best suited only to light grazing. Agricultural production is very low to zero as a result of severe constraints, including economic factors which prevent land improvements.*

2.2.13 Extractive Operations in Project Vicinity

A number of extractive operations exist in the local area, details of which have been sourced from Trade & Investment, Regional Infrastructure & Services' MinView (October 2012):

- Lot 33 DP 1151612, Newrybar Swamp Road – sand quarry – this quarry is reaching the term of its approval and will cease operations in the next couple of years – the sand quarry the

subject of this DA/EIS will not commence until such time as extraction and haulage has ceased on Lot 33

- Lot 10 DP 1010302 and Lot 3 DP 803962, Newrybar Swamp Road – two sand quarries – it is understood that these quarries are reaching the term of their respective approvals and will likely cease operations in the next couple of years

Council is currently assessing a development application (DA 2011/320) for the proposed re-commencement of extractive operations (sand) from land described as Lot 374 DP 755684 and Lot 7 DP 1043261, Southern Cross Drive, Ballina ("Airport Sandpit"). At the time of compiling this EIS, Council had not determined this application.

2.3 Adjoining and Surrounding Land Uses

The subject and adjoining land is situated on the Newrybar coastal plain. The locality is predominated by agriculture (sugar cane, macadamias and cattle grazing), scattered rural dwellings and associated farm outbuildings and stands of bushland.

The locality contains a number of other land uses, including:

- scattered rural dwellings and farm outbuildings
- indoor swimming pool
- three (3) other extractive industries (sand pits)
- electricity sub-station
- bulk depot (scaffold)
- dog food factory
- stands of bushland

An existing extractive operation (sand quarry) exists on adjoining Lot 33 to the east. Two other extractive operations (sand quarries) exist some 1km to the north-east of the subject land.

Rural/residential dwellings are scattered throughout the locality with a number of such being situated along Ross Lane and along the eastern facing slope of the Newrybar escarpment.

3 DESCRIPTION OF PROPOSAL

This section describes the proposed sand extraction operations and ancillary activities, and identifies specific environmental and development objectives that will be adopted in conjunction with the project.

3.1 Overview of Operations

The proposed operation involves the following:

- extraction of up to 80,000m^3 (in situ) of sand per annum (being 160,000 tonnes per annum)
- extraction of a total amount of 610,000m^3 (in situ) of sand from the site (being a total of 1.2 million tonnes of resource)
- maximum extractive operational life of 15 years
- maximum excavation depth (base level of pit) of –3.0m AHD

It should be noted that at the proposed maximum annual extraction rate of 80,000m^3, the quarry would have a life expectancy of 7.6 years. However due to actual fluctuations in demand in the market for the sand (which has been the experience with the adjoining extractive operation), a total extractive operational life of 15 years is sought or total extraction of 610,000m^3 (in situ) whichever occurs first.

The proposed extractive operations involve the following:

- stripping of topsoil (for use in minor site works and construction of earthen acoustic/visual mounds)
- extraction using excavators
- stockpiling of sand
- treating of sand for acid sulfate soil
- loading of sand into haulage trucks for dispatch to market

The sand extraction operation will be undertaken only during the drier times of the year, being from July to November or as weather permits.

Access to the site will be via a proposed new site access to Newrybar Swamp Road.

Plans showing the layout and staging of the extractive operations, final landform and proposed rehabilitation are provided at **Appendix E**.

Fill sand from the quarry has a multitude of uses with the predominant uses and users comprising:

- road construction and/or repair – Local Councils, Leighton, Baulderstone, Morgans etc
- residential and commercial developments – Ferngrove, Local Councils, Hazell Bros. (Ballina Airport), Haslin Constructions (Ballina Sewage Plant) etc
- bedding sand for drainage pipelines and electricity cable conduits – Morgans, ITT, Ballina Pipeline Constructions etc
- under-turf sand – Leightons, local landscape gardeners etc.
- plant nursery sands to produce planting mix, organic soils etc. – local landscape gardeners, landscapers, plant nurseries etc

3.2 Project Objectives

The following is a statement of objectives that will govern the sand extraction operations:

- to ensure that the resource is extracted in an efficient and environmentally responsible manner
- to identify and utilise a known sand resource which is well located and proximate to local markets
- to protect the existing water quality at and downstream of the site
- to develop and implement controls that minimise air pollution with respect to potential dust generated by earthmoving equipment and vehicles
- to ensure that adequate provision has been made with respect to traffic generation and access
- to identify and protect significant flora and fauna
- to maintain the visual integrity of the site and locality
- to ensure that waste generated by the proposal is minimised and managed in an environmentally acceptable manner
- to ensure that the proposal does not create adverse impacts on surrounding land uses

- to facilitate economic and sustainable extraction of sand from the site
- to facilitate the reliable supply of high quality fill sand to local and regional development industries
- to ensure that the proposal implements the principles of Ecologically Sustainable Development (ESD).

3.3 Resource Characteristics

The Department of Urban Affairs and Planning (now DoP) 'EIS Guideline for Extractive Industries' states that "construction sand, soil, gravel or similar materials (which are not within the meaning of the *Mining Act 1992*) are defined as 'extractive materials'". Extractive materials are used principally as construction material in pre-mixed and bituminous concrete, road base, foreshore protection, land formation and landfill material."

The sand resource is the same as that which is being extracted on the adjoining Lot 33 DP 1151612, which is good quality (highly compactable) fill sand.

The stratigraphy of the site is summarised as follows:

- Unit 1 – Topsoil: Silty sand, brown or grey/brown, black, grey
- Unit 2 – Sand: Grey, dark brown and grey/brown
- Unit 3 – Indurated Sand: Dark brown to pale brown, red/brown, grey/brown
- Unit 4 – Sand: Blue/grey

A particle size distribution report (Australian Soil and Concrete Testing 2011) is provided at **Appendix O**.

Sampling of boreholes on the land (refer **Appendix N**) has also confirmed that the majority of soils on the site are moderately to highly acidic in their present state with a higher potential for acid generation at depth. As a consequence of such, an acid sulfate soil management plan has been prepared and is provided at **Appendix N**.

3.3.1 Extraction Rate

The proposed maximum extraction amount is 80,000m^3 (in situ) per annum which equates to approximately 160,000 tonnes per annum.

An average extraction rate of approximately 40,000m^3 is expected over the life of the quarry, as a consequence of fluctuations in demand that occur in the market place.

3.4 Extractive Operations

3.4.1 Site Layout

Site layout and extraction plans are provided at **Appendix E**. As noted from these plans:

- a site access is to be constructed to Newrybar Swamp Road comprising a bitumen seal from the edge of the existing bitumen surface on the road for a distance of 75m to a proposed shake-down grid
- planting of wind break/screen vegetation along the internal site access road (not along the bitumen sealed section)
- installation of an office and weighbridge (to be relocated from the adjoining extractive operation on Lot 33 DP 1151612)
- construction of visitor car parking area adjacent to the office and weighbridge
- installation of a chemical toilet, container (for storage of maintenance equipment), garage and non-potable water tank
- construction of a machinery parking area
- planting of wind break/screen vegetation along the western boundary of the stockpile area
- construction of a 2.5m and 3.5m high earthen mound along the southern and south-eastern boundary of extractive area (using top-soil from extraction area)
- installation of sediment basins and emergency spill-way
- sand stockpile and agricultural lime stockpile

3.4.2 Sequence of Work

The site establishment works involve the following:

- construction of new site access to Newrybar Swamp Road, new internal access tracks (including sealing of 75m section + installation of shake-down grid) and parking areas
- stripping of topsoil and construction of earthen mounds (acoustic and visual barriers)
- landscaping of earthen mounds
- planting of windbreak and visual screen vegetation
- installation of sediment basins, office, weigh-bridge, chemical toilet, shipping container (storage of equipment), garage and non-potable water tank

Upon removal of the topsoil, sand will be extracted from the pit by excavator(s) and stockpiled on a bench. Lime is then spread over the surface of the stockpile using an excavator bucket (to control acid sulfate soils).

Plans showing the staged extractive operations are provided at **Appendix E**. Extraction will commence generally along the full eastern side of the pit and will be conducted in a "long wall" manner such that extraction proceeds in a westerly direction. The pit will be excavated to the finished level (being 6m below existing ground level or –3m AHD) with benching (for access and acid sulfate soil treatment) being on the western side of the excavation area.

The extraction operations involve:

- bunding of the whole site including the pit, stockpile and treatment areas (including stormwater collection and treatment systems)
- excavation of material from the pit
- stockpile on bench – add good quality, fine agricultural lime with a neutralising value of 100 at required rate
- thoroughly mix lime as the stockpile on the bench is lifted to next bench
- undertake validation sampling at required frequency
- add additional lime to second stockpile (as required)
- load into trucks for transport

3.4.3 Hours of Operation

The proposed hours of extractive operations (including haulage) are limited to 7.00am to 6.00pm Monday to Friday and 8.00am to 1.00pm Saturday. No extractive operations are proposed on Sundays or public holidays.

3.4.4 Site Access

Site access will be by way of a proposed driveway to Newrybar Swamp Road as shown on the plans at **Appendix E**. This access will connect to internal access tracks/driveways and will include a 75m long sealed section and a shake-down grid (to/from Newrybar Swamp Road). These internal access tracks will service all areas of the site, including the weigh-bridge, visitor and machinery parking areas, stockpiles etc.

The project operator will be responsible for maintaining the internal access tracks and implementing dust and erosion control measures as appropriate.

3.5 Equipment and Personnel

Equipment to be utilised at the site includes:

- excavators (up to 2 operating during periods of peak demand)
- front-end loaders (7 tonne)
- water truck
- site vehicles
- mobile pumping equipment/generators
- haulage trucks (20m^3 capacity)

It is expected that 2 people will generally be employed at the site (including site manager and plant operator), with up to 4 people being expected during periods of peak demand. Truck drivers will also be required depending upon the orders for the day.

3.6 Site Services

Given the nature and relatively small scale of the proposed operations, only limited personnel and equipment are required. The respective service requirements are as follows:

- Electricity – A mains electrical supply will not be required for the proposal due to the temporary and portable nature of the office, storage and weighbridge structures. Power for the weighbridge and associated site office is to be provided by either solar power or a generator.

- Water – A mains water supply will not be required for the proposal. Water will only be required for hygiene and drinking purposes for on-site personnel and visitors, for mixing with lime powder and for dust control. At least 10 litres of drinking water and 50 litres of water for hand washing purposes shall be retained on site at all times. Water required for mixing with lime powder to make a lime slurry may be obtained from the extraction area or sediment retention basin. Should water be required for dust control, a water truck/cart will be used and water shall be obtained off-site or from the sediment retention basin.

- Wastewater – Wastewater facilities on the site shall be provided by a portable chemical toilet and hand washing facility. The chemical toilet requires servicing (emptying or replacing) after a maximum of 300 uses.

- Solid waste – All extracted materials will be utilised and there will be no solid waste generation from extraction activities. Small quantities of general waste from on-site personnel shall be collected in a rubbish bin(s) on the site which will be emptied regularly as part of Council's rural waste collection service.

- Telecommunication – Mobile phones will be retained and used on site during extraction and/or loading operations.

3.7 Transportation

Sand extracted from the site will be stockpiled at the designated locations and will be loaded onto haulage trucks that have a carrying capacity of 8-20m^3.

The principle haulage route is south along Newrybar Swamp Road to Ross Lane. A directional split will occur and the intersection of Newrybar Swamp Road and Ross Lane, with vehicles either heading east to The Coast Road or west to the Pacific Highway.

A further directional split will occur at The Coast Road with vehicles heading south to Lennox Head and Ballina or north to Suffolk Park or Byron Bay.

Another directional split will occur at the Pacific Highway with vehicles heading south to Ballina, Broadwater, Evans Head, Lismore, Casino or north to Byron Bay, Brunswick Heads or Tweed Heads.

Sections 3.9 and **4.9** further address transportation and potential traffic impacts. Provided at **Appendix I** is a Traffic Impact Study for the operation.

3.8 Fuel

Diesel fuel will be required for the operation of the excavators, front-end loader and generator(s). Fuel will be available on the site in a mobile (trailer or ute) or skid-mounted tank.

No refuelling will be undertaken within extraction area/pit. No haulage trucks will be refuelled at the subject site. They will be refuelled at appropriate fuelling facilities that are removed from the site.

3.9 Traffic Generation

3.9.1 Trip Generation

The maximum extraction rate is 80,000m^3 (in situ) per annum. Annual extraction rates would more typically be in the order of 40,000m^3 (in situ) per annum. Actual daily extraction will vary according to a number of factors including:

- weather
- resource supply

- fluctuations in demand

It is proposed to conduct work at the site six days per week, 52 weeks per year, however the above-referenced variations will likely reduce this to approximately 260 days per year, which equates to five working days per week.

Based on a typical annual extraction rate of 41,000m^3 and 260 works days per year, the average daily extraction rate is approximately 160m^3 (solid) of sand. This equates to approximately 240m^3 loose, based on a bulking factor of 1.5. Therefore approximately 12 laden trucks per day would be transported from the site.

Maximum daily extraction rates will be limited to 9 truck loads per hour (being 18 vehicle movements per hour). Therefore peak days may produce maximums of up to 2,000m^3/day, equating to 100 truck loads/200 vehicle movements per day.

Table 2 identifies indicative average truck rates that will be generated by the operations if the average daily extraction rate of 160m^3 is achieved.

Table 2: Average truck rates

Truck capacity	Loads/day	Truck movements/day	Average vehicle movements/hour
20m^3	12	24	<3

Table 3 identifies indicative peak truck rates that will be generated by the operations if the maximum daily extraction rate of 2,000m^3 is achieved.

Table 3: Peak Traffic Generation Rates

Truck capacity	Loads/day	Truck movements/day	Average vehicle movements/hour
20m^3	100	200	18

The site will be operated generally by 1-4 on-site workers who will generate an additional 2-8 traffic movements per day.

Section 4.9 further addresses transportation and potential traffic impacts. **Appendix I** is a Traffic Impact Study that has been prepared for the site.

3.10 Rehabilitation and Final land Use

The progressive extraction of sand from the site will result in an excavation that will ultimately fill with water and comprise a water body/lake, the periphery of which will be planted out. Site rehabilitation and final land use is discussed further in **Appendices E**, **G** and **F**.

The site rehabilitation and final land use will be comparable to that for the existing operation on adjoining Lot 33. Details of the proposed site rehabilitation are provided in Section 6.4 of the Ecological Assessment at **Appendix F**.

The end result will be the effective creation of a freshwater lake (with peripheral planting of native endemic flora species) which will provide improved habitat value for flora and fauna in the locality (particularly aquatic birds).

It is expected that a dwelling house will be constructed on the site adjacent to the landscaped lake at some future time (post extractive operations and contingent upon site rehabilitation).

3.11 Considered Alternatives

The DoP EIS Guideline for Extractive Industries – Quarries requires consideration of alternatives for the proposed development including:

- quarry methods or technology
- quarry design, site layout or access roads
- management or administrative practices
- other resource sources or locations
- alternative rehabilitation and end use options

The “no development” option has been considered, being not extracting sand from the site. This would result in the land being used

for low intensity agriculture and require fill sand to be sourced from other sources in the area and region. Due to the fact that the existing three (3) sand operations in the local area are approaching their final limits/terms of approval, there will be a need to source such material from much further afield or establish new quarries in other possibly more sensitive areas.

The proposed development will reduce the area available for agriculture by some 15ha (being 30% reduction) however, as detailed in **Sections 2.2.12** and **4.14**, this land has little to no value for cultivation.

Alternatives to the site layout and method of extractive operations have been given preliminary consideration. However as a consequence of specialist investigations into constraints, opportunities and minimising impacts on the natural and man-made environment, the resultant extractive footprint, staging and other operational factors of the development as proposed have evolved.

Alternative sources of filling sand in the Shire have been explored and are as detailed in Section **2.2.13**. As articulated above, three (3) of these operations are approaching their final limits/terms of approval and thus contingent upon such occurring, there will be a significant void in the local market for the supply of good quality fill sand.

The proposed operational measures, management and administrative practices have largely been informed by and modelled on those that have been successfully utilised on the adjoining similar extractive operation.

The options for rehabilitation of the site have largely been based on the approved rehabilitation of the adjoining operation, which is considered to be appropriate for the site and locality.

4 ENVIRONMENTAL INTERACTIONS

This section expands on the contextual description of the physical environment provided in Section 2.0 and provides an analysis of the environmental interactions applicable to the proposed development with specific reference to the site planning objectives specified in Section 3.0 of the report.

4.1 Stormwater/Erosion and Sediment Control

A Soil and Water Management Plan (SWMP) for the proposed quarry has been prepared and is provided at **Appendix G**. The SWMP has been undertaken in accordance with the following:

- *Managing Urban Stormwater: Soils and Construction, "The Blue Book"* – Landcom, 2004
- *Managing Urban Stormwater: Soils and Construction: Volume 2E Mines and Quarries* – DECC, June 2008

Integral to the SWMP are sediment and erosion controls (refer Section 11.2) and surface/stormwater management controls (refer Section 11.3) which are integral to the proposed development.

The sediment and erosion management/controls involve:

- installation of fencing/barriers/structures during site establishment/set-up works
- construction of a sediment basin and grading of operational areas to drain to such basin
- construction of bunds around the site including containment areas and stockpile areas
- installation of drainage from bunded areas to sediment basin
- construction of earthen mounds and planting with appropriate plant species around the periphery of the operational areas

The surface/stormwater management/controls involve:

- construction of a sediment basin and grading of operational areas to drain to such basin – sediment basin to be fitted with a

valve or other means to regulate discharges – discharges only to occur once discharge criteria have been tested and met

- construction of bunds around the site including containment areas and stockpile areas
- installation of drainage from bunded areas to sediment basin
- construction of earthen mounds and planting with appropriate plant species of mounds and around the periphery of the operational areas
- where pH or TSS does not meet discharge criteria, sediment basin to be limed and/or flocculated until criteria met
- during initial rainfall events (being first rainfall >25mm in any 24 hour period of every month), sampling to be undertaken from up-stream and down-stream watercourse and reported

4.2 Groundwater

A detailed Groundwater Assessment (GA) was undertaken by Douglas Partners 2013 (DP 2013) (**Appendix L**) to assess the impact of the proposed development in respect of potential for it to contaminate or impact on groundwater and groundwater dependent ecosystems. The groundwater characteristics from DP 2013 are detailed in **Section 2.2.3**.

The GA involved a desk-top study supported by a field investigation. The aim of the desk-top study was to compile a Conceptual Hydrogeological Model of the site and surrounding area, based on data collected from the following:

- geological and topographical mapping
- previous groundwater investigations in the region (including EIS's)
- information from the NSW Office of Water's Groundwater Database
- meteorological dates from BOM

The field investigation was undertaken in parallel with a geotechnical, ASS and resource evaluation drilling program which involved:

- geological logging of boreholes
- completion of four (4) bores as groundwater monitoring bores
- monitoring of groundwater levels

- field permeability testing
- inspection of other sand quarries, surface water drainage and groundwater bores

DP 2013 concluded that as the quarry will operate only during the dry months of the year, it will have only a limited impact on groundwater levels in the region and will not have an adverse effect on the paperbark/sedge wetland. Other factors which will limit the extent of draw-down are:

- *water will be disposed of (pumped) into voids in the pit from where it will percolate to the groundwater system*
- *the site is almost surrounded by surface water drains/creeks, which would limit the extent of any cone of depression*

DP 2013 provided a number of recommendations to mitigate impacts on the groundwater (refer Section 7.1 of **Appendix L**), which are integral to this proposal and are summarised below:

- *the current program of monitoring surface water levels at locations W1, W2 and W3 (drawing 3) should be maintained into the future*
- *automated surface water level monitoring at the Newrybar Swamp Road site (drawings 1 and 3) should be maintained into the future*
- *groundwater levels should be monitored on a monthly basis in the 4 existing piezometers and in BH12 of the nearby quarrying operation*
- *the pressure transducer/data-logger should be moved from Piezometer P2 and relocated in Piezometer P1 for the on-going monitoring of groundwater levels*
- *groundwater samples should be collected from each of the 4 piezometers on an annual basis and analysed fro the chemical parameters listed in Table 5*
- *all monitoring data should be collated, analysed and reported on an annual basis*

4.3 Acid Sulphate Soils

An Acid Sulphate Soil Assessment and Management Plan (ASSAMP) was undertaken/prepared by Ardill Payne & Partners (January 2013)

(**Appendix L**) to assess the impact of the proposed development in respect of the potential to impact/disturb acid sulphate soils.

The ASSAMP involved field testing and laboratory analysis of the soil samples, involving:

- excavation of five (5) boreholes in 2008 to a depth of 15.5m below ground level (bgl)
- samples for acid sulphate testing were taken from each soil horizon and submitted to a NATA accredited laboratory and were analysed using both the SPOCAS method and the Chromium Reducible Sulphur technique
- excavation of thirteen (13) boreholes in 2011 to a depth of 8.0mbgl
- samples for acid sulphate testing were recovered at 0.5m intervals at each borehole location and submitted to a NATA accredited laboratory and were analysed with the 'chromium suite' (ie Titratable Actual Acidity (TAA), Reduced Organic Sulphur and liming rate calculations)

The investigations confirmed that acid sulphate soils are present across the site at varying depths and severity.

As a consequence of such, an Acid Sulphate Soil Management Plan (ASSMP) was prepared in accordance with the Acid Sulphate Soils Manual (ASSMAC, 1998), and is provided in Section 9 of **Appendix N** and Sections 11.4 and 11.5 of **Appendix G**. This ASSMP is integral to the proposed development and involves:

- bunding of the whole site including the pit, stockpile and treatment areas (including stormwater collection and treatment systems)
- excavation of material from the pit
- stockpile on bench – add good quality, fine agricultural lime with a neutralising value of 100 at required rate
- thoroughly mix lime as the stockpile on the bench is lifted to next bench
- undertake validation sampling at required frequency
- add additional lime to second stockpile (as required)
- load into trucks for transport

4.4 Air Quality/Dust

Due to the nature of operations and the material being extracted, there is a potential for dust to be generated which may impact adjoining properties/land uses.

Particulate matter in the atmosphere, which includes dust, consists of solid or liquid particles ranging in size from 0.1 to 50 micrometres. Even without human activity, the atmosphere contains particles from natural sources such as wind blown dust, forest fires, sea salt, plant pollens and bacteria.

The larger particles in the air either settle to the ground or are scrubbed out by rainfall, while the smaller particles may remain suspended in the air for considerable periods. If other materials such as lead contaminate particles are in the air, health can be affected. This is not anticipated to be significant on the subject site and the main concerns about course materials would be generally more in terms of nuisance such as damage or soiling of materials.

The smaller particles, less than 10 micrometres in diameter, are inhaled and may cause respiratory problems or are absorbed into the bloodstream. Particles less than 2.5 micrometres are also responsible for reducing visibility (EPA 1996 as cited by Geolink in 2000).

Air emissions can be classified as either point source emissions (ie emissions from a stack or vent) or fugitive emissions (ie wind erosion, leakages or spillages associated with loading, conveyors, storage facilities, plant operation, vehicle movements, etc).

Sand excavation activities such as that proposed have the potential to generate fugitive dust during:

- extraction
- stockpiling
- loading onto vehicles
- vehicle movements on internal tracks
- haulage vehicles on public roads

Exhaust emissions from machinery operating at the site also has the potential impact upon air quality.

The plant and machinery to be used at the site comprises excavators, front-end loaders and haulage trucks.

A Soil and Water Management Plan (SWMP) for the proposed quarry has been prepared and is provided at **Appendix G**. Integral to the SWMP is a Dust Management Plan (DMP) which is provided in Section 11.1 of **Appendix G**. This DMP is integral to the proposed development, with details of such being provided below.

The operator will implement a range of control measures to minimise the potential for air pollution during project operations. These measures include:

- construction of landscaped earthen mounds around the sections of the periphery of the operational areas
- stockpiling only within designated areas
- planting of strategic windbreaks on the site
- provision of a water cart on the site – to be used to water down roads, stockpiles and dust generating areas
- restriction of speed on unsealed roads on the site
- securely covering all loads prior to leaving the site

Measures to limit exhaust emissions that will be implemented include:

- all mechanical plant, machinery and trucks will be fitted with appropriate exhaust controls
- all engines including trucks will be maintained and tuned to manufacturer's specifications so as to minimise exhaust emissions

4.5 Flooding

Flooding is addressed in **Section 2.2.11** and in the Soil and Water Management Plan at **Appendix G** of this EIS. As evidenced on the contour plan at **Appendix B**, elevations of the site range between approximately 3-5m AHD.

The minimum required fill levels for the subject land for the 1 in 100 year flood event (per the BLEP 2012) range between 2.4-2.6m AHD.

The subject land is therefore already above the minimum required fill level and is effectively not subject to flooding. Flooding is therefore not considered to be such that would preclude or restrict the proposed development.

The site is to be bunded to an elevation of 3.5m AHD in order to contain and drain any stormwater run-off towards the proposed sediment basin where it can be treated prior to discharge.

The spill-way outlet of the sediment basin has been set at 2.8m AHD. As this is below the calculated 100-year ARI storm event water level, flap gates are to be installed on the 3 x 600mm RCP outlets to prevent back-flow into the sediment basin during flood events.

4.6 Noise

An Environmental Noise Impact Assessment (ENIA) was conducted by CRG Acoustical Consultants (March 2013) (**Appendix H**) to assess the noise impacts of sand extraction activities and associated haulage on residential dwellings.

The potential sources of noise associated with the proposed extractive operations are the use of machines/equipment at the site (excavation and loading of trucks) and the movement of haulage trucks along the road network.

The ENIA included measurement of present background noise levels (noise monitoring), modelling and prediction of potential noise emissions by plant, equipment and haulage trucks and provided recommendations regarding acoustic treatments and management principles.

The nearest residences (Receiver R1 and R3) are approximately 80m from the sand quarry.

CRG reported that on-site activity has the potential to impact surrounding noise sensitive receivers which are generally rural residential properties.

CRG provided a number of recommendations to mitigate on-site activities impacting surrounding noise sensitive properties (refer Section 6 of **Appendix H**), which are integral to this proposal and are summarised below:

- *operating hours of the quarry should be confined to:*
    - *Monday to Friday* *7.00am to 6.00pm*
    - *Saturday* *8.00am to 1.00pm*

- *for construction works outside the acoustic barriers, operating hours should be confined to:*
    - *Monday to Friday 7.00am to 6.00pm*
    - *Saturday 8.00am to 1.00pm*
- *extraction of sand should occur in a north-west to south-east direction so that the working face acts as an additional acoustic screen*
- *excavators and loaders should remain in the extraction pit so that the working face provide acoustic screening of equipment*
- *acoustic screens ranging from 2.5-3.5m high are to be constructed at nominated locations*
- *the on-site generator is to be provided with a 3 sided solid walled and roofed enclosure, with the ventilation (open) side facing towards the north*
- *unnecessary use of equipment should be minimised*
- *drivers to be instructed to operate equipment in a manner that does not generate unnecessary noise (avoiding excessive revving or motors and avoidance of impact with solid objects)*
- *no alarm bells or paging system should be used – cordless telephones are suitable alternative*
- *all mechanical plant, machinery and trucks are to be fitted with exhaust controls that minimise noise pollution in accordance with current legislation and industry best practice*
- *all engines including trucks are to be maintained and tuned to manufacturer's specifications*
- *when new technology or equipment is being considered, equipment with low noise emissions should be the preferred choice and such equipment must have best practice noise suppression controls incorporated or installed*
- *vehicles have a modified 'beeper' installed (commonly termed a 'croaker')*
- *fixed plant should be located as far as possible from off-site noise sensitive receivers*
- *all on-site haulage/access roads to be well maintained (no potholes) and levelled as required to minimise truck bounce – drainage grating over trafficable areas to be secured to prevent rattling*
- *equipment speeds be limited 20km/hr on the site and 40km/hr on the main entry access road*
- *provide neighbours with a contact number should problems arise*
- *in the event a noise complaint is received, act on such sensitively and respectfully as soon as possible – complaint register to be completed and kept on-site*

- *prior to earth mounds being constructed, the surrounding noise sensitive receivers should be contacted and informed of the anticipated duration of the works to construct the barriers*
- *during construction activity, provide local residents with indicative schedule of the works program (including notification of times when new or noisy activities are to be conducted proximate to residential premises)*
- *where possible, plant and equipment should work from the screened side of the earthen mounds once the construction of the earthen mounds has commenced*
- *a Noise Management Plan (NMP) should be prepared by a suitably qualified and experienced noise consultant prior to any construction or operational works being undertaken on-site*

CRG concluded that *"Overall, the site is suitable as a quarry, subject to the noise mitigation treatments and management principles detailed in Section 6 being integrated into the construction and normal operations of the facility."*

4.7 Vibration

The nature of the proposed operations and the local geology (sand) are not such that will result in significant vibration being generated at or by the site.

As has been the experience with the adjoining quarry on Lot 33, there has not been any identified issue or problem with any vibration from extractive operations adversely impacting any adjoining/adjacent property.

The haulage operations involve excavation into a relatively soft medium (sand and indurated sand), with no blasting or other heavy processing or treatment thereof.

4.8 Waste Management

The proposed extractive operation has the potential to result in two distinct forms of waste.

The proposal will generate small amounts of production related waste such as general waste and plant/equipment maintenance products

that would be generated by on-site personnel. An appropriately contained waste receptacle(s) will be provided within the operations area to accommodate such waste. This waste will be collected and regularly removed from the site and deposited at an appropriate waste disposal facility. Given the small scale of the project a minimal amount of waste would be generated.

The proposal may also generate a small amount of non-production waste such as organic material that will largely be generated during site establishment works, with the bulk of such being contained in the earthen mounds.

The proponent is familiar with the prior sand extraction activities at the adjoining site, and has confirmed that there is effectively no by-product generated during the extraction process.

Any production type waste will be appropriately managed and controlled by the site manager and contained in appropriate waste containment bins prior to disposal at an authorised waste disposal facility.

4.9 Traffic and Transport

A Traffic Impact Study (TIS) was undertaken by Ardill Payne & Partners (January 2013) (**Appendix I**) to assess the impacts that the proposed development will have on the safety and efficiency of the local road network.

Sections 3.7 and **3.9** identify haulage routes and expected traffic generation. In summary, during expected average annual extraction, trucks with a capacity of $20m^3$ will generate an average of 12 loads/24 movements per day. This represents an average peak of less than 3 trucks movements/hour.

During periods of peak annual extraction, trucks with a capacity of $20m^3$ will generate an average of 100 loads/200 movements per day. This represents an average peak of 18 vehicle movements/hour.

To aid in the interpretation of the impacts on traffic flows, the RTA's "Guide to Traffic Generating Developments" provides acceptable ranges of peak vehicle flows for various "levels of service" experienced on rural roads. The intention is to at least maintain the existing "level of service" for the roads adjacent to the site.

Road capacity "levels of service" are defined by the RTA for rural roads as shown in Table 4, with the highest level of service being Level A (free flow), with service deteriorating to Level F (forced flow). Table 4 is relevant to the "levels of service" for rural roads.

Table 4: *Two-way Peak Hour Flows on Two Lane Rural Roads (Design speed 100km/hr)*

Terrain	Level of Service	15% Heavy Vehicles (veh/hr) – 100km/hr	15% Heavy Vehicles (veh/hr) – 80km/hr
Level	B	530	477
	C	870	783
	D	1410	1269
	E	2290	2061

The following performance standards are recommended:

Weekday Peak Hour Flows

Major Roads: Level of service C

Minor Roads: Level of service C (desirable)

Recreational Peak Hours (weekends)

Major Roads: Level of service D

Minor Roads: Level of service D (desirable)

The "level of service" on Newrybar Swamp Road is currently level B or better (86 vh/hr). The "level of service" for Ross Lane is currently Level B (466 veh/hr). The anticipated additional traffic movements generated by the proposed development will not alter the "level of service" currently experienced on Newrybar Swamp Road or Ross Lane, nor impose any major social or physical detriment upon the local residents and road users.

Traffic generated by the proposal will represent approximately 2.8% of the traffic on Newrybar Swamp Road during an average year, and 20.9% during a peak year. Further, these traffic levels are still well within the prescribed RTA service guidelines.

The level of impact on The Coast Road and the Pacific Highway will be minimal due to the trip distribution.

The theoretical impact on the road pavement is measured by the Equivalent Standard Axle (ESA) load applied by the additional traffic to the life cycle ESA of the existing road pavement.

The additional traffic in Newrybar Swamp Road is unlikely to significantly impact upon the existing road pavement. The proposed development will generated approximately 2.8 x 10^5 ESA's (assuming 100% commercial vehicles) in a total design life of the existing pavement of approximately 5 x 10^6 ESA's (assuming 300mm pavement depth and subgrade CBR of 10) or approximately 5.6% of the total design traffic for the road.

The level of impact on the road pavement of other roads decreases as the traffic is distributed throughout the local road network. The pavement life of the local roads is therefore not compromised by the traffic generated by the development.

Impacts on Public Transport

Where using main roads, the haulage trucks will share these roads with public transport. This is the case with current extractive haulage activities in the area, with no known conflicts or problems.

The proposal raises no express demand for the provision of public transport as only 1-4 employees will be engaged at the site. Private transport will likely be adopted for personal access.

In summary, the Traffic Impact Study (TIS) concluded that:

- Access – the proposed site access location is suitable for the proposed heavy vehicle movements and intersection sight distance is adequate
- Parking – adequate space will be provided on-site for employees and visitors
- Traffic generation – the proposed development will not alter the level of service currently experienced on adjacent roads, nor impose any major social or physical detriment upon the local residents and road users
- Traffic safety – traffic movements generated by the development are unlikely to raise any adverse safety issues for local transport and users of the local and regional road network
- The safety and efficiency of the local road network will not be unduly affected by the increase in the number of truck movement that will be generated by the proposed development

If the application is approved, conditions of consent will be imposed requiring the payment of monetary contributions to Council which will be expended on maintenance of the local road network. These

contributions amounts are based on the tonnage of material hauled from the site.

The TIS recommends that haulage truck drivers be made aware of the existing school bus routes, bus stop locations and time-tables where they coincide with the haulage routes.

Alternative transportation methods for the haulage of the sand have been explored (such as rail, conveyor system etc) however are not considered to be feasible or practicable due to the fact that:

- there is no single receiver of the resource – the market for the sand is diverse and covers a very broad area, such that a flexible form of transport is required
- the relatively small scale of the operation would make any other form of transport non viable from an economic perspective
- there is no local system rail or conveyor system in the area or region that such a system could connect to or integrate with

4.10 Flora and Fauna

An Ecological Assessment was undertaken by Australian Wetlands Consulting (2013), a copy of which is provided at **Appendix F**.

The investigation involved a desk-top assessment (searches of NSW Wildlife Atlas, review of other local ecological studies), one day survey and assessment to determine flora and vegetation communities and likely fauna and 5 day/4 night targeted fauna survey.

AW 2012 identified a total of eight (8) vegetation communities on the site being:

1. Open Forest (Scribbly Gum)
2. Open Forest (Swam Mahogany)
3. Open Forest (Broad-leaved Paperbark)
4. Closed Forest (Camphor Laurel, Brush Box, Riberry)
5. Fernland/Sedgeland (Swamp Water Fern, Blume Rush, Twig-Rush, Swamp Grass-Tree)
6. Windrow

7. Closed Grassland (Mixed Species)
8. Reedland/Swamp Grassland (Frogsmouth, Spike-Rush)

A map showing the extent and location of the above is provided as Figure 3-1 – Vegetation Community Map at **Appendix F**. The land that is proposed to be subject to extractive operations is identified as comprising a mixture of Communities 1, 2, 3, 5, 7 & 8 with the actual extraction footprint/area being situated on Community 7 land.

AW 2013 reported that eight (8) threatened fauna species were recorded on the site, being:

- Wallum Froglet
- Olongburra Frog
- Masked Owl
- Grey-headed Flying-fox
- Eastern Long-eared Bat
- Spotted Harrier
- Greater Broad-nosed Bat
- Little Bentwing-bat

with potential for several other threatened species to occur on an opportunistic/seasonal basis.

AWC 2013 provided a number of conclusions which are summarised below:

- *the block has been significantly disturbed with much of the original vegetation and habitat removed or modified*
- *no threatened flora species were recorded*
- *vegetation communities have been highly modified by clearing, under-scrubbing and routine slashing*
- *a small area of isolated wet heathland occurs – one Endangered Ecological Community occurs (Swamp Sclerophyll forest on floodplains)*
- *eight threatened fauna species were recorded*
- *core Koala habitat does not occur – a Koala Plan of Management is not required*
- *assessments of significance completed for EEC's and threatened flora and fauna species considered as potentially occurring at the site determined that the impacts of the*

proposal would not be significant and therefore a Species Impact Statement is not required

- *the proposed works are unlikely to have any significant impact on any Matters of Environmental Significance and hence referral to the Minister for approval is not required*

AWC 2013 provided a number of mitigation strategies to reduce the potential for and adverse impacts from the proposal (refer Section 6.2 of **Appendix F**) being:

- *native vegetation in the south-eastern portion of the block (Scribbly Gum and Swamp Mahogany forest, wet heath) should be fenced with star pickets and high visibility mesh fencing along the entire southern boundary of the access road where a bund will be constructed – the bund will prohibit discharge of water and vehicular access associated with development activities along the entire southern boundary of the access road*
- *appropriate erosion and sediment controls must be installed and maintained at all times during construction and operations*
- *water treatment and disposal must be completed in accordance with licencing requirements and ensure that acid frog habitat in the south-east of the site is appropriately protected*
- *groundwater monitoring should be completed for a preliminary period of at least 3 years to inform quarry management with regard to maintaining current environmental conditions within threatened frog habitat*
- *the monitoring should build on baseline data obtained from on-going monitoring which has been undertaken since May 2011*
- *monitoring of acid frog habitat for species persistence*
- *landscaping and rehabilitation works should use local occurring native species (refer rehabilitation strategy at Section 6.3)*

4.11 Contamination

A Stage 1 Preliminary Investigation Land Contamination Assessment was undertaken by Ardill Payne & Partners (2012), a copy of which is provided at **Appendix J**.

The investigation involved a desk-top site history assessment, a site visit and undertaking soil sampling and testing.

The soil sampling and testing was considered appropriate as a consequence of the desk-top investigation having revealed two potential contaminants of concern resulting from prior and existing agricultural uses (being sugar cane and cattle grazing).

Systematic soil sampling was undertaken on the extraction site (with 9 samples being taken and 3 composite samples being analysed at Southern Cross University Environmental Analysis Laboratory). None of the samples submitted resulted in levels reaching or exceeding the relevant assessment criteria (HIL A and HIL F) and were consistent with natural background levels (NEPM, 1999).

Based on the findings of the assessment, it was concluded that *".. further investigation is not required and that the site is suitable for the proposed use."*

4.12 Heritage

A Cultural Heritage Assessment was undertaken by Everick Heritage (2013), a copy of which is provided at **Appendix K** in respect of Aboriginal and non-indigenous (historic) cultural heritage at the site.

The assessment involved a literature review, heritage register searches, consultation with the Aboriginal community and a field inspection. The methods used in the assessment conform to the Office of Environment and Heritage *Code of Practice for Archaeological Conduct in NSW* (2010).

The field inspection included a site survey (24th August 2011) for historic and Aboriginal cultural heritage which was conducted by:

- Everick Senior Archaeologist, Mr Adrian Piper and
- Jali LALC Sites Officer, Mr Marcus Ferguson

A letter has been obtained from the Jali LALC (dated 1 November 2011) (refer Appendix A at **Appendix K**) which confirmed that the Jail LALC supports the proposed sandpit and concurs with the findings outlined in Everick 2013, being:

- *No Aboriginal Objects or Places were identified within the Project Area.*

- *It is considered that the Project Area may contain cultural heritage materials due to its closeness to registered sites and other observed cultural heritage materials.*
- *Consultation with the Jali LALC identified no places of cultural (spiritual) significance.*
- *No items of historic heritage significance were identified within the Project Area.*

Everick provided a number of recommendations to mitigate on-site activities (refer Section 11 of **Appendix K**) which are summarised below:

- *if human remains are located at any stage during earthworks within the Project Area, all works must halt in the immediate area to prevent any further impacts to the remains – the site should be cordoned off and the remains left untouched – the nearest Police Station, the Jali LALC and the OEH Regional Office (Coffs Harbour) are to be notified as soon as possible*
- *if the remains are found to be of Aboriginal origin and the Police do not wish to investigate the site for criminal activities, the Aboriginal community and the OEH should be consulted as to how the remains should be dealt with – work may only resume after agreement is reached between all notified parties, provided it is in accordance with all parties' statutory obligations*
- *in all dealings with Aboriginal human remains, the proponent should use respectful language, bearing in mind that they are remains of Aboriginal people rather than scientific specimens*
- *if suspected Aboriginal material is uncovered as a result of activities on the site:*
    - *work in the surrounding area is to stop immediately*
    - *temporary fencing is to be erected around the site (buffer zone of 10m around the edge of the site)*
    - *appropriately qualified archaeological consultant is to be engaged to identify the material*
    - *if the material is confirmed to be of Aboriginal origin, the Aboriginal community is to be consulted in a manner outlined in the OEH guidelines: Aboriginal Cultural Heritage Consultation Requirements for Proponents (2010)*
- *if Aboriginal cultural heritage materials are uncovered on the site, they are to be registered as Sites in the Aboriginal Heritage Information Management System (AHIMS) managed by OEH – any management outcomes for the site will be included in the information provided to the AHIMS*

- *all effort must be taken to avoid any impacts on Aboriginal Cultural Heritage values at all stages during the development works – if impacts are unavoidable, mitigation measures should be negotiated between the proponent, OEH and the Aboriginal community*

Everick also reported that:

- as the project area is unlikely to contain scientifically significant Aboriginal Objects, or high concentrations of Aboriginal Objects, archaeological test or salvage excavations are not recommended
- no Aboriginal Objects have been identified that would require an Aboriginal Heritage Impact Permit prior to the project proceeding
- there are no further actions or recommendations warranted in respect of Historic Cultural Heritage.

4.13 Visual Impacts

Extractive operations can by their characteristics result in visual impacts. The visual context of the site is described in **Section 2.2.5**. Adjoining and surrounding land uses are listed in **Section 2.3**.

The site is situated in a rural locality that is topographically characterised as a coastal plain at the eastern base of the foothills of the Newrybar Escarpment.

The lower-lying lands in the area are generally used for sugar cane and macadamias, with cattle grazing and rural residential uses characteristically along the eastern facing sides of the escarpment.

Mid-range views of the site generally exist from the west when travelling along the Pacific Highway and from the rural residential uses on the eastern facing side-slopes.

The site is not highly visible in the immediate local context as a consequence of the flat topography and when mature sugar cane exists on adjoining properties.

A number of measures are proposed which will minimise the visual impact and setting of the quarry on the local landscape and streetscape comprising:

- planting of a vegetated wind-break and visual screen along the western periphery of the quarry site
- construction of 2.5-3.5m high landscaped earthen mounds along the southern and south-western periphery of the quarry site
- planting of a vegetated wind-break and visual screen along the main site access track from Newrybar Swamp Road (northern periphery of the quarry site)
- no extractive operations within and retention of vegetated areas to the east of the quarry site

4.14 Agriculture

Section 2.2.12 addresses the agricultural character and classification of the subject land.

In summary, the NSW Department of Agriculture's Land Classification Map (1998) indicates that the land the subject of proposed extractive operations is mapped as part Class 3 and part Class 5.

Class 3 land is generally grazing land or land well suited to pasture improvement. It may be cultivated or cropped in rotation with sown pasture and has moderate production levels because of edaphic or environmental constraints.

Class 5 land is generally unsuitable for agriculture, or at best suited only to light grazing. Agricultural production is very low to zero as a result of severe constraints, including economic factors which prevent land improvements.

The landowner, who has owned the land for some 24 years, has advised that numerous attempts have been made to establish sugar cane within that part of the site proposed for extractive operations, all of which have been unsuccessful. It is understood that this is largely due to the elevated nature of the sand ridge which traverses the site.

As has been the operational experience with the adjoining extractive operation on Lot 33 DP 1151612, the proposed operation will not

adversely impact or result in land use conflict with the on-going agricultural use of any adjoining or adjacent property.

4.15 Social and Public Health Issues

The subject land is situated within a rural locality that is relatively sparsely populated and is used predominantly for productive agricultural purposes (particularly sugar cane).

Potential impacts to the local amenity are primarily associated with visual impacts, traffic generation (impacts on safety and efficiency of local road network), air quality (primarily dust) and noise (operational and from haulage vehicles).

Section 4.13 assesses the visual context of the project. Given the rural location, the proposed construction of landscaped earthen mounds and other peripheral site landscaping and the relatively small scale of the project, no unreasonable or significant adverse visual impacts are likely to occur.

Traffic generation is assessed in **Section 4.9** and **Appendix I**. In summary, the proposed operations will generate, during expected average annual extraction rates, 24 truck and 4 car movements per day. This relatively small number of vehicle movements will not significantly adversely impact the road network servicing the site.

Potential public health impacts arising from the proposal are associated with impacts to the local air quality and noise. Air quality impacts would arise primarily from dust generation during dry and windy conditions. As discussed in **Section 4.4**, the anticipated impacts will be minimal due to the relatively small scale of the operations, the implementation of appropriate management measures and the spatial separation distance between the adjacent affected residences.

Noise impact is assessed in **Section 4.6** and **Appendix H**. In summary, the assessment concluded that the site is suitable as a quarry, subject to the noise mitigation treatments and management principles detailed therein being integrated into the construction and normal operation of the facility.

Several concerns/issues have been raised by a number of local residents, which appear to have largely resulted from the operational experience of the adjoining operation on Lot 33.

The pertinent issues that have been raised by the local residents have been addressed and where appropriate and necessary, ameliorative/mitigation measures have been proposed/incorporated into this EIS.

In order to monitor the above, a complaints reporting and resolution system is to be established prior to commencement of extractive operations. This system will involve documenting all complaints received by the proponent, including name and contact details of complainant, date and type of complaint and corrective action undertaken to resolve the complaint (if necessary). The complainant is also be advised of the corrective actions or results of investigations undertaken in response to the complaint.

4.16 Economic Considerations

Given the relatively small scale of the project, there will be no significant direct generation of employment. The project will result in 2-4 part-time positions at the site. Additionally, the project will create a demand for truck drivers.

The project will benefit and improve the viability of construction and development businesses in the region by providing a reliable and good quality source of fill sand, thereby enhancing the opportunities for these businesses to provide employment.

Broader economic benefits will include the provision of a source of good quality fill sand that will be available for use in the region. The sand resource is used in the construction of public infrastructure such as roads as well as for private developments such as subdivisions. Providing additional sources of such material is likely to result in more competitive pricing in the local market.

4.17 Cumulative Impacts

Cumulative impacts may result from various activities with similar impacts interacting with the environment in a region over both space and time (DIPNR 1996).

As indicated in this report, sand extraction activities are occurring on the adjoining lot to the north (Lot 33) and on two lots further along Newrybar Swamp Road to the north-east.

The extractive operations on Lot 33 have been being conducted thereon for some 12 years under the terms and conditions of DA 2001/326 (as amended). Consent exists for a maximum extraction of 80,000m^3 (in situ) per annum with a total extractable resource of 500,000m^3 (in situ) or extraction until 31st December 2014.

The proposed development also involves a proposed maximum extraction of 80,000m^3 (in situ) per annum with a total extractable resource of 610,000m^3 (in situ) or extractive operations for a period of 15 years (whichever occurs first).

Integral to this proposal is the fact that extractive operations and haulage from the proposed quarry will not commence until such time as extraction and haulage on Lot 33 (as approved under DA 2001/326 as amended) has ceased.

Under the circumstances, there will not be any actual cumulative impact on the surrounding locality as the operations and haulage proposed by this application will effectively replace those that are/were experienced from the operations on Lot 33.

As stated above, there will not be any cumulative impacts as such, however if approved, extractive operations and haulage, in a manner similar to that experienced on Lot 33, will continue on Lot 32 and in the immediate locality until circa 2030 and thus there will be impacts for a longer period.

The proposed final use and rehabilitation of the site is similar to that for adjoining Lot 33. At the conclusion of works on the subject land, there will be two (2) adjacent freshwater lakes on adjoining properties which will likely have a positive cumulative impact for local flora and fauna (particularly for aquatic birds).

5 ENVIRONMENTAL MONITORING & MANAGEMENT

This section provides a compilation of potential environmental impacts as well as associated amelioration methods and monitoring/management strategies.

5.1 Compilation of Potential Environmental Impacts and Amelioration Methods

Table 5: Amelioration Measures and Monitoring/Management Requirements

Issue	Amelioration Measure	Monitoring/Management
Stormwater/Erosion & Sediment Control Refer Section 4.1	• Implement and strictly comply with Soil and Water Management Plan. • Install fencing/barriers/structures during site establishment and set-up works. • Construct sediment basin and grade operational areas to drain to such basin. • Construct bunds around the site including containment areas and stockpile areas. • Install drainage from bunded areas to sediment basin. • Construct landscaped earthen mounds around periphery of operational areas. • Fit sediment basin with valve or other means to regulate discharges – discharges to occur once discharge criteria have been tested and met. • Where pH or TSS do not meet discharge criteria, sediment basin to be limed and/or flocculated until criteria met. • During initial rainfall events (being first rainfall >25mm in any 24 hour period of each month), undertake sampling from up-stream and down-stream watercourse and prepare report.	The operator will be responsible for complying with the listed amelioration measures, the plan of management for the project (including Soil and Water Management Plan) and conditions of consent.
Groundwater Refer Section 4.2	• Extraction to occur only during drier months (between July to November). • Any de-watering is to be discharged into constructed pit void areas. • Maintain current program of monitoring surface water levels at locations W1, W2 and W3. • Maintain automated water level monitoring at Newrybar Swamp Road site. • Continue to monitor groundwater levels (monthly) in the existing 4 piezometers and in BH12 at adjacent extractive operation. • Relocate pressure transducer/ data-logger from Piezometer P2 to Piezometer P1 for on-going monitoring of groundwater levels. • Collect groundwater samples from each of the 4 piezometers on an annual basis and analyse for specified chemical parameters. • Collate, analyse and report on all monitoring data annually.	The operator will be responsible for complying with the listed amelioration measures, the plan of management for the project and conditions of consent.

Acid Sulfate Soils Refer Section 4.3	• Implement and strictly comply with acid sulfate soil management plan. • Bund whole site including pit, stockpile and treatment areas. • Stockpile on bench, add lime. • Mix lime into stockpile as it is lifted to next bench. • Undertake validation sampling of stockpile. • Add additional lime to second stockpile as required.	The operator will be responsible for complying with the listed amelioration measures, the plan of management for the project (including acid sulfate soil management plan) and conditions of consent.
Air Quality/Dust Refer Section 4.4	• Implement and strictly comply with Dust Management Plan. • Construct landscaped earthen mounds around periphery of operational areas. • Stockpile only in designated areas. • Plant strategic windbreaks on the site. • Provide a water cart/truck on the site. • Restrict speeds on internal roads. • Securely cover all loads of haulage vehicles. • Ensure all plant, equipment and machinery is fitted with appropriate exhaust controls. • Maintain and tune all engines (including haulage trucks) to manufacturer's specifications to minimise exhaust emissions.	The operator will be responsible for complying with the listed amelioration measures, the plan of management for the project (including dust management plan) and conditions of consent. The operator will be responsible for addressing any complaints received regarding dust.
Flooding Refer Section 4.5	• No specific ameliorative measures required for flooding – site above the 1:100 year flood event. • Install flap-gates to spill-way outlet to sediment basin due to it being below 100-year ARI storm event to prevent back-flow into the sediment basin during flood events.	The operator will be responsible for complying with the listed amelioration measures, the plan of management for the project (including soil and water management plan) and conditions of consent.
Noise Refer Section 4.6	• Operating hours of the quarry to be: - Monday to Friday – 7.00am to 6.00pm - Saturday – 8.00am to 1.00pm. • For construction works outside the acoustic barriers, operating hours to be: - Monday to Friday – 7.00am to 6.00pm - Saturday – 8.00am to 1.00pm. • Extraction of sand to occur in a north-west to south-east direction so that the working face acts as an additional acoustic screen. • Excavators and loaders to remain in the extraction pit so that the working face provide acoustic screening of equipment. • Acoustic screens ranging from 2.5-3.5m high to be constructed at nominated locations. • On-site generator to be provided with a 3 sided solid walled and roofed enclosure, with the ventilation (open) side facing towards the north. • Minimise unnecessary use of equipment. • Instruct drivers to operate equipment in a manner that does not generate unnecessary noise (avoiding excessive revving or motors and avoidance of impact with solid objects).	The operator will be responsible for complying with the listed amelioration measures, a noise management plan and plan of management for the project and conditions of consent. The operator will induct truck drivers and advise on proper driving technique in the vicinity of residences. The operator will be responsible for addressing any noise complaints received regarding the operations.

	• No alarm bells or paging system to be used – cordless telephones are suitable alternative. • All mechanical plant, machinery and trucks to be fitted with exhaust controls that minimise noise pollution in accordance with current legislation and industry best practice. • All engines (including trucks) to be maintained and tuned to manufacturer's specifications. • When new technology or equipment is being considered, equipment with low noise emissions should be the preferred choice and such equipment must have best practice noise suppression controls incorporated or installed. • Vehicles to have modified 'beepers' installed (commonly termed a 'croaker'). • Fixed plant to be located as far as possible from off-site noise sensitive receivers. • All on-site haulage/access roads to be well maintained (no potholes) and levelled as required to minimise truck bounce – drainage grating over trafficable areas to be secured to prevent rattling. • Equipment speeds be limited 20km/hr on the site and 40km/hr on the main entry access road. • Neighbours to be provided with a contact number should problems arise. • Act on any noise complaint sensitively, respectfully and as soon as possible – complaint register to be completed and kept on-site. • Contact surrounding noise sensitive receivers prior to construction of earthen mounds and advise of the anticipated duration of the works to construct the barriers. • During construction activity, provide local residents with indicative schedule of the works program (including notification of times when new or noisy activities are to be conducted proximate to residential premises). • Where possible, plant and equipment should work from the screened side of the earthen mounds once the construction of the earthen mounds has commenced. • Prepare a Noise Management Plan (by a suitably qualified and experienced noise consultant) prior to any construction or operational works being undertaken on-site.	
Vibration Refer Section 4.7	• No specific ameliorative measures required for vibration largely due to nature of operations and local geology (sand) – not a significant generator of vibration.	The operator will be responsible for complying with the listed amelioration measures, the plan of management for the project and conditions of consent. The operator will be responsible for addressing any complaints received

		regarding vibration.
Waste Management Refer Section 4.8	• Appropriate waste receptacle(s) to be provided and located within the operations area to contain non-production waste. • Any waste to be managed, contained/stored and disposed of at authorised waste disposal facility.	The operator will be responsible for complying with the listed amelioration measures, the plan of management for the project and conditions of consent. The operator will regularly remove collected waste for disposal at an approved facility. The operator will be responsible for picking up and disposing of any litter.
Traffic & Transport Refer Section 4.9	• The Traffic Impact Study prepared for the site concluded that the project would not result in significant adverse impacts on the local road network. • Extraction to be limited to a maximum of 80,000m³ (in situ) of sand per annum. • Section 94 contributions to be paid to Council for maintenance/upgrade of local road network. • Truck drivers to be made aware of existing school bus routes, bus stop locations and time-tables where they coincide with haulage routes. • Haulage to be south along Newrybar Swamp Road to Ross Lane. No haulage to be north along Newrybar Swamp Road. • Construct 75m length bitumen seal from Newrybar Swamp Road on internal access track. • Install shake-down grid on internal access track. • All laden vehicles exiting the site to be weighed and recorded at weigh-bridge.	The operator will be responsible for complying with the listed amelioration measures, the plan of management for the project and conditions of consent. The operator will maintain detailed records of the volume of sand extracted and will submit annual reports to Council. The operator will ensure than no more than 80,000m³ of sand will be extracted per annum. Developer contributions will paid to Council on a quarterly basis
Flora and Fauna Refer Section 4.10	• Native vegetation in the south-eastern portion of the block to be fenced with star pickets and high visibility mesh fencing along the entire southern boundary of the access road where a bund will be constructed – the bund will prohibit discharge of water and vehicular access associated with development activities along the entire southern boundary of the access road. • Install and maintain appropriate erosion and sediment controls at all times during construction and operations. • Water treatment and disposal to be completed in accordance with licencing requirements and ensure that acid frog habitat in the south-east of the site is appropriately protected. • Complete groundwater monitoring for a preliminary period of at least 3 years to inform quarry management with regard to maintaining current environmental conditions within threatened frog habitat.	The operator will be responsible for complying with the listed amelioration measures, the plan of management for the project and conditions of consent.

	• Such monitoring to be used to build on baseline data obtained from on-going monitoring which has been undertaken since May 2011. • Monitor acid frog habitat for species persistence. • Landscaping and rehabilitation works to use local occurring native species – detailed landscaping plan to be prepared.	
Contamination Refer Section 4.11	• The Stage 1 Preliminary Contaminated Land Investigation concluded that *"..further investigation is not required and that the site is suitable for the proposed use."* • No specific amelioration measures required or proposed.	The operator will be responsible for complying with the listed amelioration measures, the plan of management for the project and conditions of consent.
Cultural Heritage Refer Section 4.12	• If human remains are located at any stage during earthworks within the Project Area, all works must halt in the immediate area to prevent any further impacts to the remains – the site is to be cordoned off and the remains left untouched – the nearest Police Station, the Jali LALC and the OEH Regional Office (Coffs Harbour) to be notified as soon as possible. • If the remains are found to be of Aboriginal origin and the Police do not wish to investigate the site for criminal activities, the Aboriginal community and the OEH to be consulted as to how the remains should be dealt with – work only to resume after agreement is reached between all notified parties, provided it is in accordance with all parties' statutory obligations. • In all dealings with Aboriginal human remains, the proponent to use respectful language, bearing in mind that they are remains of Aboriginal people rather than scientific specimens. • If suspected Aboriginal material is uncovered as a result of activities on the site: - work in the surrounding area to stop immediately - temporary fencing to be erected around the site (buffer zone of 10m around the edge of the site) - appropriately qualified archaeological consultant to be engaged to identify the material - if the material is confirmed to be of Aboriginal origin, the Aboriginal community to be consulted in a manner outlined in the OEH guidelines: Aboriginal Cultural Heritage Consultation Requirements for Proponents (2010). • If Aboriginal cultural heritage materials are uncovered on the site, they are to be registered as Sites in the Aboriginal Heritage Information Management System (AHIMS) managed by OEH – any management outcomes for the site will be included in the information provided to the	The operator will be responsible for complying with the listed amelioration measures, the plan of management for the project and conditions of consent. The operator will be responsible for ceasing work and contacting Ballina Council Shire Council if any articles or items of indigenous and/or European heritage significance are uncovered during site activities. The Jali LALC and OEH will also be contacted to develop and implement an appropriate management strategy.

	AHIMS. • All effort must be taken to avoid any impacts on Aboriginal Cultural Heritage values at all stages during the development works – if impacts are unavoidable, mitigation measures should be negotiated between the proponent, OEH and the Aboriginal community.	
Visual Impacts Refer Section 4.13	• Plant vegetated wind-break and visual screen along the western periphery of the quarry site. • Construct 2.5-3.5m high earthen mounds along the southern and south-western periphery of the quarry site – plant mounds with appropriate native species. • Plant vegetated wind-break and visual screen along the main site access track from Newrybar Swamp Road (northern periphery of the quarry site). • No extractive operations to occur within and retain vegetated areas to the east of the quarry site.	The operator will be responsible for complying with the listed amelioration measures, a plan of management for the project and conditions of consent. The operator to construct mounds and undertake plantings (both of mound and wind-breaks) during site establishment works (prior to commencement of extraction and haulage).
Agriculture Refer Section 4.14	• The land that is proposed for extractive operations is lower class agricultural land that has limited to no productive agricultural potential (per prior experiences). • Construction of landscaped earthen mounds to minimise potential for land use conflict. • No other specific ameliorative measures required or proposed in respect of agriculture. • No history of conflict with agricultural uses and existing adjoining extractive operation.	The operator will be responsible for complying with the listed amelioration measures, a plan of management for the project and conditions of consent.
Social and Public Health Refer to Section 4.15	• Stormwater/erosion and sediment – Refer Section 4.1 and this table. • Groundwater – Refer Section 4.2 and this table. • Air quality/dust – Refer Section 4.4 and this table. • Noise – Refer Section 4.6 and this table. • Vibration – Refer Section 4.7 and this table. • Traffic – Refer Section 4.9 and this table. • Cultural heritage – Refer Section 4.12 and this table. • Visual Impacts – Refer Section 4.13 and this table. • A number of concerns ameliorative measures have been suggested by the local resident objectors which have been addressed in this report in respect of: - impacts on waterways and flooding - flora and fauna - increased truck movements and the safety, efficiency and standard of the local road network - noise (both operational and from haulage vehicles) - dust generation - impacts on the watertable (particularly on existing springs)	The operator will be responsible for complying with the listed amelioration measures, a plan of management for the project and conditions of consent.

5.2 Plan of Management

A detailed Plan of Management (POM) will be prepared and provided to Council for approval prior to the commencement of operations on the site.

The POM will incorporate the ameliorative measures contained in this report, requirements from Government Agencies and Council issued during the EIS assessment process and conditions of consent. More specifically, the POM will include, but not be limited to the following:

1. Operational details including:
   - (i) hours of operation
   - (ii) numbers, type and location of plant and equipment
   - (iii) expected life of extractive operations
   - (iv) numbers of employees on-site
   - (v) employee facilities
   - (vi) operational procedures

2. A scaled site plan of the entire quarry site containing the following details:
   - (i) contours over the proposed extraction areas
   - (ii) dimensions where necessary (ie distances to nearest dwelling houses, lot boundaries, creeks etc)
   - (iii) existing disturbed land
   - (iv) proposed land for future expansion for the first year of operations (until the first annual report)
   - (v) stockpile storage areas
   - (vi) internal access tracks
   - (vii) vehicle storage and refuelling areas

3. A detailed erosion and sediment control plan showing:
   - (i) details of erosion and sediment control practices and structures that will be implemented during operations involving:
     - (a) site clearing
     - (b) overburden removal and protection
     - (c) extraction
     - (d) stockpiling
     - (e) creation of access tracks
     - (f) rehabilitation
     - (g) removal of sediment controls and access tracks after rehabilitated land is stabilised
   - (ii) diagrams of erosion and sediment control structures to be used

(iii) site plan showing the location of the proposed erosion controls to be installed in the first year of operations (until the first annual report)
(iv) all batters and banks

4. A rehabilitation plan showing details of:
   (i) grass and seed fertiliser application rates
   (ii) tree re-stocking rates per hectare (if necessary)
   (iii) topsoil re-instatement procedures (if necessary)
   (iv) any rehabilitation proposed for the first year of operation (until the first annual report)
   (v) rehabilitation maintenance details

5. Maps showing the access from the quarry to a main road including the haulage routes used.

5.3 Annual Report

An annual report will be prepared and provided to Council on the anniversary of commencement of extractive operations. This report will include, but not be limited to the following:

1. A site plan showing:
   (i) the extraction area that is being worked at the time of the report
   (ii) the area(s) intended for extraction in the next 12 months
   (iii) the area(s) that have been rehabilitated
   (iv) areas intended for rehabilitation in the next 12 months
   (v) stockpile sites
   (vi) erosion controls in place at the time of the report

2. Written details addressing:
   (i) state of compliance with each condition of consent at the time of the report
   (ii) any problems encountered in the management of the site
   (iii) differences between the situation as at the time of the report compared with what was intended by the previous annual report (or the initial report)
   (iv) summary of amount of material extracted
   (v) revision of the expected life of the quarry
   (vi) an estimate of the resource currently available
   (vii) the source and subject of any complaints reported to the quarry operator or any other person involved in the

operation of the quarry (including the drivers of haulage vehicles)

6 STATUTORY AND POLICY PLANNING

This section of the report identifies and addresses the applicable environmental planning instruments (EPIs) and policy planning documents that must be considered by Council and relevant State Government Authorities in the consideration of this application.

Section 6.1 identifies the applicable EPI's and describes the effects of these instruments on the proposed development. .

Section 6.2 identifies other policy adopted by Council or other State Government Authorities and details the effect of these policies on the proposed development.

6.1 Environmental Planning Instruments (EPIs)

This section identifies and provides comment on the EPIs and EP & A 1979 provisions that are of relevance to the proposed development.

6.1.1 Deemed Environmental Planning Instruments (Deemed EPIs)

There are no deemed EPIs applying to the subject land or proposed development (as defined in Section 4 of the EP & A Act 1979).

6.1.2 Ballina Local Environmental Plan 2012 (BLEP 2012)

The BLEP 2012 came into effect on the 4th February 2013.

The subject land is identified on the BLEP mapping as follows:

- Land Zoning Map – sheet LZN_005C – RU1 – Primary Production
- Lot Size Map – sheet LSZ_005C – AB2 – 40ha
- Height of Buildings Map – sheet HOB_005 – I – 8.5m maximum building height
- Building Height Allowance Map – sheet BHA_005C – Minimum fill – 1:100 year – range between 2.3-2.8m AHD (from south to north over the site respectively)

- Acid Sulfate Soils Planning Map – sheet ASS_005 – Class 3
- Flood Planning Map – sheet FPM_005 – land within flood planning area

The objectives of the RU1 zone are:

- *To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.*
- *To encourage diversity in primary industry enterprises and systems appropriate to the area*
- *To minimise the fragmentation and alienation of resource lands.*
- *To minimise conflict between land uses within this zone and land uses within adjoining zones.*
- *To maintain the rural, cultural and landscape character of the locality.*
- *To enable development compatible with the rural and environmental nature of the land.*
- *To ensure that there is not unreasonable and/or uneconomic demands for the provision of public infrastructure.*

The proposed development is appropriately defined as an "extractive industry" which is expressly defined in the dictionary to the BLEP 2012 as follows:

*'**"extractive industry"** means the winning or removal of extractive materials (otherwise than from a mine) by methods such as excavating, dredging, tunnelling or quarrying, including the storing, stockpiling or processing of the extractive materials by methods such as recycling, washing, crushing, sawing or separating, but does not include turf farming.'*

Extractive material is also defined in the BLEP 2012 as *"..sand, soil, gravel, rock or similar substances that are not minerals within the meaning of the Mining Act 1992."*

Extractive industry is an expressly permitted use with consent within the RU1 zone and is a use that is consistent with the objectives of the zone.

Clause 4.3 relates to height of buildings and provides that the height of any building is not to exceed the maximum height shown on the Height of Buildings Map (being 8.5m). The proposed office has a height of approximately 4m which is well below the permitted maximum.

Clause 7.1 relates to acid sulfate soils, which have been addressed in **Sections 2.2.4** and **4.3**, with an Acid Sulfate Soil Management Plan being provided at **Appendix N**.

Clause 7.2 relates to earthworks and drainage and applies to development involving excavation, drainage or filling. The relevant heads of consideration contained in Clause 7.2(3) have been addressed in the various sections and appendices of this EIS.

Clause 7.3 relates to land mapped as being a flood planning area, with comments on such being provided in **Sections 2.2.11** and **4.5** and **Appendix G**.

Clause 7.7 relates to essential infrastructure and services and provides that Council must be satisfied when determining whether to grant consent, that adequate and appropriate services exist for water supply, electricity supply, telecommunications services, removal or disposal of sewage, drainage services and suitable road access or that satisfactory arrangements have been made with the relevant service provider.

6.1.3 State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33)

SEPP 33 provides a mechanism for the consideration of applications for hazardous and offensive industries, by ensuring that the consent authority has sufficient information to assess any such applications, to impose conditions to reduce or minimise any adverse impacts and to require advertising of applications for such development.

Extractive industries are by their nature and the operations involved, potentially hazardous and/or offensive. Under the circumstances, Council must have regard to the heads of consideration contained in Clause 13, viz:

(a) current circulars or guidelines published by the Department of Planning relating to hazardous or offensive development; and

(b) whether any public authority should be consulted concerning any environmental and land use safety requirements with which the development should comply; and

(c) in the case of development for the purpose of a potentially hazardous industry – a preliminary hazard analysis prepared by or on behalf of the applicant; and

(d) any feasible alternatives to the carrying out of the development and the reasons for choosing the development the subject of the application (including any feasible alternatives for the location of the development and the reasons for choosing the location of the subject of the application); and

(e) any likely future use of the land surrounding the development."

Having regard to the size, location, nature of operations and to past operational and environmental performance of the adjoining extractive operations, it is contended that this proposed operation (which will be almost identical to that of the adjoining operation) is not such that would be defined as a potentially hazardous or offensive operation.

Notwithstanding this contention, all of the above matters have been addressed within the various sections of this EIS. Further, the advertising requirement of Clause 14 of SEPP 33 is the same as that required of this application (in accordance with Division 5 of the EP & A Regulation 2000).

6.1.4 State Environmental Planning Policy No. 44 – Koala Habitat Protection (SEPP 44)

The subject site was assessed for activity by Koalas by Australian Wetlands Consulting (2013) (**Appendix F**) who reported that:

- two Koala food tree species listed in Schedule 2 of SEPP 44 occur on the site and form the primary species within naturally occurring patches of sclerophyll forest (being Scribbly Gum and Swamp Mahogany)
- the Koala survey on the site recorded no signs of use and no recent records occur in the locality (per search of Wildlife Atlas)
- core Koala habitat does not occur on the site

6.1.5 State Environmental Planning Policy No. 55 – Remediation of Land

SEPP 55 aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment. The Policy ensures that remediation is permissible development and is always carried out to a high standard. It specifies when consent is required for remediation and lists considerations that are relevant when rezoning land and determining development applications.

The *Managing Land Contamination, Planning Guidelines, SEPP 55 – Remediation of Land (1998)* provides that where the history of a site is relatively well documented and no existing or prior potential contaminating activities are evident, no further investigations are required.

A Stage 1 Preliminary Investigation Land Contamination Assessment was undertaken by Ardill Payne & Partners (2013), with a copy of such being provided at **Appendix J**.

The investigation involved a desk-top site history investigation, site visit and soil sampling and testing, due to the desk-top investigation revealing two potential contaminants of concern resulting from prior and existing agricultural uses (being sugar cane and cattle grazing).

Systematic soil sampling was undertaken on the site (with 9 samples being taken and 3 composite samples being analysed at SCU EAL laboratory). None of the samples submitted resulted in levels reaching or exceeding the relevant assessment criteria (HIL A and HIL F) and were consistent with natural background levels (NEPM, 1999).

Based on the findings of the assessment, it was concluded that *".. further investigation is not required and that the site is suitable for the proposed use."*

6.1.6 State Environmental Planning Policy No. 71 – Coastal Protection

The subject land is not within the "Coastal Zone" as defined in the Coastal Protection Act 1979 and as mapped on Ballina Council's Coastal Zone Map.

Under the circumstances SEPP 71 does not apply to the proposed development.

6.1.7 State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007

This policy provides for the proper management and development of mineral, petroleum production and extractive material resources to

promote the social and economic welfare of the State; and to facilitate the orderly and economic use and development of land containing mineral, petroleum and extractive materials resource. The policy ensures that appropriate planning controls are implemented to encourage ecologically sustainable development through the environmental assessment and sustainable management of mineral, petroleum and extractive material resources.

This applicant seeks consent to commence an extractive operation from a site that adjoins an existing extractive operation that is owned and operated by the same person/company. It should be noted that the extraction and haulage proposed by this application will not be commenced until such time as the extraction and haulage on the adjoining lot (Lot 33 DP 1151612) has ceased.

The proposed development is expressly permissible pursuant to Clause 7(3) on the basis that agriculture is a permissible use within the zone.

Clauses 12-18 of the SEPP are of particular relevance to this application and are addressed below:

12 – Compatibility of proposed mine, petroleum production or extractive industry with other land uses

(a)(i) The existing land uses in the vicinity of the development have been identified in **Section 2.3** of this report.

(a)(ii) A number of extractive operations (sand quarries) exist in the locality. The subject and adjoining land is zoned for rural (coastal agricultural purposes). Extractive industries are permitted uses in the zone and are uses that are expressly referenced in the zone objectives.

(a)(iii) The locality encompasses existing extractive industries (sand quarries).

Due to the rural zoning and character of the locality (flood liable, coastal agricultural lands with dispersed rural settlement), it is considered that this use is appropriate in this rural location.

The resource exists as a consequence of the geological characteristics of Teven/Tintenbar in this location. As is detailed in **Section 4** and as evidenced by past extractive operations from the surrounding sites, the extraction of sand can and will be undertaken in a manner that is sympathetic to the environment.

There are limited agricultural opportunities or pursuits that can be conducted within flood prone land (mainly sugar cane, macadamias and cattle grazing). Further, the subject land does not comprise nor adjoin prime crop or pasture land. Under the circumstances, the proposal will not compromise the efficient, sustainable and agricultural utilisation of any agricultural land.

As has been evidence by past extractive operational history in the locality and due to the fact that the expected traffic that will be generated by the development is not substantial, it is not likely that the development will restrict the function of, or create traffic hazards along arterial roads in the locality.

Approval of the application will enable the extraction and use of an existing valuable sand resource, which can be extracted in an efficient and environmentally sound manner.

The use is considered to be such that is compatible with the rural locality and adjacent uses and will enable the extraction of a known high quality fill sand resource.

(b) Public benefits of the quarry are such that will result from the provision of a valuable extractable resource which in turn will boost the local economy and provide employment opportunities.

(c) As detailed in **Section 5** of this report, a broad range of measures will be implemented to reduce the impact of the development.

13 – Compatibility of proposed development with mining, petroleum production or extractive industry

(1)(a) There is currently an existing extractive operation (sand quarry) operating on adjoining land to the north, being Lot 33 DP 1151612. Two other sand quarries exist to the north-east of the subject land along Newrybar Swamp Road.

(1)(b) None of these quarries are identified on any DoP mapping as being State or Regionally significant resources of mineral, petroleum or extractive materials.

(1)(c) The land is not identified by any environmental planning instrument as being the location of significant resources of minerals, petroleum or extractive materials. The land is not identified in the Far North Coast Regional Strategy 2006-31 as being a "Regionally Significant Extractive Resource".

(2)(a)(i) The sand quarry on adjoining Lot 33 DP 1151612 was approved under DA 2001/326 on the 13th December 2001. As a consequence of amendments to DA 2001/326, this quarry has consent to operate until the 31st December 2014 (or up to a total of 500,000m^3 in situ, whichever occurs first). During the +10 year operational life of this quarry, there have not been any significant land use conflicts that could not be resolved.

Extraction and haulage proposed under the terms of this proposed development will not commence until such time as extraction and haulage permitted under the terms and conditions of DA 2001/326 (as amended) have ceased.

(2)(a)(ii)The proposed extractive industry is appropriately situated in a rural locality and will not adversely impact the existing extractive operations in the locality. It will effectively replace the existing operation that is being conducted on adjoining Lot 33 DP 1151612, which will cease operations no later than 31st December 2014 (per Condition 2.5 of DA 2001/326.3).

(2)(a)(iii)The proposed extractive industry will facilitate the extraction of a known high quality fill sand resource. A number of other sand extraction operations exist in the broader locality which are comparable to the proposed operation.

(2)(b) The public benefits are identified in Section 7 of this report and are not considered to be such that will adversely impact the extraction of the resource or deem the land to be incompatible with the surrounding land use.

(2)(c) A range of environmental management and operational measures and controls are proposed in this EIS and will be duly incorporated into consent conditions and a Plan of Management should the application be approved.

14 Natural Resource management and Environmental Management

(1)(a) Impacts on water resources, including surface water and ground water have been addressed in **Sections 4.1** and **4.2**

and **Appendices G** and **L** of this report. It is expected that consent conditions will be imposed on any consent to ensure that any impacts on such are avoided or minimised to the greatest extent practicable.

(1)(b) As a consequence of preliminary ecological/flora and fauna investigations, the original proposed development (particularly the scope and footprint) was modified so as to reduce potential impacts on threatened species particularly in respect of:

- potential Koala habitat
- Wallum Froglet habitat
- microchiropteran bats
- Endangered Ecological Communities

As detailed in **Section 4.10** and **Appendix F** of this report, the proposed operational areas comprise formerly disturbed farming land, with no areas of native vegetation requiring removal or disturbance. The extraction area is generally of low value to threatened species, and higher quality habitats and vegetation will be retained as part of the proposed extraction operations.

Contained in Section 6.3 of **Appendix F** is a number of mitigation strategies which are proposed to minimise the potential for adverse impact on flora and fauna (and their habitats) which are integral to this development proposal.

At the cessation of operations, the area will comprise a freshwater lake that is fed by surface and groundwater with peripheral areas of the extraction area being planted with a variety of local flora which will provide additional habitat and actually improve the floristic value of the site.

(1)(c) It is considered that the operational experience of the extractive operation on adjoining Lot 33 DP 1151612 is that extraction via mechanical means is the most efficient with respect to Greenhouse Gas emissions, and that the extractive operations will be conducted in the most efficient manner.

15 Resource Recovery

(1) It is considered that the operational experience of the extractive operation on adjoining Lot 33 DP 1151612 is that extraction via mechanical means is the most efficient with respect to resource recovery, and that the extractive operations will be conducted in the most efficient manner.

(2) It is submitted that there are no particular conditions of consent that could be imposed which would ensure optimisation of the efficiency of resource recovery. There is no scope for any re-use or recycling of any material as all of the material that is extracted is suitable for its intended purpose (ie fill sand), with the topsoil being used to create the acoustic and visual mounds.

The proponent/operator of the proposed development is at this point in time, Ballina Sands, who is the proponent/operator of the adjoining operation on Lot 33. As a consequence of such, it is submitted that Ballina Sands has refined its operations such that they are optimally efficient for the extraction and haulage of an identical resource.

(3) Having regard to the above, it is submitted that there would not be any valid reason for refusal of the proposed development based on issues with the efficiency of resource recovery or waste minimisation.

16 Transport

(1)(a) In regards to the need to limit some or all of the transport of material on public roads, road transport is the only option available to the quarry site. Newrybar Swamp Road has been subject of significant upgrades in the last 20 years as a consequence of approved extractive operations and is of a sufficient standard to accommodate the traffic that will be generated by the proposed development.

Haulage from the proposed development will not commence until such time as haulage from the operation on adjoining Lot 33 DP 1151612 has ceased and thus there will not be any cumulative increase in vehicle movements on the local road network resulting from the proposed development.

(1)(b) The primary haulage routes to/from the quarry do not traverse any residential areas and are not on roads near to schools.

(1)(c) The requirement of a code of conduct is a matter for Council; however, driver protocols will be implemented in respect of transport of materials on public roads from the site.

(2)(a) The appropriate road authorities are the Ballina Shire Council and Roads and Maritime Services (RMS).

(2)(b) It is assumed that Ballina Shire Council will duly refer the application to the RMS.

(3)(a) It is assumed that Ballina Shire Council will have due regard to any submission(s) it receives from the RMS in the assessment of the development application.

(3)(b) It is assumed that Ballina Shire Council will provide the RMS with a copy of the determination of the development application.

17 Rehabilitation

(1) It is submitted that it would be appropriate for any consent to be conditioned such that conditions are imposed to ensure that the site is appropriately rehabilitated. Rehabilitation involves removal of all improvements/structures relating to extraction, allowing the extraction area (hole) to be filled with water and the subsequent planting of native vegetation around the periphery of the extraction.

(2)(a) Plans showing the proposed end use and landform of the site are provided at **Appendix E** and will be provided within any Plan of Management. It would be open to Council to impose consent conditions in respect of further detailed plans for site rehabilitation (particularly a detailed rehabilitation/landscaping plan).

(2)(b) There is no waste that will be generated from the development or rehabilitation activities on the site. Waste receptacles will be provided for waste materials such as general refuse that are generated by on-site personnel and will be regularly removed and disposed of at authorised land disposal facilities.

(2)(c) The proposed development is not such that will result in any contamination of any site soil. A Soil and Water Management Plan is provided at **Appendix G**.

(2)(d) The subject land is private property and will be appropriately contained/secured so that the public (being trespassers) has no access during extractive operations or rehabilitation activities. Site security will be similar to that on adjoining Lot 33.

18 Receipt and disposal of waste

There is no disposal of waste from any other land or sources on/at the subject land proposed by this application.

6.1.8 State Environmental Planning Policy (Rural Lands) 2008 (SEPP RL)

SEPP RL applies to the subject land as a consequence of its existing RU1 – Primary Production Zone under the BLEP 2012.

The following comments are made in respect of the Rural Planning Principles contained in Clause 7 of SEPP RL:

(a) the proposed development is considered to be such that will comprise a productive and sustainable economic activity in a rural area

(b) the land upon which the extractive operation is proposed is marginal agricultural land which has limited productive potential – the use of the land for extractive purposes is expressly permitted by the BLEP 2011 and SEPP (Mining, Petroleum Production and Extractive Industries) 2007

(c) the proposed development will result in positive economic benefits to the local economy and is not such that will have significant adverse social impacts

(d) as detailed in this EIS, it is submitted that the proposed development is such that will provide an acceptable balance of the social, economic and environmental interests of the community

(e) the original development was modified so as to protect/preserve existing significant flora and fauna and habitat – the site constraints are not such that would preclude/prohibit the proposed development

(f) the locality is characterised by relatively sparsely scattered dwelling houses – the proposed development is not such that will adversely impact the local rural lifestyle or social and economic welfare of the local community subject to the

implementation of all proposed environmental management measures/controls

(g) the proposed development does not involve rural housing

(h) the proposed development is consistent with the Far North Coast Regional Strategy 2006-31

The provisions of Part 3 of SEPP RL have no application as they relate to rural subdivisions and dwellings.

6.1.9 State Environmental Planning Policy (Major Development) 2005 (SEPP MD)

The proposed development is not of a type and is not within a "State significant site" listed in Schedule 3 of SEPP MD and is thus not Major Development pursuant to Part 2 of SEPP MD.

6.1.10 State Environmental Planning Policy (Infrastructure) 2007 (SEPP I)

The proposed development is not of a type listed in Schedule 3 of SEPP I and thus the proposed development application is not required to be formally referred to the RTA (now RMS) pursuant to Clause 104 of SEPP I.

6.1.11 State Environmental Planning Policy (State and Regional Development) 2011 (SEPP SRD)

The proposed development does not meet the extractive industry related thresholds listed in Schedule 1 and is not an "identified site" listed in Schedule 2 of SEPP SRD and is thus not State Significant Development pursuant to Part 2 of SEPP SRD.

The proposed development is of a type listed in Schedule 4A of the EP & A Act 1979 (Item 8 – Particular Designated Development) and thus the Northern Region Joint Regional Planning Panel is the consent authority, pursuant to Part 4 of SEPP SRD.

6.1.12 Integrated Development

The development comprises integrated development pursuant to Section 91 of the EP & A Act 1979 due to the fact that certain approvals will be required in addition to development consent before the development may be carried out. The required approvals are:

- A Controlled Activity approval under Part 3, Chapter 3 of the Water Management Act 2000 – Issued by the Office of Water.
- An Environmental Protection Licence under the Protection of the Environment Operations Act 1997 (POEO) – Issued by the Department of Environment, Climate Change and Water.

6.2 Other Planning Policy and Related Statutes

This section identifies and provides comment on the other planning and related documents and strategies that are of relevance to the proposed development.

6.2.1 Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

An assessment of the site pursuant to the provisions of the EPBC Act was undertaken by Australian Wetlands Consulting (2013), a copy of which is provided at **Appendix F**.

This report provides a summary of Matters of National Environmental Significance (NES) and Other Matters listed under the EPBC Act, based on a search using the Protected Matters Search Tool within a 5km radius of the site. Assessment was completed with regard to potential impacts of the proposal on Matters of NES. The report concluded that:

"The proposed works are unlikely to have any significant impact on any Matters of Environmental Significance (NES) and hence referral to the Minister for approval is not required."

6.2.2 Section 5A of the EP & A Act 1979

An assessment of the site pursuant to Section 5A was undertaken by Australian Wetlands Consulting (2013), a copy of which is provided at **Appendix F**.

The Threatened Species Conservation Amendment Act 2002 establishes the Assessment of Significance (7-part test) in Section 5A of the EP & A Act, Section 94 of the Threatened Species Conservation Act 1995 and Section 220ZZ of the Fisheries Management Act 1994.

The report advised that:

- *"Assessments of Significance were completed for the EEC 'swamp sclerophyll forest on floodplain', Hairy Joint Grass, Southern Swamp Orchid and 18 threatened fauna species recorded at the block or considered as having potential to occur (as indicated at Table 4-5), and are attached at Appendix G."*
- *"The Assessment of Significance concluded that the proposed works would not result in significant impacts to any threatened species, population or community and hence a Species Impact Statement (SIS) would not be required."*

6.2.3 Threatened Species Conservation Act 1995 (TSC Act)

An assessment of the site pursuant to the provisions of the TSC Act was undertaken by Australian Wetlands Consulting (2013), a copy of which is provided at **Appendix F**.

The appropriate provisions prescribed in Section 94 of the Threatened Species Conservation Act 1995 are identical to those found in the EP & A Act 1979 which are addressed above in **Section 6.2.2** of this report.

6.2.4 Fisheries Management Act 1994 (FM Act)

An assessment of the site pursuant to the FM Act was undertaken by Australian Wetlands Consulting (2013), a copy of which is provided at **Appendix F**.

An Assessment of Significance with regard to the provisions of Section 220ZZ of the FM Act and Section 5C of the EP & A Act was not undertaken due to the fact that:

- *none of the threatened species populations or ecological communities and their habitats occur (as listed in Parts 1-5 of Schedule 4 of the FM Act)*
- *the proposal does not involve alteration of a stream or waterbody, bank or bed*
- *the proposal does not involve installation of a structure that will affect natural flow regimes*

6.2.5 Native Vegetation Act 2003 (NV Act)

An assessment of the site pursuant to the NV Act was undertaken by Australian Wetlands Consulting (2013), a copy of which is provided at **Appendix F**.

The report advised that *"The proposal will not require consent under the Native Vegetation Act 2003 for the removal of disturbed pasture dominated by exotic species. Where any native species occur, these are accepted as 'regrowth' as defined by the Act, and based on historical management by slashing."*

6.2.6 Section 94 Plans

Section 94 contributions are payable to Council on a per cubic metre rate of material hauled from the site. The payment of such would be made on a progressive basis in accordance with applicable conditions of consent.

6.2.7 NSW Coastal Policy

The subject land is not situated within the coastal zone as defined in the NSW Coastal Policy 1997.

6.2.8 North Coast Urban Planning Strategy 1995 (NCUPS)

NCUPS acknowledges that the North Coast contains many of the fastest growing urban areas in NSW, with an expectant 2016 population of some 605,000 persons (from 378,460 in 1991).

The Strategy acknowledges that the demand for extractive materials will increase with continued population growth and states that *"All these resources need to be protected from encroachment by incompatible land uses and not unnecessarily sterilised for future generations."*

Several of the Strategy Actions require the State and Local Government to undertake studies to identify and protect all significant existing and potential extractive and mineral resources in the region and options so as to:

- *conserve significant existing and potential extractive material and mineral sites;*
- *establish suitable non-urban buffers around existing and potential extractive material and mineral sites;*
- *reduce conflict over resource haulage routes.*

6.2.9 Far North Coast Regional Strategy 2006-31

The Strategy acknowledges the importance of identifying and protecting existing operations and potential future extractive resources that are of regional and sub-regional importance.

6.2.10 Ballina Development Control Plan 2012 (BDCP 2012)

The BDCP 2012 came into effect on the 4th February 2013 and contains a number of chapters that are of relevance to the proposed development, comments on which are provided below:

Chapter 2 – General and Environmental Considerations

3.1 Land Use Conflict

Table 2.1 of Chapter 2 recommends a minimum buffer distance of 500m between an extractive industry (not involving blasting) and a rural dwelling house.

As evidenced on Figure 2 at **Appendix H**, there are a number of dwellings within 600m of the sand quarry being:

- R1 – dwelling to the east – approx. 80m away
- R2 – dwelling to the east across Newrybar Swamp Road – approx. 130m away
- R3 – dwelling to the south – approx. 80m away
- R4 – dwellings to the south-west – approx. 600m away
- R5 – dwellings to the west – approx. 500m away
- R6 – dwellings to the north-west – approx. 600m away

It should also be noted that the proposed new operation is closer to each of these dwellings than the existing operation on Lot 33 and thus there is potential for increased impacts (particularly from noise and dust).

Integral to the proposed development is a range of ameliorative measures which are proposed to minimise adverse impacts and the potential for land use conflict between the quarry and adjoining land uses (particularly on dwelling houses as a consequence of noise, dust, stormwater, traffic generation, visual etc). These ameliorative measures are detailed in **Sections 4** and **5** and will be duly incorporated into any conditions of consent (if approved) and the Plan of Management.

It is submitted that the proposed development is reasonable having regard to the ameliorative measures that are proposed to minimise impacts on the natural and man-made environment and to reduce the potential for land use conflict, as detailed in **Sections 4** and **5** and as will be contained in conditions of consent and the Plan of Management.

Section 3.2 – Ridgelines and Scenic Areas

The subject land is not mapped on the Ridgelines & Scenic Areas Map (Sheet RS_001_080) as being a ridgeline or scenic area.

Section 3.3 – Natural Areas and Habitat

The subject land is not mapped on the Natural Areas and Habitat Map (Sheet HN_001_080) as being a natural area or habitat nor as being within the 50m buffer to a natural area or habitat.

Section 3.4 – Potentially Contaminated Land

Refer to **Section 4.11** and **Appendix J**.

Section 3.7 – Waste Management

Refer to **Section 4.8**.

Section 3.9 – Stormwater Management

Refer to **Section 4.1** and **Appendix G**.

Section 3.10 – Sediment and Erosion Control

Refer to **Section 4.1** and **Appendix G**.

Section 3.11 – Provision of Services

Refer to **Section 3.6**.

Section 3.12 – Heritage

The subject land is not within or adjoining any site identified as being of heritage significance under the BLEP 2012 or the State or National Heritage Registers. A cultural heritage assessment is provided at **Appendix K**.

Section 3.19 – Car Parking and Access

Refer **Section 4.9** and **Appendix I**.

Chapter 2b – Floodplain Management

Refer **Section 4.5** and **Appendix G**.

Chapter 7 – Rural Living and Activity

Section 3.6 – Mining and Extractive Industry

Section 3.6.3 provides the development controls for new extractive industries, which require that all applications for extractive industries must address at least the following and identify proposed mitigation measures where adverse impacts are identified:

- *efficient and safe movement of the extractive material from the source of supply to the end user* – refer **Section 4.9** and **Appendix I** of this report
- *noise, dust and vibration abatement measures* – refer **Section 4.9** and **Appendix H** (noise), **Section 4.4** and **Appendix G** (dust), **Section 4.7** (vibration) of this report
- *visual impact assessment with particular reference to major roads, tourist routes/interest points and surrounding properties/structures* – refer to **Section 13** of this report
- *drainage implications including surface and groundwater impacts* – refer **Section 4.1** and **Appendix G** (stormwater/erosion and sediment control) and **Section 4.2** and L of this report
- *proposed end-use of the site* – refer **Section 3.10** and **Appendix E** of this report
- *rehabilitation of the site including materials, staging, source materials, re-contouring, replacement of topsoil, screen planting and vegetation* – refer **Section 3.10** and **Appendix E** of this report
- *management techniques to address potential conflict with surrounding land uses and protection of environmental attributes* – refer **Sections 4** and **5** of this report
- *any other assessment Council may require including Aboriginal and European heritage assessments, contaminated land assessments and acid sulfate soil assessment etc* – refer **Section 4.12** and **Appendix K** (heritage), **Section 4.11** and **Appendix J** (contamination), **Section 4.3** and **Appendix N** (acid sulfate soil) of this report

In order to grant consent to an extractive industry, Section 3.6.3(ii) provides that *"..Council must be satisfied that the mitigation measures proposed are adequate to address potential impacts on amenity, environmental attributes and values, infrastructure and agricultural activity."*

7 CONCLUSION

This section of the report is the conclusion of the EIS. This section identifies any feasible alternatives to carrying out the development and the consequences of not carrying out the development and provides and justification for the development.

7.1 Project Justification

In accordance with the DGR's (**Appendix C1**), a description of the need for and considered alternatives of the project in the manner proposed is provided below.

The following sections provide the reasons justifying the carrying out of the proposed development in the manner proposed having regard to the biophysical, economic and social considerations and ecologically sustainable development principles.

7.1.1 Biophysical Considerations

The impacts of the proposed development on the natural and man-made environments are detailed in **Section 4** of this EIS. The proposed operational controls and mitigation measures that are detailed in **Sections 4** and **5** of this EIS are considered to be such that will ensure that there are no substantial negative impacts upon such environments.

7.1.2 Economic and Social Considerations

Approval of the application will result in a supply of a valuable sand resource for use in the locality and sub-region. There exists a strong demand for such material to facilitate the development requirements of a rapidly growing region.

Fill sand from the quarry has a multitude of uses with the predominant uses and users comprising:

- road construction and/or repair – Local Councils, Leighton, Baulderstone, Morgans etc

- residential and commercial developments – Ferngrove, Local Councils, Hazell Bros. (Ballina Airport), Haslin Constructions (Ballina Sewage Plant) etc
- bedding sand for drainage pipelines and electricity cable conduits – Morgans, ITT, Ballina Pipeline Constructions etc
- under-turf sand – Leightons, local landscape gardeners etc.
- plant nursery sands to produce planting mix, organic soils etc. – local landscape gardeners, landscapers, plant nurseries etc

The continued supply of construction and development related materials is critical to the sustained long-term well-being and sustainability of a broad spectrum of development and related industries that are fundamental to the strength and well-being of the local and regional economies.

The development is consistent with the relevant planning and strategic policies of the State and local government, particularly those that promote the orderly and efficient use of land in a manner that will not have significant detrimental impacts upon the natural and man-made environments.

The proposal will activate much needed sand extraction operations within the site for a maximum of 15 years. A comparable extractive industry on adjoining Lot 33 has been in existence for some 10 years. This activity appears to have been conducted in a manner that did not have significant adverse impacts upon the character and amenity of the area and that did not compromise the agricultural or other uses of any adjoining or adjacent land.

In comparison to the site's existing use, in the longer term, the proposal will have positive economic impacts on the local economy.

7.1.3 Ecologically Sustainable Development (ESD)

The proposed development attains the four principles of ESD as contained in the Intergovernmental Agreement on the Environment (IGEA) signed in 1992. These principles are detailed below with comments provided immediately after each one:

- *The* precautionary *principle – namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. Decisions should be guided by careful evaluation to avoid,*

wherever practicable, serious or irreversible damage to the environment and an assessment of the risk-weighted consequences of various options.

This EIS has thoroughly identified and assessed the potential environmental impacts of the proposed development. It is concluded that with the adoption and implementation of the proposed mitigation strategies and management measures that there will not be any serious or irreversible damage to the environment.

- *Inter-generational equity – namely, that the present generation should* ensure *that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.*

This EIS has demonstrated that the health, diversity and productivity of the environment will not be compromised by the proposed development.

Further, the extraction of this valuable resource is a productive use of a resource that is currently not being utilised to its economic potential. The use of this material will assist in the continued development and prosperity of the region, having positive benefits on the regional economy with resultant social benefits from employment and economic growth and well-being.

- *Conservation of biological diversity and ecological integrity – namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration.*

As a consequence of preliminary ecological investigations, the scope and footprint of the works was significantly modified, resulting in avoidance to/of the sensitive parts of the site.

The proposed site planting (mound and wind-breaks and around the periphery of the extraction area post extraction and final site rehabilitation planting) with appropriate native endemic species will actually improve the floristic value and enhance the biological diversity and ecological integrity of the site.

A landscaped fresh-water lake will exist on the land post extractive operations which will provide improved habitat particularly for aquatic bird-life.

- *Improved valuation, pricing and incentive mechanisms – namely, that environmental factors should be included in the valuation of assets and services, such as:*

    - *polluter pays – that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,*

    - *the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including he use of natural resources and assets and the ultimate disposal of any waste,*

    - *environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.*

The proposed extractive operations are not likely to be the source of any substantial pollution or waste. The proposal will enable the use of a valuable naturally occurring sand resource that has been extracted on other properties in the locality. The extraction of the sand resource as proposed is a viable and economic use of the resource that is of substantial benefit the continued growth and development of the region.

Extraction and use of the resource will provide substantially higher social and economic returns and benefits to the broader community than the current land use allows.

The proponent has first hand operational experience and is well aware of the issues involved in extracting the sand in an environmentally sensitive and responsible manner.

7.2 Consideration of the Proposal Against the Objects of the EP P& A Act 1979

Section 5 of the EP & A Act 1979 lists the Objects of the Act which are:

(a) to encourage:

(i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,

(ii) the promotion and co-ordination of the orderly and economic use and development of land,

(iii) the protection, provision and co-ordination of communication and utility services,

(iv) the provision of land for public purposes,

(v) the provision and co-ordination of community services and facilities, and

(vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and

(vii) ecologically sustainable development, and

(viii) the provision and maintenance of affordable housing, and

(b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and

(c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.

The proposed development is considered to be generally consistent with the objects of the Act, due to the fact that it:

- incorporates:
  - a range of measures for the management and conservation or resources including ecological (flora and fauna), water, agricultural land (refer **Sections 4** and **5**)
  - development and use of the State's extractive resources, being a known extractive resource from an area that is subject of similar operations (refer **Section 3**)
  - a range of measures to mitigate potential impacts upon the amenity of the local area and on the natural and man-made environment resulting from noise, air quality, visual impact, local road network, stormwater, erosion and sedimentation, flora and fauna (including

threatened species and their habitats) and cultural heritage (refer **Sections 4** and **5**)

- employment opportunities (both direct and indirect) and other socio-economic benefits to the broader community (refer **Section 4**)

- will facilitate extraction from a known resource (which is being extracted from adjacent land) which will provide an economic use of the land, which will not adversely impact the existing and future economic use of any adjoining or adjacent land
- will contribute towards the on-going economic well-being and development of the State
- incorporates a range of measures to protect the environment including the protection of native flora and fauna, threatened species and their habitats, downstream receiving environments (including waterways/waterbodies)
- incorporates ecologically sustainable development considerations
- is a development for which the Northern Region Joint Regional Planning Panel is the consent authority, the assessment of which will be undertaken in consultation with Ballina Council and other relevant State Resource Agencies
- includes public involvement and participation through all facets of the EIS process, including engaging the community during the preparation of the EIS and then further engagement during the exhibition and assessment of the EIS

7.3 Analysis of Feasible Alternatives

Having regard to the circumstances of this case, the only feasible alternative to not extracting sand from the subject site is leave the site in its current state/use and source the fill sand from other sites.

As detailed previously, the existing three (3) operations in the immediate area are all reaching the end of their operational life and the extractive operations and haulage from this site will not commence until the extractive operations and haulage from Lot 33 have ceased.

There are no feasible or viable alternatives to the extraction of sand from the subject site in the manner detailed in this EIS.

The relevant circumstances of this case are:

- the site is proximate to regional towns and markets where a substantial demand exists for such a resource
- the site is in a relatively sparsely settled rural environment that is relatively isolated from any conflicting land uses (i.e. urban areas, prime agricultural land, intensive agricultural pursuits)
- a substantial amount of resource exists on the site
- there are limited sources of fill sand in other locations in the region
- the sand is able to be extracted in an economic and efficient manner
- sand has been extracted from the adjoining property (Lot 33) for +10 years in a manner that does not appear to have had any substantial adverse/negative environmental impacts or consequences

7.4 Final Conclusion

The proposed development is expressly permissible with consent within, and is consistent with the objectives of the RU1 zone under the BLEP 2012 and other relevant legislation and planning policies.

This EIS has vigorously assessed the proposed development under a raft of environmental planning instruments having regard to all relevant environmental, social and economic considerations.

The development will provide a ready supply of fill sand that is used in the building/development industry. The resource is well situated to supply the local market and is a reasonable use of the land having regard to the land uses and character of the local area.

The extractive operations can be conducted and managed in a way that will not have significant detrimental impacts upon either the natural or man-made environments.

The proposed extraction operation is sustainable as has been evidenced during similar extractive operations on an adjoining lot (being Lot 33 DP 1151612).

In conclusion and having regard to the particular circumstances of this case, it is respectfully requested that Council grant consent to this development application.

REFERENCES

ASSMAC, 1998	*Acid Sulfate Soil Manual.* NSW Acid Sulfate Soil Management Advisory Committee. August 1998.
Australian Wetlands Consulting, 2000	*Ballina Sands Lot 32 DP 1151612, Newrybar Swamp Road, Tintenbar – Ecological Assessment.* Prepared by Australian Wetlands Consulting Pty Ltd on behalf of Ballina Sands. January 2013.
CRG Acoustical Consultants, 2013	*Proposed Extractive Industry (Sand Quarry), "Ballina Sands Quarry", Newrybar Swamp Road, Lennox Head (Lot 32 on DP 1151612), Environmental Noise Impact Assessment.* Prepared by CRG Acoustics Pty Ltd on behalf of Ballina Sands Pty Ltd. January 2013.
DIPNR, 2005	*Northern Rivers Farmland Protection Project – Final Recommendations.* NSW Department of Infrastructure, Planning and Natural Resources. February 2005.
DoP, 2006	*Far North Coast Regional Strategy 2006-31.* NSW Department of Planning. December 2006.
DoP, 1996	*EIS Guideline – Extractive Industries – Quarries.* NSW Department of Planning. October 1996.
DPI, 2007	*Living and Working in Rural Areas: A handbook for managing land use conflict issues on the NSW North Coast.* NSW Department of Primary Industries. 2007.
DPI, 2012	*Fact Sheet – Agriculture Issues for Extractive Industry Development.* NSW Department of Primary Industries. May 2012.
Douglas Partners, 2013	*Report on Groundwater Assessment, Proposed Sand Quarry, Newrybar Swamp Road, Lennox Head, Northern New South Wales.* Prepared by Douglas Partners on behalf of Ardill Payne & Partners. January 2013.
Everick Heritage Consultants, 2013	*Cultural Heritage Assessment, Proposed Sand Quarry, Lennox Head, NSW.* Prepared by Everick Heritage Consultants Pty Ltd on behalf of Ardill Payne & Partners. January 2013.
GeoLINK, 2000	*A Development Application and Environmental Impact Statement with respect to a proposal by R & C Watson to carry out extractive industry and minor filling works on Lot 3 in a subdivision of Lot 8 DP 734573, Newrybar Swamp Road, Lennox Head.* Prepared by GeoLINK on behalf of R & C Watson. November 2000.

Morand, 1994	*Soil Landscapes of the Lismore-Ballina 1:100 000 Sheet.*
NSW Agriculture, 2002	*Agricultural Land Classification (Agfact AC.25).* NSW Agriculture. October 2002.
RTA, 2002	*Guide to Traffic Generating Developments.* Roads and Traffic Authority. October 2002 (Version 2.2).

NOTE FOR USERS

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The maps, development plans and other figures contained in this report are suitable only for the purposes of this report. No reliance should be placed upon this information for any purpose other than for the purposes of this report.

APPENDICES

Appendix A	Development Application form (including landowner's consent) and EIS certification form
Appendix B	Copy of Deposited Plan and Contour Plan
Appendix C	Public Authority Consultation Responses
Appendix D	Community Consultation Responses
Appendix E	Site, Extraction and Rehabilitation Plans
Appendix F	Ecological Assessment
Appendix G	Soil and Water Management Plan
Appendix H	Environmental Noise Impact Assessment
Appendix I	Traffic Impact Study
Appendix J	Land Contamination Assessment – Stage 1 Preliminary Investigation
Appendix K	Cultural Heritage Assessment
Appendix L	Groundwater Assessment
Appendix M	Greenhouse Emissions Assessment
Appendix N	Acid Sulfate Soil Management Plan
Appendix O	Particle Size Distribution Report

APPENDIX A

Development Application Form (including Landowner's Consent) & EIS Certification Form

cnr tamar & cherry streets,
po box 450, ballina nsw 2478
dx 27789 ballina
ph: 02 6686 1254
fax: 02 6681 1375
email: council@ballina.nsw.gov.au
abn: 53 929 887 369

DEVELOPMENT APPLICATION – FORM 1(A)

(Section 78A of the Environmental Planning and Assessment Act 1979)

THE APPLICANT (All correspondence will be forwarded to this name and address)
If the owner is also the applicant All owners must sign (see NB below)

APPLICANT'S NAME: ARDILL PAYNE & PARTNERS

ADDRESS: PO BOX 20 BALLINA NSW 2478

PHONE: (W) 66863280 (H) .....

MOBILE: ..... FAX: 66867920

SIGNATURE(S): ..... DATE: 10.5.2017

OWNER'S CONSENT (To be completed where the applicant is not the owner of the land)
NB: If the property is **owned by more than one person, all owners must sign**, including any person who has a legal and /or equitable interest in the property. If the property is owned by a company, the minimum number of people (Directors) who bind the company must sign.

I/we Robert L WATSON & Christine M. WATSON (please print name or names)

of 171 Rosa Lane Lennox Head 2478 (please print address)

PHONE: (W) 0266877444 (H) 0266878528

MOBILE: 0418663344 FAX: 0266877849

being the owner(s) of the property identified below, consent to the lodgment of this development application. Please be aware that information contained in this development application may be used by other government agencies, service providers or other organizations.

SIGNATURE(S): ..... DATE: 10/5/17

NB: Where the owner of the property is a company or organisation, those persons who have an interest in that company or organisation (i.e. directors, partners etc) must be disclosed to Council.

DESCRIPTION OF THE LAND TO BE DEVELOPED (Details are located on your rate notice)

Address: No.: ..... Street/Road: NEWRYBAR SWAMP RD

Town/Locality: LENNOX HEAD

Real Property: Lot/Portion: 32 Section: .....

DP: 1151612

OFFICE USE ONLY

Development Application No.:..... Parcel No.:.....

Receipt. No.: ..... Date Received: .....

ESTIMATED COST OF PROJECT

The development application fee and Long Service Levy are based on an accurate estimate of the cost of the development (including cost of civil works for subdivision). Where the estimated cost of development appears deficient, Council will carry out its own assessment of the costs. **Please round up to nearest $1000**.

$ .....

THE PROPOSED DEVELOPMENT

What type of development are you proposing? (Please tick the appropriate box)

- ☐ Erection of a building;
- ☐ Subdivision of land/building;
- ☐ Carrying out of work;
- ☐ Change of Use of land/building;
- ☐ Demolition of a building;
- ☑ Other: EXTRACTIVE INDUSTRY (SAND EXTRACTION)

Building Classification under the Building Code of Australia (BCA) (if known or applicable): .....

Please describe in more detail the actual development and its proposed use (e.g. The erection and strata title subdivision of a two storey duplex). If you are proposing a staged development, it will be necessary for the development application to clearly identify the components and timing of the various stages.

TO COMMENCE AN EXTRACTIVE OPERATION (SAND QUARRY

What are the prior uses of the site or buildings on the subject land?

AGRICULTURE - SUGAR CANE

Where the development involves the ERECTION of a building, what is the proposed use of the building when erected?

.....

TRADE WASTE

Is the proposed development likely to generate **trade waste?** ☐ YES ☑ NO

If YES refer to Section regarding Approvals under Section 68 of the Local Government Act.

NB: Trade waste means liquid trade or factory wastes or chemical or other impurities from any business, trade or manufacturing premises other than domestic sewage, stormwater or unpolluted water.

TYPE OF DEVELOPMENT

What type of development are you proposing under the Environmental Planning & Assessment Act 1979? Please tick the appropriate box.

☐ Local development ☑ Integrated development ☑ Designated development

Should your development be integrated please complete Integrated Attachment and submit to Council. (see Integrated Attachment for more information)

CONCURRENCE (Some proposals may require the agreement of a state agency before development can be carried out. If so, Council will refer your application to the relevant state agency)
Does the proposed development require concurrence? If YES please indicate from whom concurrence is required.

- ☐ Director-Department of Urban Affairs & Planning
- ☐ Roads and Traffic Authority
- ☐ Other .....

SUBDIVISION OF LAND/PREMISES

Where the development involves the subdivision of land or premises the following information is required. It should be noted that if it is intended to create separate title for residential flat or duplex developments (i.e. strata title subdivision of the development) the following section must also be completed.

Proposed subdivision type: .....

No. of existing lots: ..... No. of lots to be created: .....

Areas: Existing: ..... Proposed: .....

Intended use of each lot: .....

NB: The location and use of any buildings (including dwelling houses) is to be clearly identified on the plans accompanying this application.

THE ENVIRONMENTAL IMPACT OF THE PROPOSAL (Please tick relevant section)

- ☐ The proposed development is considered to have negligible effect on the environment (this would normally apply only to minor works such as a refit to the interior of a building).
- ☐ I have completed a Statement of Environmental Effects for my proposal which is attached to this application form.
- ☑ I have prepared an Environmental Impact Statement which is submitted with this application.

Is the land or part of the land critical habitat? ☐ YES ☑ NO

If YES, a Species Impact Statement is to be prepared and submitted to Council.

Is the development likely to significantly affect threatened species, populations or ecological communities or their habitats?

☐ YES ☑ NO

If YES, a Species Impact Statement is to be prepared and submitted to Council.

APPROVALS UNDER SECTION 68 OF THE LOCAL GOVERNMENT ACT 1993

Is this application also seeking Ballina Shire Council's approval for any of the matters listed in the table of Section 68 of the Local Government Act 1993?

☐ YES ☑ NO

If YES, please tick the appropriate box below and complete Council's Section 68 application form and append to this application.

- a) ☐ Carry out water supply work.
- b) ☐ Draw water from a Council water supply or a standpipe or selling water so drawn.
- c) ☐ Install, alter, disconnect or remove a meter connected to a service pipe.
- d) ☐ Carry out sewerage work.
- e) ☐ Carry our stormwater drainage work.
- f) ☐ Connect private property to Council sewerage system.
- g) ☐ Discharge of Trade Waste to Sewer.
- h) ☐ Install or alter an On-Site Wastewater Management Facility (Septic System).
- i) ☐ Public Entertainment.
- j) ☐ Other .....

CONSTRUCTION CERTIFICATE

Is a Construction Certificate application to be lodged at the same time as the application for development consent?

☐ YES ☑ NO

Do you wish to appoint Council as the Principal Certifying Authority, issue a Construction Certificate, carry out relevant building inspections, and to issue relevant Compliance and Occupation Certificates?

☐ YES ☐ NO

If YES, please complete Construction Certificate Application Form.

DISCLOSURE OF POLITICAL DONATIONS AND GIFTS

A person who submits a development application to Council is required to disclose the following reportable political donations and gifts (if any) made by any person with a financial interest in the application within the period commencing two years before the application is made and ending when the application is determined:

- All reportable political donations made to any local Councillor of that Council; and
- All gifts made to any local Councillor or employee of that Council.

A reference to a reportable political donation made to a "local Councillor" includes a reference to a donation made at the time the person was a candidate for election to the Council.

Significant penalties apply to non-disclosure. For more information and to obtain a political donations and gifts disclosure statement go to the Department of Planning website at www.planning.nsw.gov.au.

Is a disclosure statement to accompany your application? ☐ YES ☑ NO

APPLICANT'S LODGEMENT CHECKLIST

The following items must be submitted to Council upon application.

- ☐ Completed **development application form**
- ☐ **Owner's consent** signed, where owner is not the applicant
- ☐ Three copies of the full set of **plans,** being site, floor, elevation and section plans (**at least 1 full set is to be of A4 or A3 size**)
- ☐ A statement of environmental effects (for development other than designated development)
- ☐ Two copies of **specifications**
- ☐ **Payment of fees** as per Council Fees & Charges (contact Council for lodgement fees)
- ☐ **BASIX Certificate** (where applicable)
- ☐ **Section 68** application form (where applicable)

Where Council is nominated as the Principal Certifying Authority, the following items must be submitted to Council prior to construction works commencing:

- ☐ **Engineer's details** for all structural steel concrete work (by a qualified structural engineer) where required by Council (eg. New dwellings, major additions or swimming pools).
- ☐ **Owner Builder's Permit** for owner builder work greater than $5000.
- ☐ **Home Owner Warranty Insurance** for work greater than $12000.
- ☐ Payment of **Long Service Levy** if required (for works of $25,000 or greater – 0.35% of the estimated cost of development) NB: The levy is payable in respect of the estimated cost of civil works for subdivisions.

PLEASE NOTE:
The Environmental Planning & Assessment Act and the Local Government Act contain provisions that authorise Council staff to enter land and carry out inspections, investigations and assessment in relation to submitted development applications. Consequently you are advised that Council assessment personnel will undertake a number of site inspections for the purposes of assessing this development application.

PRIVACY PROTECTION NOTICE:
The completed development application form contains personal information which is being collected for the purpose of assessing this application. The information will be processed by council officers and may be made available to public enquiries under Section 12 of the Local Government Act. The information supplied is required under the Environmental Planning & Assessment Act. The information will be stored in the Regulatory Services Group.

EIS Author Declaration

Submission of
Environmental Impact Statement (EIS)
prepared under the *Environmental Planning and Assessment Act 1979*
Section 112

Development Application

applicant name applicant address	***Ardill Payne & Partners*** ***79 Tamar Street*** ***PO Box 20*** ***BALLINA NSW 2478***
land to be developed	***Lot 32 DP 1151612*** ***Newrybar Swamp Road, Lennox Head***

EIS prepared by

name	***Paul Michael Snellgrove***
qualifications	***BTP (UNSW), CPP***
address	***Ardill Payne & Partners*** ***79 Tamar Street*** ***PO Box 20*** ***BALLINA NSW 2478***
proposed development	***Proposed extractive industry (sand quarry)***

Environmental Impact Statement

An environmental impact statement (EIS) is attached

Certificate

I certify that I have prepared the contents of this Statement and to the best of my knowledge:

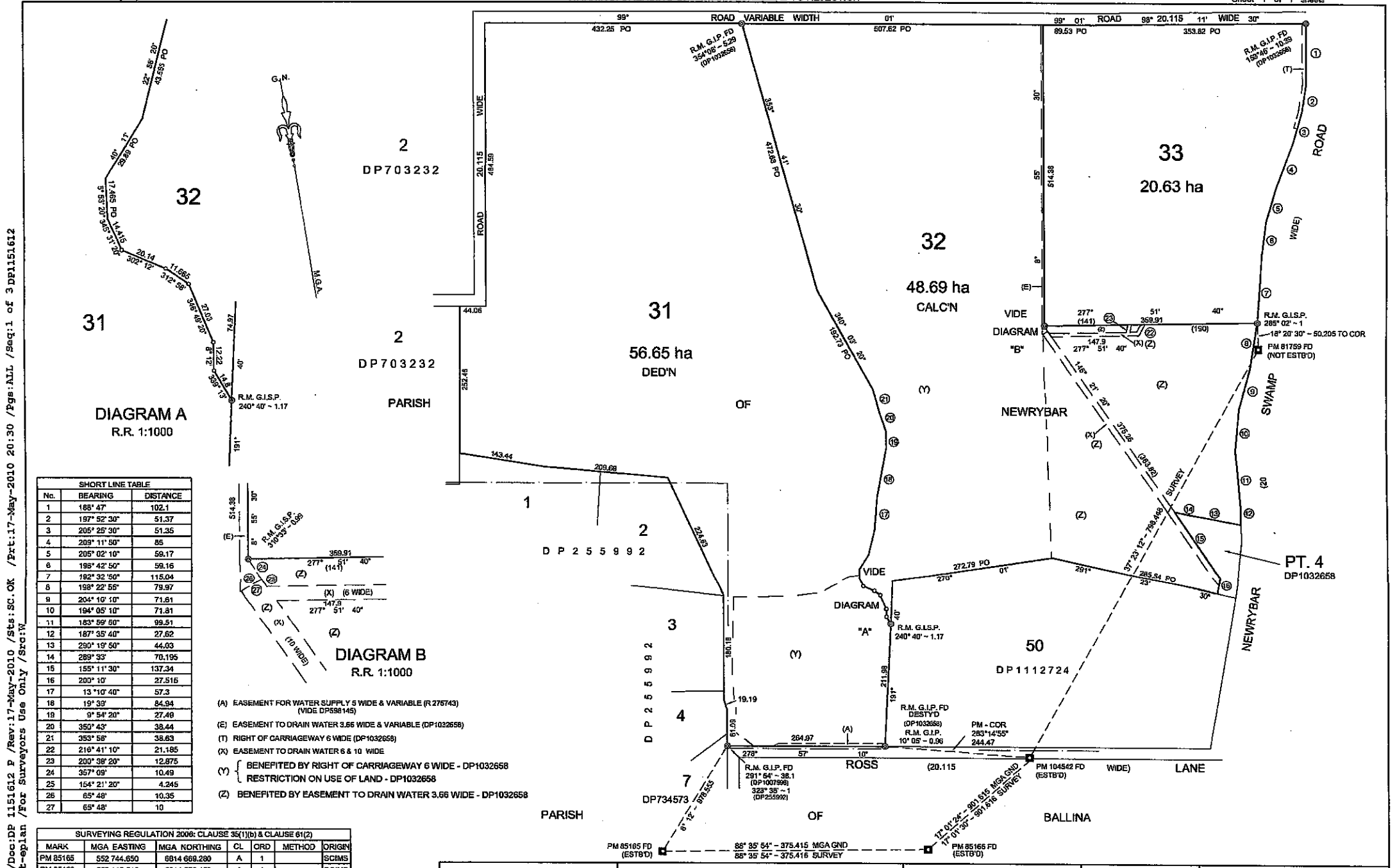
- ***it is in accordance with the relevant provisions of the Environmental Planning and Assessment Regulation 1994;***
- ***the statement contains all available information that is relevant to the environmental assessment of the proposed development to which the statement relates; and***
- ***the information contained in the statement is neither false nor misleading.***

Signature	PS
Name	Paul Michael Snellgrove (for Ardill Payne & Partners)
Date	15 MAY 2013

APPENDIX B

Copy of Deposited Plan
&
Contour Plan

PLAN FORM 2 (A2) WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION ePlan Sheet 1 of 1 sheets



SHORT LINE TABLE		
No.	BEARING	DISTANCE
1	168° 47'	102.1
2	197° 52' 30"	51.37
3	205° 25' 30"	51.35
4	209° 11' 50"	85
5	205° 02' 10"	59.17
6	198° 42' 50"	59.16
7	192° 32' 50"	115.04
8	198° 22' 55"	79.97
9	204° 16' 10"	71.61
10	194° 05' 10"	71.81
11	183° 59' 50"	99.51
12	187° 35' 40"	27.62
13	290° 19' 50"	44.03
14	289° 33'	70.195
15	155° 11' 30"	137.34
16	200° 10'	27.515
17	13 °10' 40"	57.3
18	19° 39'	84.94
19	9° 54' 20"	27.49
20	350° 43'	38.44
21	353° 56'	38.63
22	216° 41' 10"	21.185
23	200° 38' 20"	12.875
24	357° 09'	10.49
25	154° 21' 20"	4.245
26	65° 48'	10.35
27	65° 48'	10

(A) EASEMENT FOR WATER SUPPLY 5 WIDE & VARIABLE (R 275743) (VIDE DP598145)
(E) EASEMENT TO DRAIN WATER 3.66 WIDE & VARIABLE (DP1032658)
(T) RIGHT OF CARRIAGEWAY 6 WIDE (DP1032658)
(X) EASEMENT TO DRAIN WATER 6 & 10 WIDE
(Y) BENEFITED BY RIGHT OF CARRIAGEWAY 6 WIDE - DP1032658; RESTRICTION ON USE OF LAND - DP1032658
(Z) BENEFITED BY EASEMENT TO DRAIN WATER 3.66 WIDE - DP1032658

SURVEYING REGULATION 2006: CLAUSE 35(1)(b) & CLAUSE 61(2)						
MARK	MGA EASTING	MGA NORTHING	CL	ORD	METHOD	ORIGIN
PM 85165	552 744.650	6814 669.280	A	1		SCIMS
PM 85166	553 119.616	6814 678.459	A	1		SCIMS
PM 104542	553 383.866	6815 540.258	C	3		SCIMS
COMBINED SEA LEVEL AND SCALE FACTOR 0.999636 ZONE 56						
SOURCE: MGA COORDINATES ADOPTED FROM SCIMS ON 05-11-2004						

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

Surveyor: GRAEME GEOFFREY CALNAN, ARDILL PAYNE & PARTNERS, P.O. BOX 20, BALLINA 2478
Date of Survey: 15 SEPTEMBER 2008
Surveyors Ref: 6710DP

PLAN OF SUBDIVISION OF LOTS 1 & 2 IN DP1032658 & LOT 30 IN DP1102964

LGA: BALLINA
Locality: TINTENBAR
Subdivision No: 016/2009
Lengths are in metres. Reduction Ratio 1:4000

Registered 14-5-2010

DP1151612

Project: Lot 32 DP 1151612 Newrybar Swamp Rd Lennox Head	Client: Ballina Sands Title: Site Plan Showing Contours	**ARDILL PAYNE** **ENGINEERS PLANNERS SURVEYORS** ENVIRONMENTAL PROJECT MANAGEMENT BALLINA 79 Tamar Street Ph. 02 6686 3280 SOUTH BRISBANE 89 Grey Street Ph. 07 3123 6675 GUNNEDAH 285 Conadilly Street Ph. 02 6742 9955 A.B.N. 51 808 558 977 e-mail: info@ardillpayne.com.au	Design RMcG · Scale at A3 1:2500 · Date 17.10.2012 Drawn RMcG · Datum AHD Checked · Acad file 6542 Contours Approved · Ccad file Job No. 6542 · Dwg. No. FIG.1 · Issue

APPENDIX C

Public Authority Consultation Responses

APPENDIX C1

DGR 520

NSW GOVERNMENT | Planning & Infrastructure

Mining & Industry Projects
Contact: Matthew Riley
Phone: (02) 9228 6339
Fax: (02) 9228 6466
Email: matthew.riley@planning.nsw.gov.au

RECEIVED
DATE 19-11-12 BY EE 6542

Mr Evan Elford
Ardill Payne & Partners
PO Box 20
BALLINA NSW 2478

Dear Mr Elford

Watsons Quarry, Newrybar (DGR 520)
Director-General's Requirements

I refer to your request to re-issue Director-General's Requirements (DGRs) for the above development, which is designated local development under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). I have attached a copy of the DGRs for the Environmental Impact Statement (EIS) required for this development. These requirements have been based on the information your company has provided to date.

In your request for DGRs, it was indicated that the proposal would require approval under the *Protection of the Environment Operations Act 1997* and the *Water Management Act 2000*. Accordingly, the proposal is classified as integrated development under the *Environmental Planning and Assessment Act 1979.* You must undertake your own consultation with the relevant public authorities, and address their requirements in the EIS.

When you lodge your DA for the proposal, you must provide:

- two hard copies and one electronic copy of the EIS to the Department;
- one hard and one electronic copy of the EIS to each identified integrated approval authority; and
- a cheque for $320 to each identified integrated approval authority, to offset costs involved in the review of the DA and EIS. Do not send a cheque to the Department of Planning and Infrastructure as it is not an integrated approval authority.

If your proposal contains any actions that could have a significant impact on matters of National Environmental Significance, then it will require an additional approval under the Commonwealth's *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act). This approval is in addition to any approvals required under NSW legislation. If you have any questions about the application of the EPBC Act to your proposal, you should contact the Department of Sustainability, Environment, Water, Population and Communities in Canberra (6274 1111 or www.environment.gov.au).

Should the consent authority approve the proposal, then under section 22 of the *Mine Health and Safety Act 2004,* the owner or general manager of a mine or quarry must not undertake mining or quarrying operations without first nominating a person as the operator of the mine or quarry to the Chief Inspector of Mines. The Applicant should contact the local Mine Safety Operations Branch of the Division of Resources and Energy within the Department of Trade, Investment, Regional Infrastructure and Services in regard to this and other matters relating to compliance with the *Mine Health and Safety Act 2004.*

If you have any enquiries about these requirements, please contact Matthew Riley.

Yours sincerely

DKitto 15/11/12

David Kitto
Director
Mining & Industry Projects
as delegate for the Director-General

Director-General's Requirements

Section 78A(8) of the *Environmental Planning and Assessment Act 1979* and Schedule 2 of the *Environmental Planning and Assessment Regulation 2000.*

Designated Development

DGR Number	520
Proposal	Development of quarry to extract up to 610,000 m^3 of sand, over a period of up to 15 years.
Location	Newrybar Swamp Road, approximately 10km northwest of Lennox Head
Applicant	Ballina Sands Pty Ltd
Date of Expiry	15 November 2014
General Requirements (refer Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*)	The Environmental Impact Statement (EIS) must include: • an executive summary; • a full/detailed description of the proposal, including: - identification of the resource; - description of the site; - a history of any previous quarrying operations on the site; - the proposed works (including rehabilitation works); - the duration and intensity of extraction operations; - any likely interactions between the proposed operations and existing/approved development and land use in the area; and - a detailed justification for the development; • a conclusion justifying the development on economic, social and environmental grounds, taking into consideration whether the proposal is consistent with the objects of the *Environmental Planning & Assessment Act 1979*; and • a signed declaration from the author of the EIS, certifying that the information contained within the document is neither false nor misleading.
Key Issues	The EIS must also assess the potential impacts of the proposal during the establishment, operation and decommissioning of the proposal. The EIS must describe what measures would be implemented to avoid, minimise, mitigate, offset, manage and/or monitor the potential impacts on: • **Land Resources** – including a assessment of the potential impacts on: - soils and land capability, including an assessment of activities that would cause erosion and the measures proposed to minimise erosion and sedimentation; - landforms and topography, including cliffs, rock formations, steep slopes, etc; and - land use, including agricultural, forestry and conservation lands; • **Water Resources** – including: - identification of any licensing requirements or other approvals under the *Water Act 1912* and/or *Water Management Act 2000*; - an assessment of potential impacts on the quality and quantity of existing surface and ground water resources; - a description of the measures proposed to ensure the development can operate in accordance with the requirements of any relevant Water Sharing Plan or water source embargo; - a detailed description of the proposed water management system (including sewage), water monitoring program and other measures to mitigate surface and groundwater impacts; and - a site water balance for representative years of the proposed life of the quarry; • **Biodiversity** – including: • accurate predictions of any vegetation clearing on site or for any road upgrades; • a detailed assessment of the potential impacts of the development on any threatened species or populations or their habitats, endangered

	ecological communities and groundwater dependent ecosystems; • a detailed description of the measures to maintain or improve the biodiversity values within the development area in the medium to long term; and • consideration of a Biodiversity Offset Strategy; • **Heritage** – including: - an Aboriginal cultural heritage assessment (including both cultural and archaeological significance) which must demonstrate effective consultation with Aboriginal communities in determining and assessing impacts, and developing and selecting mitigation options and measures; and - a Historic heritage assessment (including archaeology) which must include a statement of heritage impact (including significance assessment) for any State significant or locally significant historic heritage items; • **Traffic and Transport** – including: - an assessment of potential traffic impacts on the capacity, efficiency and safety of the road network; and - a description of the measures that would be implemented to maintain and/or improve the capacity, efficiency and safety of the road network in the surrounding area over the life of the project; • **Noise** - particularly any potential noise impacts on nearby private receptors due to construction, operation or road haulage; • **Air Quality** – particularly any potential dust impacts on nearby private receptors from construction, operation or road haulage; • **Rehabilitation** – including: - a detailed description of the proposed measures that would be undertaken during quarry closure; - a detailed rehabilitation strategy, including justification for the proposed final land form and consideration of the objectives of any relevant strategic land use plans or policies; and - the measures that would be undertaken to ensure sufficient financial resources are available to implement the proposed rehabilitation strategy; • **Visual Amenity**; • **Waste Management** – including identification of the quantity and type of waste that would be handled/stored/disposed of at the quarry; • **Hazards** – including any storage of dangerous goods; • **Utilities and Services**; and • **Social and Economic Impacts.**
Environmental Planning Instruments	The EIS must assess the proposal against the relevant environmental planning instruments, including (but not limited to): • *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007;* • *State Environmental Planning Policy (Rural Lands) 2008;* • *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development;* • *State Environmental Planning Policy No. 44 – Koala Habitat Protection;* • *State Environmental Planning Policy No. 55 – Remediation of Land;* • *Ballina Local Environmental Plan 1987;* • *Draft Ballina Local Environmental Plan 2011;* and • relevant development control plans and section 94 plans.
Guidelines	The EIS must take into account relevant State Government policies and guidelines, in particular the *Industrial Noise Policy* (EPA 2001), *Soils and Construction: Managing Urban Stormwater* (Landcom 2004); *Guidelines for Fresh and Marine Water Quality and Guidelines for Water Quality Monitoring and Reporting* (ANZECC); *Using the ANZECC Guideline and Water Quality Objectives in NSW* (DEC), *NSW Aquifer Interference Policy* (DPI 2012), *Approved Methods for the Modelling and Assessment of Air Pollutants* (DEC), *Approved Methods for Sampling and Analysis of Air Pollutants* (DEC), *Threatened Biodiversity Survey and Assessment: Guidelines for*

	(DECC 2004), *The Threatened Species Assessment Guideline – The Assessment of Significance* (DECC 2007), *Draft Guidelines for Aboriginal Cultural Heritage Assessment and Community Consultation (DEC 2005)*, *Guide to Traffic Generating Development* (RTA), *Road Design Guide* (RTA) or latest versions. During the preparation of the EIS you must consult the Department's EIS Guideline – Extractive Industries – Quarries. This guideline is available for purchase from the Department's Information Centre, 23-33 Bridge Street, Sydney or by calling 1300 305 695.
Consultation	During the preparation of the EIS, you must consult with Council and should consult with the relevant local, State and Commonwealth government authorities, service providers and community groups, and address any issues they may raise in the EIS. In particular, you should consult surrounding landowners and occupiers that are likely to be impacted by the proposal. Details of the consultations carried out and issues raised must be included in the EIS.

APPENDIX C2

Department of Primary Industry
Office of Water

NSW GOVERNMENT | Department of Primary Industries
Office of Water

19-12-12 PS 6542w

Contact: Patrick Pahlow
Phone: 02 6676 7386
Fax: 02 6676 7388
Email: patrick.pahlow@water.nsw.gov.au

SCANNED TP

Ardill Payne & Partners
PO Box 20
Ballina NSW 2478

Our ref: 30 ERM2010/1273
File No: 9054358
Your Ref: 6542w govt dept eis consultation

Attention: Paul Snellgrove

17 December 2012

Dear Mr Snellgrove

Re: Proposed Development, Newrybar Swamp Road, Lennox Head
Request for requirements for an EIS for extractive industry (sand quarry)

I refer to your letter of 11 December 2012 requesting the Department's EIS requirements for the proposed quarry. Please be advised that the EIS requirements previously provided 16 March 2011 are still relevant and should continue to be used to guide the EIS preparation (copy attached).

Please direct any questions or correspondence to Patrick Pahlow, patrick.pahlow@water.nsw.gov.au.

Yours sincerely

Patrick Pahlow
Senior Licensing Officer
Office of Water - Licensing North

NSW GOVERNMENT | Office of Water

Contact: Patrick Pahlow
Phone: 02 6676 7386
Fax: 02 6676 7388
Email: patrick.pahlow@water.nsw.gov.au

Our ref: 30 ERM2010/1273
File No: 9054358

Ardill Payne and Partners
P.O. Box 20
Ballina NSW 2478

Attention: Paul Snellgrove

16 March 2011

Dear Sir

Re: Proposed Development, Newrybar Swamp Road Lennox Head – Request for requirements for an environmental impact statement for extractive industry (sand quarry)

The NSW Office of Water's (NOW) policy is to prevent the degradation of the State's aquifers where by each aquifer system is evaluated for its beneficial use. Developers are required to establish that their activity will not contaminate the groundwater quality (NSW Groundwater Quality Protection Policy, DLWC 1998) or impact on groundwater dependent ecosystems (The NSW Groundwater Dependent Ecosystem Policy, DLWC 2000).

The following information is to be provided within the EIS for this development:

- A hydrogeological investigation should be undertaken for the site. This should include details of all aquifers, confining layers, water levels and water quality.
- Impacts from the development on groundwater should be identified.
- A comprehensive water balance should be undertaken identifying all inputs and losses.
- Determination of water requirements should be undertaken as part of the water balance.
- The degree of connection between any surface water features and groundwater should be determined. This should be incorporated into the water balance and groundwater management plan.
- Impacts on groundwater dependant ecosystems should be determined
- Impacts on other licensed groundwater users should be determined.
- If the proposed extraction site impacts an area of potential ASS, a detailed survey of the area must be carried out which complies with the ASSMAC guidelines. The number of test hole drill holes and sampling intervals must comply with the ASSMAC Guidelines. In the event that ASS material is found on site a detailed ASS management plan must be included in the EIS. The EIS must include any technical reports, which must include details of sampling, a map detailing locations of samples taken, profiles details, results of sampling and treatment of any ASS fines as required by the ASSMAC Guidelines.

- A groundwater management plan should be developed to determine base line information as well as water quality during the working life and post operation, including:

    - Groundwater quality parameters for pH/EC/DO/EH
    - Analysis of shallow and deep groundwater for the following: cations/anions, (Ca, Mg, Na, K / HCO_3, SO_4, Cl), iron (Fe), arsenic (As) Manganese (Mn) and aluminium (Al)
    - Groundwater levels measured to define flow contours (relative to AHD) to show groundwater flow directions;

- It should be noted that developments of a similar nature have attracted security guarantee's as part of the development approval to cover the cost of rehabilitation should the operation be abandoned due to unforeseen events.

- All monitoring bores would need to be installed by a licensed driller and licensed with this Department prior to their installation.

Further information on Controlled Activity Approvals under the *Water Management Act 2000* can be obtained from the NSW Office of Water's website
http://www.water.nsw.gov.au/Water-Licensing/Approvals/Controlled-activities/default.aspx

Please direct any questions or correspondence to Patrick Pahlow, patrick.pahlow@water.nsw.gov.au.

Yours sincerely

Patrick Pahlow
Licensing Officer
NSW Office of Water - Licensing North

APPENDIX C3

Trade & Investment
Resources & Energy

Trade & Investment
Resources & Energy

7-1-13 PS 6542 w

Out12/33350
FILE ML00/0413-01

20/12/2012

SCANNED TP

Paul Snellgrove
Ardill Payne & Partners
PO Box 20
BALLINA NSW 2478

Dear Mr Snellgrove

Re: Requirements for an EIS
for proposed extractive industry (sand quarry) Lot 32 DP 1151612 Lennox Head

Thank you for your letter of 11 December, 2012 concerning the reissued request for key issues relating to the proposed Environmental Impact Statement. This response incorporates the requirements of Trade & Investment - Mineral Resources Branch and DPI Agriculture. DPI Fisheries may provide advice in separate correspondence. There are no significant forestry issues.

Mineral Resource Issues
Sand is not a prescribed mineral under the Mining Act, 1992. Therefore, Trade & Investment - Mineral Resources Branch has no statutory role in authorising or regulating the extraction of this commodity, apart from its role under the Occupation Health & Safety Act 2000 and the Mine Health and Safety Act 2004 and associated regulations, for ensuring the safe operations of mines and quarries.

All environmental reports (EISs or similar) accompanying Development Applications for extractive industry lodged under the Environmental Planning & Assessment Act 1979 should include a resource assessment (as detailed in Attachment A) which:

- Documents the size and quality of the resource and demonstrates that both have been adequately assessed; and
- Documents the methods used to assess the resource and its suitability for the intended applications.

Applications to modify, expand, extend or intensify an existing consent that has already been adequately reported using the above protocol in publicly available documents may restrict detailed documentation to the additional resources to be used, if accompanied by a summary of past resource assessments and of past production.

Trade & Investment - Mineral Resources Branch collects data on the quantity and value of construction materials produced annually throughout the State. Forms are sent to all operating quarries at the end of each financial year for this purpose. The statistical data thus collected is of great value to Government and industry in planning and resource management, particularly as a

NSW Department of Trade and Investment, Regional Infrastructure and Services
RESOURCES & ENERGY DIVISION
PO Box 344 Hunter Region Mail Centre NSW 2310
Tel: 02 4931 6666 Fax: 02 4931 6726
ABN 51 734 124 190
www.dtiris.nsw.gov.au

basis for analysing trends in production and for estimating future demand for particular commodities or in particular regions. In order to assist in the collection of construction material production data, the proponent should be required to provide annual production data for the subject site to Trade & Investment - Mineral Resources Branch as a condition of any new or amended development consent.

Agriculture Issues

The relevant agricultural issues to consider when preparing and also when assessing extractive industry proposals are set out in the Departments' Guideline: *Agricultural issues for Extractive Industries* available on our website; http://www.dpi.nsw.gov.au/environment/landuse-planning/agriculture/extractive-industries. The guideline also documents recommended project design and mitigatory responses.

The guideline is part of a series designed to help consent authorities identify potential agricultural impacts, and assess whether such proposals can avoid conflict with existing agricultural developments; and protect valuable food and fibre production resources. The guidelines can similarly help consultants and proponents and are available from the Department of Primary Industries land use planning web portal: http://www.dpi.nsw.gov.au/environment/landuse-planning/agriculture .

Should you have any queries relating to issues raised above please contact Cressida Gilmore on 02 49316537 or email cressida.gilmore@industry.nsw.gov.au.

Yours sincerely

Cressida Gilmore

Team Leader Land Use

Encl. Attachment "A" - Environmental & Occupational Health & Safety assessment requirements for construction material quarry proposals

NSW GOVERNMENT | Resources & Energy

ATTACHMENT A

TRADE & INVESTMENT NSW
RESOURCES & ENERGY DIVISION (Mineral Resources Branch)

ENVIRONMENTAL & OCCUPATIONAL HEALTH & SAFETY ASSESSMENT REQUIREMENTS FOR CONSTRUCTION MATERIAL QUARRY PROPOSALS

It is in the best interests of both the proponent and the community to fully assess the resources which are to be extracted. This means that a thorough geological assessment should be undertaken to determine the nature, quality and extent of the resource. Failure to undertake such an assessment could lead to operational problems and possibly even failure of the proposal.

The following issues need to be addressed when preparing an environmental assessment (EA) or environmental impact statement (EIS) for a proposed construction materials (extractive materials) quarry:

Resource Assessment

1. A summary of the regional and local geology including information on the stratigraphic unit or units within which the resource is located.

2. The amount of material to be extracted and the method or methods used to determine the size of the resource (e.g. drilling, trenching, geophysical methods). Plans and cross-sections summarising this data, at a standard scale, showing location of drillholes and/or trenches, and the area proposed for extraction, should be included in the EA or EIS. Relevant supporting documentation such as drill logs should be included or appended. Major resource proposals should be subject to extensive drilling programs to identify the nature and extent of the resource.

3. Characteristics of the material or materials to be produced:
   a) For structural clay/shale extraction proposals, ceramic properties such as plasticity, drying characteristics (e.g. dry green strength, linear drying shrinkage), and firing characteristics (e.g. shrinkage, water absorption, fired colour) should be described.
   b) For sand extraction proposals, properties such as composition, grainsize, grading, clay content and contaminants should be indicated. The inclusion of indicative grading curves for all anticipated products as well as the overall deposit is recommended.
   c) For hard rock aggregate proposals, information should be provided on properties such as grainsize and mineralogy, nature and extent of weathering or alteration, and amount and type of deleterious minerals, if any.

NSW Department of Trade and Investment, Regional Infrastructure and Services
RESOURCES & ENERGY DIVISION
PO Box 344 Hunter Region Mail Centre NSW 2310
Tel: 02 4931 6666 Fax: 02 4931 6726
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www.dtiris.nsw.gov.au

d) For other proposals, properties relevant to the range of intended uses for the particular material should be indicated.

Details of tests carried out to determine the characteristics of the material should be included or appended. Such tests should be undertaken by NATA registered testing laboratories.

4. An assessment of the quality of the material and its suitability for the anticipated range of applications should be given.

5. The amount of material anticipated to be produced annually should be indicated. If the proposal includes a staged extraction sequence, details of the staging sequence needs to be provided. The intended life of the operation should be indicated.

6. If the proposal is an extension to an existing operation, details of history and past production should be provided.

7. An assessment of alternative sources to the proposal and the availability of these sources. The impact of not proceeding with the proposal should be addressed.

8. Justification for the proposal in terms of the local and, if appropriate, the regional context.

9. Information on the location and size of markets to be supplied from the site.

10. Route(s) used to transport quarry products to market.

11. Disposal of waste products and the location and size of stockpiles.

12. Assessment of noise, vibration, dust and visual impacts, and proposed measures to minimise these impacts.

13. Proposed rehabilitation procedures during, and after completion of, extraction operations, and proposed final use of site.

14. Assessment of the ecological sustainability of the proposal.

Health and Safety Issues

In relation to the health & safety of mining and quarrying operations, the following issues should be addressed:

1. All operations are to comply with the following Acts & Regulations
    a. *Occupation Health & Safety Act 2000*
    b. *Occupation Health & Safety Regulations 2001*
    c. *Mine Health & Safety Act 2004*
    d. *Mine Health & Safety Regulations 2007*

2. The mine holder must nominate the mine operator in writing on the prescribed form to the Chief Inspector as required by the *Mine Health & Safety Act 2004* Section 22 prior to the commencement of extraction.

3. The operator of the mine must appoint a production manager as required by the *Mine Health & Safety Regulation 2007* Clause 16 and the operator must notify the Chief

Inspector of the appointment in writing as required by the *Mine Health & Safety Regulation 2007* Clause 18 prior to the commencement of extraction.

4. Any blasting operations carried out by the mine operator must comply with the *Explosives Act 2003* and the *Explosives Regulations 2005*.

Mineral Ownership

The *Mining Act 1992* applies to those commodities prescribed by the regulations of the Act (Schedule 2, Mining Regulation 2003). Most construction materials are not prescribed minerals under the *Mining Act 1992*. In general terms, this means these materials are owned by the Crown where they occur on Crown land and by the landowner in the case of freehold land. A Mining Title is not required for their extraction although a Crown Lands licence is required where they occur on Crown land.

Construction materials such as s*and (other than marine aggregate), loam, river gravel, and coarse aggregate materials such as basalt, sandstone, and granite* are not prescribed minerals under the *Mining Act 1992*. Therefore, Trade & Investment NSW has no statutory responsibility for authorising or regulating the extraction of these commodities, apart from its role under the *Mine Health and Safety Act 2004* with respect to the safe operation of mines and quarries. However, the Department is the principal government authority responsible for assessing the State's resources of construction materials and for advising State and local government on their planning and management.

Some commodities, notably *structural clay (ie clay for brick, tile and pipe manufacture), dimension stone (except for sandstone), quartzite, kaolin, limestone and marine aggregate* are prescribed minerals under the *Mining Act 1992*. Minerals which are prescribed as minerals under the terms of the Mining Act may, in some cases belong either to the Crown or to the landowner, depending on a number of factors including the date on which the mineral was proclaimed and the date of alienation of the land. The proponent needs to determine whether the material is privately owned or Crown mineral (publicly owned). If it is privately owned, then either a notification under Section 8 of the Mining Act 1992 or, alternatively, a mining lease or mineral claim would be required. If it is a Crown mineral, an application for a mining lease or mineral claim will have to be lodged.

If you are unsure whether a mining title is required for your proposal you should contact NSW Trade & Investment, Resources & Energy Division.

APPENDIX C4

Environment Protection Authority

EPA

ENVIRONMENT PROTECTION AUTHORITY

Our reference: Lic 13/24 DOC12/52446
Contact: Peter Lynch 02 6640 2502

SCANNED

Mr Paul Snellgrove
Ardill Payne
9 Tamar Street
PO Box 20
BALLINA, NSW 2478

23 JAN 2013

Dear Mr Snellgrove

Re-issue of the Director General's Requirements for a proposed quarry.

I refer to your letter dated 11 December 2012 requesting that the Director General's Requirements (DGRs) be re-issued for the preparation of an environmental impact statement (EIS) for the proposed quarry at Lot 32 DP 1151612 at Newrybar Swamp Road, Lennox Head.

Firstly, it should be noted that following a review of government agencies, the Department of Environment, Climate Change and Water (DECCW) was abolished. It has been replaced with the Environment Protection Authority (EPA), the Office of Environment and Heritage (OEH) and the NSW Office of Water (NOW).

In relation to the proposed quarry development, the EPA has responsibility for air quality, noise and vibration, water quality, waste and chemicals, and contaminated sites. The OEH has responsibility for flora and fauna, and Aboriginal heritage matters. I note that you have separately contacted NOW.

Regarding your request, the EPA has reviewed the DGRs issued on 20 December 2010 for the above proposed quarry. I wish to advise you that the DGRs, as they relate to the EPA's responsibilities, remain current and, from the EPA's viewpoint, do not require modification.

However, to avoid any confusion, I have redrafted the DGRs to include only those matters for which the EPA has responsibility. A copy of the revised DGRs is attached.

It is noted that your company has commenced work on the EIS in accordance with the original DGRs issued by the then DECCW.

In relation to the DGRs for matters pertaining to flora and fauna and Aboriginal heritage, you should contact Mr Jon Keats, OEH North East Branch at PO Box 498 Grafton, NSW 2460. Mr Keats may also be contacted on 6640 2506.

P O Box 498, Grafton NSW 2460
State Office Block Level 2, 49-51 Victoria Street,
Grafton NSW 2460
Tel: (02) 6640 2500 Fax: (02) 6640 2539
ABN 30 841 387 271
www.environment.nsw.gov.au

Should you wish to discuss the EPA's DGRs or require any further information please contact Peter Lynch on 6640 2502.

Yours sincerely

GARY DAVEY
Director North Branch
Environment Protection Authority

ATTACHMENT A: EIS Requirements for proposed Ballina Sands Project – Lot 32 DP1151612, Newrybar Swamp Road, Lennox Head

A. Executive summary

The executive summary should include a brief discussion of the extent to which the proposal achieves identified environmental outcomes.

B. The proposal

1. Objectives of the proposal

2. Location & Description of the proposal

The proponent must provide location details along with an accurate description of the proposal which addresses the following:

- General overview of site – context setting
- Air quality
- Noise & Vibration
- Water Quality
- Soil Management
- Waste & Chemicals
- Ecologically Sustainable Development
- Rehabilitation
- Justification for the proposal

In preparing the site description the proponent should consider:

- Using map(s) showing the locality of the proposed development in a regional and local context. Local context maps should be based on 1:25 000 topographic plans. Photographs of the site's key attributes may provide useful documentation.
- The area subject to development should be clearly identified on an appropriately scaled plan. This includes all ancillary works such as buildings and other structures, parking areas, loading/processing/treatment areas, access roads, and material stockpiling areas.
- The applicability or otherwise of Local Environment Plans (LEP), Regional Environment Plans (REP) and State Environmental Planning Policies (SEPP).

C. The environmental issues

1. General

- The potential impacts identified in the scoping study need to be assessed to determine their significance, particularly in terms of achieving environmental outcomes, and minimising environmental pollution.
- Identify gaps in information and data relevant to significant impacts of the proposal and any actions proposed to fill those information gaps so as to enable development of appropriate management and mitigation measures. This is in accordance with ESD requirements.

  Note: The level of detail should match the level of importance of the issue in decision making which is dependent on the environmental risk.

Describe baseline conditions

- Provide a description of existing environmental conditions for any potential impacts.

Assess impacts

- For any potential impacts relevant for the assessment of the proposal provide a detailed analysis of the impacts of the proposal on the environment including the cumulative impact of the proposal on the receiving environment especially where there are sensitive receivers.
- Describe the methodology used and assumptions made in undertaking this analysis (including any modelling or monitoring undertaken) and indicate the level of confidence in the predicted outcomes and the resilience of the environment to cope with the predicted impacts.
- The analysis should also make linkages between different areas of assessment where necessary to enable a full assessment of environmental impacts eg assessment of impacts on air quality will often need to draw on the analysis of traffic, health, social, soil and/or ecological systems impacts; etc.
- The assessment needs to consider impacts at all phases of the project cycle including: exploration (if relevant or significant), construction, routine operation, start-up operations, upset operations and decommissioning if relevant.
- The level of assessment should be commensurate with the risk to the environment.

Describe management and mitigation measures

- Describe any mitigation measures and management options proposed to prevent, control, abate or mitigate identified environmental impacts associated with the proposal and to reduce risks to human health and prevent the degradation of the environment. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.
- Proponents are expected to implement a 'reasonable level of performance' to minimise environmental impacts. The proponent must indicate how the proposal meets reasonable levels of performance. For example, reference technology based criteria if available, or identify good practice for this type of activity or development. A 'reasonable level of performance' involves adopting and implementing technology and management practices to achieve certain pollutant emissions levels in economically viable operations. Technology-based criteria evolve gradually over time as technologies and practices change.
- Use environmental impacts as key criteria in selecting between alternative sites, designs and technologies, and to avoid options having the highest environmental impacts.
- Outline any proposed approach (such as an Environmental Management Plan) that will demonstrate how commitments made in the EIS will be implemented. Areas that should be described include:

  a) operational procedures to manage environmental impacts
  b) monitoring procedures
  c) training programs
  d) community consultation
  e) complaint mechanisms including site contacts
  f) strategies to use monitoring information to improve performance
  g) strategies to achieve acceptable environmental impacts and to respond in event of exceedences.

2. Air

Describe baseline conditions

- Provide a description of existing air quality and meteorology, using existing information and site representative ambient monitoring data.

Assess impacts

- Identify all pollutants of concern and estimate emissions by quantity (and size for particles), source and discharge point.
- Estimate the resulting ground level concentrations of all pollutants. Where necessary (eg potentially significant impacts and complex terrain effects), use an appropriate dispersion model to estimate ambient pollutant concentrations. Discuss choice of model and parameters with the EPA.

- Describe the effects and significance of pollutant concentration on the environment, human health, amenity and regional ambient air quality standards or goals.
- Describe the contribution that the development will make to regional and global pollution, particularly in sensitive locations.
- Reference should be made to *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW* (EPA, 2001); *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW* (EPA, 2001).

Describe management and mitigation measures

- Outline specifications of pollution control equipment (including manufacturer's performance guarantees where available) and management protocols for both point and fugitive emissions. Where possible, this should include cleaner production processes.

3. Noise and vibration

Any residences that surround the proposed site could be subject to unacceptable noise impacts if not managed appropriately.
A Noise Impact Assessment (NIA) for the proposal must be conducted by an appropriately qualified acoustics consultant. The NIA must be conducted in accordance with the State Government's *Industrial Noise Policy* and address the potential impacts of the quarry operations on any nearby residents including the following:

Describe baseline conditions

- Determine the existing background (L_{A90}) and ambient (L_{Aeq}) noise levels in accordance with the *NSW Industrial Noise Policy.*
- Determine the existing road traffic noise levels in accordance with the *NSW Environmental Criteria for Road Traffic Noise*, where road traffic noise impacts may occur.
- The noise impact assessment report should provide details of all monitoring of existing ambient noise levels including:
  a) details of equipment used for the measurements
  b) a brief description of where the equipment was positioned
  c) a statement justifying the choice of monitoring sites, including the procedure used to choose the sites, having regards to the definition of 'noise sensitive locations(s)' and 'most affected locations(s)' described in Section 3.1.2 of the *NSW Industrial Noise Policy*
  d) details of the exact location of the monitoring site and a description of land uses in surrounding areas
  e) a description of the dominant and background noise sources at the site
  f) day, evening and night assessment background levels for each day o the monitoring period
  g) the final Rating Background Level (RBL) value
  h) graphs of the measured noise levels for each day should be provided
  i) a record of periods of affected data (due to adverse weather and extraneous noise), methods used to exclude invalid data and a statement indicating the need for any re-monitoring under Step 1 in Section B1.3 of the *NSW Industrial Noise Policy*
  j) determination of L_{Aeq} noise levels from existing industry.

Assess impacts

- Determine the project specific noise levels for the site. For each identified potentially affected receiver, this should include:
  a) determination of the intrusive criterion for each identified potentially affected receiver
  b) selection and justification of the appropriate amenity category for each identified potentially affected receiver
  c) determination of the amenity criterion for each receiver
  d) determination of the appropriate sleep disturbance limit.

- Maximum noise levels during night-time period (10pm-7am) should be assessed to analyse possible affects on sleep. Where $L_{A1(1min)}$ noise levels from the site are less than 15 dB above the background L_{A90} noise level, sleep disturbance impacts are unlikely. Where this is not the case, further analysis is required. Additional guidance is provided in Appendix B of the *NSW Environmental Criteria for Road Traffic Noise.*
- Determine expected noise level and noise character (e.g. tonality, impulsiveness, vibration, etc) likely to be generated from noise sources during:
    1. site establishment
    2. construction
    3. operational phases
    4. transport including traffic noise generated by the proposal
    5. other services.

Note: The noise impact assessment report should include noise source data for each source in 1/1 or 1/3 octave band frequencies including methods for references used to determine noise source levels. Noise source levels and characteristics can be sourced from direct measurement of similar activities or from literature (if full references are provided).

- Determine the noise levels likely to be received at the most sensitive locations (these may vary for different activities at each phase of the development). Potential impacts should be determined for any identified significant adverse meteorological conditions. Predicted noise levels under calm conditions may also aid in quantifying the extent of impact where this is not the most adverse condition.
- The noise impact assessment report should include:
    a) a plan showing the assumed location of each noise source for each prediction scenario
    b) a list of the number and type of noise sources used in each prediction scenario to simulate all potential significant operating conditions on the site
    c) any assumptions made in the predictions in terms of source heights, directivity effects, shielding from topography, buildings or barriers, etc
    d) methods used to predict noise impacts including identification of any noise models used. Where modelling approaches other than the use of the ENM or SoundPlan computer models are adopted, the approach should be appropriately justified and validated.
    e) an assessment of appropriate weather conditions for the noise predictions including reference to any weather data used to justify the assumed conditions.
    f) the predicted noise impacts from each noise source as well as the combined noise level for each prediction scenario under any identified significant adverse weather conditions as well as calm conditions where appropriate.
    g) for developments where a significant level of noise impact is likely to occur, noise contours for the key prediction scenarios should be derived
    h) an assessment of the need to include modification factors as detailed in Section 4 of the *NSW Industrial Noise Policy.*
- Discuss the findings from the predictive modelling and, where relevant noise criteria have not been met, recommend additional mitigation measures.
- The noise impact assessment report should include details of any mitigation proposed including the attenuation that will be achieved and the revised noise impact predictions following mitigation.
- Where relevant noise/vibration criteria cannot be met after application of all feasible and cost effective mitigation measures the residual level of noise impact needs to be quantified by identifying:
    a) locations where the noise level exceeds the criteria and extent of exceedance
    b) numbers of people (or areas) affected
    c) times when criteria will be exceeded
    d) likely impact on activities (speech, sleep, relaxation, listening, etc)
    e) change on ambient conditions
    f) the result of any community consultation or negotiated agreement.

- For the assessment of existing and future traffic noise, details of data for the road should be included such as assumed traffic volume; percentage heavy vehicles by time of day; and details of the calculation process. These details should be consistent with any traffic study carried out in the EIS.
- Where blasting is intended an assessment in accordance with the *Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration* (ANZECC, 1990) should be undertaken. The following details of the blast design should be included in the noise assessment:
  a) bench height, burden spacing, spacing burden ratio
  b) blast hole diameter, inclination and spacing
  c) type of explosive, maximum instantaneous charge, initiation, blast block size, blast frequency.

Describe management and mitigation measures

- Determine the most appropriate noise mitigation measures and expected noise reduction including both noise controls and management of impacts for both construction and operational noise. This will include selecting quiet equipment and construction methods, noise barriers or acoustic screens, location of stockpiles, temporary offices, compounds and vehicle routes, scheduling of activities, etc.
- For traffic noise impacts, provide a description of the ameliorative measures considered (if required), reasons for inclusion or exclusion, and procedures for calculation of noise levels including ameliorative measures. Also include, where necessary, a discussion of any potential problems associated with the proposed ameliorative measures, such as overshadowing effects from barriers. Appropriate ameliorative measures may include:
  a) use of alternative transportation modes, alternative routes, or other methods of avoiding the new road usage
  b) control of traffic (eg: limiting times of access or speed limitations)
  c) resurfacing of the road using a quiet surface
  d) use of (additional) noise barriers or bunds
  e) treatment of the façade to reduce internal noise levels buildings where the night-time criteria is a major concern
  f) more stringent limits for noise emission from vehicles (i.e. using specially designed 'quite' trucks and/or trucks to use air bag suspension
  g) driver education
  h) appropriate truck routes
  i) limit usage of exhaust breaks
  j) use of premium muffles on trucks
  k) reducing speed limits for trucks
  l) ongoing community liaison and monitoring of complaints
  m) phasing in the increased road use.

4. Water

Describe baseline conditions

- Describe existing surface and groundwater quality – an assessment needs to be undertaken for any water resource likely to be affected by the proposal and for all conditions (e.g. a wet weather sampling program is needed if runoff events may cause impacts).

  Note: Methods of sampling and analysis need to conform with an accepted standard (e.g. Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC 2004) *or be approved and analyses undertaken by accredited laboratories).*

- Provide site drainage details and surface runoff yield.
- State the ambient Water Quality and River Flow Objectives for the receiving waters. These refer to the community's agreed environmental values and human uses endorsed by the Government as goals for the ambient waters. These environmental values are published on the website: www.environment.nsw.gov.au/ieo. The EIS should state the environmental values listed for the catchment and waterway type relevant to your proposal. NB: A consolidated and approved list of

environmental values is not available for groundwater resources. Where groundwater may be affected the EIS should identify appropriate groundwater environmental values and justify the choice.

- State the indicators and associated trigger values or criteria for the identified environmental values. This information should be sourced from the ANZECC 2000 *Guidelines for Fresh and Marine Water Quality* (http://www.environment.gov.au/water/publications/quality/nwqms-guidelines-4-vol1.html) (Note that, as at 2004, the NSW Water Quality Objectives booklets and website contain technical criteria derived from the 1992 version of the ANZECC Guidelines.) The Water Quality Objectives remain as Government Policy, reflecting the community's environmental values and long-term goals, but the technical criteria are replaced by the more recent ANZECC 2000 Guidelines). NB: While specific guidelines for groundwater are not available, the ANCECC 2000 Guidelines endorse the application of the trigger values and decision trees as a tool to assess risk to environmental values in groundwater.
- State any locally specific objectives, criteria or targets, which have been endorsed by the government e.g. the Healthy Rivers Commission Inquiries (www.hrc.nsw.gov.au) or the NSW Salinity Strategy (DLWC, 2000) (www.dlwc.nsw.gov.au/care/salinity/#Strategy).
- Where site specific studies are proposed to revise the trigger values supporting the ambient Water Quality and River Flow Objectives, and the results are to be used for regulatory purposes (e.g. to assess whether a licensed discharge impacts on water quality objectives), then prior agreement from the DEC on the approach and study design must be obtained.
- Describe the state of the receiving waters and relate this to the relevant Water Quality and River Flow Objectives (i.e. are Water Quality and River Flow Objectives being achieved?). Proponents are generally only expected to source available data and information. However, proponents of large or high risk developments may be required to collect some ambient water quality / river flow / groundwater data to enable a suitable level of impact assessment. Issues to include in the description of the receiving waters could include:
  a) lake or estuary flushing characteristics
  b) specific human uses (e.g. exact location of drinking water off take)
  c) sensitive ecosystems or species conservation values
  d) a description of the condition of the local catchment e.g. erosion levels, soils, vegetation cover, etc
  e) an outline of baseline groundwater information, including, but not restricted to, depth to watertable, flow direction and gradient, groundwater quality, reliance on groundwater by surrounding users and by the environment
  f) historic river flow data where available for the catchment.

Assess impacts

- No proposal should breach clause 120 of the *Protection of the Environment Operations Act* 1997 (i.e. pollution of waters is prohibited unless undertaken in accordance with relevant regulations).
- Identify and estimate the quantity of all pollutants that may be introduced into the water cycle by source and discharge point including residual discharges after mitigation measures are implemented.
- Include a rationale, along with relevant calculations, supporting the prediction of the discharges.
- Describe the effects and significance of any pollutant loads on the receiving environment. This should include impacts of residual discharges through modelling, monitoring or both, depending on the scale of the proposal. Determine changes to hydrology (including drainage patterns, surface runoff yield, flow regimes, wetland hydrologic regimes and groundwater).
- Describe water quality impacts resulting from changes to hydrologic flow regimes (such as nutrient enrichment or turbidity resulting from changes in frequency and magnitude of stream flow).
- Identify any potential impacts on quality or quantity of groundwater describing their source.
- Identify potential impacts associated with geomorphological activities with potential to increase surface water and sediment runoff or to reduce surface runoff and sediment transport. Also consider possible impacts such as bed lowering, bank lowering, in stream siltation, floodplain erosion and floodplain siltation.
- Identify impacts associated with the disturbance of acid sulfate soils and potential acid sulfate soils.

- Containment of spills and leaks shall be in accordance with the technical guidelines section 'Bunding and Spill Management' of the *Authorised Officers Manual* (EPA, 1995) (http://www.environment.nsw.gov.au/mao/bundingspill.htm) and the most recent versions of the Australian Standards referred to in the Guidelines. Containment should be designed for no-discharge.
- The significance of the impacts listed above should be predicted. When doing this it is important to predict the ambient water quality and river flow outcomes associated with the proposal and to demonstrate whether these are acceptable in terms of achieving protection of the Water Quality and River Flow Objectives. In particular the following questions should be answered:
  a) will the proposal protect Water Quality and River Flow Objectives where they are currently achieved in the ambient waters; and
  b) will the proposal contribute towards the achievement of Water Quality and River Flow Objectives over time, where they are not currently achieved in the ambient waters.
- Consult with the EPA as soon as possible if a mixing zone is proposed (a mixing zone could exist where effluent is discharged into a receiving water body, where the quality of the water being discharged does not immediately meet water quality objectives. The mixing zone could result in dilution, assimilation and decay of the effluent to allow water quality objectives to be met further downstream, at the edge of the mixing zone). The EPA will advise the proponent under what conditions a mixing zone will and will not be acceptable, as well as the information and modelling requirements for assessment.

  Note: The assessment of water quality impacts needs to be undertaken in a total catchment management context to provide a wide perspective on development impacts, in particular cumulative impacts.
- Where a licensed discharge is proposed, provide the rationale as to why it cannot be avoided through application of a reasonable level of performance, using available technology, management practice and industry guidelines.
- Where a licensed discharge is proposed, provide the rationale as to why it represents the best environmental outcome and what measures can be taken to reduce its environmental impact.
- Reference should be made to *Managing Urban Stormwater- Soils and Construction* (Landcom, 2004), *Guidelines for Fresh and Marine Water Quality* ANZECC 2000).

Describe management and mitigation measures

A Soil & Water Management Plan should be developed which outlines all management and mitigation measures relating to stormwater management and erosion control. The Soil & Water Management Plan should:

- Outline stormwater management to control pollutants at the source and contain them within the site. Also describe measures for maintaining and monitoring any stormwater controls.
- Outline erosion and sediment control measures directed at minimising disturbance of land, minimising water flow through the site and filtering, trapping or detaining sediment. Also include measures to maintain and monitor controls as well as rehabilitation strategies.
- Describe waste water treatment measures that are appropriate to the type and volume of waste water and are based on a hierarchy of avoiding generation of waste water; capturing all contaminated water (including stormwater) on the site; reusing/recycling waste water; and treating any unavoidable discharge from the site to meet specified water quality requirements.

- The sediment basins must meet the design and operational standards of *Managing Urban Stormwater: Soils and Construction: Volume 1 and Volume 2 E. Mines and quarries*. This document requires that at a minimum 90 percentile five-day rainfall event (standard: greater than three years) be used to determine basin sizing for quarries
- Outline pollution control measures relating to storage of materials, possibility of accidental spills (eg preparation of contingency plans), appropriate disposal methods, and generation of leachate.

- Describe hydrological impact mitigation measures including:
  a) site selection (avoiding sites prone to flooding and water-logging, actively eroding or affected by deposition)
  b) minimising runoff
  c) minimising reductions or modifications to flow regimes
  d) avoiding modifications to groundwater.
- Describe groundwater impact mitigation measures including:
  a) site selection
  b) retention of native vegetation and revegetation
  c) artificial recharge
  d) providing surface storages with impervious linings
  e) monitoring program.
- Describe geomorphological impact mitigation measures including:
  a) site selection
  b) erosion and sediment controls
  c) minimising in-stream works
  d) treating existing accelerated erosion and deposition
  e) monitoring program.
- Any proposed monitoring should be undertaken in accordance with the *Approved Methods for the Sampling and Analysis of Water Pollutants in NSW* (DEC 2004).

5. Soils and contamination

Describe baseline conditions

- Provide any details (in addition to those provided in the location description - Section C) that are needed to describe the existing situation in terms of soil types and properties and soil contamination.

Assess impacts

- Identify any likely impacts resulting from the construction or operation of the proposal, including the likelihood of:
  a) disturbing any existing contaminated soil
  b) contamination of soil by operation of the activity
  c) subsidence or instability
  d) soil erosion
  e) disturbing acid sulfate or potential acid sulfate soils.
- Reference should be made to *Contaminated Sites – Guidelines for Consultants Reporting on Contaminated Sites* (EPA, 1997); *Contaminated Sites – Guidelines on Significant Risk of Harm and Duty to Report* (EPA, 1999).

Describe management and mitigation measures

- Describe and assess the effectiveness or adequacy of any soil management and mitigation measures during construction and operation of the proposal including:
  a) erosion and sediment control measures
  b) proposals for site remediation – see *Managing Land Contamination, Planning Guidelines SEPP 55 – Remediation of Land* (Department of Urban Affairs and Planning and Environment Protection Authority, 1998)
  c) proposals for the management of these soils – see *Assessing and Managing Acid Sulfate Soils,* Environment Protection Authority, 1995 (note: that this is the only methodology accepted by the EPA).

6. Waste and chemicals

Describe baseline conditions

- Describe any existing waste or chemicals operations related to the proposal.

Assess impacts

- Assess the adequacy of proposed measures to minimise natural resource consumption and minimise impacts from the handling, transporting, storage, processing and reprocessing of waste and/or chemicals.
- Reference should be made to *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes* (EPA, 1999).

Describe management and mitigation measures

- Outline measures to minimise the consumption of natural resources.
- Outline measures to avoid the generation of waste and promote the re-use and recycling and reprocessing of any waste.
- Outline measures to support any approved regional or industry waste plans.

7. Cumulative impacts

- Identify the extent that the receiving environment is already stressed by existing development and background levels of emissions to which this proposal will contribute.
- Assess the impact of the proposal against the long term air, noise and water quality objectives for the area or region.
- Identify infrastructure requirements flowing from the proposal (eg water and sewerage services, transport infrastructure upgrades).
- Assess likely impacts from such additional infrastructure and measures reasonably available to the proponent to contain such requirements or mitigate their impacts (eg travel demand management strategies).

8. Greenhouse Emissions

EPA requires the following in relation to greenhouse emissions:

- A comprehensive assessment of and report on the project's predicted greenhouse gas emissions (tCO2e), including emissions on:
- a tonnes per unit of production basis;
- a total annual emissions basis; and
- a total project lifetime basis.

The emissions associated with the project should include direct emissions, indirect emissions (e.g. those associated with electricity use) and any significant upstream and/or downstream emissions associated with the project. The emissions should be estimated using an appropriate methodology (eg AGO's Factors and Methods Workbook 2006).

Annual emissions should be compared against:

- 'best practice' emissions for the activity; and
- total annual NSW emissions, so the impact of the proposal on NSW emission reduction targets can be evaluated.

The proponent should evaluate and report on the feasibility of measures to reduce emissions.

D. List of approvals and licences

- Identify all approvals and licences required under environment protection legislation including details of all scheduled activities, types of ancillary activities and types of discharges (to air, land, water).

E. Compilation of mitigation measures

- Outline how the proposal and its environmental protection measures would be implemented and managed in an integrated manner so as to demonstrate that the proposal is capable of complying with statutory obligations under DECC licences or approvals (e.g. outline of an environmental management plan).
- The mitigation strategy should include the environmental management and cleaner production principles which would be followed when planning, designing, establishing and operating the proposal. It should include two sections, one setting out the program for managing the proposal and the other outlining the monitoring program with a feedback loop to the management program.

F. Justification for the Proposal

- Reasons should be included which justify undertaking the proposal in the manner proposed, having regard to the potential environmental impacts.

ATTACHMENT 2 - GUIDANCE MATERIAL

Assessing Environmental Impacts

1. Water and Soils

Water quality

- National Water Quality Management Strategy: Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000)
- NWQMS Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC 2000)
- Water Quality and River Flow Interim Environmental Objectives for the Richmond River Catchment.
- Healthy Rivers Commission Report into the Richmond River
- EPA technical guidelines 'Bunding and Spill Management'.

Acid Sulphate Soils

- Acid Sulphate Soil Manual – ASSMAC, 1998

Sediment & Erosion Control

- Managing Urban Stormwater: Soils and Construction (DECC 2009)
- Managing Urban Stormwater: Harvest and Re-use (DEC 2006)

(Both publications available from: http://www.environment.nsw.gov.au/stormwater/publications.htm)

Groundwater

- The NSW State Groundwater Quality Protection Policy (DLWC 1998)
- NSW State Groundwater Dependent Ecosystems Policy (DLWC, 2002)
- National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ & ANZECC, 1995).

2. Noise and vibration

- NSW Industrial Noise Policy (EPA, 1999)
- NSW Environmental Criteria for Road Traffic Noise (EPA, 1999)
- Chapter 171 Noise Control Guideline, Construction Site Noise, Environmental Noise Control Manual, 1994; NSW Construction Noise Guideline (DECC, August 2008).

3. Waste

- Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes.

APPENDIX C5

Roads & Maritime Services

SCANNED TP

25-1-13 P5 6542w

Transport Roads & Maritime Services

File no. NTH10/00263, CR2012/011881
Your Reference 6542w govt eis consultation (dec 2012)

Mr Paul Snellgrove
Ardill Payne & Partners
PO Box 20
BALLINA NSW 2478

Dear Sir

Newrybar Swamp Road Sand Quarry Environmental Impact Statement.

I refer to your letter of 11 December 2012. Roads and Maritime Services (RMS) requests that the following issues be addressed in any Environmental Impact Statement (EIS);

A detailed traffic study should be undertaken that takes into account the key issues relevant to the scale of this proposal as set out in Table 2.1 of the Roads and Traffic Authority's current 'Guide to Traffic Generating Developments" (copy attached) for each proposal. The traffic studies should include information relating to:

- Total impact of existing and proposed development on the state road network.
- Intersection sight distances
- Existing and proposed access conditions
- Improvements for road junctions / intersections
- Detail of servicing and parking arrangements
- Connectivity to existing developments
- Impact on Transport (Public and School Bus Routes)
- Provisions for pedestrians, alternative transport modes such as bicycles
- Road Traffic Noise

To ensure that haulage routes do not adversely impact on the safety of the road network adjoining the proposal, RMS recommends that any traffic study be supported by a Road Safety Audit, undertaken by suitably qualified persons, of the haulage routes to be used for hauling quarried materials.

Current AUSTROADS standards should be adopted for any necessary upgrading of the surrounding road infrastructure.

Should you have any further enquiries regarding the above comments please do not hesitate to contact Michael Baldwin on 66861832.

Yours faithfully

23 JAN 2013

David Bell
Regional Manager, Northern Region

Roads & Maritime Services

31 Victoria Street, Grafton NSW 2460 | PO Box 576 Grafton NSW 2460
T 02 6640 1300 | **F** 02 6640 1304 | **E** development.northern@rms.nsw.gov.au **www.rms.nsw.gov.au | 13 17 82**

2.3 Issues to be addressed

A traffic impact study should follow the standard format and structure that is listed in Table 2.1. This format covers the key issues to be addressed in determining the impact on traffic of a development. Use of this format and the checklist will ensure those involved in the preparation and / or assessment of Development Applications that the most significant matters are considered.

Table 2.1
Key issues in preparing traffic impact studies

Procedures & Key Parameters	Source	Check ✓
Brief description of the development		
Application and study process		
Introduction		
Background		
Scope of report		
The key issues and objectives of a traffic impact study		
General Data Collection / Existing Conditions		
Description of the Site and Proposed Activity		
Site location		
Current land use characteristics (zoning) of the proposed site and land use in the vicinity	Council	
Site access		
The Existing Traffic Conditions		
Road hierarchy, including the identification of the classified road network (major and minor roads) which may be affected by the development proposal	Council / RTA	
Inventory of road widths, road conditions, traffic management and parking control	Council, RTA and Survey	
Current and proposed roadworks, traffic management works and bikeways	Council / RTA	
Traffic Flows		
Selection of key streets - possibly divided into the major and the minor road network; selection of key assessment periods, chosen to cover the times at which the development would be expected to have its major impacts	Section 3	
AADT on key streets	RTA / Council / Survey	
Daily traffic flow hourly distribution, particularly in or near residential areas	Survey	

Procedures & Key Parameters	Source	Check ✓
Estimate of the speed of traffic on the road to which vehicular access is proposed	Survey	
Current traffic generation of site	Survey	
Daily and peak period heavy vehicle flows and percentages	Survey	
The adaptation of appropriate computer models or techniques for assessing levels of traffic congestion and queuing conditions		
Traffic Safety		
Accident history of road network in the area	Accident Histories	
Parking Supply and Demand		
On-street parking provision	Local Council	
Off-street parking provision	Councils / Surveys	
Current parking demand, including utilisation by time of day and turnover rates	Survey	
Short term pick up and set down areas	Council / Survey	
Modal Split	STA / Survey	
Public Transport		
Rail station locations	SRA	
Bus routes and bus stop locations; Pedestrian access to bus stops; Constraints and conflicts	STA / Private Operators / Survey	
Rail and bus service frequencies, ideally separated into Monday to Friday, Saturday and Sunday, for both peak and off-peak times	SRA /STA / Private Operators	
Commuter parking provision	SRA / Survey	
Pedestrian Network		
Identify major pedestrian routes	Survey	
Pedestrian flows and potential conflicts with vehicles, particularly where such conflicts cause capacity constraint on either vehicular or pedestrian movement	Observation	
Pedestrian infrastructure	Survey	
Proposed developments in the vicinity	Council	

Procedures & Key Parameters	Source	Check ✓
Proposed Development		
The Development		
Plan reference, if plans not contained in study report		
Nature of development		
Gross floor areas of each component of development		
Projected number of employees/users/residents		
Hours and days of operations		
Staging and timing of development		
Selection of appropriate design vehicles for determining access and circulation requirements	Section 6	
Access		
Driveway location, including review of alternative locations	Sections 5, 6	
Sight distance of driveways and comparisons with stopping and desirable minimum sight distances	Section 6	
Service vehicle access	Section 6	
Analysis of projected queuing at entrances	Section 6	
Current access to site and comparison with proposed access		
Provision for access to, and by, public transport	Section 6	
Circulation		
Proposed pattern of circulation	Section 6	
Internal road widths	Section 6	
Provision for bus movements		
Service area layout		
Parking		
Proposed supply		
Parking provision recommended by State Government policy	RTA	
Council code and local parking policies and plans	Council	
Parking layout		
Projected peak demand, based where appropriate on similar research reports and on surveys of similar developments;	Section 5	
Parking for Service / courier vehicles and bicycles	Section 5	

Procedures & Key Parameters	Source	Check ✓
Impact Of Proposed Development		
Traffic generation during design periods		
Daily and seasonal factors		
Pedestrian generation and movements		
Traffic Distribution and Assignments		
Hourly distribution of trips		
Assignments of these trips to the road system, based where possible on development feasibility studies or on origin/destination surveys undertaken at similar developments in the areas		
Impact on Traffic Safety		
Assessment of Road Safety Impact		
Impact of Generated Traffic		
Daily traffic flows and composition on key streets and their expected effect on the environment, particularly in residential areas		
Peak period volumes at key intersections and effect of generated traffic on congestion levels	Survey	
Impact of construction traffic during construction stages		
Other proposed developments in the vicinity, their timing and likely impact, if known	Local Council	
Assessment of pedestrian movements	Survey	
Assessment of traffic noise		
Public Transport		
Options for extensions and changes to bus routes and bus stops, following discussions with the STA and or private bus operators	STA	
Provision for pedestrian access to bus stops		
Recommended Works		
Improvements to site access and circulation		
Improvements to roads, signals, roundabouts and other traffic management measures		
Improvements to pedestrian facilities		
Effect of recommended works on the operation of adjacent developments		

Procedures & Key Parameters	Source	Check ✓
Effect of recommended works on public transport services, including bus routes, bus stops and access thereto		
Provision of LATM measures		
Funding of proposed improvement projects		
Noise attenuation measures		

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APPENDIX C6

Ballina Shire Council

enquiries refer

Anthony Peters
in reply please quote

DA 2001/326 and PN 1003830 & PN 1003829

4-2-13 PS 6542w

ballina shire council

30 January 2013

SCANNED TF

Ardill Payne
PO Box 20
BALLINA NSW 2478

Attention: Mr Paul Snellgrove

Dear Paul

Re: Request for Requirements for an Environmental Impact Statement for an Extractive Industry (Sand Quarry)
Lot 32 DP 1151612, Newrybar Swamp Road, Lennox Head

I refer to your letter of 11 December 2012 (received 17 December 2012), requesting the above information based on the Director-General's Requirements (re-issued DGR No. 520 on 15 November 2012) for the proposed development and apologise for the delayed response.

The investigations and reporting you have outlined for assessment in any Environmental Impact Statement (EIS) for the proposed extractive industry are generally concurred, however in addition to these the following matters should also be addressed:

Site

- Is it proposed to extend the existing sand quarry area or create a completely separate sand quarry area?
- What are the proposed width(s) and depth(s) of the sand quarry area that comprises the outlined 610,000 in-situ cubic metres?
- What is the extent of the existing extraction area in comparison? A survey plan indicating the widths and depths should be provided.
- What are the further impacts on the agricultural potential of the land(s)?
- Assessment of the impact the development will have on groundwater hydrology throughout the locality and wider floodplain. Such an assessment should assess what impact, if any, the existing quarry is having on groundwater hydrology and whether the proposed quarry will have an increased adverse impact. Is de-watering required?
- Geotechnical/slope stability assessment and any proposed edge/bank treatment to ensure batters are suitable.
- Permissibility and consistency with the relevant provisions of the Ballina Local Environmental Plan 2012, Council's Development Control Plan 2012 and existing State Environment Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

Operational

- Employee numbers and facilities?

- What will be the hours of operation?
- Where are the stockpile and loading areas located?
- How will the operation be managed?
- What will be the sequence of extraction and why is such a large annual extraction rate required?
- How will fuels, oils or other liquid contaminants be stored, managed or handled on site?
- What measures will be implemented to ensure stormwater management devices and other water storage facilities do not act as cane toad/mosquito breeding sites?
- Are any exclusion fences proposed?

Amenity

- What types of waste will be generated by the quarry operations and how will they be managed?
- What are the potential air quality impacts on nearby receivers and how will they be managed?
- Will the proposed development lead to any land use conflict issues, particularly in relation to noise? A land use conflict risk assessment and noise impact assessment (both operational and transport) will be required.

Rehabilitation

- What will the pit be used for once extraction work is completed?
- Rehabilitation plan for the site, including progressive rehabilitation as the operation moves, and the final rehabilitation including time frames.

It would be prudent to outline these matters in the referenced Plan of Management/Environmental Management Plan.

Should you have any further questions or require clarification in relation to the matters raised above, please contact Mr Anthony Peters on 66 861254.

Yours faithfully

Rod Willis
Group Manager
Regulatory Services

APPENDIX D

Community Consultation Responses

18/1/13. 6542W

P & J Knox
286 Ross lane
Lennox Head 2478

17 January 2013

Paul Snellgrove
Ardill Payne
Tamar Street Ballina

Dear Sir

Re : Proposed Extractive Industry Lot 32 DP 1151612 Newrybar Swamp Rd Lennox Head.

As an adjoining landowner to the above proposed development I wish to highlight some environment concerns.

The existing extraction industry on lot 33 DP 1151612 in recent years has impacted on the local waterways.
Excess water pumped from the current site into waterways north of Ross Lane travels south into Deadmans Creek. This contributes to water quality ,sediment & colour changes .
There is also noticeably less fish & bird life in & around Deadmans Creek in recent years.
A new plant/weed growth has appeared in the waterway south of Ross Lane which has washed down from the north of Ross Lane.

Rising water levels have been noted in dry weather conditions. In times of excess rainfall water levels rise more quickly to cause flooding and stay at these levels for longer periods of time than previous. Excess water being pumped from the extraction site may contribute to these water levels.

Increased truck movement along Ross lane could impact on the unstable road surface conditions east of Newrybar Swamp Road .
Truck noise along Ross Lane & water pump noise from the extraction site would need to be monitored & restricted so as to not impact on nearby residential dwellings.

Given that the Ballina Nature Reserve & our own property is south of the current extraction site & the proposed new extraction site I do have concerns for the environmental impact this industry is & will have on the waterways, land surface & roads in the future.

Regards

Janelle Knox

18/1/13 PS
G5142W

Mrs Debra Pick
PO Box 410
BALLINA
NSW 2478

January 18, 2013

Ardill Paynel
79 Tamar Street
BALLINA
NSW 2478

re: Community consultation letter
Proposed extractive industry
Lot 32 DP 1151612 – Newrybar Swamp road Lennox Head

As an adjoining landholder (L9DP1010302, Newrybar Swamp Road) to Lot 32 DP1151612, Newrybar Swamp Road, I welcome the opportunity to comment on and outline reasonable concerns in regard to the preparation of the DA/EIS on this proposed development site. There are issues I feel that need to be addressed so that any future operations of the sand quarry will not impact the local area or myself in an adverse manner.

Noise levels

I accept that the nature of the operation is going to generate noise. But from the maps provided, it appears that the area of proposed future operations will be moving considerably closer to my residence and that causes me great concern as on most days that the present sand quarry is operating the sounds of machinery carry to my home clearly.

I would anticipate that the new DA would retain the existing hours of operation and that those hours be complied with, as there have been incidents in the past of working outside the stated hours of operation. (Letter to Ballina Shire Council, February 13, 2008)

In order to limit the potential offensiveness of noise generated I would expect the sand quarry to adhere to and work within all guidelines of any and all relevant authorities.

I want efficient and effective noise attenuation mounds with site landscaping (as sight and sound barriers) established on the northern boundary of the proposed sand quarry. Also interim noise protection or reduction measures in place until vegetated noise attenuation mounds are established.

Dust

I would expect the proposed quarry operation to continue with past practice of reducing dust from stockpiles and along the work face in the working pit.

Traffic safety

The ongoing presence of heavy vehicle traffic from the seasonal sugar cane harvest; vehicles servicing the expanding macadamia orchards further up the valley, daily truck movements from McGeary's sandpit, the site office and bulk storage compound of Byron Scaffolding, Lennox Aquatic Centre, and increased residents in the valley have all contributed to a substantial increase in traffic movements since Watson's sand quarry was given the first approval close to ten years ago. I would think it would be in the best interest and safety of all those who use the Newrybar Swamp Road and Ross Lane to have;

Sand trucks continue to exit on to Ross Lane from Newrybar Swamp Road and not use Martins Lane as an exit to the Pacific Highway.

The entry and exit strategy at the quarry entrance be improved with a widening and creation of passing lanes on the Newrybar Swamp Road.

To designate the posted speed limit at 80 kph on the Newrybar Swamp Road.

The turning bays on Ross Lane be widened and lengthened to better accommodate the predominate truck with dogs that are the heavy vehicle transportation used to service the sand quarry.

There is an ongoing problem with the present sand quarry of sand being carried out on to the Newrybar Swamp Road on the truck wheels of the trucks leaving the sand quarry creating a road safety hazard. To alleviate this a water truck is used occasionally to dampen and wash away accumulated sand on the road. This solution is less than satisfactory. It is obvious that left to the mangers of the sand pit this clean up is only done when it suits them. An Inspection system put in place by the council would make the mangers of the sand pit more responsible.

Water table

Of greatest concern is the damage to the water table. I believe there has been long term hydrological impact to my property from the existing sand pit. The two springs on my property that had in the past been used to provide water for stock on this property have dried up.

In order to limit any further damage to supplies of ground water I would expect the sand quarry to adhere to and comply within all guidelines of any and all relevant authorities.

With operations moving closer to my property I have concerns for the detrimental effects and implications of the proposed development to the environment and the overall sustainability of my property to continue as a viable primary production business.

Thank you for your consideration.

Respectfully

Mrs Debra Pick