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Our ref: AU015874

Date: 12 September 2025

Chief Executive Officer
Douglas Shire Council
PO Box 723
Mossman QLD 4873

Attn: Jenny Elphinstone, Senior Planning Officer

Dear Jenny,

Captain Cook Highway, Killaloe - Material Change of Use for an Extractive Industry for the extraction of approximately 30,000 tonnes of sand per year.
Response to further issues letter and submission received during Public Notification
Your Ref: MCUI 2024_5628/1

We refer to Councils further issues request of 14 February 2025 for the development application for this site and to the representations received by Council during the Public Notification period.

We provide our response to this Further Issues letter and to the representations below.

1 Proposed Project Overview and Intent

When Tropical Cyclone Jasper crossed the Far North Queensland coast in December 2023, the weather system impacted many North Queensland communities and essential infrastructure, including the Captain Cook Highway between Port Douglas and Cairns and other local and state road networks. During this significant weather event, a substantial number of landslips occurred, together with significant damage to road infrastructure. In response, the Queensland State Government engaged a recognised contractor to undertake road reconstruction works to repair damage to the Captain Cook Highway between Port Douglas and Cairns.

Road reconstruction works require the reinstatement of the road foundations with provision of asphalt resurfacing to the Department of Transport and Main Roads (TMR) specifications to extend the life of the road pavement. Sand is a critical resource for the manufacture of asphalt to create a durable and flexible pavement material to meet TMR specification. Suitable sand resources in Far North Queensland are somewhat limited, and the provision of locally sourced sand would facilitate asphalt manufacture at NQ Asphalt's approved plant, eliminating the needs for long distance transport. The proposal seeks to extract sand from the subject site to facilitate manufacture of asphalt to support road construction projects, including the reconstruction of the Captain Cook Highway in the aftermath of Tropical Cyclone Jasper.

2 Response to further issues

Our detailed response to the issues request items is provided below.

2.1 Level of Extraction

> The surrounding land is affected by storm tide inundation, coastal erosion and flooding. The creation of a large depression on the land will change the dynamics of the impacts of storm tide inundation, coastal erosion and flooding. Specific details on the pre, post and extraction phases for these matters is required. Plans should clearly demonstrate the operation and nominate all relative levels to finished surface. Given these concerns a bulk earthworks plan illustrating the intended extent of extraction that is to also align with the location and depth of the resource should be provided.

The development proposes the reduction of an existing sand dune/ridge to its natural ground level. It is not proposed to extract sand below RL3.0AHD, which is the ground level at the foot of the dune, and create a 'large depression". This was addressed in the supporting planning report submitted with the application. Further details of the level of extraction are contained within the response to the information requested by the Department of Environment, Tourism, Science and Innovation (DETSI), attached at **Appendix A - Response to the Department of Environment, Tourism, Science and Innovation**.

In address the concerns of DETSI a 10m buffer is proposed to the eastern boundary to address concerns relating to storm tide inundation and to prevent impacts to the adjoining mangrove forest.

Below in **Figure 1** is a cross section providing an illustration of the proposed depth of extraction.

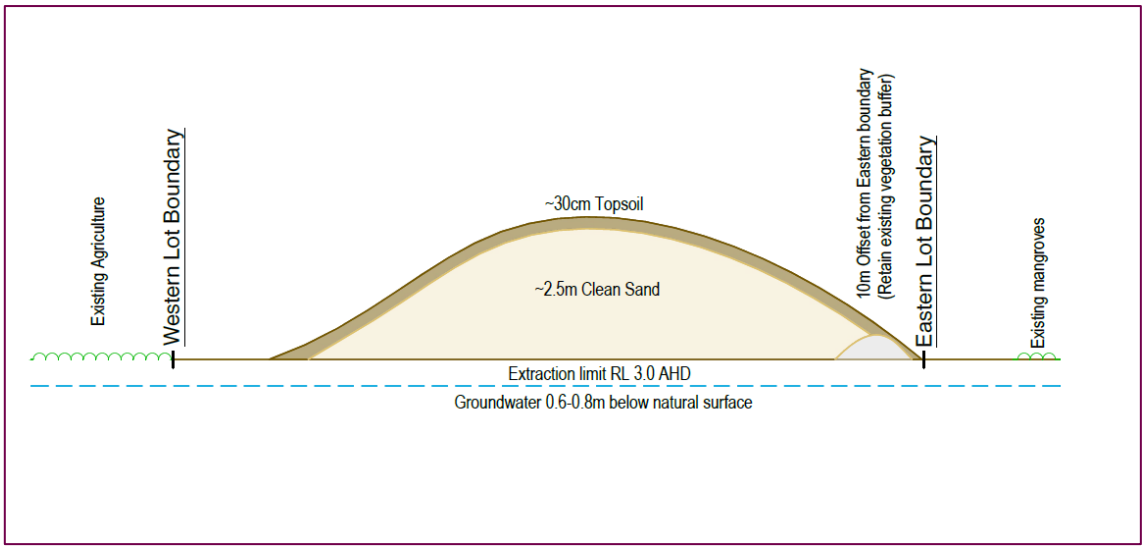


Figure 1: Indicative Cross Section

Source: RPS AAP Consulting Pty Ltd

2.2 Response to Planning Scheme Considerations Including Other Environmental Impacts

- The Assessment is required against the whole of the Scheme, including the land use code and the other development codes. A full assessment should be provided including scenic amenity considerations.
- The Environmental Assessment should clarify the sources of impacts, assess the impacts and determine the ability and extent of the activity that can occur without detrimentally impacting on neighbouring land and nearby sensitive uses.

A detailed response to the relevant provisions of the Strategic Framework and a summary of the assessment against the relevant Planning Scheme Codes is provided below. Refer to **Appendix B–** Detailed code responses, for further information.

Strategic Framework

The provisions of the Strategic Framework that are relevant to the assessment of the application are contained within Theme 3, Natural Resource Management and Element 3.6.4, Resource Extraction. These sections state:

3.6 Theme 3 – Natural resource management

(1) The natural resources of the Shire, such as agricultural land, and in particular land suitable for sugar cultivation, forestry, water, fisheries and extractive resources are protected or managed in a sustainable manner to ensure their ecological and economic values are assured.

(2) Natural resources are well managed through federal, state, local government, regional resource management bodies, traditional owners and the community.

(3) Extractive activities do not unduly compromise natural landscape values.

3.6.4 Element – Resource extraction

(1) Douglas Shire is not, and is not likely to be, a major resource extraction area. However where extraction does occur, it is small-scale, visually unobtrusive and managed in an environmentally responsible manner. All land disturbed by mining and extractive industries is appropriately rehabilitated.

3.6.4.1 Specific outcomes

(1) Coal Seam Gas ('CSG') extraction does not occur in Douglas Shire.

(2) Other extractive industries do not detrimentally impact on community well-being or the Shire's ecological, landscape, scenic amenity and rural production values, and in particular the sugar industry.

(3) *Extractive industries are either progressively rehabilitated to a natural state, or are rehabilitated upon completion of extractive activities, with all buildings, machinery and other associated infrastructure being removed.*

The Strategic Framework acknowledges that extractive industry will occur in the shire and that these resources should be protected to ensure that their economic values are assured. Relevant to the operation of an extractive industry are the following:

- The extractive activity does not unduly compromise natural landscape values;
- The extractive activity is small-scale;
- The extractive activity is visually unobtrusive;
- The extractive activity is managed in an environmentally responsible manner; and,
- All land disturbed by extractive industries is appropriately rehabilitated.

The proposal is for the extraction of sand from an existing low sand ridge that has a maximum height of 6m AHD. The sand ridge is not a prominent feature on the natural landscape and its removal would not compromise landscape values.

In terms of scale, the extraction would be limited to 30,000t per annum, which is not considered to be large scale and would equate to in the order of 2,307 tip truckloads or an average of less than 10 truck and dog movements per working day and an additional four (4) light vehicle movements per day. Whilst the supporting Planning Report submitted with the application estimated traffic movements would comprise in the order of 5 x 20 tonne haul vehicle trips per day, the applicant has advised that a maximum of six (6) truck and dog haul vehicle trips would occur daily. This is indicative of a small scale operation. In contrast a large scale operation would see in the order of 40 truck movements per day (Ardmore Park Quarry) and 49 truck movements per day (Jandra Quarry). It is considered that the proposal is small scale.

In terms of visual intrusion, the site is located approximately 500 metres from the Captain Cook Highway at the nearest point and the extraction activities would occur more than 300 metres from Bonnie Doon Road and more than 200 metres from the nearest sensitive receiver. No building development on the site, consistent with the provisions of the rural zone code, would have a height greater than 10 metres.

In order to demonstrate that the proposed development would be no more visually intrusive than the current rural use of the land, RPS undertook a visual impact assessment of the site. The assessment indicates that the proposal for extraction of sand from the existing low sand ridge would not be visually discernible from Boon Doon Road or the Captain Cok Highway. The visual site plans of the proposed development are provided for reference as **Appendix C**.

The proposal would not be visually obtrusive.

The impact of the development on the Environment was considered in detail as part of the determination oi the application for an Environmental Authority. Consistent with the Environmental Assessment Report and the requirements of the Department of Environment, Science and Innovation, the development will be undertaken in an environmentally sensitive manner and the site will be remediated following extraction. This was addressed in the response to the information requested by the Department of Environment, Tourism, Science and Innovation (DETSI), which is provided for reference as **Appendix A**.

Following their assessment, the Department of Environment, Tourism, Science and Innovation were satisfied that the environmental impacts would be appropriately managed and have granted an Environmental Authority for the proposed extraction of sand from Lot 1 on SP893855. A copy of Environmental Authority P-EA-100750656 is provided for reference as **Appendix D**.

The proposed development is considered to be consistent with the Strategic Framework that facilitates appropriate extractive industries in the Rural Zone.

2.2.1 Planning Scheme Codes

A summary of the assessment of the proposed development against the relevant Planning Scheme Code is provided in the table below. For a detailed assessment, refer to **Appendix B** – Detailed Code Responses.

Planning Scheme Codes	Applicability	Response
Zone Code		
Rural Zone Code	Applies	Complies with relevant Assessment Benchmarks.
Overlay Codes		
Acid Sulphate Soils Overlay Code	Applies	Complies with applicable Assessment Benchmarks.
Bushfire Hazard Overlay Code	Applies	Complies with applicable Assessment Benchmarks
Coastal Environment Overlay Code	Applies	Complies with applicable Assessment Benchmarks.

Planning Scheme Codes	Applicability	Response
Flood and Storm Tide Hazard Overlay Code	Applies	Complies with applicable Assessment Benchmarks
Landscape Values Overlay Code	Applies	Complies with applicable Assessment Benchmarks
Natural Areas Overlay Code	Applies	Complies with applicable Assessment Benchmarks
Potential Landslide Hazard Overlay Code	Applies	Complies with applicable Assessment Benchmarks. No development would occur on land identified within the Potential landslide hazard overlay.
Transport Network Overlay Code	Applies	Complies or is able to comply with applicable Assessment Benchmarks. A subsequent Operational Works application will be required to upgrade the unnamed road to the north and its intersection with Bonie Doon Road in accordance with the requirements of the FNQROC Development Manual.
Extractive Industry Code	Applies	Consideration is required in respect of Performance Outcome PO4, refer below.
Access, Parking and Servicing Code	Applies	Complies with relevant Assessment Benchmarks.
Environmental Performance Code	Applies	Complies with relevant Assessment Benchmarks.
Infrastructure Works Code	Applies	Complies or is able to comply with the relevant Assessment Benchmarks

2.2.2 Town Planning Considerations

Performance Outcome PO4 of the Extractive Industry Code and the associated Acceptable Outcomes state:

> ***PO4***
>
> *Extractive industry operations are adequately separated from sensitive land uses to minimise potential for nuisance.*
>
> ***AO4***
>
> *Extractive resource separation areas to sensitive land uses are:*
>
> *(a) 1,000 metres where the extractive resource involves blasting or crushing (namely rock); or*
>
> *(b) 200 metres for any other extractive industry resource not involving blasting or crushing (namely sand, clay, gravel and soil).*

In order to address concerns raised by submitters and Council Officers, the proposal plan has been amended to increase the setback from 50 metres to the nearest sensitive receptor to 200 metres from the nearest sensitive receptor, which complies with the Acceptable Outcome The amended proposal plan is provided at **Appendix E.**

This setback has been assessed by the Department of Environment, Tourism, Science and Innovation (DETSI) when considering the response to an information request from DETSI. A copy of the response to this information request is provided at **Appendix A.**

The assessment included consideration of the following environmental values:

- Waters;
- Stormwaters;
- Air (dust); and,
- Noise.

The report and assessment concluded that the proposed development, with a 200 metre setback, is not anticipated to have an adverse impact on the sensitive receptor to the north. The proposed development complies with the Acceptable Outcome.

A detailed assessment against the relevant Planning Scheme Codes is provided at **Appendix B**.

2.2.3 Environmental Assessment

Additional detail in respect of the environmental impacts has been provided as a response to further information requested by DETSI, attached at **Appendix A**. Prior to addressing these concerns a meeting was held with the officers of DETSI and it is understood that this additional information clarifies the sources of impacts, assesses the impacts and determines the ability and extent of the activity that can occur without detrimentally impacting on neighbouring land and nearby sensitive uses.

2.3 Possible Acid Sulfate Soils

Given the unknown depth of extraction, concern remains regarding pH level of the extracted material and that of exposed material. Further advice is required.

As provided to DETSI in the response to their information request, copy provided at **Appendix A**, the proposed sand extraction area does not contain PASS material as it is a dunal type deposit which is approximately 2,000m long and 200 – 250m wide and 2m to 5m above natural ground level. It was historically cleared, has been farmed under cane production in the past, then grassed and slashed for a number of years.

The proposed sand extraction would not occur below the highest level of groundwater and there would be no dewatering of the landform as a result of sand extraction or interaction with PASS material.

The site was extensively drilled in 1994 by Cairns Sand, with the report stating that the deposit has an average depth of clean sand of 3.5 metres and is covered in a think (300mm) layer of topsoil. The water depth was observed at 3.5m to 4m.

Refer to **Appendix A** for further details and advice on the potential for Acid Sulfate Soils on the site and the potential for disturbance as a result of the proposed development.

2.4 Road Upgrade and Intersection Design

Should Council be of an opinion to support the development further details will be required for this consideration. Advice to date has been insufficient.

In accordance with the response for the State Assessment and Referral Agency, the access to the site is required to be via Bonnie Doon Road and the unnamed road to the north of the site. This will necessitate upgrades to the intersection with Bonnie Doon Road and the unnamed road and to the unnamed road.. This would include, but not limited to road widening of the carriageway at the intersection to accommodate design

vehicle swept paths; improved pavement to accommodate the heavier vehicles with seal at the intersection; relocation of the existing electricity supply pole on the unnamed road; culvert extension and new headwall at Boonie Doon Road intersection; provision of a culvert crossing on the unnamed road to avoid adverse impact on the existing drainage feature and road widening of the unnamed road.

The engineering report is provided for reference as **Appendix G**.

It would be preferrable to defer the expense of assessing and designing the road upgrades to a subsequent Operational Works Application. On this basis it is requested that Council consider attaching a condition to any approval granted that states:

> *The unnamed road reserve is required to be upgraded to accommodate the traffic anticipated to be generated by the development. The upgrades, including intersection upgrades, pavement improvements and site access shall be undertaken in accordance with the findings of an engineering assessment that is to be submitted in association with an application for Operational Works.*

3 Properly Made Submissions

The applicant is recommended to consider the grounds raised in the properly made submissions and be aware of the level of concern the proposal has raised in the community.

The properly made submissions received by Council during the Public Notification Period have been considered in detail by the applicant's consultant team. A summary of the grounds of submission and the comments on those grounds is provide din the table below.

Planning Representations / Objections	Number of Submissions	RPS Comments
1 Proposal inconsistent with adjoining land uses (farming). • Rural to industrial; • The site is not located within a key resource area; and, • Demand for sand resources in the region being addressed elsewhere	3	The proposed sand extraction is relatively small scale and is not required to be located within a Key Resource Area. Extractive Industries are typically located in rural areas where the number and density of sensitive land uses are limited. The Strategic Framework of the Planning Scheme protects extractive resources from incompatible land uses and acknowledges that small scale extractive industry will occur within the shire. This element of the Strategic Framework is recognised as being, in part, the purpose of the Rural Zone Code. The resources would service regional demand requirements, including demand for sand in the wider FNQ Region. The Queensland Quarry Demand and Supply Risks Report 2023 commissioned by the Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development found that the demand for quarry material in the region is forecasted to strengthen, rising to 830 Kt by 2029-30, to then average around 930 Kt over the remainder of the forecast period to 2040.

Planning Representations / Objections	Number of Submissions	RPS Comments
2 Inconsistency with Resource Extraction element (3.6.4) of the Strategic Framework: • Size, scale & location • Detrimental impact on community wellbeing & scenic amenity • Insufficient rehabilitation of the site	7 (568)	Section 3.6.4 of the Strategic Framework states: *Douglas Shire is not, and is not likely to be, a major resource extraction area. However where extraction does occur, it is small-scale, visually unobtrusive and managed in an environmentally responsible manner. All land disturbed by mining and extractive industries is appropriately rehabilitated.* The Strategic Framework does not preclude the establishment and operation of an extractive industry in the Douglas Shire. In the alternative, it acknowledges that extraction may occur and that it is acceptable where it is small scale, visually unobtrusive and environmentally sensitive. In this instance the extraction would be limited to 30,000t per annum, which is not considered to be large scale and would equate to in the order of 2,307 tip truckloads or an average of less than 10 movements per working day. In terms of visual intrusion, the site is located approximately 500 metres from the Captain Cook Highway at the nearest point and the extraction activities would occur more than 300 metres from Bonnie Doon Road and 200 metres from the nearest sensitive receiver. No buildings development on the site, consistent with the provisions of the rural zone code, would have a height greater than 10 metres. The proposed development would be no more visually intrusive than the current rural use of the land. Consistent with the Environmental Assessment Report and the requirements of the Department of Environment, Tourism, Science and Innovation, the development will be undertaken in an environmentally sensitive manner and the site will be remediated following extraction. Refer to **Appendix A** - Response to the Department of Environment, Tourism, Science and Innovation. The proposed development is considered to be consistent with the Strategic Framework that facilitates appropriate extractive industries in the Rural Zone.

Planning Representations / Objections	Number of Submissions	RPS Comments
3 9.3.10 Extractive Industry Code • Inconsistent with overall outcomes (adequate separation from sensitive land uses). • Sensitive land uses within 15m up to 1 km from site. Amenity impacts. • Application states 50m buffer to closest dwelling house. Acceptable Outcome is 200m. • Haulage route on unnamed road impacts on amenity and impacts on road users. • Any proposed upgrades to unnamed road may affect neighbouring properties (flood impacts). • Buffer & proposed mitigation measures may not reduce amenity impacts. • Potential visual amenity impacts • Proposed rehabilitation of the site inadequate to achieve remediation at same level of adjoining land.	8 (568) (+1 not properly made)	The overall outcomes of the Extractive Industry Code state: *(a) extractive industries are established in locations that are adequately separated from sensitive land uses and do not have significant ecological, landscape or rural value;* *(b) a separation area is established to maintain a buffer between the extractive industry and existing and future sensitive land uses;* *(c) external operations such as haulage routes do not adversely impact on amenity and wellbeing of the community;* *(d) extractive industry operations are designed and managed to operate safely and avoid adverse impacts on amenity of adjacent sensitive land uses;* *(e) extractive industries cause no adverse impact on scenic amenity;* *(f) extractive industry sites are effectively and progressively rehabilitated including the achievement of a stable land form that is safe and suitable for other appropriate uses.* This has been addressed above and a detailed assessment against the provisions of the Extractive Industry Code is provided in **Appendix B**.
4 Inconsistency with the Landscape Values Overlay • Overlay prescribes extractive industry operations are avoided in High Landscape Values areas • Site contains mapped High Landscape Values in the eastern portion of the site	13	The proposed extraction is not located within the mapped areas of High Landscape Values. The only area of the site mapped as High Landscape Value is in the south of the site in an area contiguous with the wetland trigger area. No operations are to occur within the wetland trigger area or a mapped area of High Landscape Value.
5 Detrimental Impact on Visual Amenity • Application acknowledged sand ridges, however, does not demonstrate compliance with visual impact mitigation requirements. • Lack of a Visual Impact Assessment	16 (568)	This ground of objection has been addressed above and in the responses to the Planning Scheme codes provided in **Appendix B**. The proposed excavation areas would be approximately 500 metres from the Captain Cook Highway and 350 metres from Bonnie Doon Road. It would not involve any

Planning Representations / Objections	Number of Submissions	RPS Comments
• Visually intrusive and significant alteration of the natural landform, inconsistent with the Strategic Framework. • Visual intrusion due to haul vehicle activity & sediment retention. No measures proposed to mitigate potential impacts.		buildings and would involve the removal of a sand ridge with a height of 6m AHD, or approximately 3m above the balance of the site, which is not considered to be a significant land form.
6. Clearing of Native Vegetation • Application refers to potential impacts on High-value regrowth in the southern portion of the site. • Loss of Biodiversity (impacts on flora & fauna) and potential impacts on biodiversity	13	The site is generally category X vegetation and the extraction would occur in this area. No native vegetation would be removed to facilitate the development. Reference to the high value regrowth relates to a vegetated area in the south of the site and no extraction would occur within 500 metres of these wetlands to ensure they are not impacted.
7. Retention of Vegetation • Screening of the proposed development • Haul route across a farm drain and unnamed road lack adequate measures to mitigate dust, noise and visual impact.	11	The screening of the development is addressed in the detailed responses to the planning scheme codes attached at **Appendix B**. The extraction area would be screened form the north, south and east by existing vegetation and screened form the west by sugar cane. In respect of the haul route, it is required by the state government to be via the unnamed road to the north and Bonnie Doon Road. The unnamed road to the north and Bonnie Doon Road will require minor upgrade works, in accordance with an engineering assessment to be submitted in association with an application for Operational Works.
8. Changes to Natural Landforms	5	The impact on the coastal landforms have been addressed with the Department of Environment, Tourism, Science and Innovation (DETSI) (Coastal). DETSI have granted Environmental Authority P-EA-100750656, which is provided for reference as **Appendix D**.
9. Compatibility with the Road Hierarchy • Vehicle movements of 5 x 20t trucks per day (10 trucks daily). • Potential traffic hazard • Requirement for upgrades to Boonie Doon Road to accommodate haul vehicles.	13 (568) (+1 not properly made)	The State Assessment and Referral Agency (SARA) and the Department of Transport and Main Roads (DTMR) have assessed the application and the potential traffic impacts on Bonnie Doon Road. They have required all haulage to be via Bonnie Doon Road to the Captain Cook Highway, which has been determined to have sufficient capacity to accommodate the traffic generated without requiring improvements.

Planning Representations / Objections	Number of Submissions	RPS Comments
10. Traffic Impact Assessment • Lack of comprehensive traffic impact assessment • Lack of detail on vehicle manoeuvring from unnamed road and on-site	12	It is considered that a detailed Traffic Impact Assessment is not required, as supported by the response from SARA and DTMR. However, the applicant engaged engineers to undertake a traffic count and to assess estimated traffic generation associated with the proposed development. Investigation confirmed that upgrades will be required to the intersection of Bonnie Doon Road and the Unnamed road to the north, which can be addressed through an operational works application and an engineering assessment.
11. Site adjoins Wetland of significance to Eastern Kuku Yalanji People • Separation of the proposed extractive industry activities on the eastern boundary • Lack of Cultural Heritage Assessment • Potential fragmentation of existing ecological corridors • Hydrological disturbance • Inadequate marine plant survey (not HAT data or sp)	8 (568)	A search of the Cultural Heritage Database and Register has not identified any cultural heritage site points or site polygons within the site. Refer to **Appendix H** – Cultural Heritage Database and Register Search Report. On this basis, an assessment was not considered necessary. Notwithstanding, the proposed development would provide a buffer area of 500 metres to the wetlands to ensure that they are not impacted. No native vegetation is required to be removed to facilitate the development, which would occur in stages with rehabilitation occurring at the end of each stage. No ecological corridors or essential habitat areas have been identified in the area of extraction and on this basis no known ecological corridors would be impacted. Further details on the impact of the development on matters of hydrology are addressed in **Appendix A** - Response to the Department of Environment, Tourism, Science and Innovation.
12. Potential Erosion Impacts	4 (+1 not properly made)	These have been addressed in the Site Based Management Plan and Environmental Assessment Report submitted with the application.
13. Potential Salinity Issues • Potential impacts on aquifer	4	The impacts on hydrology have been considered by DETSI and in the response to DETSI provided at **Appendix A**.
14. Potential Flood Impacts • Increased risk associated with extraction activities • Flood Capacity impacts • Potential damming effect of proposed bridge across farm drain/waterway	16 (568) (+2 not properly made)	The proposal is for an extractive industry. It would not result in a decrease in the flood storage capacity of the land and it would not result in a change to the drainage pattern of the area. The site access would be designed such that the free flow of water was not affected

Planning Representations / Objections	Number of Submissions	RPS Comments
• Reports refers to retain or reinstate existing drain, not commitment to maintaining functional integrity		and the functional integrity of the drain would not be affected.
15. Air and Noise (Potential Amenity Impacts) • Dust • Extraction activity • Air brakes of 20t truck • No background noise monitoring	14 (568) (+1 not properly made)	Proposed extraction activity would operate intermittently at maximum of 6 x 20t trucks / day. The environmental impacts have been considered by the officers of DETSI who the responsible agency for the implementation of environmental protection policies, including those related to noise and dust. It is understood that the proposed development is considered to be acceptable by DETSI who will continue to monitor the project through its life.
16. Potential impacts on water sources • Impacts of watercourses and springs • Impacts on wetlands • Post extraction left with large hole that would impact mangroves in wetland • Impacts of water quality	8	The proposal is for the removal of the sand dune only. No excavation would occur below the water table and the development would not result in a large hole or depression. In order to preserve the integrity of the wetland it is not proposed to undertake any excavation within 500 metres of the wetland and no marine vegetation or remnant vegetation is required to be removed to facilitate the development. The environmental Impacts, including those on water and wetlands have been considered by DETSI, who are responsible for implementing the Environmental Protection Act, and it is understood that they have raised no objection to the development.
17. Inconsistencies within Application • Failure to definitively define depth of excavation: - Planning report states 0.5 – 1m below natural ground level; - EAR states 1 – 3m from existing surface profile - Response to IR states extracted to a level equivalent to level of farmland to the south-west of the site. - Dispute height of sand ridges • Application does not definitively state amount of material to be extracted: - Reports states in the order of 30,000t or 20,000 – 30,000t	4	The depth of excavation has now clearly been established. Refer to **Appendix A** - Response to the Department of Environment, Tourism, Science and Innovation. Similarly, additional bore hole testing has been undertaken and the findings of these recent bore holes is consistent with those of 1994.

Planning Representations / Objections	Number of Submissions	RPS Comments
- Soil test hole logs are from 1994, and object to use of these for depth of soil, sand, water etc		
18. Inconsistencies with EA on Lot 1 on RP893855 • P-EA-100727892 proposed extraction area includes wetland protection area • Permit subject to cancellation	2	The proposed activity is the subject of a new application (A-EA-NEW-100750082). This has been assessed and determined by DETSI. DETSI have granted Environmental Authority P-EA-100750656, which is provided for reference as **Appendix D**.
14. Proposed Site Extraction Plan • Proposed extraction area extends along the western & eastern boundary. Potential amenity impacts.	3	The extraction area would be setback 10 metres from the eastern boundary, greater that 500 metres from the southern boundary and 200 metres from the northern boundary. Amenity impacts have been addressed above and in the detailed planning scheme code responses attached at **Appendix B**.
15 Council Information Request response • Response does not provide a copy of the advice from TMR as to preferred access route along Boon Doon Road to Captain Cook Highway.	1	A copy of the SARA pre-application response and the subsequent formal referral response are provided at **Appendix I.** This confirms that the requirement is for the site to be accessed via Bonnie Doon Road.
16 Acid Sulphate Soils Overlay Code • No preliminary ASS investigation/assessment • ASS potential for extraction • No co-ordinates provided for test pit despite DSC IR • Historical soil logs did not include any PASS testing	4	As provided to DETSI in the response to their information request, copy provided at **Appendix A**, the proposed sand extraction area does not contain PASS material as it is a dunal type deposit which is approximately 2,000m long and 200 – 250m wide and 2m to 5m above natural ground level. It was historically cleared, has been farmed under cane production in the past, then grassed and slashed for a number of years. The proposed sand extraction would not occur below the highest level of groundwater and there would be no dewatering of the landform as a result of sand extraction or interaction with PASS material. The site was extensively drilled in 1994 by Cairns Sand, with the report stating that the deposit has an average depth of clean sand of 3.5 metres and is covered in a think (300mm) layer of topsoil. The water depth was observed at 3.5m to 4m. Refer to **Appendix A** for further details and advice on the potential for Acid Sulfate Soils on the site and the potential for disturbance as a result of the proposed development.
17. Coastal Processes – Coastal Environment Overlay Code	2	The subject site is not located within the coastal management district; however, the

Planning Representations / Objections	Number of Submissions	RPS Comments
• Erosion prone area of the site, potentially encroaches the proposed extraction area.		erosion prone area encroaches into the southern portion of the site and small areas of the site adjacent the eastern and north western boundary. The extraction area is setback 10 meters form the eastern boundary, outside of the erosion prone area, 500 metres from the wetland and outside of the erosion prone area, and outside of the erosion prone area identified in the north west. Amended Plans clearly identifying the extraction area are provided at **Appendix E**.
18. Flood & Storm Tide Hazard Overlay • Removal of the sand ridges may potentially result in storm tide inundation to adjoining properties • Lack of pre & post flooding modelling as per DSC IR • Proposal entails lowering the site's natural elevation by 0.5-3m, potential impact on flood events.	4	The removal of the sand ridge would increase the flood capacity of the site and decrease the inundation of adjoining properties. A detailed assessment against the Flood and Storm Tide Hazard Overlay is provided at **Appendix B.**
19. Inadequacy of SBMP, noted in report as a desktop assessment • Lack of weed management plan	2	A weed management plan is able to be prepared as a condition of approval, if considered necessary.
20. Rehabilitation plan is vague • Inconsistencies in report, windrows or earthen bunds	2	The extraction is intended to be staged with stages occurring in 100 metre intervals from the north and in areas of approximately 2 hectares. Rehabilitation of the stages is to occur progressively as the sand is extracted. Refer to **Appendix E** for the amended proposal plans, including the staging plans.
21. Inconsistent with the intent for the Environmental Management Zone	2	The proposed extraction area is wholly located within the Rural Zone and the Environmental Management Zone provisions are not relevant to the assessment of the application.
22. Bushfire Hazard Overlay • Sufficient separation from areas of mapped hazardous vegetation • Storage of hazardous materials • Evacuation routes	2	The proposed extraction area is located approx. 680m north of the identified High and Medium Potential Bushfire Intensity areas. No hazardous materials would be stored on-site. The existing unnamed road would be maintained as an evacuation route.

Planning Representations / Objections	Number of Submissions	RPS Comments
		A detailed assessment against the Bushfire Hazard Overlay Code is provided at **Appendix B**.
23. Potential Landslide Hazard Overlay • Slope stability	2	The proposed extraction area is not identified within a potential landslide hazard area and the provisions of the landslide hazard overlay relating to slope stability are not considered relevant. Refer to **Appendix B** for a detailed assessment against the relevant Planning Scheme Codes.

We welcome the opportunity to discuss the proposed development if Council consider it necessary and would trust that the matters can be addressed to avoid any consideration of a pre-liminary approval.

We look forward to continuing working with you on this development. In the meantime, if you have any queries please contact the writer (contact details below).

Yours sincerely,
for RPS AAP Consulting Pty Ltd



Stacey Devaney
Principal Planner
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Appendix A: Response to Department of Environment, Tourism, Science and Innovation
Appendix B: Detailed Planning Scheme Code Responses
Appendix C: Proposed Sand Extraction – Visual Site Assessment
Appendix D: Environmental Authority P-EA-100750656
Appendix E: Amended Proposal Plans
Appendix F: Engineering Report prepared by Civil Walker Consulting
Appendix G: Cultural Heritage Database and Register Search Report
Appendix H: SARA Pre-application Response and Formal Referral Response

Appendix A

Response to Department of Environment, Tourism, Science and Innovation

MAKING COMPLEX EASY
A TETRA TECH COMPANY

135 Abbott Street
Cairns QLD 4870
T +61 7 4031 1336

Our ref: 15874

Date: 13 March 2025

ATTENTION: CHAD HARRIS, ENERGY AND EXTRACTIVE RESOURCES, DETSI

Dear Chad,

Response to Information Request for NQ Asphalt, Ref P-EA-100750656

Thank you for your letter dated 28 January 2025 with respect to the proposed sand extraction activities on Lot 1 on RP893855, application reference number A-EA-NEW-100750082.

A response to the issues raised is provided below.

1.1 Environmental Values – Waters

Issue: Acid Sulphate Soils and Groundwaters

Action: The following information is requested:

1. *Demonstrate that the final landform and underlying soils likely to be exposed to dewatering does not contain PASS. note: field tests can be undertaken to easily identify potential acid sulphate soils, these can be found in the National acid sulfate soils sampling and identification methods manual.*
2. *If investigations identify the likelihood of the presence of PASS, an Acid Sulphate Soils Management Plan (ASSMP) must be provided that includes management and mitigation measures that avoids or treats PASS present in the proposed final landform.*
    a. *The ASSMP must consider the recommended component requirements for the management plan in Appendix 2 of the Queensland's Acid Sulphate Technical Manual*
3. *Provide further information on the groundwater levels at both the extraction area, and the nearby High Ecological Significance Wetlands.*
    a. *Demonstrate that the extraction activity will not adversely affect the associated wetland through groundwater changes.*
        i. *Note: this can be done through a conceptual site model which includes identification of underlying soil types, groundwater levels and discussion of potential changes to groundwater post sand extraction.*

Response to Actions 1 - 3

1.1.1 Avoidance of PASS Exposure and ASSMP

The proposed sand extraction area does not contain PASS material as it is a dunal type deposit, has been oxidised for potentially hundreds of years due to its elevation, is approximately 2,000m long and 200 – 250m wide and 2m to 5m above natural ground level, refer to Plate 1 and Figure 1 below, and Appendix A which shows the elevation of the landform.

It was historically cleared, has been farmed under cane production in the past, then grassed and slashed for

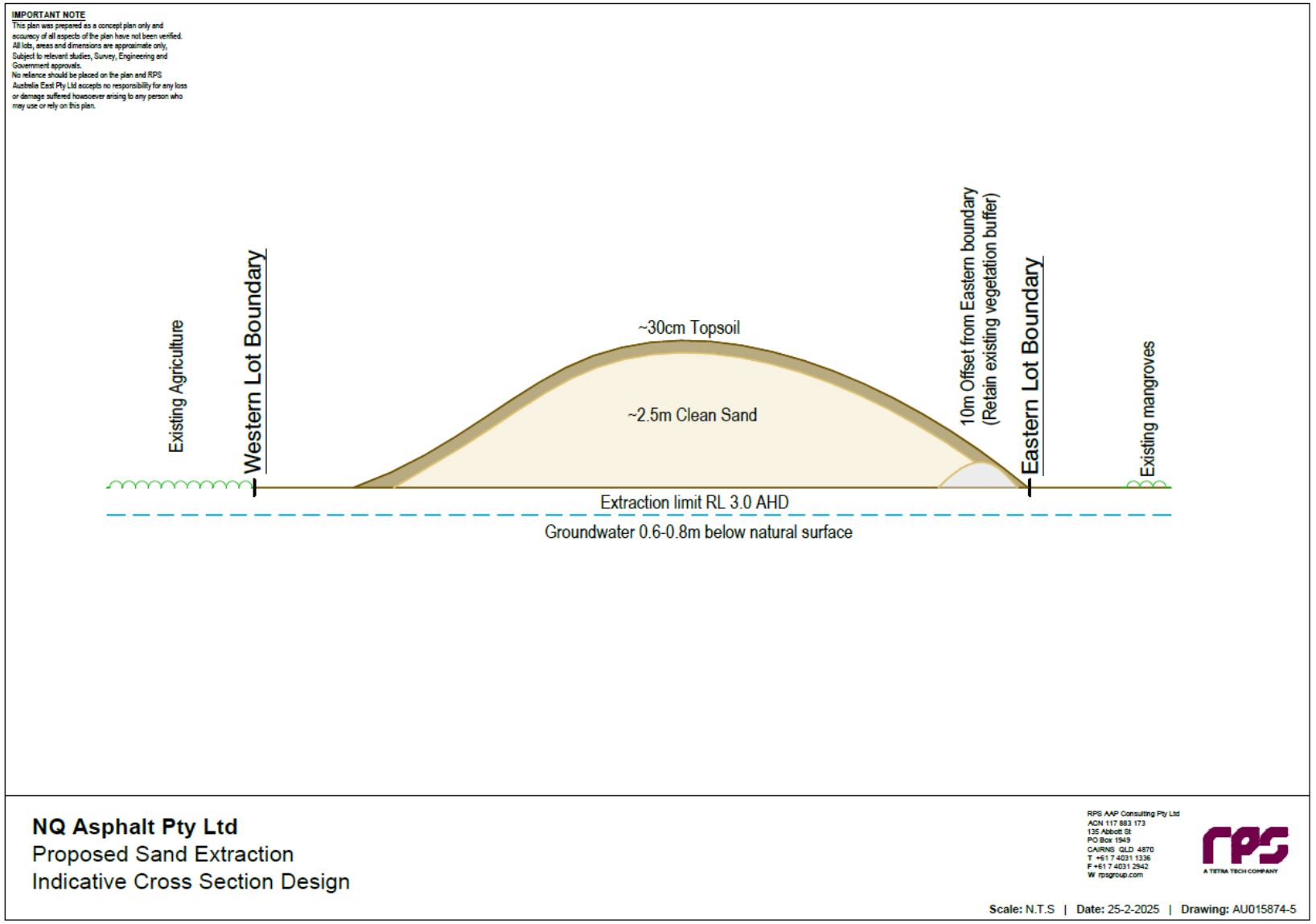


Figure 1 Concept Design of Proposed Sand Extraction

The Cairns Sand report confirmed that the sand resource has two types of sand – a core of fine sand approximately 60m wide and 2m in depth with a grading listed in Table 1 below:

Table 1 – Grading of Fine Sand

Sieve	% Passing
4.75mm	100
2.36mm	99
1.18mm	92
600um	78
300um	34
150um	9
75um	0.5

The fine sand is flanked on both side by deposits of medium sand with an average depth of 3.5m with a grading as specified in Table 2 below:

Table 2 – Grading of Medium Sand

Sieve	% Passing
4.75mm	100
2.36mm	96
1.18mm	73
600µm	29
300µm	15
150µm	5
75µm	0.3

In the Information Request letter, you note that several bores indicated clays, muds or shell grit in the Cairns Sand Report. This has been reviewed and summarised as follows:

Test Hole 10 – Water at 4m, clay below this. It is noted that sand extraction is not proposed to this depth.

Test Hole 18 – Medium sand at 2m with shell grit contamination. A buffer of 10m is proposed from the eastern boundary to avoid shell grit. Sand extraction will not be undertaken in areas of shell grit as it contaminates the product.

Test Hole 22 – Medium sand at 2m with shell grit contamination. A buffer of 10m is proposed from the eastern boundary to avoid shell grit. Sand extraction will not be undertaken in areas of shell grit as it contaminates the product.

Test Hole 29 – Medium sand with layers of fine sand to 3.6m, mud below. It is noted that sand extraction is not proposed to this depth.

Test Hole 30 – Fine sand to 3.6m, groundwater at 3.6m and mud at 3.8m. It is noted that sand extraction is not proposed beyond the groundwater table.

Test Hole 32 – Medium to coarse sand with shell grit contamination at 2m, water at 3.6m. As stated above, shell grit will be avoided and extraction is not proposed below the groundwater table.

Test Hole 33 – Medium sand becoming finer with depth, mud at 4m. Extraction will not go to this depth.

Test Hole 51 – fine to medium sand with water and mud at 2.5m depth. Extraction is not proposed to this depth in this area.

A 10m buffer has been proposed on the eastern boundary to buffer the adjoining mangrove forest and avoid the shell grit areas, refer t**o Figure 1.**

The bore logs from the six (6) groundwater bores installed on 5 February 2025 are included in Appendix D. Soil sampling analysed PASS at 1m intervals during bore installation, refer to Appendix E. PASS material was observed at 3m to 5m below ground level at BH3, and 4 – 5m below ground level at BH5. It is noted that there was a lower PASS result at 0m at BH3 but this may have been a contaminated sample as a number of the bores collapsed during drilling and needed to be redrilled and it is noted that there is no PASS between 1 – 2m below this level.

The height of the groundwater bores were also surveyed which confirmed that the standing groundwater level is 2.1 to 2.7m AHD.

As a result, it is proposed that sand extraction continues to a depth of 3m AHD allowing a buffer to the highest groundwater level observed.

A cross section of the site showing groundwater depth, maximum sand extraction depth and elevation of the dune is provided in Figure 1.

1.1.2 PASS Management Plan Requirement

Given the likelihood of any potential PASS exposure is negligible, an Acid Sulphate Soil Management Plan is not warranted to extract the former sand dune as it is well above natural ground level and NQ Asphalt has committed to extracting sand only above the highest observed groundwater level (3mAHD). If acid sulphate soils are identified they will be managed in accordance with

1.1.3 Groundwater and the HES Wetland

The sand resource will be progressively stripped, and the topsoil will be reused as part of the progressive rehabilitation, refer to Appendix C, and the maximum disturbance area will be limited to one (1) hectare. Surface water will drain into a small basin and reused on site as required for dust suppression if needed. It will be sized to ensure that a 1 in 5 year 24 hour ARI event will be captured and retained with no release offsite. This detention based will ensure that any sediment laded waters are captured and treated with no release unless in extreme events when the receiving environmental is already impacted.

As a result, surface water will continue to infiltrate through the sand to the underlying groundwater and no change will likely occur as a result of the site activities.

The extracted sand will be stockpiled and loaded into a haul truck and approximately four (4) trips per day proposed as the proposed extraction is relatively small scale, estimated at approximately 30,000t per year.

Sand extraction has been buffered to the HES wetland by 500m to prevent any potential impacts to this area, refer to Appendix A for the Site Layout Plan. The wetland is influenced by tidal inundation from the drainage line to the south of the site. Extraction activities will begin from the north and progress south allowing the largest buffer feasible to the wetland area to be maintained as long as possible. The tidal influence from the south will continue into the wetland area, although it is noted that this area has historically been impacted due to the introduction of a tidal gate further downstream. In addition, the landfill and waste transfer station to the south east of the proposed extraction site have the potential for impacts to the existing groundwater and surface water systems that flow directly into the HES wetland.

To conclude, due to the limited extraction area and limited extraction depth, surface water and groundwater will not be materially different to pre-extraction operations and will not detrimentally impact the HES wetland due to the significant buffer, progressive rehabilitation and surface water management.

1.2 Environmental Value – Water (stormwater)

Action: To enable an assessment of the risks to the receiving environment, additional specific information is requested below:

4. *Discuss the following:*
    a. *extraction methodology and strategy to minimise sediment generation, if the activity is proposed to be staged, provide a map showing the extent of each stage of extraction, and*
    b. *site specific stormwater management and mitigation measures, noting that groundwater is high in the area which may result in overland flow with minimal rainfall, and*
    c. *any proposed monitoring and management strategies to ensure that the receiving environment is not impacted by the activity.*
5. *Provide a wet season preparation plan that demonstrates that the site is prepared to minimise sediment generation when the site may be unattended ahead of each wet season.*
    a. *This is critical information as anecdotal evidence suggests that the site may be inaccessible as the area is subject to flooding.*

Response to Actions 4 - 5

1.2.1 Extraction methodology

As stated above, the proposed extraction methodology would involve one person on site to extract the sand in a small excavator who will then load a truck and drive it to Cairns for use in the concrete batch plant or asphalt plant. The maximum area of disturbance will be limited to one (1) hectare and will be progressively rehabilitated with the existing topsoil to be reused as part of the progressive rehabilitation, refer to Appendix C.

1.2.2 Stormwater Management and Mitigation Measures

As stated above, the area of disturbance will be limited to a maximum of one (1) hectare at any time, reducing the potential disturbance area for stormwater to be contaminated by overland flow. Any overland flow from storm events will be captured in a sedimentation basin designed to hold a 1 in 5 year 24 hour ARI event for the nominated maximum extraction area of 1 hectare. This water will be retained and reused on site for dust suppression purposes as required. The maximum extraction depth will ensure that extraction will not interfere with groundwater.

The extracted sand will be stockpiled and loaded into a haul truck and approximately four (4) trips per day proposed as the proposed extraction is relatively small scale, estimated at approximately 30,000t per year.

1.2.3 Monitoring and Management

If required, ongoing groundwater monitoring can be undertaken at the six (6) groundwater bores installed on the site in February 2025. Surface water monitoring can be undertaken within the stormwater detention pond prior to release, however, this would only potentially occur in events greater than a 1 in 5 year 24 hour ARI when the receiving environment is already impacted due to elevated stormwater flow.

NQ Asphalt Pty Ltd has operated in Cairns for decades and understands the risks of wet season including flooding and cyclones. The site will prepare for wet season by undertaking campaign extraction and stockpiling during the dry season, and if required, transporting reserves of sand to receival sites if wet weather is predicted to occur. Whilst flooding may occur in the region, flooding of the site is unlikely due to the elevations of the resource being higher than surrounding landforms.

1.3 Environmental Value – Air (dust)

Action: To allow an assessment of potential impacts to the receiving environmental values of Air, please provide further information detailed below:

6. *Demonstrate that dust generation will be effectively minimised from the sand extraction, loading, vehicle movements and extraction pits given the above wind conditions. note: these risks may be lower if extraction pits are limited to mapped stages. These risks are further reduced if the proposed extraction areas are broken down into smaller stages and previous areas are stabilised with ground cover.*

In addition to the above, please provide further information which demonstrates that dust generation is minimised and managed when the site is not in operation.

Response to Action 6

The Low Isles Lighthouse (BOM Site Number 031037) shows that the mean 9am wind speed is 21.2km/hr collated from data from 1967 to 2024 from the south east, refer to Plate 2 below for the wind rose. The mean The mean 3pm windspeed is 24.8 also from a south east direction, refer to Plate 3. As a result, the prevalent wind will result in a north west direction.

The nearest sensitive receptor is directly to the north of the proposed site and a 50m vegetated buffer has been proposed to mitigate any potential for dust nuisance.

As stated above, extraction is limited to a maximum area of one (1) hectare that will be progressively rehabilitated and move south along the site, putting more distance between the operations and the sensitive receptor to the north thereby reducing potential for dust over the longer term of the operations.

It is noted that the surrounding area is rural in nature and often the neighbouring farmer has been observed to be ploughing fields or harvesting crops which can result in elevated dust intermittently.

A stormwater basin will be installed on site and water will be reused from this for dust suppression purposes as required. Minimal stockpiles will be kept on site to reduce the potential dust as the extracted sand will generally be loaded straight into the waiting haul truck.

Subsequently, given the small-scale nature of the operation, the current rural and industrial uses of the adjoining land, the pre-dominant wind direction, the available water in the stormwater dam for dust suppression, and the vegetated 50m buffer to the north, it is anticipated that the works will not have an impact on the sensitive receptor to the north. If complaints are received, further mitigation measures will be considered and the Environmental Management Plan details the complaints procedure.

Rose of Wind direction versus Wind speed in km/h (01 Oct 1967 to 20 Mar 2024)
Custom times selected, refer to attached note for details

LOW ISLES LIGHTHOUSE
Site No: 031037 • Opened Jan 1887 • Still Open • Latitude: -16.3842° • Longitude: 145.5592° • Elevation 2.m

An asterisk (*) indicates that calm is less than 0.5%.
Other important info about this analysis is available in the accompanying notes.

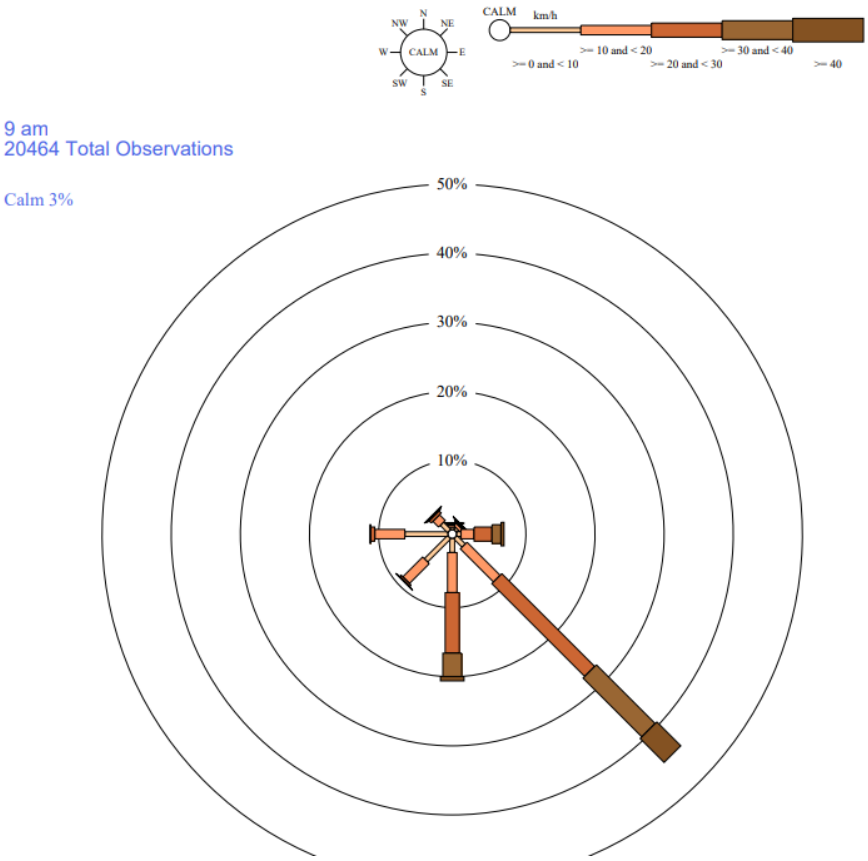


Plate 2 – Low Isles Wind Rose 9am

Our ref: 15874

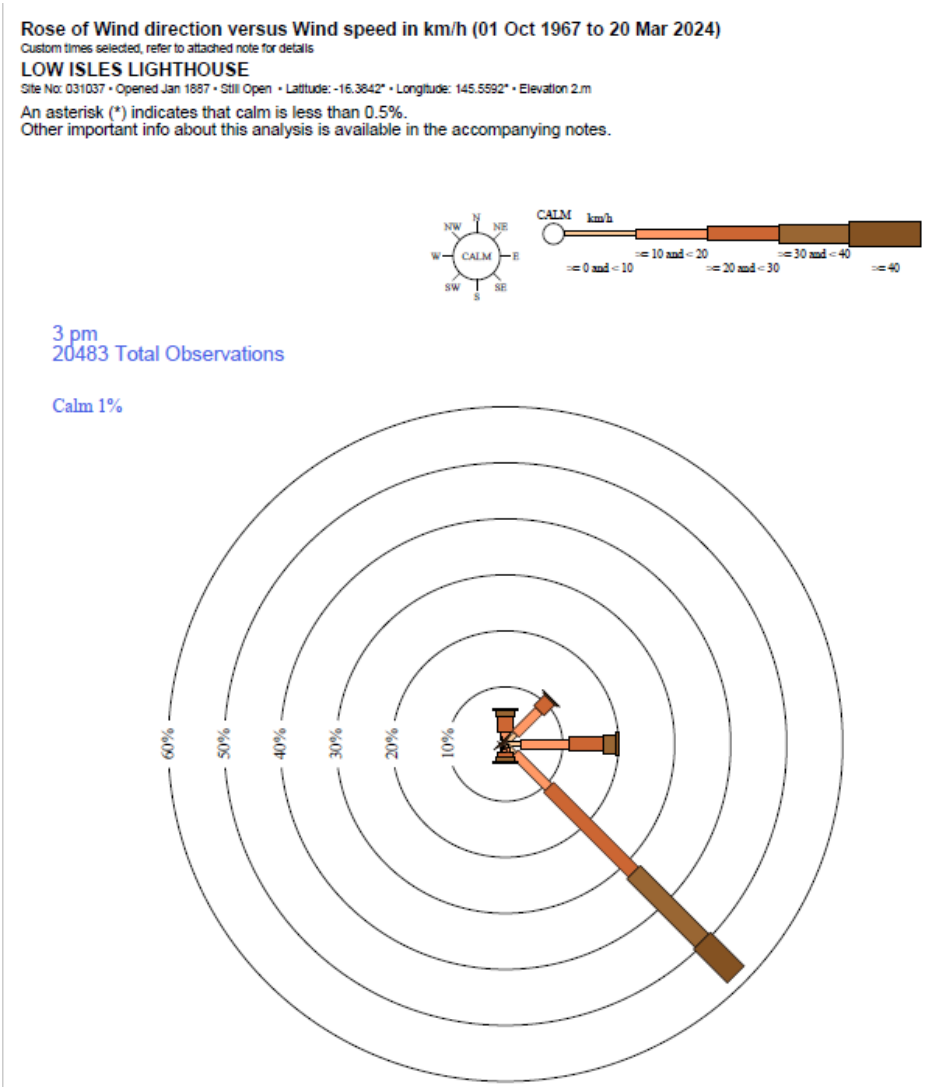


Plate 3 – Low Isles Wind Rose 3pm

NQ Asphalt has supplied the information requested in the DETSI Information Request notice dated 28 January 2025, however, if you need further clarification, please don't hesitate to contact the undersigned.

NQ Asphalt requests that DETSI proceeds with the assessment of the application.

Yours sincerely,
for RPS AAP Consulting Pty Ltd

Megan Davis
Practice Lead - Environmental Management and Remediation (Qld)
megan.davis@rpsconsulting.com
+61 7 4276 1023

cc: Callum Koppen, NQ Asphalt Pty Ltd

Appendix A Site Layout Plan

Proposed Sand Extraction Area				
Point #	Easting	Northing	Longitude	Latitude
1	330060	8178276	E145.40804	S16.47117
2	330182	8178277	E145.40918	S16.47117
3	330256	8178270	E145.40987	S16.47124
4	330406	8178006	E145.41126	S16.47364
5	330455	8177950	E145.41171	S16.47414
6	330548	8177889	E145.41258	S16.47470
7	330824	8177554	E145.41514	S16.47775
8	330857	8177517	E145.41545	S16.47809
9	330981	8177391	E145.41660	S16.47923
10	330866	8177272	E145.41551	S16.48030
11	330656	8177470	E145.41356	S16.47850
12	330429	8177730	E145.41145	S16.47613
13	330274	8177935	E145.41002	S16.47426
14	330124	8178164	E145.40863	S16.47218
15	330091	8178209	E145.40833	S16.47178

Elevation Legend

6.0 m
5.0 m
4.0 m
3.0 m
2.0 m
1.0 m
-0.2 m

Trinity Bay

54
SP292874

Proposed bridge access across farm drain/waterway

Minimum 50m offset off existing buildings

Emt B
RP893855

10m offset off drain easement

Haul access (6m wide)

10m offset off eastern boundary

Bonnie Doon Road

2
RP893855

33
USL8687

Proposed Sand Extraction Area
21.05ha

1
RP893855

Wetland Protection Area Trigger Area (500m buffer)

32
SP332240

Wetland of high ecological significance

170
SR865

A
RP893855

Emt A
SP332240

131
SR853

Captain Cook Highway

Killaloe Dump Road

31
SP332240

4
RP907338

155
NR78

4
SP183012

IMPORTANT NOTE

This plan was prepared as a concept plan only and accuracy of all aspects of the plan have not been verified. All lots, areas and dimensions are approximate only, Subject to relevant studies, Survey, Engineering and Government approvals.
No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.

DNRM DCDB.
DNRM AERIAL PHOTOGRAPHY.

Based on or contains data provided by the State of Queensland (Department of Resources) [2024]. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.
The aerial photography used in this plan has not been rectified. The image has been overlaid as a best fit on the boundaries shown and position is approximate only.
Photography publish date: Aug 2023.
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NQ Asphalt Pty Ltd
Lot 1 on RP893855
Site Plan - Proposed Sand Extraction

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Datum: MGA2020 Z55 | **Scale:** 1:8,000 @ A3 | **Date:** 25-2-2025 | **Drawing:** AU015874-2d

Appendix B Cairns Sand Report

Third Party data follows.

No warranty can be given for the accuracy or reliability of the data from the seller of seller's agent. Interested parties should make their own enquiries and investigations.

QUAID FARM PROJECT

CONTENTS

1.0 Introduction

2.0 Method

3.0 Details of Resources

4.0 Summary

Attachments

- Test Hole Locations
- Test Hole Logs
- Laboratory Work Sheet

1.0 INTRODUCTION

An evaluation of the sand resources available on a property owned by the Quaid Family. The property is located in the Douglas Shire, and is approximately 70 km north of Cairns and 9 km north of the concrete plant at Craiglea and is adjacent the Cook Highway. The Sand deposit is a Dune type deposit, lying in a north-west, south-east direction and is approximately 2,000 metres long and 200-250 metres wide. The area is bounded by cane land to the west and a mangrove swamp to the east. The area had been under cane in the past, however this had been discontinued some years ago and the area has been kept slashed since, except for 200 metres at the south-eastern end, which is under regrowth. There is an disused pit at the north-eastern corner of the area had operated under an Extractive Industry Permit.

2.0 METHOD

This area was sampled using the north-west south-east axis as a baseline and then traverses were made across this line every 100-150 metres. Test pits were dug using a backhoe at 30 metre (in some cases, 50 metre) intervals at each traverse. Locations of test holes are shown on the attached sheet.

3.0 DETAILS OF RESOURCES

Investigation revealed two types of sand in the deposit. There is a core of fine sand approximately 60 metres wide with an average thickness of 2 metres running the length of the area underlying approximately a metre of medium sand. This fine sand has a nominal grading listed below :-

Sieve	% Passing
4.75mm	100
2.36mm	99
1.18mm	92
600um	78
300um	34
150um	9
75um	0.5

The fine sand is flanked on both sides by deposits of medium sand with an average depth of 3.5 metres, however there is a strip of sand approximately 75 metres wide along the extreme eastern edge adjacent the mangroves is heavily contaminated by shellgrit. This medium sand has a nominal grading listed below :-

Sieve	% Passing
4.75mm	100
2.36mm	96
1.18mm	73
600um	29
300um	15
150um	5
75um	0.3

3.0 DETAILS OF RESOURCES (cont.)

There were also found thin layers of coarse sand at the water table at a depth of 3.5 to 4 metres.

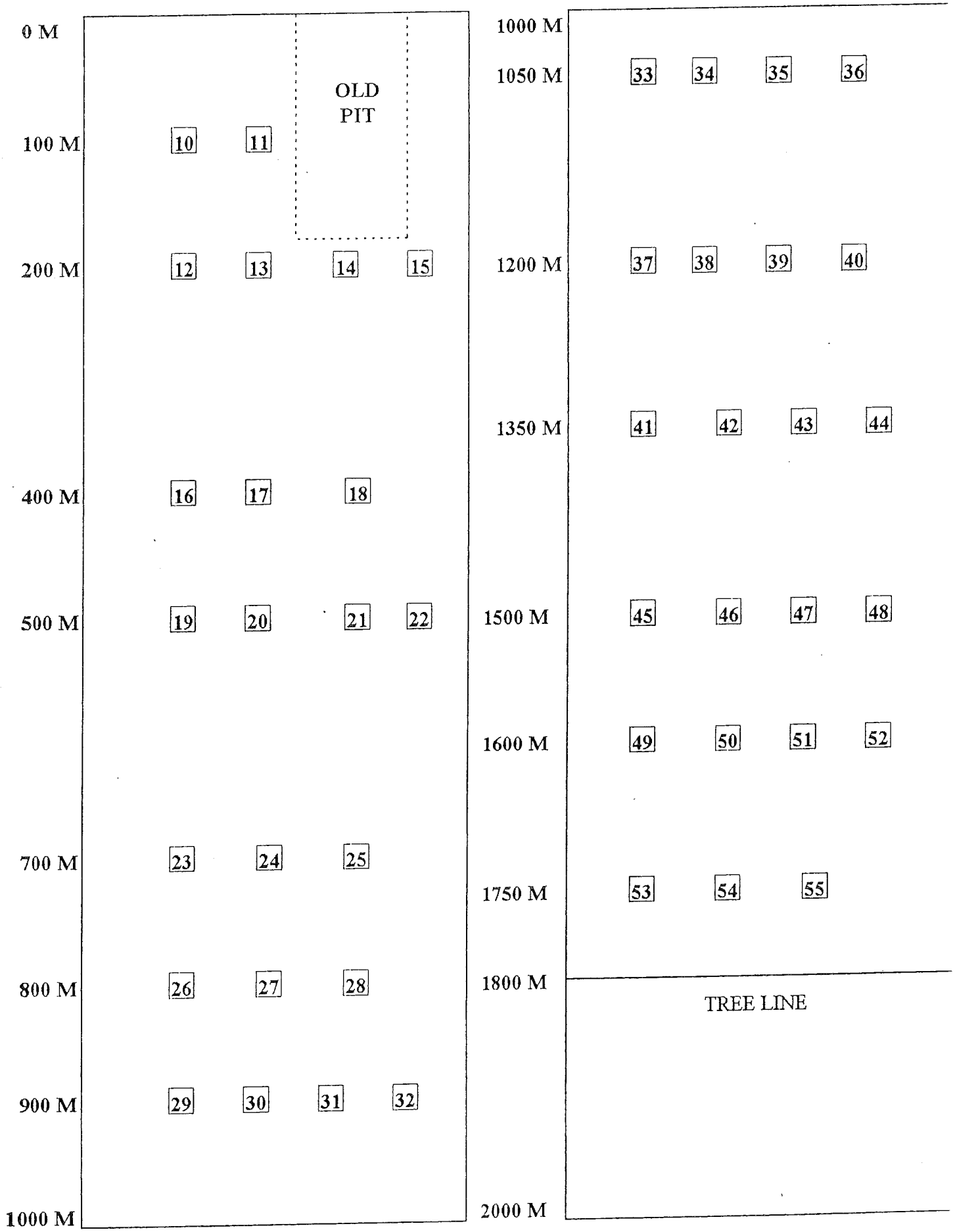
4.0 SUMMARY

This deposit contains approximately 1M tonnes of reserve, discounting the sand contaminated with shellgrit, of which approximately 300,000 tonnes is fine sand. The deposit has an average depth of 3.5 metres and is covered by a thin (300mm) layer of topsoil (Blacksand). The sand appears clean and free of contamination except a strip adjacent the mangroves, however all samples tested in accordance with A.S.1141.34 failed with organic contamination.

S. M. Kenny
Plant Manager, Cairns Sand.

QUAID FARM
TEST HOLE LOCATIONS

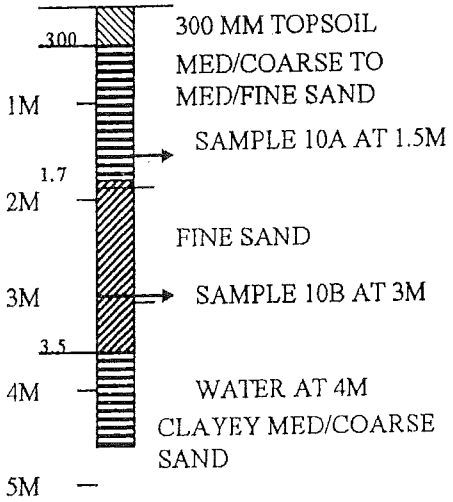




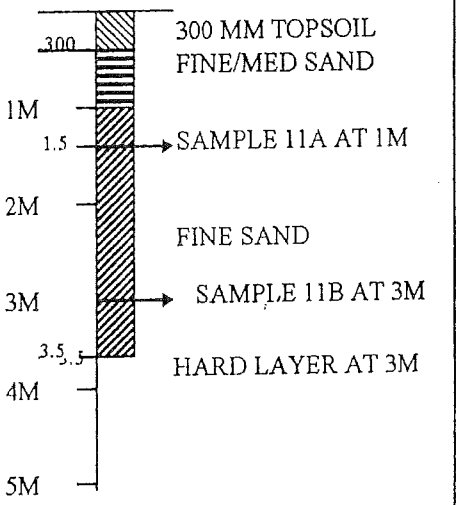
QUAID FARM

TEST HOLE LOGS

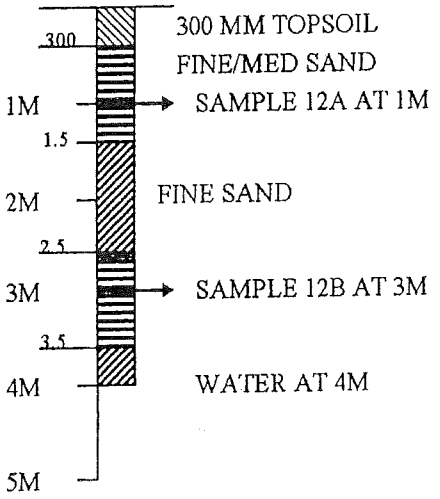
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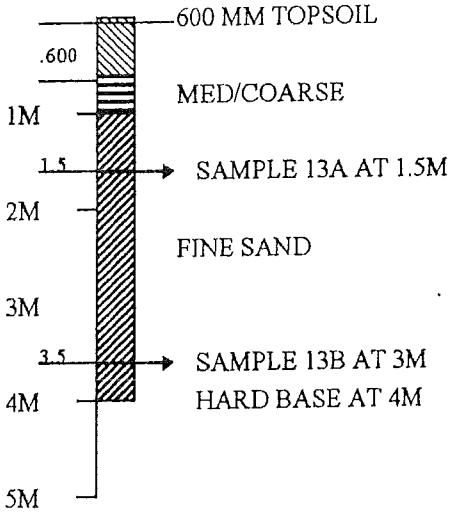
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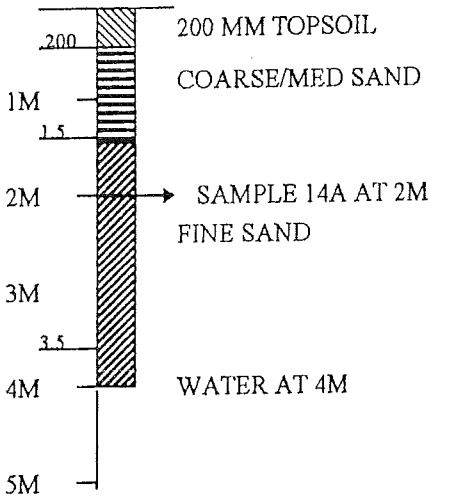
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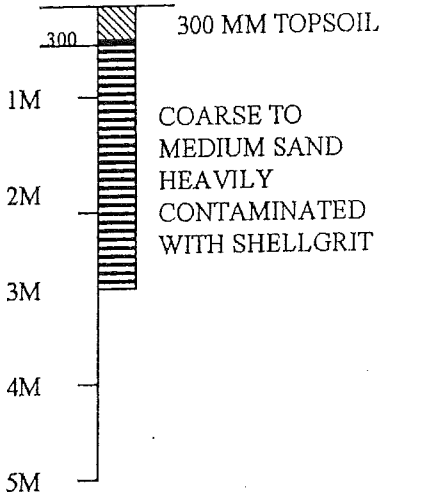
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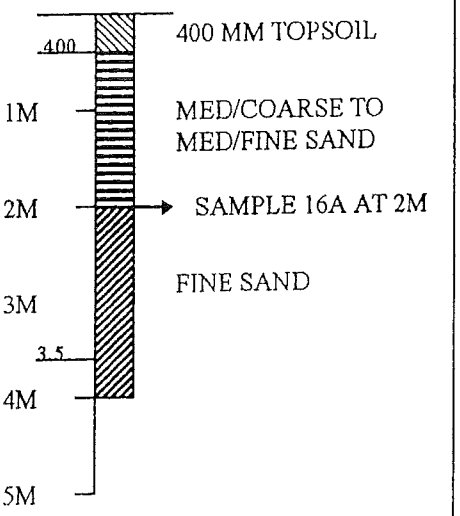
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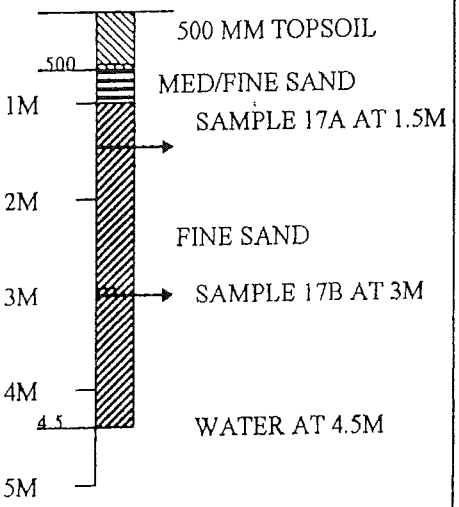
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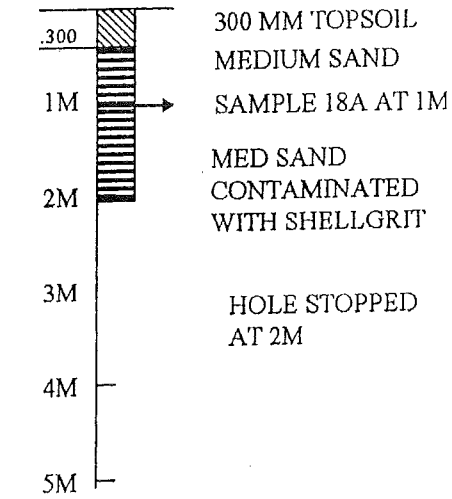
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TEST HOLE 17



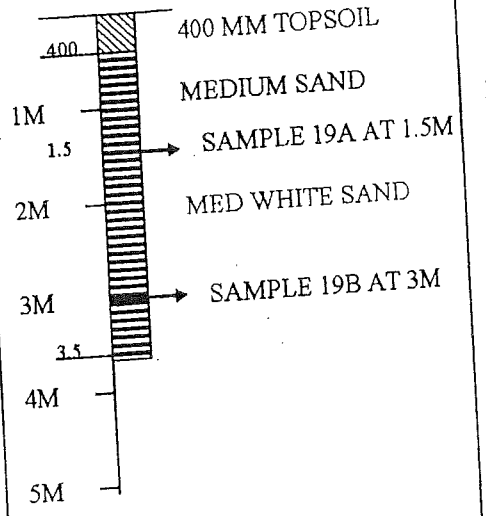
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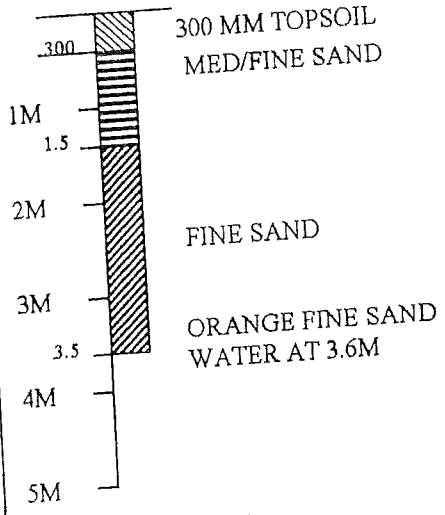
QUAID FARM

TEST HOLE LOGS

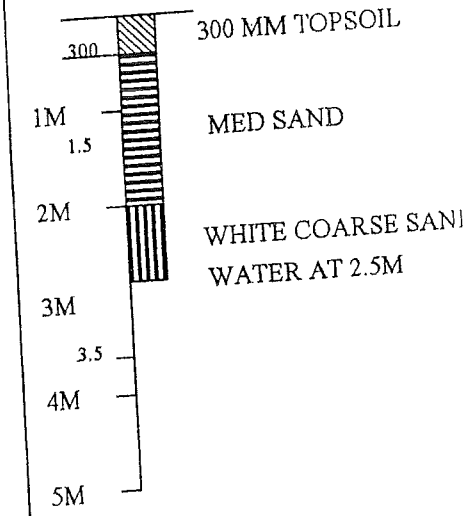
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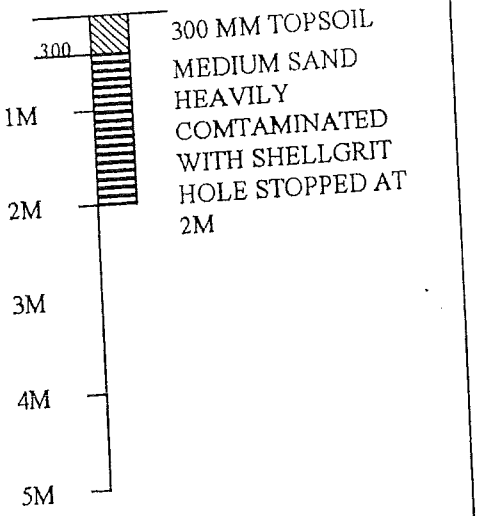
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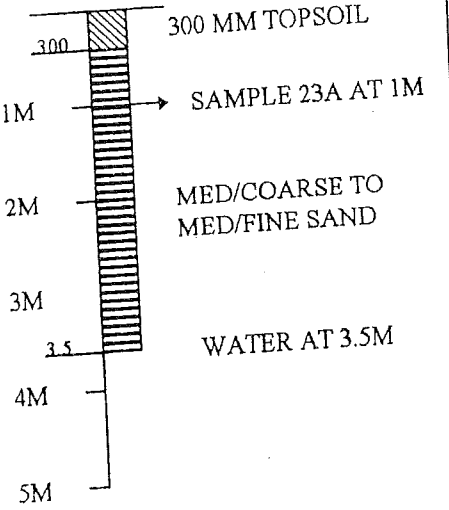
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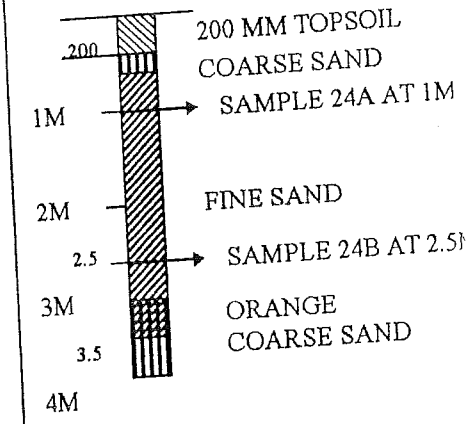
TEST HOLE 22



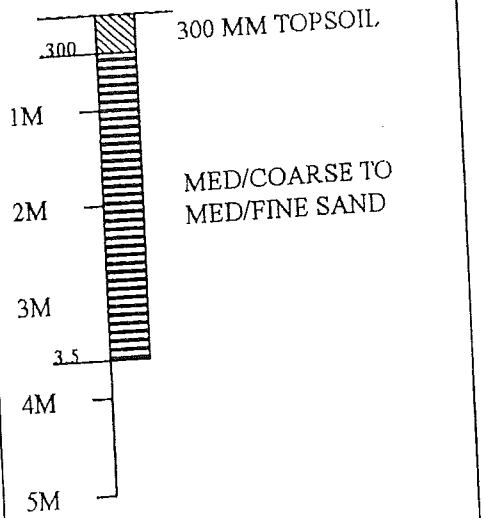
TEST HOLE 23



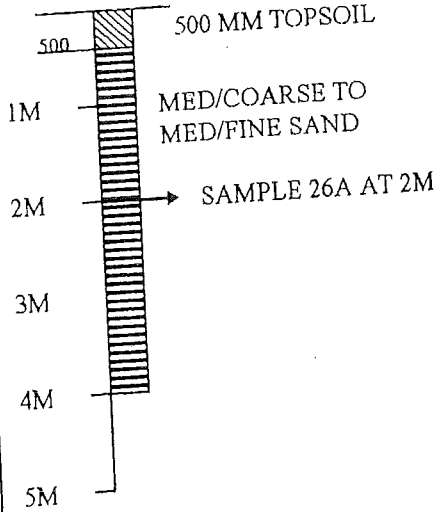
TEST HOLE 24



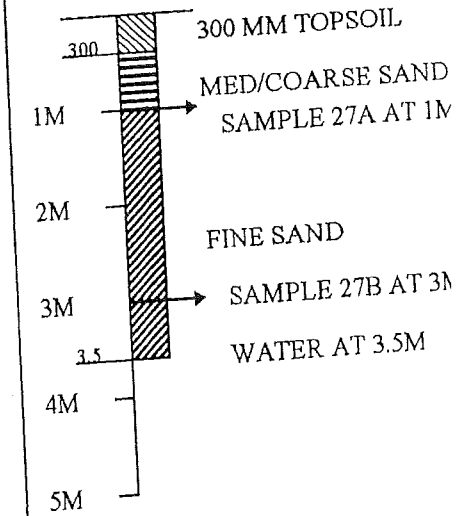
TEST HOLE 25



TEST HOLE 26



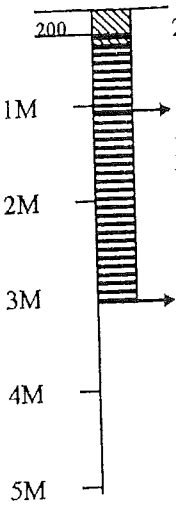
TEST HOLE 27



QUAID FARM

TEST HOLE LOGS

TEST HOLE 28



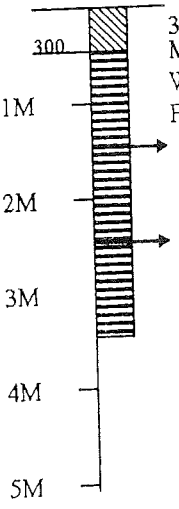
200 MM TOPSOIL

SAMPLE 28A AT 1M

MEDIUM SAND WITH LAYERS OF FINE SAND

SAMPLE 28B AT 3M

TEST HOLE 29



300 MM TOPSOIL

MEDIUM SAND WITH LAYERS OF FINE SAND

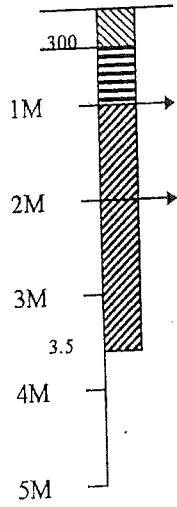
SAMPLE 29A AT 1.5M

SAMPLE 29B AT 2.5M

WHITE MED SAND

MUD AT 3.6M

TEST HOLE 30



300 MM TOPSOIL

MED/COARSE SANI

SAMPLE 30A AT 1M

SAMPLE 30B AT 2M

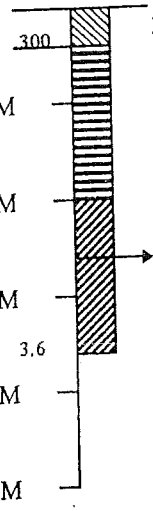
FINE SAND

ORANGE FINE SANI

WATER AT 3.6M

MUD AT 3.8M

TEST HOLE 31



300 MM TOPSOIL

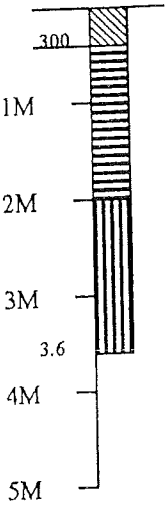
MED/COARSE SAND

SAMPLE 31A AT 2.5M

FINE SAND

GRAY/WHITE COARSE SAND AND WATER AT 3.6M

TEST HOLE 32



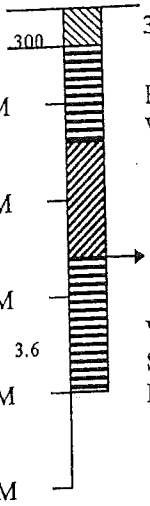
300 MM TOPSOIL

MED/COARSE SAND HEAVILY CONTAMINATED WITH SHELLGRIT

COARSE SAND AND WATER AT 3.6M

APPEARS NO EVIDENCE OF SHELL

TEST HOLE 33



300 MM TOPSOIL

MEDIUM SAND BECOMING FINER WITH DEPTH

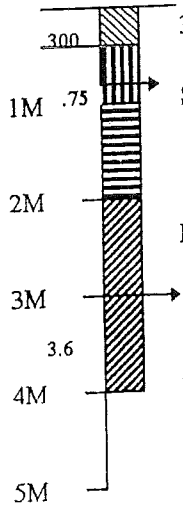
FINE WHITE SAND

SAMPLE 33A AT 2.

WHITE MED/FINE SAND

MUD AT 4M

TEST HOLE 34



300 MM TOPSOIL

MED/COARSE SAND

SAMPLE 34A AT .75M

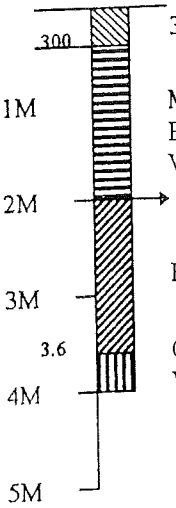
MED/FINE SAND

FINE/MED-FINE

SAMPLE 34B AT 2.5M

WATER AT 4M

TEST HOLE 35



300 MM TOPSOIL

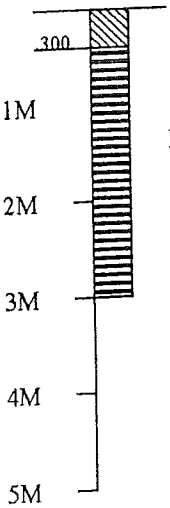
MED/COARSE BECOMING FINE WITH DEPTH

SAMPLE 35A AT 2M

FINE SAND

COARSE SAND AND WATER AT 3.6M

TEST HOLE 36



300 MM TOPSOIL

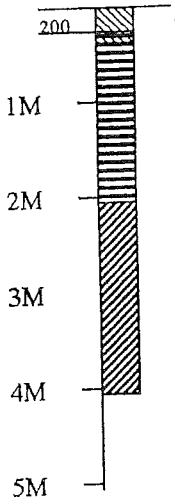
MEDIUM SAND

COARSE SAND AND WATER AT 3M

QUAID FARM

TEST HOLE LOGS

TEST HOLE 37



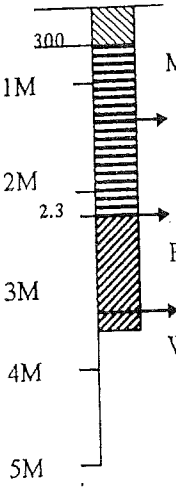
200 MM TOPSOIL

MEDIUM SAND BECOMING FINER WTHH DEPTH

FINE SAND WITH LAYERS OF MED/FINE SAND

WATER AT 4M

TEST HOLE 38



MED/FINE SAND

SAMPLE 38A AT 1M

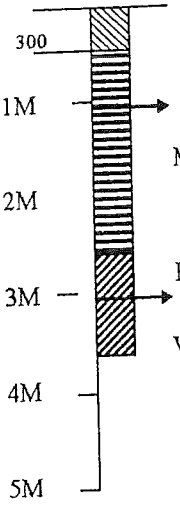
SAMPLE 38B AT 2M

FINE SAND

SAMPLE 38C AT 3M

WATER AT 3.6M

TEST HOLE 39



300MM TOPSOIL

SAMPLE 39A AT 1M

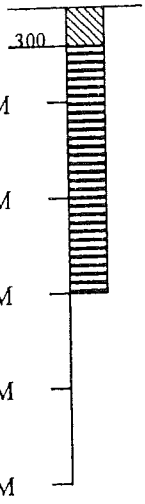
MEDIUM SAND

FINE SAND

SAMPLE 39B AT 3M

WATER AT 3.6M

TEST HOLE 40

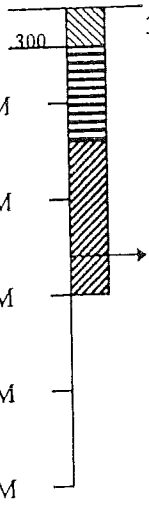


300 MM TOPSOIL

MEDIUM SAND

GRAY/WHITE COARSE SAND AND WATER AT 3M

TEST HOLE 41



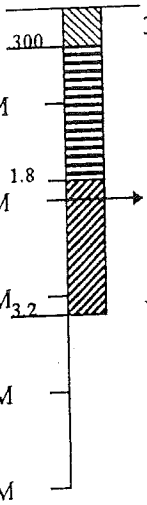
300 MM TOPSOIL

MEDIUM SAND

FINE SAND

SAMPLE 41A AT 2.5M

TEST HOLE 42



300 MM TOPSOIL

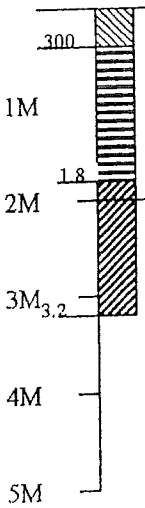
MEDIUM SAND

SAMPLE 42A AT 2M

FINE SAND

WATER AT 3.2M

TEST HOLE 43



300 MM TOPSOIL

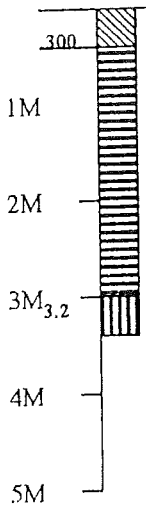
MEDIUM SAND

SAMPLE 43A AT 2M

FINE SAND

WATER AT 3.2M

TEST HOLE 44

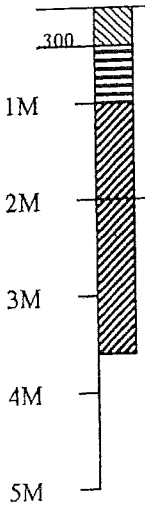


300 MM TOPSOIL

MEDIUM SAND

COARSE SAND AND WATER AT 3.2M

TEST HOLE 45



300 MM TOPSOIL

MEDIUM SAND

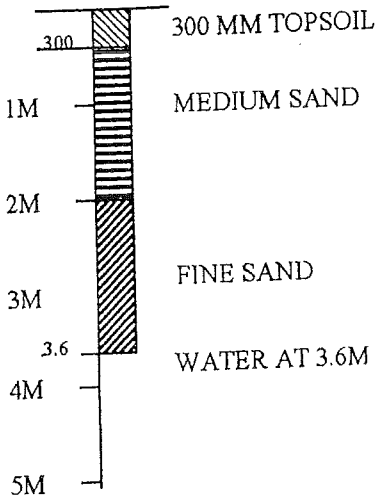
SAMPLE 45A AT 2M

FINE SAND

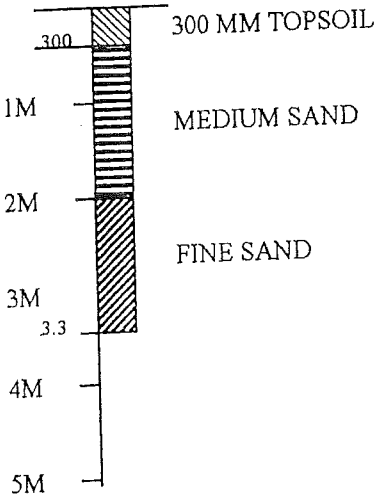
QUAID FARM

TEST HOLE LOGS

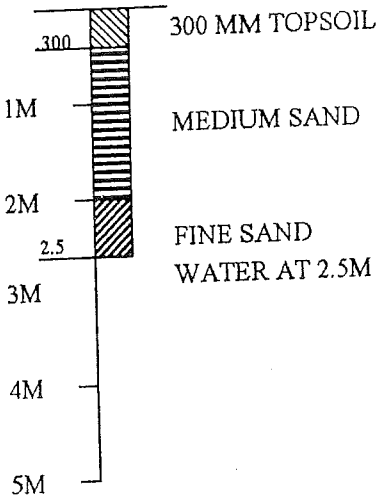
TEST HOLE 46



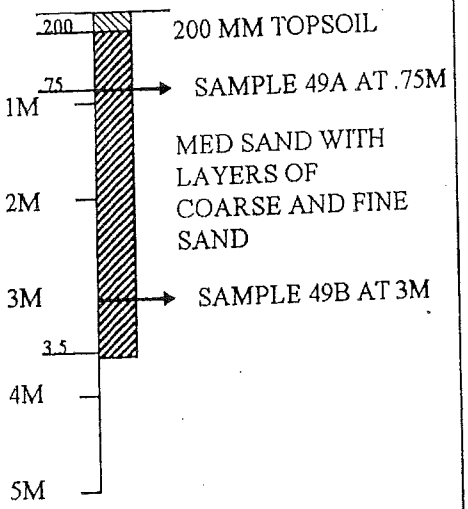
TEST HOLE 47



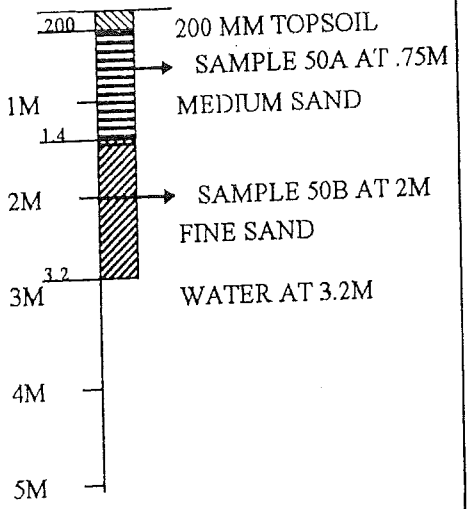
TEST HOLE 48



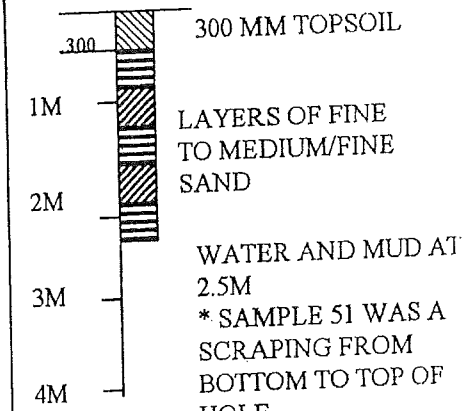
TEST HOLE 49



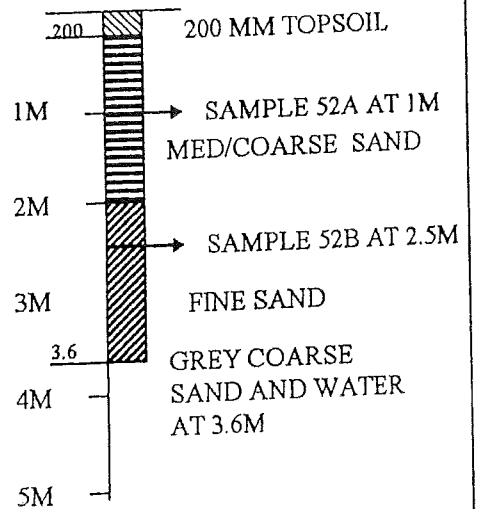
TEST HOLE 50



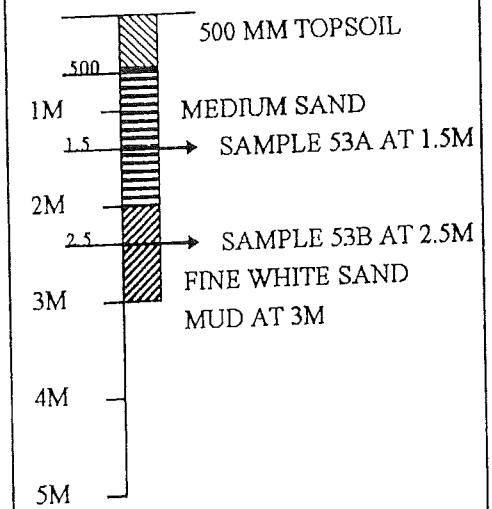
TEST HOLE 51



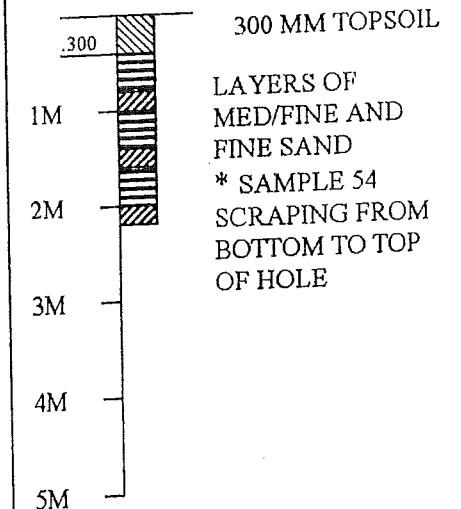
TEST HOLE 52



TEST HOLE 53

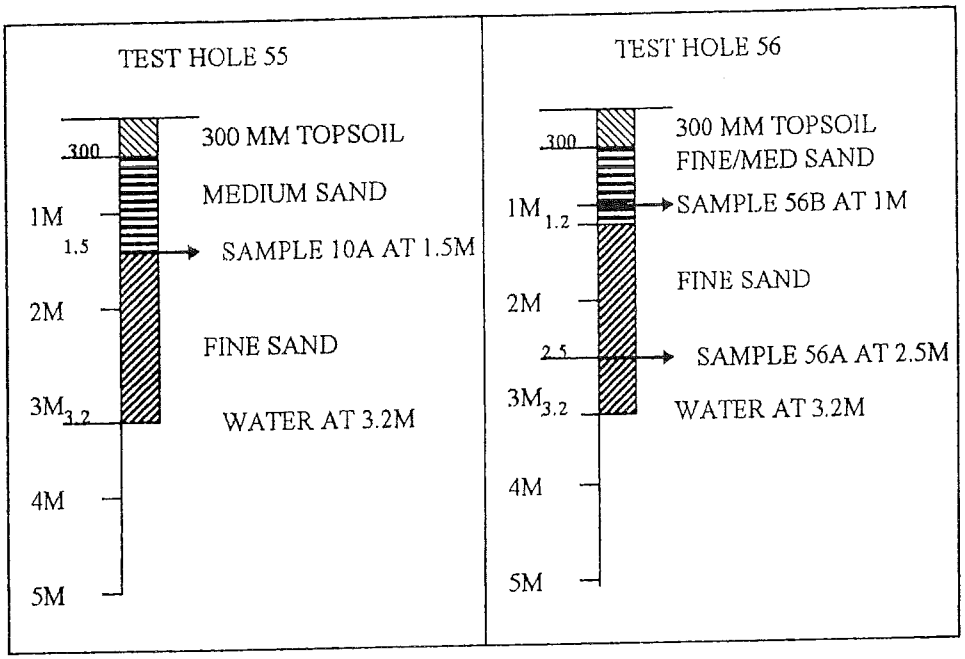


TEST HOLE 54



QUAID FARM

TEST HOLE LOGS



07? 783998

PIONEER ROSEHILL

21-06-1994 09:54

PIONEER CONCRETE (QLD.) PTY. LTD.

AS 1141.11/Q103B PARTICLE SIZE DISTRIBUTION (DRY)

		TV 944				TV 945				TV 946				TV 947			
SAMPLE NUMBER		TV 944				TV 945				TV 946				TV 947			
DATE SAMPLED		7-6-94				7-6-94				7-6-94				7-6-94			
AGG. SIZE/TYPE		MEDIUM SAND				FINE SAND				FINE SAND				FINE SAND			
QUARRY ORIGIN		QUAIDS FARM				QUAIDS FARM				QUAIDS FARM				QUAIDS FARM			
SAMPLED FROM		HOLE 10 A				HOLE 10B				HOLE 11 A				HOLE 11 B			
TESTED BY: DATE		J. DAVIS 17-6-94				J. DAVIS 17-6-94				J. DAVIS 17-6-94				J. DAVIS 17-6-94			
	SIEVE	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS
TOTAL DRY MASS		234.8				192.6				155.2				183.5			
	53.0mm																
	37.5mm																
	26.5mm																
	19.0mm																
	13.2mm																
	9.5mm																
	6.7mm																
	4.75mm	—			100	—			100	—			100	—			100
	2.36mm	2.4	1.0	1.0	99.0	0.8	0.4	0.4	99.6	1.0	0.6	0.6	99.4	2.0	1.1	1.1	98.9
	1.18mm	46.4	18.7	19.8	80.2	11.2	5.4	5.8	94.2	13.4	8.0	8.6	91.4	10.5	4.6	5.7	94.3
	600mm	137.2	38.7	58.4	41.6	47.5	18.8	24.7	75.3	24.3	7.0	15.7	84.3	30.3	5.3	11.1	88.9
	425mm																
	300mm	208.0	30.2	88.6	11.4	119.9	37.6	62.3	37.7	107.0	53.3	68.9	31.1	89.9	37.9	49.0	51.0
	150mm	231.7	10.1	98.7	1.3	178.5	30.4	92.7	7.3	152.5	29.3	98.3	1.7	177.4	47.7	96.7	3.3
	0.075mm	234.2	1.1	99.7	0.3	190.6	6.3	99.0	1.0	155.0	1.6	99.9	0.1	183.0	3.1	99.7	0.3
	PAN																
MOISTURE CONTENT %																	
FINENESS MODULUS		2.7				1.9				1.9				1.6			
CLAY & FINE SILT % AS1141, SECT 33																	
ORGANIC COLOUR TEST AS1141, SECT 34																	
CHECKED BY		J Davis 17-6-94				J Davis 17-6-94				J Davis 17-6-94				J Davis 17-6-94			
COMMENTS																	

PIONEER CONCRETE (QLD.) PTY. LTD.

AS 1141.11/Q103B PARTICLE SIZE DISTRIBUTION (DRY)

		TV 948				TV 949				TV 950				TV 951			
SAMPLE NUMBER																	
DATE SAMPLED		7-6-94				7-6-94				7-6-94				7-6-94			
AGG. SIZE/TYPE		FINE SAND				FINE SAND				FINE SAND				FINE SAND			
QUARRY ORIGIN		QUAIDS FARM				QUAIDS FARM				QUAIDS FARM				QUAIDS FARM			
SAMPLED FROM		HOLE 12A				HOLE 12B				HOLE 13A				HOLE 13B			
TESTED BY: DATE		J. DAVIS 17-6-94				J. DAVIS 17-6-94				J. DAVIS 17-6-94				J. DAVIS 17-6			
SIEVE		CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	%
TOTAL DRY MASS		144.2				266.8				221.1				233.5			
	53.0mm																
	37.5mm																
	26.5mm																
	19.0mm																
	13.2mm																
	9.5mm																
	6.7mm													—			
	4.75mm													4.1	1.8	1.8	
	2.36mm	—			100	—			100	—			100	19.3	6.5	8.3	
	1.18mm	7.3	5.1	5.1	94.9	20.5	7.7	7.7	92.3	3.7	1.7	1.7	98.3	46.7	11.7	20.0	
	.600mm	77.8	48.9	54.0	46.0	115.2	35.5	43.2	56.8	25.9	10.0	11.7	88.3	112.4	28.1	48.1	
	.425mm																
	.300mm	124.8	32.6	86.5	13.5	228.9	42.6	85.8	14.2	80.2	24.6	36.3	63.7	206.4	90.3	88.4	
	.150mm	141.5	11.6	98.1	1.9	263.5	13.0	98.8	1.2	178.0	44.2	80.5	19.5	233.0	11.4	98.8	
	0.075mm	143.8	1.6	99.7	0.3	266.1	1.0	99.7	0.3	220.3	19.1	99.6	0.4				
	PAN																
MOISTURE CONTENT %																	
FINENESS MODULUS		2.4				2.4				1.3				1.7			
CLAY & FINE SILT % AS1141, SECT 33																	
ORGANIC COLOUR TEST AS1141, SECT 34																	
CHECKED BY		J Davis 17-6-94				J Davis 17-6-94				J Davis 17-6-94				J Davis 17-6			
COMMENTS																	

PIONEER CONCRETE (QLD.) PTY. LTD.

AS 1141.11/Q103B PARTICLE SIZE DISTRIBUTION (DRY)

		TV 952				TV 953				TV 954				TV 955			
SAMPLE NUMBER																	
DATE SAMPLED		7-6-94				7-6-94				7-6-94				7-6-94			
AGG. SIZE/TYPE'		FINE SAND				MEDIUM SAND				FINE SAND				FINE SAND			
QUARRY ORIGIN		QUAIDS FARM				QUAIDS FARM				QUAIDS FARM				QUAIDS FARM			
SAMPLED FROM		HOLE 14				HOLE 16A				HOLE 16B				HOLE 17A			
TESTED BY: DATE		J. DAVIS 17-6-94				J. DAVIS 17-6-94				J. DAVIS 17-6-94				J. DAVIS 17-6-94			
	SIEVE	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS
TOTAL DRY MASS		150.9				339.3				219.7				226.8			
	53.0mm																
	37.5mm																
	26.5mm																
	19.0mm																
	13.2mm																
	9.5mm																
	6.7mm													—			100
	4.75mm	—			100	—			100	—			100	0.5	0.2	0.2	99.8
	2.36mm	6.5	0.3	0.3	99.7	9.6	2.8	2.8	97.2	1.4	0.6	0.6	99.4	11.9	5.0	5.2	94.8
	1.18mm	1.8	0.9	1.2	98.8	95.2	25.2	28.1	71.9	20.2	8.6	9.2	90.8	48.4	16.1	21.3	78.7
	.600mm	15.1	8.8	10.0	90.0	219.9	36.8	64.8	35.2	69.5	22.4	31.6	68.4	71.4	10.1	31.5	68.5
	.425mm																
	.300mm	40.7	17.0	27.0	73.0	295.1	22.2	87.0	13.0	135.1	29.9	61.5	38.5	107.2	15.8	47.3	52.7
	.150mm	131.2	60.0	86.9	13.1	331.6	10.8	97.7	2.3	201.1	30.0	91.5	8.5	214.7	47.4	94.7	5.3
	0.075mm	150.4	12.7	99.7	0.3	338.7	2.1	99.8	0.2	218.1	7.7	99.3	0.7	226.6	5.2	99.9	0.1
	PAN																
MOISTURE CONTENT %																	
FINENESS MODULUS		1.3				2.8				1.9				2.0			
CLAY & FINE SILT % AS1141, SECT 33																	
ORGANIC COLOUR TEST AS1141, SECT 34																	
CHECKED BY		J Davis 17-6-94				J Davis 17-6-94				J Davis 17-6-94				J Davis 17-6-94			
COMMENTS																	

P.01 077 783996 PIONEER ROSENEATH QUARRY 21-06-1994 09:56

PIONEER CONCRETE (QLD.) PTY. LTD.

AS 1141.11/Q103B PARTICLE SIZE DISTRIBUTION (DRY)

SAMPLE NUMBER		TV 956				TV 957				TV 958				TV 959			
DATE SAMPLED		7-6-94				7-6-94				7-6-94				7-6-94			
AGG. SIZE/TYPE		FINE SAND				FINE SAND				FINE SAND				MEDIUM SAND			
QUARRY ORIGIN		QUAIDS FARM				QUAIDS FARM				QUAIDS FARM				QUAIDS FARM			
SAMPLED FROM		HOLE 17B				HOLE 18A				HOLE 19A				HOLE 19B			
TESTED BY: DATE		J. DAVIS			17-6-94	J. DAVIS			17-6-94	J. DAVIS			17-6-94	J. DAVIS			17-6-94
	SIEVE	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS
TOTAL DRY MASS		181.2				239.2				254.8				247.4			
	53.0mm																
	37.5mm																
	26.5mm																
	19.0mm																
	13.2mm																
	9.5mm																
	6.7mm																
	4.75mm	—			100	—			100	—			100	—			100
	2.36mm	6.2	3.4	3.4	96.6	12.3	5.1	5.1	94.9	0.6	0.2	0.2	99.8	14.7	5.9	5.9	94.1
	1.18mm	23.9	9.8	13.2	86.8	49.8	15.7	20.8	79.2	26.2	10.0	10.3	89.7	99.3	34.4	40.3	59.7
	600mm	55.1	17.2	30.4	69.6	175.0	52.3	73.2	26.8	120.3	36.9	47.2	52.8	176.0	30.8	71.1	28.9
	425mm																
	300mm	105.8	28.0	58.4	41.6	197.7	5.3	78.5	21.5	204.9	33.2	80.4	19.6	216.2	16.2	87.4	12.6
	150mm	145.4	21.9	80.2	19.8	213.0	10.6	89.0	11.0	243.0	15.0	95.4	4.6	240.6	9.9	97.3	2.7
	0.075mm	180.8	19.5	99.8	0.2	237.9	10.4	99.5	0.5	253.8	4.2	99.6	0.4	246.8	2.5	99.8	0.2
	PAN																
MOISTURE CONTENT %																	
FINENESS MODULUS			1.9				2.7				2.3				3.0		
CLAY & FINE SILT % AS1141, SECT 33																	
ORGANIC COLOUR TEST AS1141, SECT 34																	
CHECKED BY		J Davis			17-6-94	J Davis			17-6-94	J Davis			17-6-94	J Davis			17-6-94
COMMENTS																	

PIONEER ROSEHEATH QUARRY

SAMPLE NUMBER	TW 974				TW 975				TW 976				TW 977			
DATE SAMPLED	16-6-94				16-6-94				16-6-94				16-6-94			
AGG. SIZE/TYPE	MEDIUM SAND				MEDIUM SAND				MEDIUM SAND				FINE SAND			
QUARRY ORIGIN	QUAIDS FARM				QUAIDS FARM				QUAIDS FARM				QUAIDS FARM			
SAMPLED FROM	HOLE 29 A				HOLE 29B				HOLE 30 A				HOLE 30B			
TESTED BY: CATE	J. DAVIS 22-6-94				J. DAVIS 22-6-94				J. DAVIS 22-6-94				J. DAVIS 22-6-94			
SIEVE	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS
TOTAL DRY MASS	196.2				210.0				314.4				196.6			
53.0mm																
37.5mm																
26.5mm																
19.0mm																
13.2mm																
9.5mm																
6.7mm																
4.75mm	—			100	—			100	—			100				
2.36mm	7.5	3.8	3.8	96.2	1.2	0.6	0.6	99.4	1.0	0.3	0.3	99.7	—			100
1.18mm	80.1	37.0	40.8	59.2	34.3	33.1	16.3	83.7	16.2	4.8	5.2	94.8	0.9	0.5	0.5	99.5
.600mm	159.7	40.6	81.4	18.6	138.4	49.6	65.9	34.1	243.9	97.5	77.6	22.4	52.7	22.9	26.8	73.2
.425mm																
.300mm	181.5	11.1	92.5	7.5	171.6	15.8	81.7	18.3	288.8	14.3	91.9	8.1	133.8	41.3	68.1	31.9
.150mm	192.1	5.4	97.9	2.1	193.3	10.3	92.0	8.0	303.1	4.5	96.4	3.6	177.9	22.4	90.5	9.5
0.075mm	195.7	1.8	99.7	0.3	209.6	7.8	99.8	0.2	313.7	3.4	99.8	0.2	196.1	9.3	99.7	0.3
PAN																
MOISTURE CONTENT %																
FINENESS MODULUS	3.2				2.6				3.0				1.9			
CLAY & FINE SILT % AS1141, SECT 33																
ORGANIC COLOUR TEST AS1141, SECT 34																
CHECKED BY	22-6-94				22-6-94				22-6-94				22-6-94			
COMMENTS																

01-07-1994 15:20 0277 7833948 P.08

PIONEER CONCRETE (QLD.) PTY. LTD.

AS 1141.11/QT103B PARTICLE SIZE DISTRIBUTION (DRY)

SAMPLE NUMBER	TN 978				TN 979				TN 980				TN 98			
DATE SAMPLED	16-6-94				16-6-94				16-6-94				16-6-94			
AGG. SIZE/TYPE	FINE SAND				FINE SAND				FINE SAND				MEDIUM SAND			
QUARRY ORIGIN	QUAIDS FARM				QUAIDS FARM				QUAIDS FARM				QUAIDS FARM			
SAMPLED FROM	HOLE 31 A				HOLE 33 A				HOLE 33 B				HOLE 34 A			
TESTED BY: DATE	J. DAVIS 22-6-94				J. DAVIS 22-6-94				J. DAVIS 22-6-94				J. DAVIS 22-6-94			
SIEVE	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS
TOTAL DRY MASS	257.6				188.1				129.9				163.5			
53.0mm																
37.5mm																
26.5mm																
19.0mm																
13.2mm																
9.5mm																
6.7mm																
4.75mm	–			100	–			100	–			100	–			100
2.36mm	0.8	0.3	0.3	99.7	1.0	0.5	0.5	99.5	0.3	0.7	0.2	99.8	1.9	1.2	1.2	98.8
1.18mm	9.5	3.5	3.8	96.2	9.4	4.5	5.0	95.0	6.3	4.6	4.8	95.2	22.1	12.4	13.5	86.5
.600mm	24.2	14.7	9.6	90.4	48.2	30.6	25.6	74.4	18.7	9.5	14.4	85.6	70.7	29.7	43.2	56.8
.425mm													131.7	37.3	80.6	19.4
.300mm	82.7	23.3	32.9	67.1	73.1	13.2	38.9	61.1	54.5	27.6	42.0	58.0	151.8	12.3	92.8	7.2
.150mm	219.6	54.4	87.3	12.7	129.3	29.9	68.7	31.3	101.6	36.3	78.2	21.8	158.6	4.2	97.0	3.0
0.075mm	250.9	12.4	99.7	0.3	187.4	30.9	99.6	0.4	129.5	21.5	99.7	0.3	163.1	2.8	99.8	0.2
PAN																
MOISTURE CONTENT %																
FINENESS MODULUS	1.3				1.4				1.4				3.3			
CLAY & FINE SILT % AS1141, SECT 33																
ORGANIC COLOUR TEST AS1141, SECT 34																
CHECKED BY	J Davis 22-6-94				J Davis 22-6-94				J Davis 22-6-94				J Davis 22-6-94			
COMMENTS																

01-07-1994 15:15 PIONEER ROSENEATH QUARRY 07 3289 [illegible]

SAMPLE NUMBER	TN 982				TN 983				TN 984				TN 985			
DATE SAMPLED	16-6-94				16-6-94				16-6-94				16-6-94			
AGG. SIZE/TYPE	FINE SAND				MEDIUM SAND				FINE SAND				FINE SAND			
QUARRY ORIGIN	QUAIOS FARM				QUAIOS FARM				QUAIOS FARM				QUAIOS FARM			
SAMPLED FROM	HOLE 35A				HOLE 38A				HOLE 29B				HOLE 29C			
TESTED BY: DATE	J. DAVIS 22-6-94				J. DAVIS 22-6-94				J. DAVIS 22-6-94				J. DAVIS 22-6-94			
SIEVE	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS
TOTAL DRY MASS	150.6				227.7				225.2				164.3			
53.0mm																
37.5mm																
26.5mm																
19.0mm																
13.2mm																
9.5mm																
6.7mm																
4.75mm	—			100	—			100	—			100	—			100
2.36mm	2.8	1.9	1.9	98.1	2.7	1.2	1.2	98.8	0.8	0.4	0.4	99.6	0.4	0.2	0.2	99.8
1.18mm	15.1	8.2	10.0	90.0	47.4	19.6	20.8	79.2	28.2	12.2	12.5	87.5	3.5	1.9	2.1	97.9
600mm	56.3	27.4	37.4	62.6	160.4	49.6	70.4	29.6	66.9	17.2	29.7	70.3	11.7	5.0	7.1	92.9
425mm																
300mm	83.5	18.1	55.4	44.6	204.8	19.5	89.9	10.1	132.1	29.0	58.7	41.3	58.8	28.7	35.8	64.2
150mm	131.8	32.1	87.5	12.5	218.3	5.9	95.9	4.1	184.0	23.0	81.7	18.3	131.3	44.1	79.9	20.1
0.075mm	150.2	12.2	99.7	0.3	227.1	3.9	99.7	0.3	224.6	18.0	99.7	0.3	163.8	19.8	99.7	0.3
PAN																
MOISTURE CONTENT %																
FINENESS MODULUS	1.9				2.8				1.8				1.3			
CLAY & FINE SILT % AS1141, SECT 33																
ORGANIC COLOUR TEST AS1141, SECT 34																
CHECKED BY	J Davis 22-6-94				J Davis 22-6-94				J Davis 22-6-94				J Davis 22-6-94			
COMMENTS																

01-07-1994 15:19 PIONEER ROSEHEATH QUARRY 077 783598 P.07

SAMPLE NUMBER	TN 986	TN 987	TN 988	TN 990
DATE SAMPLED	16-6-94	16-6-94	16-6-94	16-6-94
AGG. SIZE/TYPE	MEDIUM SAND	MEDIUM SAND	FINE SAND	FINE SAND
QUARRY ORIGIN	QUADS FARM	QUADS FARM	QUADS FARM	QUADS FARM
SAMPLED FROM	HOLE 39A	HOLE 39B	HOLE 41A	HOLE 42A
TESTED BY: DATE	J. DAVIS 22-6-94	J. DAVIS 22-6-94	J. DAVIS 22-6-94	J. DAVIS 22-6-94

SIEVE	TN 986 CUM WT RETAIN	TN 986 IND % RETAIN	TN 986 CUM % RETAIN	TN 986 % PASS	TN 987 CUM WT RETAIN	TN 987 IND % RETAIN	TN 987 CUM % RETAIN	TN 987 % PASS	TN 988 CUM WT RETAIN	TN 988 IND % RETAIN	TN 988 CUM % RETAIN	TN 988 % PASS	TN 990 CUM WT RETAIN	TN 990 IND % RETAIN	TN 990 CUM % RETAIN	TN 990 % PASS
TOTAL DRY MASS	259.7				212.5				172.5				212.4			
53.0mm																
37.5mm																
28.5mm																
19.0mm																
13.2mm																
9.5mm																
6.7mm					—			100	—			100				
4.75mm	—			100	0.6	0.3	0.3	99.7	0.6	0.3	0.3	99.7	—			100
2.36mm	4.9	1.9	1.9	98.1	8.5	3.7	4.0	96.0	4.6	2.3	2.7	97.3	2.7	1.3	1.3	98.7
1.18mm	36.3	12.1	14.0	86.0	28.3	9.3	13.3	86.7	19.6	8.7	11.4	88.6	21.5	8.9	10.1	89.9
600mm	170.7	51.8	65.7	34.3	97.4	32.5	45.8	54.2	56.6	21.4	32.8	67.2	75.3	25.3	35.5	64.5
425mm																
300mm	224.4	20.7	86.4	13.6	142.9	21.4	67.2	32.8	82.2	14.8	47.7	52.3	114.5	18.5	53.9	46.1
150mm	241.0	6.4	92.8	7.2	176.9	16.0	83.2	16.8	116.2	9.7	67.4	32.6	168.3	25.3	79.2	20.8
0.075mm	259.1	7.0	99.8	0.2	211.8	16.4	99.7	0.3	172.1	32.4	99.8	0.2	211.7	20.4	99.7	0.3
PAN																
MOISTURE CONTENT %																
FINENESS MODULUS	2.6				2.1				1.6				1.8			
CLAY & FINE SILT % AS1141, SECT 33																
ORGANIC COLOUR TEST AS1141, SECT 34																
CHECKED BY	22-6-94				22-6-94				22-6-94				22-6-94			
COMMENTS																

01-07-1994 15:19 PIONEER ROSEWORTH QUARRY 077 783598 P.05

SAMPLE NUMBER	TN 990				TN 991				TN 992				TN 993			
DATE SAMPLED	16-6-94				16-6-94				16-6-94				16-6-94			
AGG. SIZE/TYPE	FINE SAND				MEDIUM SAND				MEDIUM SAND				MEDIUM SAND			
QUARRY ORIGIN	QUAIDS FARM				QUAIDS FARM				QUAIDS FARM				QUAIDS FARM			
SAMPLE LOCATION	HOLE 43-A				HOLE 45-A				HOLE 49-A				HOLE 49-B			
TESTED BY / DATE	J.DAVIS 22-6-94				J.DAVIS 22-6-94				J.DAVIS 22-6-94				J.DAVIS 22-6-94			
SIEVE	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS
TOTAL DRY MASS	287.0				219.7				153.0				144.3		-	
53.0mm																
37.5mm																
26.5mm																
19.0mm																
13.2mm																
9.5mm																
6.7mm b	—			100												
4.75mm ✓	0.3	0.1	0.1	99.9	—			100				100	—			100
2.36mm ✓	21.2	7.3	7.4	92.6	5.8	2.6	2.6	97.4	8.7	5.5	5.5	94.5	3.0	2.1	2.1	97.9
1.18mm ✓	54.5	11.6	19.0	81.0	42.7	16.8	19.4	80.6	85.0	48.3	53.6	46.2	33.2	20.9	23.0	77.0
.600mm ✓	112.7	20.3	39.3	60.7	108.9	30.1	49.6	50.4	131.6	29.5	83.3	16.7	82.7	34.3	57.3	42.7
425mm																
.300mm ✓	162.9	17.5	56.8	43.2	167.7	26.8	76.3	23.7	144.4	8.1	91.4	8.6	112.5	20.7	78.0	22.0
.150mm ✓	261.1	34.2	91.0	9.0	210.0	19.3	95.6	4.4	154.6	6.5	97.8	2.2	139.8	18.9	96.9	3.1
0.075mm ✓	286.4	8.8	99.8	0.2	219.0	4.1	99.7	0.3	157.7	2.0	99.8	0.2	143.8	2.8	99.7	0.3
PAN																
MOISTURE CONTENT %																
FINENESS MODULUS	2.1				2.4				3.3				2.6			
CLAY & FINE SILT % AS1141, SECT 33																
ORGANIC COLOUR TEST AS1141, SECT 34																
CHECKED BY	J.Davis 22-6-94				J.Davis 22-6-94				J.Davis 22-6-94				J.Davis 22-6-94			
COMMENTS																

01-07-1994 15:18 PIONEER RUGELEATH QUARRY 077 783998 P.05

PIONEER CONCRETE (QLD.) PTY. LTD.

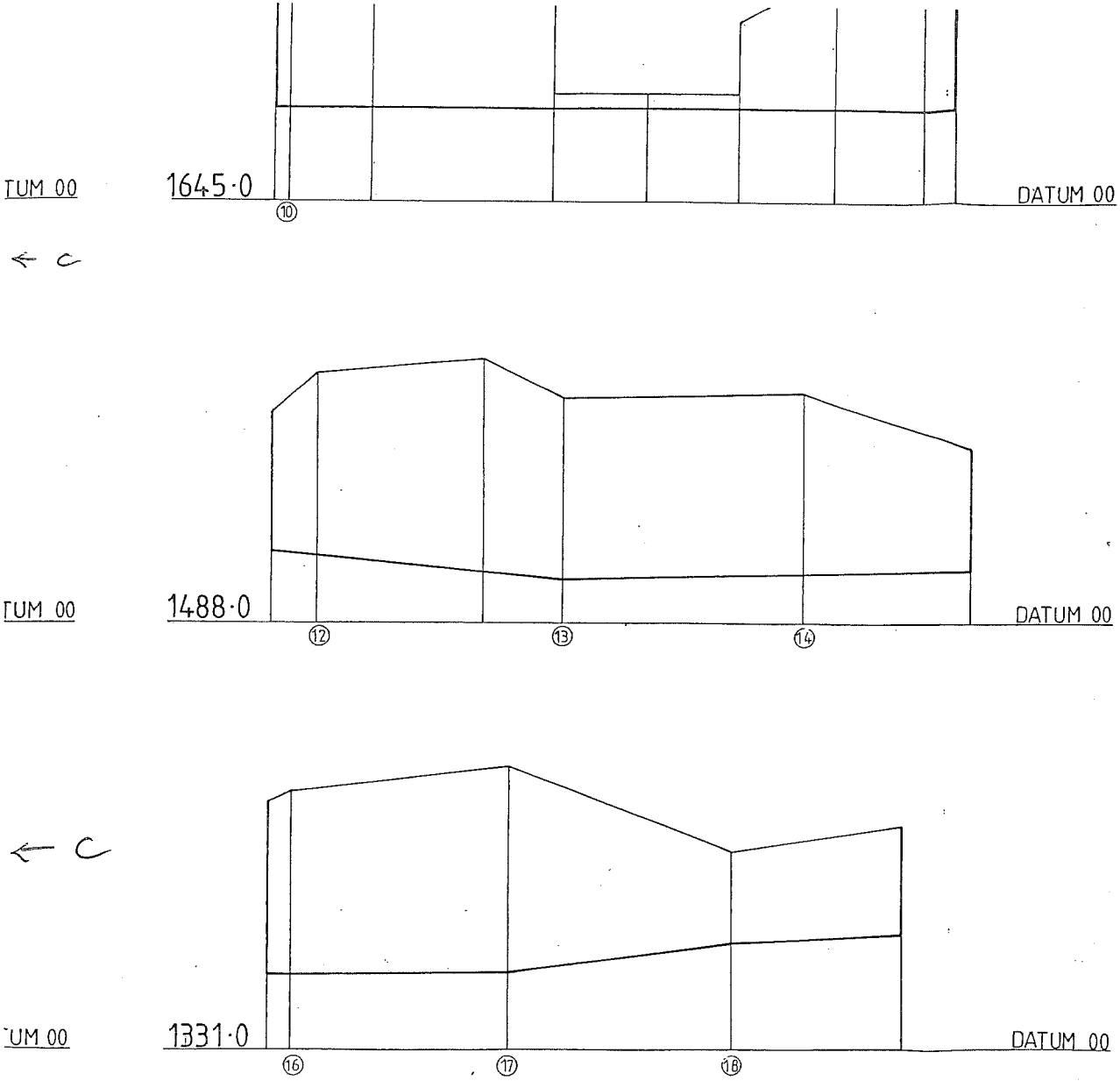
AS 1141.11/12 FINE PARTICLE SIZE DISTRIBUTION (DRY)

SAMPLE NUMBER		TN 994				TN 995				TN 996				TN 997			
DATE SAMPLED		16-6-94				16-6-94				16-6-94				16-6-94			
AGG. SIZE/TYPE		FINE SAND				MEDIUM SAND				MEDIUM SAND				MEDIUM SAND			
QUARRY ORIGIN		QUAIDS FARM				QUAIDS FARM				QUAIDS FARM				QUAIDS FARM			
SAMPLED FROM		HOLE 50 B				HOLE 50 A				HOLE 51 A				HOLE 52 A			
TESTED BY: DATE		J. DAVIS 23-6-94				J. DAVIS 23-6-94				J. DAVIS 23-6-94				J. DAVIS 23-6-94			
	SIEVE	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS
TOTAL DRY MASS		172.0				209.3				297.2				307.4			
	53.0mm																
	37.5mm																
	26.5mm																
	19.0mm																
	13.2mm																
	9.5mm																
	5.7mm	—			100									—			100
	4.75mm	1.1	0.6	0.6	99.4	—			100	—			100	2.7	0.9	0.9	99.1
	2.36mm	14.0	7.5	8.1	91.9	26.6	12.7	12.7	87.3	13.8	4.6	4.6	95.4	40.4	12.3	13.1	86.9
	1.18mm	32.6	10.8	19.0	81.0	111.0	40.3	53.0	47.0	80.3	22.4	27.0	73.0	182.2	96.1	59.3	40.7
	600mm	54.9	13.0	31.9	68.1	176.2	31.2	84.2	15.8	187.4	36.0	63.1	36.9	285.1	33.5	92.7	7.3
	425mm																
	300mm	103.2	28.1	60.0	40.0	192.4	7.7	91.9	8.1	207.7	6.8	69.9	30.1	292.0	2.2	95.0	5.0
	150mm	126.0	13.3	73.3	26.7	200.6	3.9	95.8	4.2	265.5	19.4	89.3	10.7	300.6	2.8	97.8	2.2
	0.075mm	171.6	26.5	99.8	0.2	209.0	4.0	99.9	0.1	296.2	10.3	99.7	0.3	306.6	2.0	99.7	0.3
	PAN																
MOISTURE CONTENT %																	
FINENESS MODULUS		1.9				3.4				2.5				3.6			
CLAY & FINE SILT % AS1141, SECT 33																	
ORGANIC COLOUR TEST AS1141, SECT 34																	
CHECKED BY		J Davis 24-6-94				J Davis 24-6-94				J Davis 24-6-94				J Davis 24-6-94			
COMMENTS																	

SAMPLE NUMBER	TV 998				TV 999				TV 1000				TV 1001			
DATE SAMPLED	16-6-94				16-6-94				16-6-94				16-6-94			
AGG. SIZE/TYPE	FINE SAND				MEDIUM SAND				FINE SAND				MEDIUM SAND			
QUARRY ORIGIN	QUAIDS FARM				QUAIDS FARM				QUAIDS FARM				QUAIDS FARM			
SAMPLED FROM	HOLE 52B				HOLE 53A				HOLE 53B				HOLE 54			
TESTED BY: DATE	J. DAVIS 23-6-94				J. DAVIS 23-6-94				J. DAVIS 23-6-94				J. DAVIS 23-6-94			
SIEVE	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS
TOTAL DRY MASS	219.8				175.7				228.1				196.8			
53.0mm																
37.5mm																
26.5mm																
19.0mm																
13.2mm																
9.5mm																
6.7mm					—			100								
4.75mm	—			100	0.6	0.3	0.3	99.7	—			100	—			100
2.36mm	2.7	1.2	1.2	98.8	19.1	7.7	8.0	92.0	1.9	0.8	0.8	99.2	19.9	10.1	10.1	89.9
1.18mm	12.8	4.6	5.8	94.2	84.0	39.8	47.8	52.2	21.1	8.4	9.3	90.7	71.7	26.3	36.4	63.6
600mm	41.8	13.2	19.0	81.0	139.8	31.8	79.6	20.4	80.6	26.1	35.3	64.7	134.3	31.8	68.2	31.8
425mm																
300mm	78.8	16.8	35.9	64.1	167.9	16.0	95.6	4.4	208.6	56.1	91.5	8.5	159.7	12.9	81.1	18.9
150mm	179.8	46.0	81.8	18.2	175.4	4.3	99.8	0.2	223.3	6.4	97.9	2.1	170.6	5.5	86.7	13.3
0.075mm	218.9	17.8	99.6	0.4	175.7	0.2	100.0	0	227.0	1.6	99.5	0.5	196.2	13.0	99.7	0.3
PAN																
MOISTURE CONTENT %																
FINENESS MODULUS	1.4				3.3				2.3				2.8			
CLAY & FINE SILT % AS1141, SECT 33																
ORGANIC COLOUR TEST AS1141, SECT 34																
CHECKED BY	J. DAVIS 24-6-94				J. DAVIS 24-6-94				J. DAVIS 24-6-94				J. DAVIS 24-6-94			
COMMENTS																

SAMPLE NUMBER	TN 1002				TN 1003				TN 1004				TN 1005			
DATE SAMPLED	16-6-94				16-6-94				16-6-94				16-6-94			
AGG. SIZE/TYPE	FINE SAND				FINE SAND				MEDIUM SAND				MEDIUM SAND			
QUARRY ORIGIN	QUAIDS FARM				QUAIDS FARM				QUAIDS FARM				QUAIDS FARM			
SAMPLED FROM	HOLE 55 A				HOLE 56 A				HOLE 54 B				QF 6/6			
TESTED BY: DATE	J. DAVIS 23-6-94				J. DAVIS 23-6-94				J. DAVIS 23-6-94				J. DAVIS 23-6-94			
SIEVE	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS
TOTAL DRY MASS	192.6				137.6				293.4				271.6			
53.0mm																
37.5mm																
26.5mm																
19.0mm																
13.2mm																
9.5mm																
6.7mm					—			100					—			100
4.75mm	—			100	0.6	0.4	0.4	99.6	—			100	1.1	0.4	0.4	99.6
2.36mm	2.7	1.4	1.4	98.6	3.7	2.7	2.7	97.3	19.6	6.7	6.7	93.3	13.2	4.5	4.9	95.1
1.18mm	16.3	7.1	8.5	91.5	11.6	5.7	8.4	91.6	133.3	38.8	45.4	54.6	49.1	13.2	18.1	81.9
.600mm	79.2	32.7	41.1	58.9	45.0	24.3	32.7	67.3	244.9	38.0	83.5	16.5	99.4	14.8	32.9	67.1
.425mm																
.300mm	121.1	21.8	62.9	37.1	62.7	12.9	45.6	54.4	264.9	6.8	90.3	9.7	170.9	30.0	62.9	37.1
.150mm	138.8	7.1	70.0	30.0	90.2	20.0	65.6	34.4	283.2	6.2	96.5	3.5	263.5	34.1	97.0	3.0
0.075mm	191.9	29.6	99.6	0.4	137.2	34.2	99.7	0.3	292.5	3.2	99.7	0.3	271.1	2.8	99.8	0.2
PAN																
MOISTURE CONTENT %																
FINENESS MODULUS	1.8				1.6				3.2				2.2			
CLAY & FINE SILT % AS1141, SECT 33																
ORGANIC COLOUR TEST AS1141, SECT 34																
CHECKED BY	24-6-94				24-6-94				24-6-94				24-6-94			
COMMENTS																

01-07-1994 15:16 PIONEER RUSSELEATH QUARRY 07? 7833988 P.02

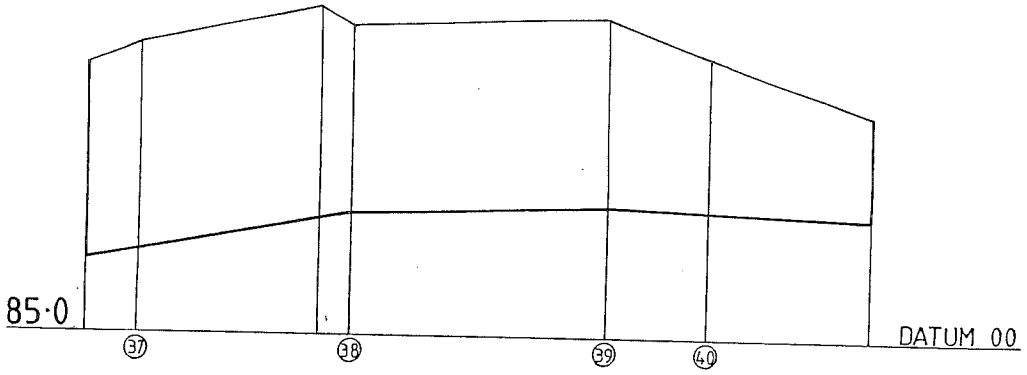


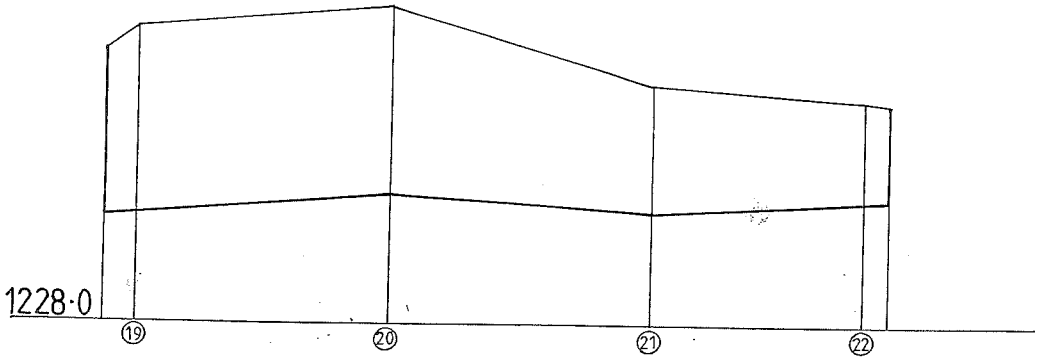
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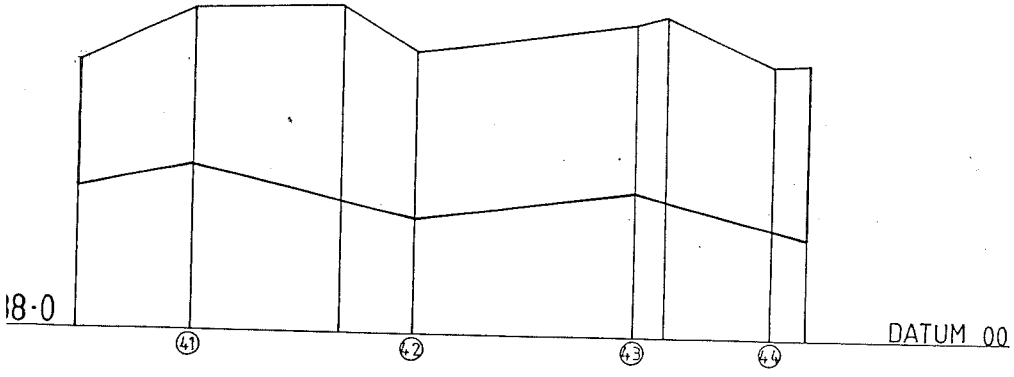
Depth of sand calculated from test hole logs established by Pioneer Concrete on 7-6-94.

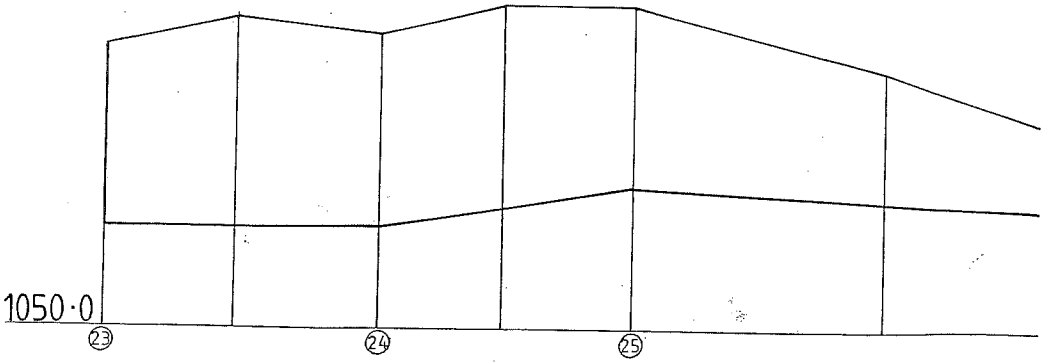
⑫=Test hole number.

Lot 2 on R.P. 719248 ORIG. Por. 90, Por. 79 and Por. 78		
SITE INVESTIGATION TO ESTABLISH QUANTITY OF SAND		
HIGHAM and DODDS PLANNING CONSULTANTS	SCALE AS SHOWN	PLAN N°. 250894 Sheet 3 of 3


85·0
37
38
39
40
DATUM 00

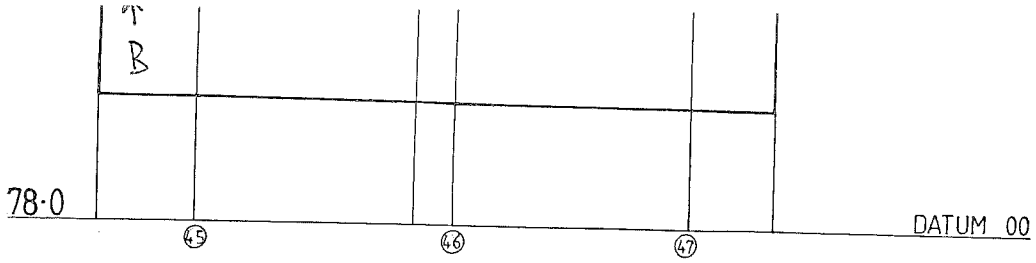

1228·0
19
20
21
22

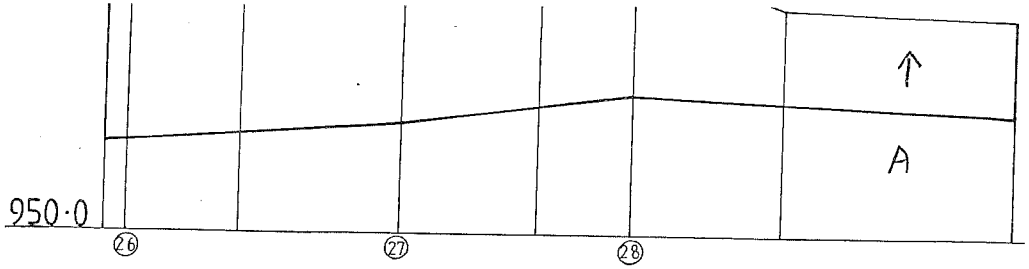

18·0
41
42
43
44
DATUM 00


1050·0
23
24
25

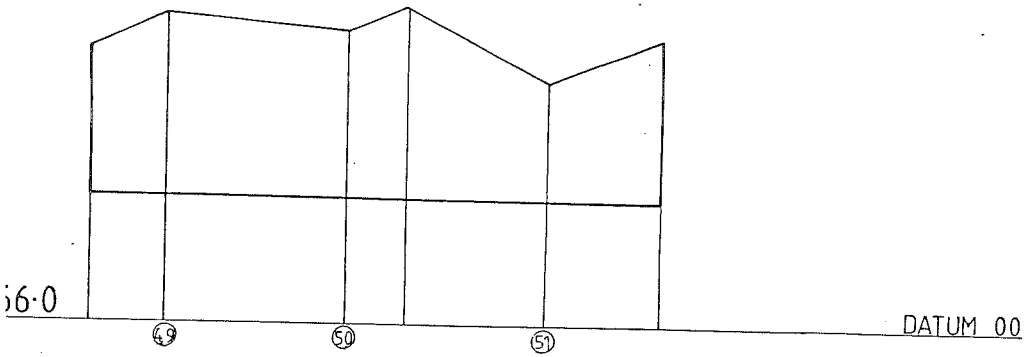

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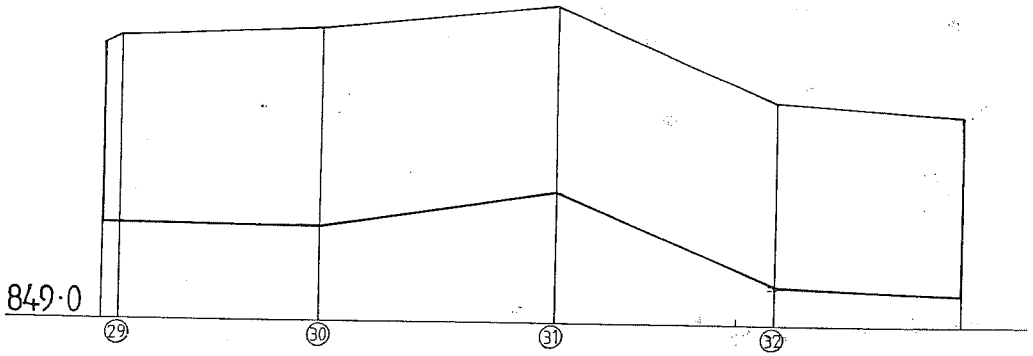

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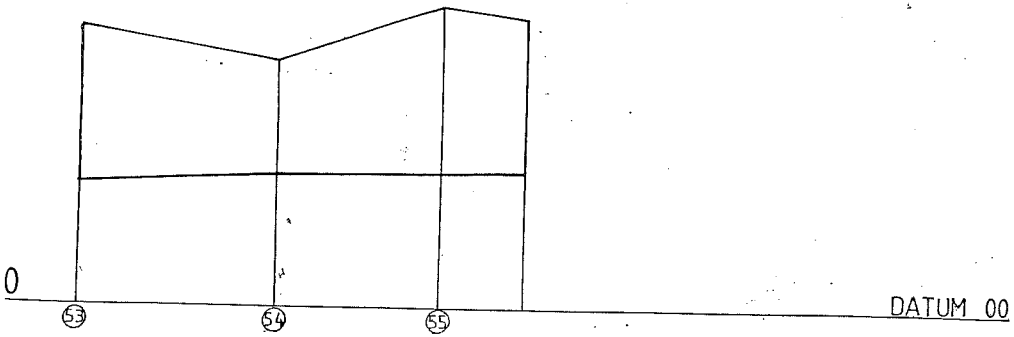


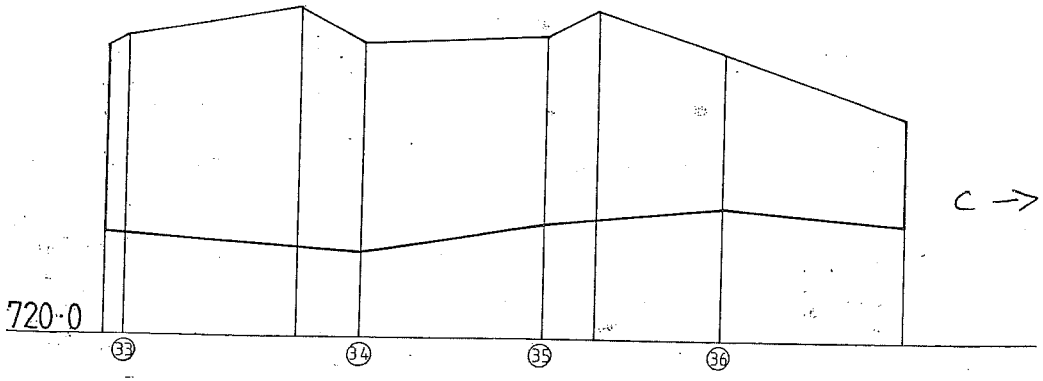


C →









C →

CROSS SECTIONS

HOR. 1:1000
VERT 1:100

Appendix C Staging Plan for Proposed Extraction



IMPORTANT NOTE

This plan was prepared as a concept plan only and accuracy of all aspects of the plan have not been verified. All lots, areas and dimensions are approximate only, Subject to relevant studies, Survey, Engineering and Government approvals.
No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.

DNRM DCDB.
DNRM AERIAL PHOTOGRAPHY.

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The aerial photography used in this plan has not been rectified. The image has been overlaid as a best fit on the boundaries shown and position is approximate only.
Photography publish date: Aug 2023.
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NQ Asphalt Pty Ltd
Lot 1 on RP893855
Staging Plan - Proposed Sand Extraction

0 15 30 45 60 75 150

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A TETRA TECH COMPANY

Datum: MGA2020 Z55 | **Scale:** 1:1,500 @ A3 | **Date:** 29-1-2025 | **Drawing:** AU015874-3

Appendix D Groundwater Bore Logs

BORE LOG SHEET

SAXON DRILLING

Borehole No:	BH - 1				
Date:	5-2-25	Sheet:	1	of	1

Client:	R.P.S	Project:	Sand Quarry		
Location:	Bonnie Doon Road	Position:		Mine Grid:	
Angle from Horizontal:	90°	Rig Type:	Commachio 305	Mounting:	TRACK
Driller:	B. SAXON	Date Started:	5-2-25	Date Completed:	5-2-25
Logged By:	B. SAXON	Company:	Saxon Drilling		

Drilling				Material					Piezometer	
Scale	Drilling Method	Hole Support/Casing	Samples & Tests	Depth RL/Metres	Graphic Log	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE colour, grain size, structure, weathering, strength	Moisture Condition	Comments/ Observations	Piezometer Log	Components
	125mm Auger.	H.W.T CASING Full Hole length.	Samples taken every meter.	5m	.5	0m - 5m Black Sands 1m - 2m Orang Coarse Sand. 1m - 3m Coarse Sands 3m - 4m Orange Sandy Clay. 4m - 5m Stiff Gray Clay 20% Fine Sand. 5m - End Hole		Water at .8m		

COMMENTS

Hole Collapsing threw Wet Sands, Hole Cased and Flushed before Installation of Well.

BORE LOG SHEET

SAXON DRILLING

Borehole No: BH 2

Date: 6-2-25 Sheet: 1 of 1

Client:	R.P.S	Project:	Sand Quarry		
Location:	Bonnie Doon Road	Position:		Mine Grid:	
Angle from Horizontal:	90°	Rig Type:	Commachio 305	Mounting:	TRACK.
Driller:	B. Saxon	Date Started:	6-2-25	Date Completed:	6-2-25
Logged By:	B. Saxon	Company:	Saxon Drilling		

Drilling				Material					Piezometer	
Scale	Drilling Method	Hole Support/Casing	Samples & Tests	Depth RL/Metres	Graphic Log	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE colour, grain size, structure, weathering, strength	Moisture Condition	Comments/ Observations	Piezometer Log	Components
	125mm Auger	H.W.T CASING	Samples every 1 meter	5m		0m - 1m Coarse Sands 1m - 2m Coarse Sands 2~~.8~~m - 4m Sand becoming clayey 4m - 5m Blue stiff Clay.		Water .8m		

COMMENTS

Water at .8m

BORE LOG SHEET

CASEY DRILLING

		Borehole No:	BH 3		
Date:	5.2.25	Sheet:	1	of	1

Client:	R.P.S	Project:	Sand Quarry		
Location:	Bonnie Doon Road	Position:		Mine Grid:	
Angle from Horizontal:	90°	Rig Type:	Commachio 305	Mounting:	TRACK.
Driller:	B. Saxer	Date Started:	5.2.25	Date Completed:	5.2.25
Logged By:	B. Saxer.	Company:			

Drilling				Material					Piezometer	
Scale	Drilling Method	Hole Support/Casing	Samples & Tests	Depth RL/Metres	Graphic Log	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE colour, grain size, structure, weathering, strength	Moisture Condition	Comments/ Observations	Piezometer Log	Components
1 2 3 4 5 6 7 8 9 10 11 12	125mm Auger.	H.W.T CASING Full length of Hole	Samples Taken every meter	5m		0m-3m Coarse White Sand Lots of Sea shells 3-4m Sand becoming finer becoming Clayey. 4m-5 STIFF Grey Clays.		Water at .7m		

COMMENTS

Water at .7m. Hole Cased to 5m. Flushed before Install.

BORE LOG SHEET

SOXON DRILLING

Borehole No:	BH. 4				
Date:	5.2.25	Sheet:	1	of	1

Client:	R.P.S	Project: ~~Bonnie Doon Road~~	Sand Quarry		
Location:	Bonnie Doon Road	Position:		Mine Grid:	
Angle from Horizontal:	90°	Rig Type:		Mounting:	
Driller:	B Soxon	Date Started:		Date Completed:	
Logged By:	B. Soxon	Company:	Soxon Drilling		

Drilling				Material					Piezometer	
Scale	Drilling Method	Hole Support/Casing	Samples & Tests	Depth RL/Metres	Graphic Log	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE colour, grain size, structure, weathering, strength	Moisture Condition	Comments/ Observations	Piezometer Log	Components
	Auger	H.W.T., Full Length of Hole	Samples every 1 meter			0m-1m 1m-2m 2m-3 3-4 4m-5m		Water .6m Coarse to Medium Sand Brown Sand-Coarse, Becoming clayey Blue stiff Clay Clay- Blue to Gray - stiff.		

COMMENTS

Water at .6m -

BORE LOG SHEET

SAXON DRILLING

Borehole No:	5				
Date:	6-2-25	Sheet:	1	of	1

Client:	R.P.S	Project:	Sand Quarry		
Location:	Bonnie Doon ROAD	Position:		Mine Grid:	
Angle from Horizontal:	90°	Rig Type:	Commachio 305	Mounting:	TRACK.
Driller:	B. Saxon	Date Started:	6-2-25	Date Completed:	6-2-25
Logged By:	B. Saxon	Company:	Saxon Drilling		

Drilling				Material					Piezometer	
Scale	Drilling Method	Hole Support/Casing	Samples & Tests	Depth RL/Metres	Graphic Log	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE colour, grain size, structure, weathering, strength	Moisture Condition	Comments/ Observations	Piezometer Log	Components
						0-1m Coarse white Sands 1m-2m Course Orange Sands. 2m-3 clayey & Finer Sand. 3m-4m Grey stiff Clays. 4m-5m Grey stiff Clays.		Water .6m		

1 2 3 4 5 6 7 8 9 10 11 12

COMMENTS

Water at .6m

BORE LOG SHEET

SAXON DRILLING

Borehole No:	6 - near Refuse tip				
Date:	6-2-25	Sheet:	1	of	1

Client:	R.P.S	Project:	Sand Quarry		
Location:	Bonnie Doon Road	Position:		Mine Grid:	
Angle from Horizontal:	90	Rig Type:	Commachio 305	Mounting:	Track
Driller:	B-Saxon	Date Started:	6-2-25	Date Completed:	6-2-25
Logged By:	B-Saxon	Company:	Saxon Drilling		

Drilling				Material					Piezometer	
Scale	Drilling Method	Hole Support/Casing	Samples & Tests	Depth RL/Metres	Graphic Log	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE colour, grain size, structure, weathering, strength	Moisture Condition	Comments/ Observations	Piezometer Log	Components
	125mm Auger.	HWT - Full length of Hole	Samples every meter	6m		0m - 3m Coarse white, Orange Sands 3m - 3.5m Sand becoming clayey 3.5m - 6m GRAY STIFF clays		Water 2.7m		

COMMENTS

Water 2.7m

Appendix E PASS Report

135 Abbott Street
Cairns QLD 4870
T +61 7 4031 1336

Our ref: L83185 15874

Date: 18 February 2025

NQ Asphalt Pty Ltd

To Whom it May Concern,

Sand Product and Acid Sulfate Soil Content Testing 7 February 2025

An RPS Environmental Consultant visited the NQ Asphalt Sand site on 7 February 2025 to assist with the installation of 6 Groundwater monitoring wells on Lot 1 RP893855. During the bore installation sand samples were collected from 1m intervals to be analysed for Chromium Suite to determine if Acid Sulfate Soils (ASS) are present within the soils on site.

Method

Sand product sampling was conducted according to the Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils (ASS) in Queensland 1998. The approved sampling technique under this manual is as follows:

A compound sampling program was implemented with small samples taken from random locations over a particular Sand Product Pile; these are then combined and placed into an air-tight polyethylene bag (with the air excluded). The combined sample of a particular sand product is then clearly marked with a permanent marker and placed into an esky containing ice to keep samples cool and minimize sulfide oxidation. This is then repeated for other grades of sand being produced at the site. The chilled samples were transported within a 24-hour timeframe to a NATA accredited laboratory for analysis.

All quality standards and procedures were carried out according to Australian Standard AS 4969- 2008, the Laboratory Methods Guidelines (2004) Ahern CR, McElnea AE, Sullivan LA and Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils (ASS) in Queensland 1998.

Bore and sample locations

The groundwater bores have been installed along the northeast and southwest boundaries of the site. Refer to **Appendix A** for the Borehole Location plan.

Results

Sand samples taken from the bore holes were sent to a NATA accredited laboratory for analysis. The laboratory report of results is included in **Appendix B**, with a summary of the key results below in **Table 1**:

Table 1 – Sand sample results

Sample	Sulphur Trail (s-net Acidity %w/w S)	Acid Trail (a-net Acidity mol H^+/t)	pH KCl
BH1 0m	*0.0025*	*2.5*	6.4
BH1 1m	*0.0025*	*2.5*	6.3
BH1 2m	*0.0025*	*2.5*	5.9
BH1 3m	*0.0025*	*2.5*	5.6
BH1 4m	*0.0025*	*2.5*	5.8
BH1 5m	*0.0025*	*2.5*	5.8
BH2 0m	*0.0025*	*2.5*	6.4
BH2 1m	*0.0025*	*2.5*	9.7
BH2 2m	*0.0025*	*2.5*	9.7
BH2 3m	*0.0025*	*2.5*	9.7
BH2 4m	*0.0025*	*2.5*	9.5
BH2 5m	*0.0025*	*2.5*	9.5
BH3 0m	**0.036**	**22**	**5.3**
BH3 1m	*0.0025*	*2.5*	6.3
BH3 2m	*0.0025*	*2.5*	6.3
BH3 3m	**0.088**	**55**	**4.8**
BH3 4m	**0.29**	**180**	**4.7**
BH3 5m	**0.16**	**98**	**4.6**
BH4 0m	*0.0025*	*2.5*	7.8
BH4 1m	*0.0025*	*2.5*	9.8
BH4 2m	*0.0025*	*2.5*	9.8
BH4 3m	*0.0025*	*2.5*	9.8
BH4 4m	*0.0025*	*2.5*	9.5
BH4 5m	*0.0025*	*2.5*	9.5
BH5 0m	0.012	7	5.5
BH5 1m	*0.0025*	*2.5*	6.4
BH5 2m	*0.0025*	*2.5*	6.2
BH5 3m	*0.0025*	*2.5*	5.8
BH5 4m	**0.29**	**180**	**4.7**
BH5 5m	**0.044**	**27**	**4.6**
BH6 0m	*0.0025*	*2.5*	6.4
BH6 1m	*0.0025*	*2.5*	6.3
BH6 2m	*0.0025*	*2.5*	6.3
BH6 3m	*0.0025*	*2.5*	6.1
BH6 4m	*0.0025*	*2.5*	6.4
BH6 5m	*0.0025*	*2.5*	9.4
BH6 6m	*0.0025*	*2.5*	9.4

Columns 2 & 3 must be compared against the Action Criteria >1000 tonnes disturbed column of **Table 2**

Table 2 - Texture Based Acid Sulfate Soil Action Criteria (QASSTM)

Type of Material		Action Criteria 1-1000 Tonnes Disturbed		Action Criteria >1000 Tonnes Disturbed	
Texture Range MacDonald et al. (1990)	Approx. Clay Content (%)	%S equiv. (oven-dry basis) e.g. S_{TOR} or S_{POS}	Mol H^+/tonne (oven-dry basis) e.g TPA or TSA	Sulfur trail %S oxidisable (oven-dry basis) e.g. S_{TOS} or S_{POS}	Acid Trail mol H^+/tonne (oven-dry basis) e.g. TPA or TSA
Fine Medium to heavy clays, and silty clays	>40%	0.1	62	0.03	18
Medium Sandy loams to light clays	5-40	0.006	36		
Coarse Sandy to loamy sands and peats	<5	0.03	18		

Discussion

The Chromium Suite laboratory analysis results in **Table 1** show that BH3 3m, 4m and 5m and BH5 4m and 5m recorded results above the weighted action criteria (*Ahern et al 1998*), refer to **Table 2**, while all other samples recorded below**.** Additionally, the pH KCl for the samples above the weighted action criteria recorded between 4.6 to 4.8, whereas the samples below recorded 5.3 to 9.8 can be seen in **Table 1.**

These results indicate Acid Sulfate soils present at the below locations would require management with limiting rates if >1000 tonnes disturbed.

Table 3 - Liming Rate

Sample	Liming Rate kg Ca CO3/T
BH3 0m	1.7
BH3 3m	4.1
BH3 4m	14
BH3 5m	7.4
BH5 4m	13
BH5 5m	*2*

Should you require any further details or clarification, please do not hesitate to contact RPS on (07) 4031 1336.

Yours sincerely,
for RPS AAP Consulting Pty Ltd



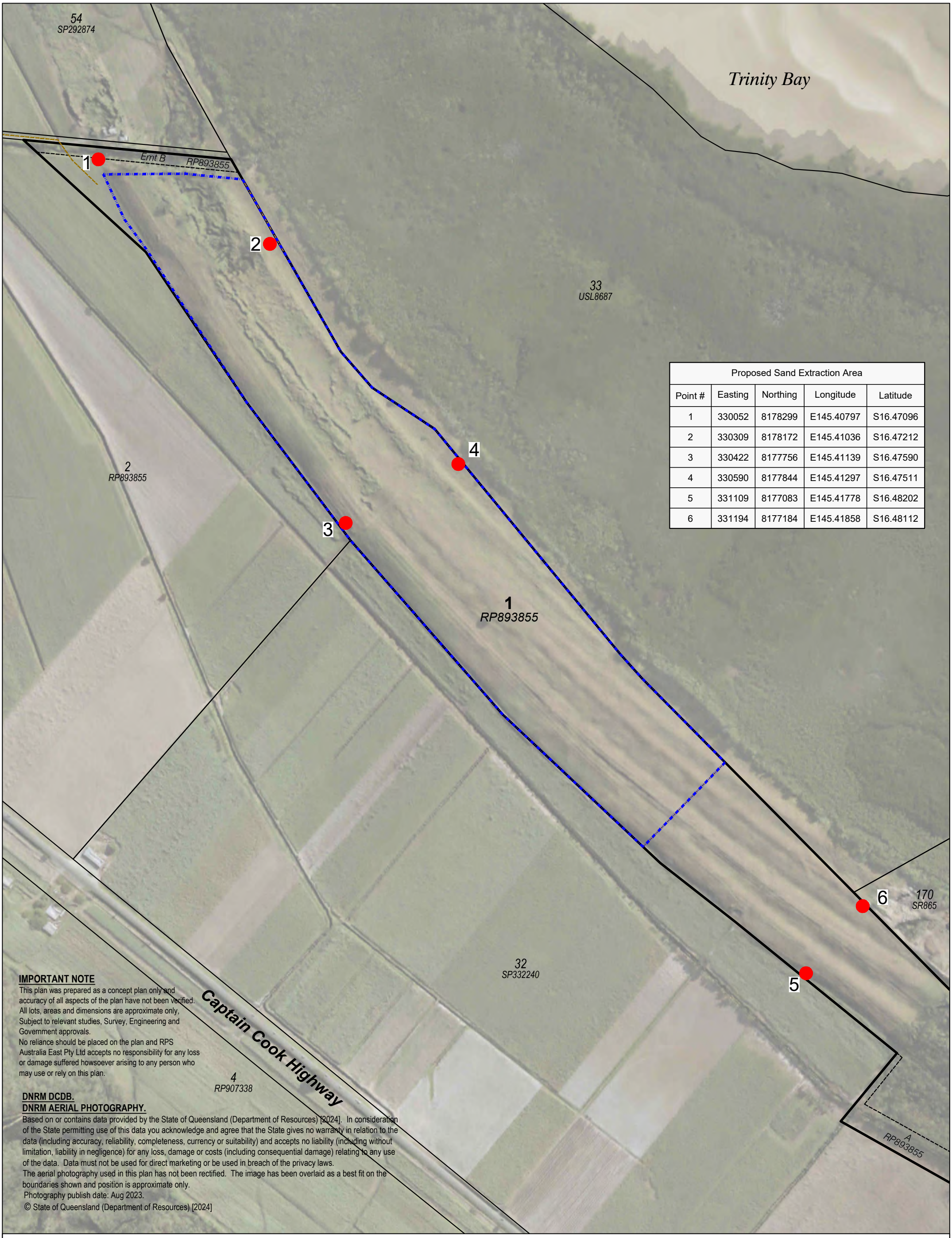
Monique Palmer
Senior Environmental Consultant
Monique.palmer@rpsconsulting.com

Our ref: 04362 L83183

enc: Appendix A: Borehole Location Plan
Appendix B: SGS Analytical Report

APPENDIX A

Borehole Location Plan



Proposed Sand Extraction Area				
Point #	Easting	Northing	Longitude	Latitude
1	330052	8178299	E145.40797	S16.47096
2	330309	8178172	E145.41036	S16.47212
3	330422	8177756	E145.41139	S16.47590
4	330590	8177844	E145.41297	S16.47511
5	331109	8177083	E145.41778	S16.48202
6	331194	8177184	E145.41858	S16.48112

IMPORTANT NOTE

This plan was prepared as a concept plan only and accuracy of all aspects of the plan have not been verified. All lots, areas and dimensions are approximate only, Subject to relevant studies, Survey, Engineering and Government approvals.
No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.

DNRM DCDB.
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NQ Asphalt Pty Ltd
Proposed Sand Extraction
Borehole Location Plan

0 15 30 45 60 75 150

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Datum: MGA2020 Z55 | **Scale:** 1:5,000 @ A3 | **Date:** 17-2-2025 | **Drawing:** AU015874-4

APPENDIX B

SGS Analytical Report

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS		LABORATORY DETAILS	
Contact	Megan Davis	Manager	Jon Dicker
Client	RPS AAP CONSULTING PTY LTD	Laboratory	SGS Cairns Environmental
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Email	Megan.Davis1@rpsconsulting.com	Email	AU.Environmental.Cairns@sgs.com
Project	**604-OEENVCNS-15874_Koppen - Bore Holes**	SGS Reference	**CE180079 R0**
Order Number	**604-OEENVCNS-15874**	Date Received	07 Feb 2025
Samples	37	Date Reported	14 Feb 2025

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(3146)

SIGNATORIES

Jon Dicker
Manager Northern QLD

Maristela GANZAN
Quality Manager

Parameter	Units	LOR	Sample Number Sample Matrix Sample Name CE180079.001 Soil BH1 0m	CE180079.002 Soil BH1 1m	CE180079.003 Soil BH1 2m	CE180079.004 Soil BH1 3m
Moisture Content Method: AN002 Tested: 7/2/2025						
% Moisture	%w/w	0.5	**19**	**12**	**20**	**23**
TAA (Titratable Actual Acidity) Method: AN219 Tested: 14/2/2025						
pH KCl	pH Units	-	**6.4**	**6.3**	**5.9**	**5.6**
Titratable Actual Acidity	kg H2SO4/T	0.25	<0.25	<0.25	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	-	-	-	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 14/2/2025						
Chromium Reducible Sulfur (Scr)	%	0.005	<0.005	<0.005	<0.005	<0.005
Chromium Reducible Sulfur (Scr)	moles H+/T	5	<5	<5	<5	<5
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 14/2/2025						
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1	-	-	-	-
ANC as % $CaCO_3$	% CaCO3	0.1	-	-	-	-
Lime Equivalence	% CaCO3	0.1	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005	-	-	-	-
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 14/2/2025						
s-Net Acidity	%w/w S	0.005	<0.005	<0.005	<0.005	<0.005
s-Net Acidity without ANC	%w/w S	0.005	<0.005	<0.005	**0.006**	**0.008**
a-Net Acidity	moles H+/T	5	<5	<5	<5	<5
Liming Rate	kg CaCO3/T	0.1	<0.1	<0.1	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20	**0.00**	**0.00**	**0.00**	**0.00**
a-Net Acidity without ANCBT	moles H+/T	5	<5	<5	<5	<5
Liming Rate without ANCBT	kg CaCO3/T	0.1	<0.1	<0.1	<0.1	<0.1

Parameter	Units	LOR	Sample Number: CE180079.005 Sample Matrix: Soil Sample Name: BH1 4m	CE180079.006 Soil BH1 5m	CE180079.007 Soil BH2 0m	CE180079.008 Soil BH2 1m
Moisture Content Method: AN002 Tested: 7/2/2025						
% Moisture	%w/w	0.5	**22**	**27**	**14**	**20**
TAA (Titratable Actual Acidity) Method: AN219 Tested: 14/2/2025						
pH KCl	pH Units	-	**5.8**	**5.8**	**6.4**	**9.7**
Titratable Actual Acidity	kg H2SO4/T	0.25	<0.25	<0.25	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	-	-	-	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 14/2/2025						
Chromium Reducible Sulfur (Scr)	%	0.005	<0.005	<0.005	<0.005	<0.005
Chromium Reducible Sulfur (Scr)	moles H+/T	5	<5	<5	<5	<5
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 14/2/2025						
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1	-	-	-	**9.4**
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1	-	-	-	**92**
ANC as % $CaCO_3$	% CaCO3	0.1	-	-	-	**9.4**
Lime Equivalence	% CaCO3	0.1	-	-	-	**9.4**
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3	-	-	-	**1900**
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005	-	-	-	**3.0**
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 14/2/2025						
s-Net Acidity	%w/w S	0.005	<0.005	<0.005	<0.005	<0.005
s-Net Acidity without ANC	%w/w S	0.005	**0.006**	**0.006**	<0.005	<0.005
a-Net Acidity	moles H+/T	5	<5	<5	<5	<5
Liming Rate	kg CaCO3/T	0.1	<0.1	<0.1	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20	**0.00**	**0.00**	**0.00**	**-2.0**
a-Net Acidity without ANCBT	moles H+/T	5	<5	<5	<5	<5
Liming Rate without ANCBT	kg CaCO3/T	0.1	<0.1	<0.1	<0.1	<0.1

Parameter	Units	LOR	Sample Number Sample Matrix Sample Name CE180079.009 Soil BH2 2m	CE180079.010 Soil BH2 3m	CE180079.011 Soil BH2 4m	CE180079.012 Soil BH2 5m
Moisture Content Method: AN002 Tested: 7/2/2025						
% Moisture	%w/w	0.5	15	15	25	16
TAA (Titratable Actual Acidity) Method: AN219 Tested: 14/2/2025						
pH KCl	pH Units	-	9.7	9.7	9.5	9.5
Titratable Actual Acidity	kg H2SO4/T	0.25	<0.25	<0.25	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	-	-	-	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 14/2/2025						
Chromium Reducible Sulfur (Scr)	%	0.005	<0.005	<0.005	0.19	0.027
Chromium Reducible Sulfur (Scr)	moles H+/T	5	<5	<5	119	17
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 14/2/2025						
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1	7.0	4.6	8.9	2.6
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1	69	45	87	26
ANC as % $CaCO_3$	% CaCO3	0.1	7.0	4.6	8.9	2.6
Lime Equivalence	% CaCO3	0.1	7.0	4.6	8.9	2.6
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3	1400	920	1800	520
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005	2.2	1.5	2.8	0.84
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 14/2/2025						
s-Net Acidity	%w/w S	0.005	<0.005	<0.005	<0.005	<0.005
s-Net Acidity without ANC	%w/w S	0.005	<0.005	<0.005	0.19	0.027
a-Net Acidity	moles H+/T	5	<5	<5	<5	<5
Liming Rate	kg CaCO3/T	0.1	<0.1	<0.1	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20	-1.5	-0.99	-1.7	-0.53
a-Net Acidity without ANCBT	moles H+/T	5	<5	<5	120	17
Liming Rate without ANCBT	kg CaCO3/T	0.1	<0.1	<0.1	9.0	NA

Parameter	Units	LOR	Sample Number: CE180079.013 Sample Matrix: Soil Sample Name: BH3 0m	CE180079.014 Soil BH3 1m	CE180079.015 Soil BH3 2m	CE180079.016 Soil BH3 3m
Moisture Content Method: AN002 Tested: 7/2/2025						
% Moisture	%w/w	0.5	**6.5**	**17**	**14**	**28**
TAA (Titratable Actual Acidity) Method: AN219 Tested: 14/2/2025						
pH KCl	pH Units	-	**5.3**	**6.3**	**6.3**	**4.8**
Titratable Actual Acidity	kg H2SO4/T	0.25	**1.1**	<0.25	<0.25	**2.7**
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	**22**	<5	<5	**55**
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	**0.04**	<0.01	<0.01	**0.09**
Sulphur (SKCl)	%w/w	0.005	-	-	-	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 14/2/2025						
Chromium Reducible Sulfur (Scr)	%	0.005	<0.005	<0.005	<0.005	<0.005
Chromium Reducible Sulfur (Scr)	moles H+/T	5	<5	<5	<5	<5
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 14/2/2025						
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1	-	-	-	-
ANC as % $CaCO_3$	% CaCO3	0.1	-	-	-	-
Lime Equivalence	% CaCO3	0.1	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005	-	-	-	-
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 14/2/2025						
s-Net Acidity	%w/w S	0.005	**0.036**	<0.005	<0.005	**0.088**
s-Net Acidity without ANC	%w/w S	0.005	**0.036**	<0.005	<0.005	**0.088**
a-Net Acidity	moles H+/T	5	**22**	<5	<5	**55**
Liming Rate	kg CaCO3/T	0.1	**1.7**	<0.1	<0.1	**4.1**
Verification s-Net Acidity	%w/w S	-20	**0.00**	**0.00**	**0.00**	**0.00**
a-Net Acidity without ANCBT	moles H+/T	5	**22**	<5	<5	**55**
Liming Rate without ANCBT	kg CaCO3/T	0.1	**1.7**	<0.1	<0.1	**4.1**

Parameter	Units	LOR	Sample Number Sample Matrix Sample Name	CE180079.017 Soil BH3 4m	CE180079.018 Soil BH3 5m	CE180079.019 Soil BH4 0m	CE180079.020 Soil BH4 1m
Moisture Content Method: AN002 Tested: 7/2/2025							
% Moisture	%w/w	0.5		19	23	16	20
TAA (Titratable Actual Acidity) Method: AN219 Tested: 14/2/2025							
pH KCl	pH Units	-		4.7	4.6	7.8	9.8
Titratable Actual Acidity	kg H2SO4/T	0.25		0.86	1.2	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5		17	25	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01		0.03	0.04	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005		-	-	-	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 14/2/2025							
Chromium Reducible Sulfur (Scr)	%	0.005		0.26	0.12	<0.005	<0.005
Chromium Reducible Sulfur (Scr)	moles H+/T	5		164	73	<5	<5
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 14/2/2025							
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1		-	-	0.9	7.6
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1		-	-	8.6	75
ANC as % $CaCO_3$	% CaCO3	0.1		-	-	0.9	7.6
Lime Equivalence	% CaCO3	0.1		-	-	0.9	7.6
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3		-	-	170	1500
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005		-	-	0.28	2.4
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 14/2/2025							
s-Net Acidity	%w/w S	0.005		0.29	0.16	<0.005	<0.005
s-Net Acidity without ANC	%w/w S	0.005		0.29	0.16	<0.005	<0.005
a-Net Acidity	moles H+/T	5		180	98	<5	<5
Liming Rate	kg CaCO3/T	0.1		14	7.4	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20		0.26	0.12	-0.18	-1.6
a-Net Acidity without ANCBT	moles H+/T	5		180	98	<5	<5
Liming Rate without ANCBT	kg CaCO3/T	0.1		14	7.4	<0.1	<0.1

Parameter	Units	LOR	Sample Number: CE180079.021 Sample Matrix: Soil Sample Name: BH4 2m	CE180079.022 Soil BH4 3m	CE180079.023 Soil BH4 4m	CE180079.024 Soil BH4 5m
Moisture Content Method: AN002 Tested: 7/2/2025						
% Moisture	%w/w	0.5	18	16	20	20
TAA (Titratable Actual Acidity) Method: AN219 Tested: 14/2/2025						
pH KCl	pH Units	-	9.8	9.8	9.5	9.5
Titratable Actual Acidity	kg H2SO4/T	0.25	<0.25	<0.25	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	-	-	-	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 14/2/2025						
Chromium Reducible Sulfur (Scr)	%	0.005	<0.005	0.012	0.066	0.053
Chromium Reducible Sulfur (Scr)	moles H+/T	5	<5	7	41	33
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 14/2/2025						
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1	7.9	5.8	3.4	2.9
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1	77	56	33	28
ANC as % $CaCO_3$	% CaCO3	0.1	7.9	5.8	3.4	2.9
Lime Equivalence	% CaCO3	0.1	7.9	5.8	3.4	2.9
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3	1600	1100	670	570
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005	2.5	1.8	1.1	0.92
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 14/2/2025						
s-Net Acidity	%w/w S	0.005	<0.005	<0.005	<0.005	<0.005
s-Net Acidity without ANC	%w/w S	0.005	<0.005	0.012	0.066	0.053
a-Net Acidity	moles H+/T	5	<5	<5	<5	<5
Liming Rate	kg CaCO3/T	0.1	<0.1	<0.1	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20	-1.7	-1.2	-0.65	-0.56
a-Net Acidity without ANCBT	moles H+/T	5	<5	7	41	33
Liming Rate without ANCBT	kg CaCO3/T	0.1	<0.1	NA	3.1	2.5

Parameter	Units	LOR	Sample Number: CE180079.025 Sample Matrix: Soil Sample Name: BH5 0m	CE180079.026 Soil BH5 1m	CE180079.027 Soil BH5 2m	CE180079.028 Soil BH5 3m
Moisture Content Method: AN002 Tested: 7/2/2025						
% Moisture	%w/w	0.5	**4.2**	**6.0**	**16**	**17**
TAA (Titratable Actual Acidity) Method: AN219 Tested: 14/2/2025						
pH KCl	pH Units	-	**5.5**	**6.4**	**6.2**	**5.8**
Titratable Actual Acidity	kg H2SO4/T	0.25	**0.37**	<0.25	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	**7**	<5	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	**0.01**	<0.01	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	-	-	-	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 14/2/2025						
Chromium Reducible Sulfur (Scr)	%	0.005	<0.005	<0.005	<0.005	<0.005
Chromium Reducible Sulfur (Scr)	moles H+/T	5	<5	<5	<5	<5
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 14/2/2025						
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1	-	-	-	-
ANC as % $CaCO_3$	% CaCO3	0.1	-	-	-	-
Lime Equivalence	% CaCO3	0.1	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005	-	-	-	-
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 14/2/2025						
s-Net Acidity	%w/w S	0.005	**0.012**	<0.005	<0.005	<0.005
s-Net Acidity without ANC	%w/w S	0.005	**0.012**	<0.005	<0.005	**0.006**
a-Net Acidity	moles H+/T	5	**7**	<5	<5	<5
Liming Rate	kg CaCO3/T	0.1	NA	<0.1	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20	**0.00**	**0.00**	**0.00**	**0.00**
a-Net Acidity without ANCBT	moles H+/T	5	**7**	<5	<5	<5
Liming Rate without ANCBT	kg CaCO3/T	0.1	NA	<0.1	<0.1	<0.1

Parameter	Units	LOR	Sample Number: CE180079.029 Sample Matrix: Soil Sample Name: BH5 4m	CE180079.030 Soil BH5 5m	CE180079.031 Soil BH6 0m	CE180079.032 Soil BH6 1m
Moisture Content Method: AN002 Tested: 7/2/2025						
% Moisture	%w/w	0.5	**21**	**24**	**5.3**	**3.7**
TAA (Titratable Actual Acidity) Method: AN219 Tested: 14/2/2025						
pH KCl	pH Units	-	**4.7**	**4.6**	**6.4**	**6.3**
Titratable Actual Acidity	kg H2SO4/T	0.25	**1.3**	**0.86**	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	**27**	**17**	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	**0.04**	**0.03**	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	-	-	-	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 14/2/2025						
Chromium Reducible Sulfur (Scr)	%	0.005	**0.24**	**0.016**	<0.005	<0.005
Chromium Reducible Sulfur (Scr)	moles H+/T	5	**152**	**10**	<5	<5
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 14/2/2025						
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1	-	-	-	-
ANC as % $CaCO_3$	% CaCO3	0.1	-	-	-	-
Lime Equivalence	% CaCO3	0.1	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005	-	-	-	-
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 14/2/2025						
s-Net Acidity	%w/w S	0.005	**0.29**	**0.044**	<0.005	<0.005
s-Net Acidity without ANC	%w/w S	0.005	**0.29**	**0.044**	<0.005	<0.005
a-Net Acidity	moles H+/T	5	**180**	**27**	<5	<5
Liming Rate	kg CaCO3/T	0.1	**13**	**2.0**	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20	**0.24**	**0.02**	**0.00**	**0.00**
a-Net Acidity without ANCBT	moles H+/T	5	**180**	**27**	<5	<5
Liming Rate without ANCBT	kg CaCO3/T	0.1	**13**	**2.0**	<0.1	<0.1

Parameter	Units	LOR	Sample Number Sample Matrix Sample Name	CE180079.033 Soil BH6 2m	CE180079.034 Soil BH6 3m	CE180079.035 Soil BH6 4m	CE180079.036 Soil BH6 5m
Moisture Content Method: AN002 Tested: 7/2/2025							
% Moisture	%w/w	0.5		**4.0**	**15**	**13**	**16**
TAA (Titratable Actual Acidity) Method: AN219 Tested: 14/2/2025							
pH KCl	pH Units	-		**6.3**	**6.1**	**6.4**	**9.4**
Titratable Actual Acidity	kg H2SO4/T	0.25		<0.25	<0.25	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5		<5	<5	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01		<0.01	<0.01	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005		-	-	-	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 14/2/2025							
Chromium Reducible Sulfur (Scr)	%	0.005		<0.005	<0.005	<0.005	**0.44**
Chromium Reducible Sulfur (Scr)	moles H+/T	5		<5	<5	<5	**277**
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 14/2/2025							
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1		-	-	-	**3.3**
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1		-	-	-	**32**
ANC as % $CaCO_3$	% CaCO3	0.1		-	-	-	**3.3**
Lime Equivalence	% CaCO3	0.1		-	-	-	**3.3**
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3		-	-	-	**650**
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005		-	-	-	**1.0**
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 14/2/2025							
s-Net Acidity	%w/w S	0.005		<0.005	<0.005	<0.005	<0.005
s-Net Acidity without ANC	%w/w S	0.005		<0.005	<0.005	<0.005	**0.44**
a-Net Acidity	moles H+/T	5		<5	<5	<5	<5
Liming Rate	kg CaCO3/T	0.1		<0.1	<0.1	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20		**0.00**	**0.00**	**0.00**	**-0.25**
a-Net Acidity without ANCBT	moles H+/T	5		<5	<5	<5	**280**
Liming Rate without ANCBT	kg CaCO3/T	0.1		<0.1	<0.1	<0.1	**21**

Parameter	Units	LOR	Sample Number CE180079.037 Sample Matrix Soil Sample Name BH6 6m
Moisture Content Method: AN002 Tested: 7/2/2025			
% Moisture	%w/w	0.5	**16**
TAA (Titratable Actual Acidity) Method: AN219 Tested: 14/2/2025			
pH KCl	pH Units	-	**9.4**
Titratable Actual Acidity	kg H2SO4/T	0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 14/2/2025			
Chromium Reducible Sulfur (Scr)	%	0.005	**0.027**
Chromium Reducible Sulfur (Scr)	moles H+/T	5	**17**
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 14/2/2025			
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1	**0.8**
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1	**7.4**
ANC as % $CaCO_3$	% CaCO3	0.1	**0.8**
Lime Equivalence	% CaCO3	0.1	**0.8**
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3	**150**
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005	**0.24**
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 14/2/2025			
s-Net Acidity	%w/w S	0.005	<0.005
s-Net Acidity without ANC	%w/w S	0.005	**0.027**
a-Net Acidity	moles H+/T	5	<5
Liming Rate	kg CaCO3/T	0.1	<0.1
Verification s-Net Acidity	%w/w S	-20	**-0.13**
a-Net Acidity without ANCBT	moles H+/T	5	**17**
Liming Rate without ANCBT	kg CaCO3/T	0.1	NA

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage.* Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Chromium Reducible Sulfur (CRS) **Method: ME-(AU)-[ENV]AN217**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Chromium Reducible Sulfur (Scr)	LB137356	%	0.005	<0.005	0 - 7%	109%
Chromium Reducible Sulfur (Scr)	LB137356	moles H+/T	5	<5		

TAA (Titratable Actual Acidity) **Method: ME-(AU)-[ENV]AN219**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
pH KCl	LB137357	pH Units	-	5.8	0%	101%
Titratable Actual Acidity	LB137357	kg H2SO4/T	0.25	<0.25	0%	NA
Titratable Actual Acidity (TAA) moles H+/tonne	LB137357	moles H+/T	5	<5	0%	105%
Titratable Actual Acidity (TAA) S%w/w	LB137357	%w/w S	0.01	<0.01	0%	106%

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	NATA accreditation does not cover the performance of this service.	QFH	QC result is above the upper tolerance
		QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	-	The sample was not analysed for this analyte
***	Indicates that both * and ** apply.	NVL	Not Validated

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calcuated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN214	Acid Neutralising Capacity (ANC)or Neutralising Value (NV): The crushed or as received sample is reacted with excess normal acid (HCl) and then back titrated with standard sodium hydroxide to determine the acid consumed. The result is expressed as kg H2SO4/tonne or %CaCO3. Based on AS4969-13.
AN217	Dried pulped sample is mixed with acid and chromium metal in a rapid distillation unit to produce hydrogen sulfide (H2S) which is collected and titrated with iodine (I2(aq)) to measure SCR.
AN219	Dried pulped sample is extracted for 4 hours in a 1 M KCl solution. The ratio of sample to solution is 1:40. The extract is titrated for acidity. Calcium, magnesium, and sulfur are determined by ICP-AES.
AN220	Chromium Suite: Scheme for the calculation of net acidities and liming rates using a Fineness Factor of 1.5.

Appendix B

Detailed Planning Scheme Code Responses

6.2.10 Rural zone code

6.2.10.1 Application

(1) This code applies to assessing development in the Rural zone.

(2) When using this code, reference should be made to Part 5.

6.2.10.2 Purpose

(1) The purpose of the Rural zone code is to provide for:

- (a) provide for rural uses including cropping, intensive horticulture, intensive animal industries, animal husbandry, animal keeping and other primary production activities;
- (b) provide opportunities for non-rural uses, such as ancillary tourism activities that are compatible with agriculture, the environmental features, and landscape character of the rural area where the uses do not compromise the long-term use of the land for rural purposes;
- (c) protect or manage significant natural resources and processes to maintain the capacity for primary production.

(2) The local government purpose of the code is to:

- (a) implement the policy direction set in the Strategic Framework, in particular:
  - (i). Theme 2: Environment and landscape values, Element 3.5.5 – Scenic amenity.
  - (ii). Theme 3: Natural resource management, Element 3.6.2 – Land and catchment management, Element 3.6.3 Primary production, forestry and fisheries, Element 3.6.4 – Resource extraction.
  - (iii). Theme 5: Economy, Element 3.8.2 – Economic growth and diversification, Element 3.8.4 – Primary production.
  - (iv). Theme 6: Infrastructure and transport, Element 3.9.4 – Transport.
- (b) recognise the primacy of rural production, in particular sugar cultivation, and other farming practices in rural areas;
- (c) provide protection to areas of ecological significance and scenic amenity significance where present.

(3) The purpose of the code will be achieved through the following overall outcomes:

- (a) Areas for use for primary production are conserved and fragmentation is avoided.
- (b) Development embraces sustainable land management practices and contributes to the amenity and landscape of the area.
- (c) Adverse impacts of land use, both on-site and on adjoining areas, are avoided and any unavoidable impacts are minimised through location, design, operation and management.
- (d) Areas of remnant and riparian vegetation are retained or rehabilitated.

6.2.10.3 Criteria for assessment

Table 6.2.10.3.a – Rural zone code – assessable development

Performance outcomes	Acceptable outcomes	Applicant response
For self-assessable and assessable development		
PO1 The height of buildings is compatible with the rural character of the area and must not detrimentally impact on visual landscape amenity.	**AO1.1** Dwelling houses are not more than 8.5 metres in height. Note – Height is inclusive of roof height.	**Not applicable** No dwelling houses are proposed.
	AO1.2 Rural farm sheds and other rural structures are not more than 10 metres in height.	**Not applicable** No structures are proposed in association with the Extractive Industry.
Setbacks		
PO2 Buildings and structures are setback to maintain the rural character of the area and achieve separation from buildings on adjoining properties.	**AO2** Buildings are setback not less than: (a) 40 metres from the property boundary and a State-controlled road; (b) 25 metres from the property boundary adjoining Cape Tribulation Road; (c) 20 metres from the boundary with any other road; (d) 6 metres from side and rear property boundaries.	**Not applicable** No buildings and structures are proposed as part of this application.

Performance outcomes	Acceptable outcomes	Applicant response
PO3 Buildings/structures are designed to maintain the rural character of the area.	**AO3** White and shining metallic finishes are avoided on external surfaces of buildings.	**Not applicable** No buildings and structures are proposed as part of this application
For assessable development		
PO4 The establishment of uses is consistent with the outcomes sought for the Rural zone and protects the zone from the intrusion of inconsistent uses.	**AO4** Uses identified in Table 6.2.10.3.b are not established in the Rural zone.	**Complies with AO4** Extractive Industry is not a use listed within Table 6.2.10.3.b
PO5 Uses and other development include those that: (a) promote rural activities such as agriculture, rural enterprises and small scale industries that serve rural activities; or (b) promote low impact tourist activities based on the appreciation of the rural character, landscape and rural activities; or (c) are compatible with rural activities.	**AO5** No acceptable outcomes are prescribed.	**Complies with PO5** The proposed Extractive Industry Use is considered to be compatible with rural activities. It would be small scale and consistent with element 3.6.4 – Resource extraction, of the Strategic Framework, which is identified as a purpose of the code.
PO6 Existing native vegetation along watercourses and in, or adjacent to areas of environmental value, or areas of remnant vegetation of value is protected.	**AO6** No acceptable outcomes are prescribed.	**Complies with PO6** No native vegetation along water courses or remnant vegetation would be removed to facilitate the development.

Performance outcomes	Acceptable outcomes	Applicant response
PO7 The minimum lot size is 40 hectares, unless (a) the lot reconfiguration results in no additional lots (e.g. amalgamation, boundary realignments to resolve encroachments); or (b) the reconfiguration is limited to one additional lot to accommodate: (i). Telecommunications facility; (ii). Utility installation.	**AO7** No acceptable outcomes are prescribed.	**Not applicable** The application is for a Material Change of Use only.

Table 6.2.8.3.b - Inconsistent uses within the Medium density residential zone

Inconsistent uses		
• Adult store	• Hotel	• Residential care facility
• Bar	• Indoor sport and recreation	• Resort complex
• Brothel	• Low impact industry	• Retirement facility
• Car wash	• Medium impact industry	• Rooming accommodation
• Child care centre	• Multiple dwelling	• Sales office
• Club	• Nightclub entertainment facility	• Service station
• Community care centre	• Non-resident workforce accommodation	• Shop
• Community residence	• Office	• Shopping centre
• Detention facility,	• Outdoor sales	• Short-term accommodation
• Dual occupancy	• Parking station	• Showroom

Inconsistent uses		
• Dwelling unit • Food and drink outlet • Hardware and tradesupplies • Health care services • High impact industry	• Permanent plantation • Port services • Relocatable home park • Renewable energy facility, being a wind farm	• Special industry • Theatre • Warehouse

Note –This table does not imply that all other uses not listed in the table are automatically consistent uses within the zone. Assessable development must still demonstrate consistency through the assessment process.

8.2.1 Acid sulfate soils overlay code

8.2.1.1 Application

(1) This code applies to assessing a material change of use, reconfiguring a lot, operational work or building work within the Acid sulfate soils overlay, if:

(a) self-assessable or assessable development where the code is identified as being applicable in the Assessment criteria for the Overlay Codes contained in the Levels of Assessment Tables in section 5.6;

(b) impact assessable development.

(2) Land in the Acid sulphate soils overlay is identified on the Acid sulfate soils overlay map in Schedule 2 and includes the following sub-categories:

(a) Land at or below the 5m AHD sub-category;

(b) Land above the 5m AHD and below the 20m AHD sub-category.

(3) When using this code, reference should be made to Part 5.

8.2.1.2 Purpose

(1) The purpose of the acid sulfate soils overlay code is to:

(a) implement the policy direction in the Strategic Framework, in particular:

(i) Theme 2: Environment and landscape values, Element 3.5.4 Coastal zones.

(ii) Theme 3: Natural resource management, Element 3.6.2 land and catchment management, Element 3.6.3 Primary production, forestry and fisheries.

(2) enable an assessment of whether development is suitable on land within the Acid sulfate soils overlay sub-categories.

(3) The purpose of the code will be achieved through the following overall outcomes:

(a) Development ensures that the release of any acid and associated metal contaminant is avoided by not disturbing acid sulfate soils when excavating, removing soil or extracting ground water or filling land;

(b) Development ensures that disturbed acid sulfate soils, or drainage waters, are treated and, if required, on-going management practices are adopted that minimise the potential for environmental harm from acid sulfate soil and protect corrodible assets from acid sulfate soil.

Criteria for assessment

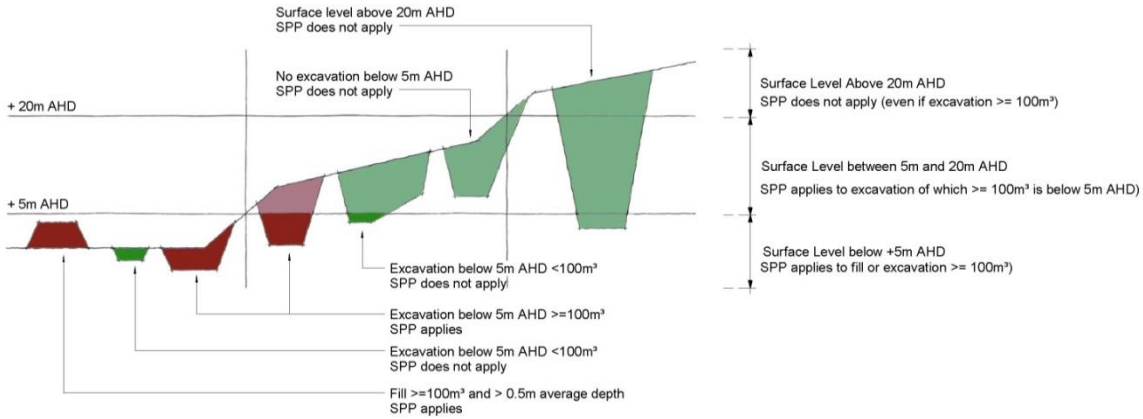
Table 8.2.1.3.a – Acid sulfate soils overlay code – assessable development

Performance outcomes	Acceptable outcomes	Applicant response
For assessable development		
PO1 The extent and location of potential or actual acid sulfate soils is accurately identified.	**AO1.1** No excavation or filling occurs on the site. or **AO1.2** An acid sulfate soils investigation is undertaken. Note - Planning scheme policy SC 6.12– Potential and actual acid sulfate soils provides guidance on preparing an acid sulfate soils investigation.	**Complies with AO1.2** The proposed sand extraction area does not contain PASS material as it is a dunal type deposit which is approximately 2,000m long and 200 – 250m wide and 2m to 5m above natural ground level.. It was historically cleared, has been farmed under cane production in the past and grassed and slashed for a number of years. An acid sulfate soils investigation has been undertaken and the development would not involve the disturbance of PASS. Refer to **Appendix A -** Response to the Department of Environment, Science and Innovation.
PO2 Development avoids disturbing potential acid sulfate soils or actual acid sulfate soils, or is managed to avoid or minimise the release of acid and metal contaminants.	**AO2.1** The disturbance of potential acid sulfate soils or actual acid sulfate soils is avoided by: (a) not excavating, or otherwise removing, soil or sediment identified as containing potential or actual acid sulfate soils; (b) not permanently or temporarily extracting groundwater that results in the aeration of previously saturated acid sulfate soils;	**Complies with AO2.1** No acid sulfate soils would be disturbed as part of the development. An acid sulfate soils investigation has been undertaken and the development would not involve the disturbance of PASS. Refer to **Appendix A -** Response to the Department of Environment, Science and Innovation.

Performance outcomes	Acceptable outcomes	Applicant response
	(c) not undertaking filling that results in: (i) actual acid sulfate soils being moved below the water table; (ii) previously saturated acid sulfate soils being aerated. Or **AO2.2** The disturbance of potential acid sulfate soils or actual acid sulfate soils is undertaken in accordance with an acid sulfate soils management plan and avoids the release of metal contaminants by: (a) neutralising existing acidity and preventing the generation of acid and metal contaminants; (b) preventing the release of surface or groundwater flows containing acid and metal contaminants into the environment; (c) preventing the in situ oxidisation of potential acid sulfate soils and actual acid sulfate soils through ground water level management; (d) appropriately treating acid sulfate soils before disposal occurs on or off site; (e) documenting strategies and reporting requirements in an acid sulfate soils environmental management plan. Note - Planning scheme policy SC 6.12 – Acid sulfate soils provides guidance on preparing an acid sulfate soils	

Performance outcomes	Acceptable outcomes	Applicant response
	management plan.	
PO3 No environmental harm is caused as a result of exposure to potential acid sulfate soils or actual acid sulfate soils.	**AO3** No acceptable outcomes are prescribed.	**Complies with PO3** No acid sulfate soils would be disturbed as part of the development. An acid sulfate soils investigation has been undertaken and the development would not involve the disturbance of PASS. Refer to Appendix A - Response to the Department of Environment, Science and Innovation.

Figure 8.2.1.3.a – Acid sulfate soils (SPP triggers)



8.2.2 Bushfire hazard overlay code

Note - Land shown on the bushfire hazard overlay map is designated as the bushfire prone area for the purposes of section 12 of the Building Regulations 2006. The bushfire hazard area (bushfire prone area) includes land covered by the high and medium hazard areas as well as the buffer area category on the overlay map.

8.2.2.1 Application

(1) This code applies to assessing a material change of use, reconfiguring a lot, operational works or building work in the Bushfire hazard overlay, if:

(a) self-assessable or assessable where the code is identified as being applicable in the Assessment criteria for the Overlay Codes contained in the Levels of Assessment Tables in section 5.6;

(b) impact assessable development.

(2) Land in the Bushfire hazard overlay is identified on the Bushfire hazard overlay map in Schedule 2 and includes the following sub-categories:

(a) Medium bushfire risk sub-category;

(b) High bushfire risk sub-category;

(c) Very high bushfire risk sub-category;

(d) Potential impact buffer sub-category.

(3) When using this code, reference should be made to Part 5.

8.2.2.2 Purpose

(1) The purpose of the Bushfire overlay code is to:

(a) implement the policy direction in the Strategic Framework, in particular:

(i) Theme 1 Settlement pattern: Element 3.4.7 Mitigation of hazards;

(ii) Theme 6 Infrastructure and transport: Element 3.9.2 Energy.

(b) enable an assessment of whether development is suitable on land within the Bushfire risk overlay sub-categories.

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) development avoids the establishment or intensification of vulnerable activities within or near areas that are subject to bushfire hazard;

(b) development is designed and located to minimise risks to people and property from bushfires;

(c) bushfire risk mitigation treatments are accommodated in a manner that avoids or minimises impacts on the natural environment and ecological processes;

(d) development involving the manufacture or storage of hazardous materials does not increase the risk to public safety or the environment in a bushfire event;

(e) development contributes to effective and efficient disaster management response and recovery capabilities.

Note - A site based assessment may ground-truth the extent of hazardous vegetation and extent and nature of the bushfire hazard area (bushfire prone area). Such assessments should be undertaken using the methodology set out in Planning scheme policy SC6.9 - Natural Hazards.

Criteria for assessment

Table 8.2.2.3.a – Bushfire hazard overlay code –assessable development

Performance outcomes	Acceptable outcomes	Applicant response
For self-assessable and assessable development		
Compatible development		
PO1 A vulnerable use is not established or materially intensified within a bushfire hazard area (bushfire prone area) unless there is an overriding need or other exceptional circumstances. Note - See the end of this code for examples of vulnerable uses.	**AO1** Vulnerable uses are not established or expanded. Note – Where, following site inspection and consultation with Council, it is clear that the mapping is in error in identifying a premises as being subject to a medium, high, very high bushfire hazard or potential impact buffer sub-category, Council may supply a letter exempting the need for a Bushfire Management Plan. Note – Where the assessment manager has not previously approved a Bushfire Management Plan (either by condition of a previous development approval), the development proponent will be expected to prepare such a plan. Note – Planning scheme policy SC6.9 - Natural hazards, provides a guide to the preparation of a Bushfire Management Plan.	**Complies with AO1** No vulnerable uses are proposed.
PO2	**AO2**	**Complies with AO2**

Performance outcomes	Acceptable outcomes	Applicant response
Emergency services and uses providing community support services are able to function effectively during and immediately after a bushfire hazard event.	Emergency Services and uses providing community support services are not located in a bushfire hazard sub-category and have direct access to low hazard evacuation routes.	No Emergency Services or Community Support Services are proposed as part of this application.
PO3 Development involving hazardous materials manufactured or stored in bulk is not located in bushfire hazard sub-category.	**AO3** The manufacture or storage of hazardous material in bulk does not occur within bushfire hazard sub-category.	**Complies with AO3** No hazardous materials would be manufactured or stored on site.
Development design and separation from bushfire hazard – reconfiguration of lots		
PO4.1 Where reconfiguration is undertaken in an urban area or is for urban purposes or smaller scale rural residential purposes, a separation distance from hazardous vegetation is provided to achieve a radiant heat flux level of 29kW/m^2 at the edge of the proposed lot(s). Note - "Urban purposes" and "urban area" are defined in the *Sustainable Planning Regulations 2009*. Reconfiguration will be taken to be for rural residential purposes where proposed lots are between 2000m^2 and 2ha in area. "Smaller scale" rural residential purposes will be taken to be where the average proposed lot size is 6000m2 or less. Note - The radiant heat levels and separation distances are to be established in accordance with method 2 set out in AS3959-2009. dimensions is provided on each lot which achieves radiant heat flux level of 29kW/m^2 at any point.	**AO4.1** No new lots are created within a bushfire hazard sub-category. or **AO4.2** Lots are separated from hazardous vegetation by a distance that: (a) achieves radiant heat flux level of 29kW/m^2 at all boundaries; and (b) is contained wholly within the development site. Note - Where a separation distance is proposed to be achieved by utilising existing cleared developed areas external to the site, certainty must be established (through tenure or other means) that the land will remain cleared of hazardous vegetation.	**Not applicable** No new lots or lot reconfiguration is proposed.

Performance outcomes	Acceptable outcomes	Applicant response
PO4.2 Where reconfiguration is undertaken for other purposes, a building envelope of reasonable	For staged developments, temporary separation distances, perimeter roads or fire trails may be absorbed as part of subsequent stages. Note - The achievement of a cleared separation distance may not be achievable where other provisions within the planning scheme require protection of certain ecological, slope, visual or character features or functions.	**Not applicable** No new lots or lot reconfiguration is proposed.
PO5 Where reconfiguration is undertaken in an urban area or is for urban purposes, a constructed perimeter road with reticulated water supply is established between the lots and the hazardous vegetation and is readily accessible at all times for urban fire fighting vehicles. The access is available for both fire fighting and maintenance/defensive works.	**AO5.1** Lot boundaries are separated from hazardous vegetation by a public road which: (a) has a two lane sealed carriageway; (b) contains a reticulated water supply; (c) is connected to other public roads at both ends and at intervals of no more than 500m; (d) accommodates geometry and turning radii in accordance with Queensland Fire and Emergency Services' Fire Hydrant and Vehicle Access Guidelines; (e) has a minimum of 4.8m vertical clearance above the road; (f) is designed to ensure hydrants and water access points are not located within parking bay allocations; and (g) incorporates roll-over kerbing.	**Not applicable** No new lots or lot reconfiguration is proposed.
	AO5.2	**Not applicable** No new lots or lot reconfiguration is proposed.

Performance outcomes	Acceptable outcomes	Applicant response
	Fire hydrants are designed and installed in accordance with AS2419.1 2005, unless otherwise specified by the relevant water entity. Note - Applicants should have regard to the relevant standards set out in the reconfiguration of a lot code and works codes in this planning scheme.	
PO6 Where reconfiguration is undertaken for smaller scale rural residential purposes, either a constructed perimeter road or a formed, all weather fire trail is established between the lots and the hazardous vegetation and is readily accessible at all times for the type of fire fighting vehicles servicing the area. The access is available for both fire fighting and maintenance/hazard reduction works.	**AO6** Lot boundaries are separated from hazardous vegetation by a public road or fire trail which has: (a) a reserve or easement width of at least 20m; (b) a minimum trafficable (cleared and formed) width of 4m capable of accommodating a 15 tonne vehicle and which is at least 6m clear of vegetation; (c) no cut or fill embankments or retaining walls adjacent to the 4m wide trafficable path; (d) a minimum of 4.8m vertical clearance; (e) turning areas for fire-fighting appliances in accordance with Queensland Fire and Emergency Services' Fire Hydrant and Vehicle Access Guidelines; (f) a maximum gradient of 12.5%; (g) a cross fall of no greater than 10 degrees; (h) drainage and erosion control devices in accordance with the standards prescribed in a planning scheme policy;	**Not applicable** No new lots or lot reconfiguration is proposed.

Performance outcomes	Acceptable outcomes	Applicant response
	(i) vehicular access at each end which is connected to the public road network at intervals of no more than 500m; (j) designated fire trail signage; (k) if used, has gates locked with a system authorised by Queensland Fire and Emergency Services; and (l) if a fire trail, has an access easement that is granted in favour of Council and Queensland Fire and Emergency Services.	
PO7 Where reconfiguration is undertaken for other purposes, a formed, all weather fire trail is provided between the hazardous vegetation and either the lot boundary or building envelope, and is readily accessible at all times for the type of fire fighting vehicles servicing the area. However, a fire trail will not be required where it would not serve a practical fire management purpose.	**AO7** Lot boundaries are separated from hazardous vegetation by a public road or fire trail which has: (a) a reserve or easement width of at least 20m; (b) a minimum trafficable (cleared and formed) width of 4m capable of accommodating a 15 tonne vehicle and which is at least 6m clear of vegetation; (c) no cut or fill embankments or retaining walls adjacent to the 4m wide trafficable path; (d) a minimum of 4.8m vertical clearance; (e) turning areas for fire-fighting appliances in accordance with Queensland Fire and	**Not applicable** No new lots or lot reconfiguration is proposed.

Performance outcomes	Acceptable outcomes	Applicant response
	Emergency Services' Fire Hydrant and Vehicle Access Guidelines; (f) a maximum gradient of 12.5%; (g) a cross fall of no greater than 10 degrees; (h) drainage and erosion control devices in accordance with the standards prescribed in a planning scheme policy; (i) vehicular access at each end which is connected to the public road network; (j) designated fire trail signage; (k) if used, has gates locked with a system authorised by Queensland Fire and Emergency Services; and (l) if a fire trail, has an access easement that is granted in favour of Council and Queensland Fire and Emergency Services.	
PO8 The development design responds to the potential threat of bushfire and establishes clear evacuation routes which demonstrate an acceptable or tolerable risk to people.	**AO8** The lot layout: (a) minimises the length of the development perimeter exposed to, or adjoining hazardous vegetation; (b) avoids the creation of potential bottle-neck points in the movement network;	**Not applicable** No new lots or lot reconfiguration is proposed.

Performance outcomes	Acceptable outcomes	Applicant response
	(c) establishes direct access to a safe assembly /evacuation area in the event of an approaching bushfire; and (d) ensures roads likely to be used in the event of a fire are designed to minimise traffic congestion. Note - For example, developments should avoid finger-like or hour-glass subdivision patterns or substantive vegetated corridors between lots. In order to demonstrate compliance with the performance outcome, a bushfire management plan prepared by a suitably qualified person may be required. The bushfire management plan should be developed in accordance with the Public Safety Business Agency (PSBA) guideline entitled "Undertaking a Bushfire Protection Plan. Advice from the Queensland Fire and Emergency Services (QFES) should be sought as appropriate	
PO9 Critical infrastructure does not increase the potential bushfire hazard.	**AO9** Critical or potentially hazardous infrastructure such as water supply, electricity, gas and telecommunications are placed underground.	**Not applicable** No new lots or lot reconfiguration is proposed.
Development design and separation from bushfire hazard – material change of use		
PO10 Development is located and designed to ensure proposed buildings or building envelopes achieve a radiant heat flux level at any point on the building or envelope respectively, of:	**AO10** Buildings or building envelopes are separated from hazardous vegetation by a distance that: (a) achieves a radiant heat flux level of at any point on the building or envelope	**Complies with AO10** The bushfire hazard area is contiguous with the wetland and wetland buffer area to the south of the site. It is not proposed to undertake any activities within this area or the area subject to the Bushfire Hazard Overlay.

Performance outcomes	Acceptable outcomes	Applicant response
(a) 10kW/m^2 where involving a vulnerable use; or (b) 29kW/m^2 otherwise. The radiant heat flux level is achieved by separation unless this is not practically achievable. Note - The radiant heat levels and separation distances are to be established in accordance with method 2 set out in AS3959-2009.	respectively, of 10kW/m^2 for a vulnerable use or 29kW/m^2 otherwise; and (b) is contained wholly within the development site. Note - Where a separation distance is proposed to be achieved by utilising existing cleared developed areas external to the site, certainty must be established (through tenure or other means) that the land will remain cleared of hazardous vegetation. For staged developments, temporary separation distances, perimeter roads or fire trails may be absorbed as part of subsequent stages. Note - The achievement of a cleared separation distance may not be achievable where other provisions within the planning scheme require protection of certain ecological, slope, visual or character features or functions.	
PO11 A formed, all weather fire trail is provided between the hazardous vegetation and the site boundary or building envelope, and is readily accessible at all times for the type of fire fighting vehicles servicing the area. However, a fire trail will not be required where it would not serve a practical fire management purpose. Note - Fire trails are unlikely to be required where a development site involves less than 2.5ha	**AO11** Development sites are separated from hazardous vegetation by a public road or fire trail which has: (a) a reserve or easement width of at least 20m; (b) a minimum trafficable (cleared and formed) width of 4m capable of accommodating a 15 tonne vehicle and which is at least 6m clear of vegetation; (c) no cut or fill embankments or retaining walls adjacent to the 4m wide trafficable path; (d) a minimum of 4.8m vertical clearance;	**Not applicable** The proposed activities on the site would be separated from the hazardous vegetation by the wetland buffer and a fire trail would serve no practical fire management purpose.

Performance outcomes	Acceptable outcomes	Applicant response
	(e) turning areas for fire-fighting appliances in accordance with Queensland Fire and Emergency Services' Fire Hydrant and Vehicle Access Guidelines; (f) a maximum gradient of 12.5%; (g) a cross fall of no greater than 10 degrees; (h) drainage and erosion control devices in accordance with the standards prescribed in a planning scheme policy; (i) vehicular access at each end which is connected to the public road network which is connected to the public road network at intervals of no more than 500m; (j) designated fire trail signage; (k) if used, has gates locked with a system authorised by Queensland Fire and Emergency Services; and (l) if a fire trail, has an access easement that is granted in favour of Council and Queensland Fire and Emergency Services.	
All development		
PO12	**AO12** Private driveways:	**Not applicable**

Performance outcomes	Acceptable outcomes	Applicant response
All premises are provided with vehicular access that enables safe evacuation for occupants and easy access by fire fighting appliances.	(a) do not exceed a length of 60m from the street to the building; (b) do not exceed a gradient of 12.5%; (c) have a minimum width of 3.5m; (d) have a minimum of 4.8m vertical clearance; (e) accommodate turning areas for fire-fighting appliances in accordance with Queensland Fire and Emergency Services' Fire Hydrant and Vehicle Access Guidelines; and (f) serve no more than 3 dwellings or buildings.	The proposed development would be located outside of and sufficiently setback from the Bushfire Hazard area on the site.
PO13 Development outside reticulated water supply areas includes a dedicated static supply that is available solely for fire fighting purposes and can be accessed by fire fighting appliances.	**AO13** A water tank is provided within 10m of each building (other than a class 10 building) which: (a) is either below ground level or of non-flammable construction; (b) has a take off connection at a level that allows the following dedicated, static water supply to be left available for access by fire fighters: (i) 10,000l for residential buildings Note – A minimum of 7,500l is required in a tank and the extra 2,500l may be in the form of accessible swimming pools or dams. (ii) 45,000l for industrial buildings; and	**Not applicable** No buildings are proposed as part of this application. All activities would occur outside of the bushfire hazard and potential impact buffer areas.

Performance outcomes	Acceptable outcomes	Applicant response
	(iii) 20,000l for other buildings; (c) includes shielding of tanks and pumps in accordance with the relevant standards; (d) includes a hardstand area allowing medium rigid vehicle (15 tonne fire appliance) access within 6m of the tank; (e) is provided with fire brigade tank fittings – 50mm ball valve and male camlock coupling and, if underground, an access hole of 200mm (minimum) to accommodate suction lines; and (f) is clearly identified by directional signage provided at the street frontage.	
PO14 Landscaping does not increase the potential bushfire risk.	**AO14** Landscaping uses species that are less likely to exacerbate a bushfire event, and does not increase fuel loads within separation areas.	**Not applicable** No landscaping is proposed.
PO15 The risk of bushfire and the need to mitigate that risk is balanced against other factors (such as but not limited to, biodiversity or scenic amenity).	**AO15** Bushfire risk mitigation treatments do not have a significant impact on the natural environment or landscape character of the locality where this has value.	**Not applicable** No bushfire risk mitigation treatments are proposed or required.

Note – 'Vulnerable activities' are those involving:

(1) the accommodation or congregation of vulnerable sectors of the community such as child care centres, community care centre, educational establishments, detention facilities, hospitals, rooming accommodation, retirement facilities or residential care facilities; or

(2) the provision of essential services including community uses, emergency services, utility installation, telecommunications facility, substations and major electricity infrastructure.

8.2.3 Coastal environment overlay code

8.2.3.1 Application

(1) This code applies to assessing a material change of use, reconfiguring a lot, operational work or building work within the Coastal environment overlay, if:

(a) self assessable or assessable development where the code is identified as being applicable in the Assessment criteria for the Overlay Codes contained in the Levels of Assessment Tables in section 5.6;

(b) impact assessable development.

(2) Land in the Coastal hazard overlay is identified on the Coastal environment overlay map in Schedule 2 and includes the following sub-categories:

(a) Coastal management district sub-category;

(b) Erosion prone area sub-category.

(3) When using this code, reference should be made to Part 5.

8.2.3.2 Purpose

(1) The purpose of the Coastal environment overlay code is to:

(a) implement the policy direction in the Strategic Framework, in particular:

(i) Theme 1 Settlement pattern: Element 3.4.7 Mitigation of hazards;

(ii) Theme 2 Environment and landscape values: Element 3.5.4 Coastal zones;

(iii) Theme 3 Natural resource management: Element 3.6.2 Land and catchment management.

(b) enable an assessment of whether development is suitable on land within the Coastal processes sub-categories.

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) facilitate the protection of both coastal processes and coastal resources;

(b) facilitating coastal dependent development on the foreshore over other development;

(c) public access to the foreshore protects public safety;

(d) maintain the erosion prone area as a development free buffer zone (other than for coastal dependent, temporary or relocatable development);

(e) require redevelopment of existing permanent buildings or structures in an erosion prone area to avoid coastal erosion risks, manage coastal erosion risks through a strategy of planned retreat or mitigate coastal erosion risks;

(f) require development to maintain or enhance natural processes and the protective function of landforms and vegetation that can mitigate risks associated with coastal erosion;

(g) locate and design community infrastructure to maintain the required level of functionality during and immediately after a coastal hazard event.

Criteria for assessment

Table 8.2.3.3.a – Coastal environment overlay code – self-assessable and assessable development

Performance outcomes	Acceptable outcomes	Applicant response
For self-assessable and assessable development		
PO1 No works other than coastal protection works extend seaward of the coastal building line.	**AO1.1** Development (including all buildings and other permanent structures such as swimming pools and retaining walls) does not extend seaward of a coastal building line. Note – Coastal building lines are declared under the Coastal Protection and Management Act 1995 and are administered by the State Department of Environment and Heritage Protection.	**Not applicable** The site is not subject to a coastal building line.
	AO1.2 Coastal protection works are only undertaken as a last resort where coastal erosion presents an immediate threat to public safety or existing buildings or structures and the property cannot be relocated or abandoned.	**Complies with AO1.2** No coastal protection works are proposed.
	AO1.3 Coastal protection works are as far landward as practicable on the lot containing the property to the maximum extent reasonable.	**Not applicable** No coastal protection works are proposed.

Performance outcomes	Acceptable outcomes	Applicant response
	AO1.4 Coastal protection work mitigates any increase in the coastal hazard.	**Not applicable** No coastal protection works are proposed.
PO2 Where a coastal building line does not exist on a lot fronting the coast or a reserve adjoining the coast, development is setback to maintain the amenity and use of the coastal resource.	**AO2** Where a coastal building line does not exist on a lot fronting the coast or a reserve adjoining the coast, development (including all buildings and structures such as swimming pools) and retaining walls are set back not less than 6 metres from the seaward boundary of the lot.	**Complies with AO2** The proposed extraction area would be setback 10 metres from the eastern boundary and no buildings or structures are proposed as part of this application.
For assessable development		
Erosion prone areas		
PO3 Development identifies erosion prone areas (coastal hazards).	**AO3** No acceptable outcomes are prescribed.	**Complies with PO3** The Erosion Prone Area is identified on the State Mapping and excludes the area of the site proposed to be subject to excavation.
PO4 Erosion prone areas are free from development to allow for natural coastal processes.	**AO4.1** Development is not located within the Erosion prone area, unless it can be demonstrated that the development is for: (a) community infrastructure where no suitable alternative location or site exists for this infrastructure; or	**Complies with AO4.1** The proposed extraction area and related development would be located outside of the Erosion Prone Area.

Performance outcomes	Acceptable outcomes	Applicant response
	(b) development that reflects the preferred development outcomes in accordance with the zoning of the site (i.e. in the Low density residential zone, a dwelling house is a preferred development outcome in accordance with the zoning of the site)	
	AO4.2 Development involving existing permanent buildings and structures within an erosion prone area does not increase in intensity of its use by: (a) adding additional buildings or structures; or (b) incorporating a land use that will result in an increase in the number of people or employees occupying the site.	**Not applicable** The site does not contain existing permanent buildings and/or structures.
Coastal management districts		
PO5 Natural processes and protective functions of landforms and vegetation are maintained.	**PO5.1** Development within the coastal management district: (a) maintains vegetation on coastal land forms where its removal or damage may: (i) destabilise the area and increase the potential for coastal erosion, or (ii) interrupt the natural sediment trapping processes or dune or land building processes;	**Not applicable** The site is not within the Coastal Management District.

Performance outcomes	Acceptable outcomes	Applicant response
	(b) maintains sediment volumes of dunes and near-shore coastal landforms, or where a reduction in sediment volumes cannot be avoided, increased risks to development from coastal erosion are mitigated by location, design and construction and operating standards; (c) minimises the need for erosion control structures or riverine hardening through location, design and construction standards; (d) maintains physical coastal processes outside the development footprint for the development, including longshore transport of sediment along the coast; (e) reduces the risk of shoreline erosion for areas adjacent to the development footprint to the maximum extent feasible in the case of erosion control structures.	
	PO5.2 Where development proposes the construction of an erosion control structure: (a) it is demonstrated that it is the only feasible option for protecting permanent structures from coastal erosion; and (b) those permanent structures cannot be abandoned or relocated in the event of coastal erosion occurring	**Not applicable** The site is not within the Coastal Management District.
	PO5.3	**Not applicable**

Performance outcomes	Acceptable outcomes	Applicant response
	Development involving reclamation: (a) does not alter, or otherwise minimises impacts on, the physical characteristics of a waterway or the seabed near the reclamation, including flow regimes, hydrodynamic forces, tidal water and riverbank stability; (b) is located outside active sediment transport area, or otherwise maintains sediment transport processes as close as possible to their natural state; (c) ensures activities associated with the operation of the development maintain the structure and condition of vegetation communities and avoid wind and water run-off erosion.	The site is not within the Coastal Management District.
PO6 Development avoids or minimises adverse impacts on coastal resources and their values to the maximum extent reasonable.	**AO6.1** Coastal protection work that is in the form of beach nourishment uses methods of placement suitable for the location that do not interfere with the long-term use of the locality, or natural values within or neighbouring the proposed placement site. and	**Not applicable** The site is not within the Coastal Management District.
	AO6.2 Marine development is located and designed to expand on or redevelop existing marine infrastructure unless it is demonstrated that it is	**Not applicable** The site is not within the Coastal Management District.

Performance outcomes	Acceptable outcomes	Applicant response
	not practicable to co-locate the development with existing marine infrastructure; and	
	AO6.3 Measures are incorporated as part of siting and design of the development to maintain or enhance water quality to achieve the environmental values and water quality objectives outlined in the Environmental Protection (Water) Policy 2009. and	**Not applicable** The site is not within the Coastal Management District.
	AO6.4 Development avoids the disturbance of acid sulfate soils, or where it is demonstrated that this is not possible, the disturbance of acid sulfate soils is carefully managed to minimise and mitigate the adverse effects of disturbance on coastal resources. and	**Not applicable** The site is not within the Coastal Management District.
	AO6.4 Design and siting of development protects and retains identified ecological values and underlying ecosystem processes within the development site to the greatest extent practicable.	**Not applicable** The site is not within the Coastal Management District.

Performance outcomes	Acceptable outcomes	Applicant response
PO7 Development is to maintain access to and along the foreshore for general public access.	**AO7.1** Development provides for regular access points for pedestrians including approved walking tracks, boardwalks and viewing platforms. and	**Not applicable** The site is not within the Coastal Management District.
	AO7.2 Development provides for regular access points for vehicles including approved roads and tracks. or **AO7.3** Development demonstrates an alternative solution to achieve an equivalent standard of performance.	**Not applicable** The site is not within the Coastal Management District.
PO8 Public access to the coast is appropriately located, designed and operated.	**AO8.1** Development maintains or enhances public access to the coast. or **AO8.2** Development is located adjacent to state coastal land or tidal water and minimises and offsets any loss of access to and along the foreshore within 500 metres. or **AO8.3**	**Not applicable** The site is not within the Coastal Management District.

Performance outcomes	Acceptable outcomes	Applicant response
	Development adjacent to state coastal land or tidal water demonstrates an alternative solution to achieve an equivalent standard and quality of access	
PO9 Development adjacent to state coastal land or tidal water is located, designed and operated to: (a) maintain existing access to and along the foreshore; (b) minimise any loss of access to and along the foreshore, or (c) offset any loss of access to and along the foreshore by providing for enhanced alternative access in the general location.	**AO9.1** Development adjacent to state coastal land or tidal water: (a) demonstrates that restrictions to public access are necessary for: (i) the safe and secure operation of development; (ii) the maintenance of coastal landforms and coastal habitat; or (b) maintains public access (including public access infrastructure that has been approved by the local government or relevant authority) through the site to the foreshore for: (i) pedestrians via access points including approved walking tracks, boardwalks and viewing platforms; (ii) vehicles via access points including approved roads or tracks.	**Not applicable** The site is not within the Coastal Management District.
	AO9.2 Development adjacent to state coastal land or tidal water:	**Not applicable** The site is not within the Coastal Management District.

Performance outcomes	Acceptable outcomes	Applicant response
	(a) is located and designed to: (i) allow safe unimpeded access to, over, under or around built infrastructure located on, over or along the foreshore, for example through the provision of esplanades or easement corridors to preserve future access; (ii) ensure emergency vehicles can access the area near the development. or (b) minimises and offsets any loss of access to and along the foreshore within 500m of existing access points and development is located and designed to: (i) allow safe unimpeded access to, over, under or around built infrastructure located on, over or along the foreshore, and (ii) ensure emergency vehicles can access the area near the development.	
AO10 Development that involves reconfiguring a lot for urban purposes adjacent to the coast is designed to ensure public access to the coast in consideration of public access demand from a whole-of-community basis and the maintenance of coastal landforms and coastal habitat.	**AO10.1** Development complies if consideration of public access demand from a whole-of-community basis and the maintenance of coastal landforms and coastal habitat is undertaken. or	**Not applicable** The site is not within the Coastal Management District.

Performance outcomes	Acceptable outcomes	Applicant response
	AO10.2 Development demonstrates an alternative solution to achieve an equivalent standard and quality of access.	
PO11 Development maintains public access to State coastal land by avoiding private marine development attaching to, or extending across, non-tidal State coastal land.	**AO11** Private marine access structures and other structures such as decks or boardwalks for private use do not attach to or extend across State coastal land that is situated above high water mark	**Not applicable** The site is not within the Coastal Management District.
PO12 Development in connection with an artificial waterway enhances public access to coastal waters.	**AO12** The artificial waterway avoids intersecting with or connection to inundated land or leased land where the passage, use or movement of vessels in water on the land could be restricted or prohibited by the registered proprietor of the inundated land or leased land.	**Not applicable** The site is not within the Coastal Management District.
Coastal landscapes, views and vistas		
PO13 Development maintains and / or enhances natural coastal landscapes, views and vistas.	**AO13** No acceptable outcomes are prescribed.	**Complies with PO13** The subject site is located behind the coastal vegetation and is approximately 500 metres from the Captain Cook Highway and 350 metres from Bonnie Doon Road. The development would not compromise any coastal landscapes, views or vistas.

Performance outcomes	Acceptable outcomes	Applicant response
PO14 Coastal settlements are consolidated through the concentration of development within the existing urban areas through infill and conserving the natural state of the coastal area outside existing urban areas.	**AO14** No acceptable outcomes are prescribed.	**Not applicable** The application is for an Extractive Industry only.
Private marine development		
PO15 Private marine development is to avoid attaching to, or extending across, non-tidal State coastal land.	**AO15** Private marine development and other structures such as decks or boardwalks for private use do not attach to, or extend across, State coastal land that is situated above high water mark. Note – For occupation permits or allocations of State land, refer to the *Land Act 1994*.	**Not applicable** No private marine development is proposed.
PO16 The location and design of private marine development does not adversely affect the safety of members of the public access to the foreshore.	**AO16** Private marine development does not involve the erection or placement of any physical barrier preventing existing access, along a public access way to the foreshores.	**Not applicable** No private marine development is proposed.
PO17 Private marine development is of a height and scale and size compatible with the character and amenity of the location.	**AO17** Private marine development has regard to: (a) the height, scale and size of the natural features of the immediate surroundings and locality;	**Not applicable** No private marine development is proposed.

Performance outcomes	Acceptable outcomes	Applicant response
	(b) the height, scale and size of existing buildings or other structures in the immediate surroundings and the locality; (c) if the relevant planning scheme states that desired height, scale or size of buildings or other structures in the immediate surroundings or locality – the stated desired height, scale or size. Note – The prescribed tidal works code in the *Coastal Protection and Management Regulation 2003* outlines design and construction requirements that must be complied with.	
PO18 Private marine development avoids adverse impacts on coastal landforms and coastal processes.	**AO18** Private marine development does not require the construction of coastal protection works, shoreline or riverbank hardening or dredging for marine access.	**Not applicable** No private marine development is proposed.
For dry land marinas and artificial waterways		
PO19 Dry land marinas and artificial waterways: (a) avoid impacts on coastal resources; (b) do not contribute to the degradation of water quality; (c) do not increase the risk of flooding; (d) do not result in the degradation or loss of MSES;	**AO19** No acceptable solutions are prescribed.	**Not applicable** No dryland marinas or artificial waterways are proposed.

Performance outcomes	Acceptable outcomes	Applicant response
(e) do not result in an adverse change to the tidal prism of the natural waterway to which development is connected. (f) does not involve reclamation of tidal land other than for the purpose of: (i) coastal dependent development, public marine development; or (i) community infrastructure, where there is no feasible alternative; or (iii) strategic ports, boat harbours or strategic airports and aviation facilities in accordance with a statutory land use plan; or (iv) coastal protection works or works necessary to protect coastal resources and processes.		

8.2.4 Flood and storm tide hazard overlay code

8.2.4.1 Application

(1) This code applies to assessing a material change of use, reconfiguring a lot, operational work or building work within the Flood and storm tide hazard overlay, if:

(a) self assessable or assessable development where the code is identified as being applicable in the Assessment criteria for the Overlay Codes contained in the Levels of Assessment Tables in section 5.6;

(b) impact assessable development.

(2) Land in the Flood and storm tide hazard overlay is identified on the Flood and storm tide hazard overlay map in Schedule 2 and includes the:

(a) Storm tide – high hazard sub-category;

(b) Storm tide – medium hazard sub-category;

(c) Flood plain assessment sub-category;

(d) 100 ARI Mossman, Port Douglas and Daintree Township Flood Studies sub-category.

(3) When using this code, reference should be made to Part 5.

Note - The Flood and storm tide hazards overlay maps contained in Schedule 2 identify areas (Flood and storm tide inundation areas) where flood and storm tide inundation modelling has been undertaken by the Council. Other areas not identified by the Flood and inundation hazards overlay maps contained in Schedule 2 may also be subject to the defined flood event or defined storm tide event.

8.2.4.2 Purpose

(1) The purpose of the Flood and storm tide hazard overlay code is to:

(a) implement the policy direction in the Strategic Framework, in particular:

(i) Theme 1 Settlement pattern: Element 3.4.7 Mitigation of hazards;

(ii) Theme 6 Infrastructure and transport: Element 3.9.2 Energy.

(b) enable an assessment of whether development is suitable on land within the Flood and storm tide hazard sub-categories.

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) development siting, layout and access responds to the risk of the natural hazard and minimises risk to personal safety;

(b) development achieves an acceptable or tolerable risk level, based on a fit for purpose risk assessment;

(c) the development is resilient to natural hazard events by ensuring siting and design accounts for the potential risks of natural hazards to property;

(d) the development supports, and does not unduly burden disaster management response or recovery capacity and capabilities;

(e) the development directly, indirectly and cumulatively avoids an unacceptable increase in severity of the natural hazards and does not significantly increase the potential for damage on site or to other properties;

(f) the development avoids the release of hazardous materials as a result of a natural hazard event;

(g) natural processes and the protective function of landforms and/or vegetation are maintained in natural hazard areas;

(h) community infrastructure is located and designed to maintain the required level of functionality during and immediately after a hazard event.

Criteria for assessment

Table 8.2.4.3.a – Flood and storm tide hazards overlay code –assessable development

Performance outcomes	Acceptable outcomes	Applicant response
For self-assessable and assessable development		
PO1 Development is located and designed to: a) ensure the safety of all persons; b) minimise damage to the development and contents of buildings; c) provide suitable amenity; d) minimise disruption to residents, recovery time, and rebuilding or restoration costs after inundation events. Note – For assessable development within the flood plain assessment sub-category, a flood study by a suitably qualified professional is required to identify compliance with the intent of the acceptable outcome.	**AO1.1** Development is sited on parts of the land that is not within the Flood and Storm tide hazards overlay maps contained in Schedule 2; or For dwelling houses, **AO1.2** Development within the Flood and Storm Tide hazards overlay maps (excluding the Flood plain assessment sub-category) is designed to provide immunity to the Defined Inundation Event as outlined within Table 8.2.4.3.b plus a freeboard of 300mm.	**Not applicable** The application is for an extractive industry only. No buildings or structures are proposed as part of this application.
	AO1.3	**Not applicable** No new buildings are proposed as part of this

Performance outcomes	Acceptable outcomes	Applicant response
	New buildings are: (a) not located within the overlay area; (b) located on the highest part of the site to minimise entrance of flood waters; (c) provided with clear and direct pedestrian and vehicle evacuation routes off the site.	application.
	AO1.4 In non urban areas, buildings and infrastructure are set back 50 metres from natural riparian corridors to maintain their natural function of reducing velocity of floodwaters.	**Not applicable** No buildings or structures are proposed as part of this application.
For assessable development		
PO2 The development is compatible with the level of risk associated with the natural hazard.	**AO2** The following uses are not located in land inundated by the Defined Flood Event (DFE) / Storm tide: (a) Retirement facility; (b) Community care facility; (c) Child care centre.	**Complies with AO2** The proposed development is for an Extractive Industry only.
PO3 Development siting and layout responds to flooding potential and maintains personal safety	For Material change of use **AO3.1** New buildings are:	**Not applicable** No buildings or structures are proposed as part of this application.

Performance outcomes	Acceptable outcomes	Applicant response
	(a) not located within the overlay area; (b) located on the highest part of the site to minimise entrance of flood waters; (c) provided with clear and direct pedestrian and vehicle evacuation routes off the site. or **AO3.2** The development incorporates an area on site that is at least 300mm above the highest known flood inundation level with sufficient space to accommodate the likely population of the development safely for a relatively short time until flash flooding subsides or people can be evacuated. or **AO3.3** Where involving an extension to an existing dwelling house that is situated below DFE /Storm tide, the maximum size of the extension does not exceed 70m^2 gross floor area. Note – If part of the site is outside the Hazard Overlay area, this is the preferred location of all buildings.	
	For Reconfiguring a lot **AO3.4** Additional lots: (a) are not located in the hazard overlay area;	**Not applicable** No reconfiguring a lot is proposed.

Performance outcomes	Acceptable outcomes	Applicant response
	or (b) are demonstrated to be above the flood level identified for the site. Note - If part of the site is outside the Hazard Overlay area, this is the preferred location for all lots (excluding park or other open space and recreation lots). Note – Buildings subsequently developed on the lots will need to comply with the relevant building assessment provisions under the *Building Act 1975*.	
	AO3.5 Road and/or pathway layout ensures residents are not physically isolated from adjacent flood free urban areas and provides a safe and clear evacuation route path: (a) by locating entry points into the reconfiguration above the flood level and avoiding culs-de-sac or other non-permeable layouts; and (b) by direct and simple routes to main carriageways.	**Not applicable** The proposed development does not involve any new roads or pathways.
	AO3.6 Signage is provided on site (regardless of whether the land is in public or private ownership) indicating the position and path of all safe evacuation routes off the site and if the site contains, or is within 100m of a floodable waterway, hazard warning signage and depth indicators are also provided at key hazard points, such as at floodway crossings or entrances to	**Complies with AO3.7** No intensification of residential uses would occur on the site.

Performance outcomes	Acceptable outcomes	Applicant response
	low-lying reserves. or **AO3.7** There is no intensification of residential uses within the flood affected areas on land situated below the DFE/Storm tide	
	For Material change of use (Residential uses) **AO3.8** The design and layout of buildings used for residential purposes minimise risk from flooding by providing: (a) parking and other low intensive, non-habitable uses at ground level; Note - The high-set 'Queenslander' style house is a resilient low-density housing solution in floodplain areas. Higher density residential development should ensure only non-habitable rooms (e.g. garages, laundries) are located on the ground floor.	**Not applicable** No residential uses are proposed.
PO4 Development is resilient to flood events by ensuring design and built form account for the potential risks of flooding.	For Material change of use (Non-residential uses) **AO4.2** Non residential buildings and structures allow for the flow through of flood waters on the ground floor. Note - Businesses should ensure that they have the necessary contingency plans in place to account for the potential need to relocate property prior to a flood event (e.g. allow enough time to transfer stock to the upstairs level of a building or off site).	**Not applicable** No buildings or structures are proposed as part of this application.

Performance outcomes	Acceptable outcomes	Applicant response
	Note - The relevant building assessment provisions under the *Building Act 1975* apply to all building work within the Hazard Area and need to take into account the flood potential within the area.	
	AO4.3 Materials are stored on-site: (a) are those that are readily able to be moved in a flood event; (b) where capable of creating a safety hazard by being shifted by flood waters, are contained in order to minimise movement in times of flood. Notes - (a) Businesses should ensure that they have the necessary contingency plans in place to account for the potential need to relocate property prior to a flood event (e.g. allow enough time to transfer stock to the upstairs level of a building or off site). (b) Queensland Government Fact Sheet 'Repairing your House after a Flood' provides information about water resilient products and building techniques.	**Complies with AO4.3** All materials stored on the site would be able to be moved in a flood event.
PO5 Development directly, indirectly and cumulatively avoids any increase in water flow velocity or flood level and does not increase the potential flood damage either on site or on other properties. Note – Berms and mounds are considered to be an	For Operational works **AO5.1** Works in urban areas associated with the proposed development do not involve: (a) any physical alteration to a watercourse or floodway including vegetation clearing; or (b) a net increase in filling (including berms and	**Not applicable** The application is not for operational works.

Performance outcomes	Acceptable outcomes	Applicant response
undesirable built form outcome and are not supported.	mounds).	
	AO5.2 Works (including buildings and earthworks) in non urban areas either: (a) do not involve a net increase in filling greater than 50m^3; or (b) do not result in any reductions of on-site flood storage capacity and contain within the subject site any changes to depth/duration/velocity of flood waters; or (c) do not change flood characteristics outside the subject site in ways that result in: (i) loss of flood storage; (ii) loss of/changes to flow paths; (iii) acceleration or retardation of flows or any reduction in flood warning times elsewhere on the flood plain.	**Complies with AO5.2** The application is for an extractive industry. No net filling would occur or any net reduction in flood storage capacity and would not change the flood characteristics outside of the subject site.
	For Material change of use **AO5.3** Where development is located in an area affected by DFE/Storm tide, a hydraulic and hydrology report, prepared by a suitably qualified professional, demonstrates that the development maintains the flood storage capacity on the	**Not applicable** The proposed area of extraction is located outside of the designated storm tide hazard area.

Performance outcomes	Acceptable outcomes	Applicant response
	subject site; and (a) does not increase the volume, velocity, concentration of flow path alignment of stormwater flow across sites upstream, downstream or in the general vicinity of the subject site; and (b) does not increase ponding on sites upstream, downstream or in the general vicinity of the subject site.	
	For Material change of use and Reconfiguring a lot **AO5.4** In non urban areas, buildings and infrastructure are set back 50 metres from natural riparian corridors to maintain their natural function of reducing velocity of floodwaters. Note – Fences and irrigation infrastructure (e.g. irrigation tape) in rural areas should be managed to minimise adverse the impacts that they may have on downstream properties in the event of a flood.	**Not applicable** No buildings or structure are proposed as part of this application.
PO6 Development avoids the release of hazardous materials into floodwaters.	For Material change of use **AO6.1** Materials manufactured or stored on site are not hazardous or noxious, or comprise materials that may cause a detrimental effect on the environment if discharged in a flood event; or	**Not applicable** No hazardous materials would be stored or manufactured on site.

Performance outcomes	Acceptable outcomes	Applicant response
	AO6.2 If a DFE level is adopted, structures used for the manufacture or storage of hazardous materials are: (a) located above the DFE level; or (b) designed to prevent the intrusion of floodwaters.	
	AO6.3 Infrastructure is designed and constructed to resist hydrostatic and hydrodynamic forces as a result of inundation by the DFE.	**Not applicable** No hazardous materials would be stored or manufactured on site.
	AO6.4 If a flood level is not adopted, hazardous materials and their manufacturing equipment are located on the highest part of the site to enhance flood immunity and designed to prevent the intrusion of floodwaters. Note – Refer to *Work Health and Safety Act 2011* and associated Regulation and Guidelines, the *Environmental Protection Act 1994* and the relevant building assessment provisions under the *Building Act 1975* for requirements related to the manufacture and storage of hazardous materials.	**Not applicable** No hazardous materials would be stored or manufactured on site.
PO7 The development supports, and does not unduly burden, disaster management response or	**AO7** Development does not:	**Complies with AO7** The proposed development does not involve a residential use and would not affect the ability

Performance outcomes	Acceptable outcomes	Applicant response
recovery capacity and capabilities.	(a) increase the number of people calculated to be at risk of flooding; (b) increase the number of people likely to need evacuation; (c) shorten flood warning times; and (d) impact on the ability of traffic to use evacuation routes, or unreasonably increase traffic volumes on evacuation routes.	for people to evacuate or increase the number of people likely to require evacuation.
PO8 Development involving community infrastructure: (a) remains functional to serve community need during and immediately after a flood event; (b) is designed, sited and operated to avoid adverse impacts on the community or environment due to impacts of flooding on infrastructure, facilities or access and egress routes; (c) retains essential site access during a flood event; (d) is able to remain functional even when other infrastructure or services may be compromised in a flood event.	**AO8.1** The following uses are not located on land inundated during a DFE/Storm tide: (a) community residence; and (b) emergency services; and (c) residential care facility; and (d) utility installations involving water and sewerage treatment plants; and (e) storage of valuable records or items of historic or cultural significance (e.g. archives, museums, galleries, libraries). or **AO8.2** The following uses are not located on land inundated during a 1% AEP flood event: (a) community and cultural facilities, including facilities where an education and care	**Complies with AO8.1** None of the identified uses are proposed.

Performance outcomes	Acceptable outcomes	Applicant response
	service under the Education and care Services National law (Queensland) is operated or child care service under the *Child Care Act 2002* is conducted, (b) community centres; (c) meeting halls; (d) galleries; (e) libraries. The following uses are not located on land inundated during a 0.5% AEP flood event. (a) emergency shelters; (b) police facilities; (c) sub stations; (d) water treatment plant The following uses are not located on land inundated during a 0.2% AEP flood event: (a) correctional facilities; (b) emergency services; (c) power stations; (d) major switch yards. and/or **AO8.3** The following uses have direct access to low hazard evacuation routes as defined in Table **8.2.4.3.c** :	

Performance outcomes	Acceptable outcomes	Applicant response
	(a) community residence; and (b) emergency services; and (c) hospitals; and (d) residential care facility; and (e) sub stations; and (f) utility installations involving water and sewerage treatment plants.	
	AO8.4 Any components of infrastructure that are likely to fail to function or may result in contamination when inundated by flood, such as electrical switch gear and motors, telecommunications connections, or water supply pipeline air valves are: (a) located above DFE/Storm tide or the highest known flood level for the site; (b) designed and constructed to exclude floodwater intrusion / infiltration.	**Not applicable** No infrastructure is proposed.
	AO8.5 Infrastructure is designed and constructed to resist hydrostatic and hydrodynamic forces as a result of inundation by a flood.	**Not applicable** No infrastructure is proposed.

Table 8.2.4.3.b - Minimum immunity (floor levels) for development

Minimum immunity to be achieved (floor levels)	Uses and elements of activities acceptable in the event
20% AEP level	• Parks and open space.
5% AEP level	• Car parking facilities (including car parking associated with use of land).
1% AEP level	• All development (where not otherwise requiring an alternative level of minimum immunity).
0.5% AEP level	• Emergency services (if for a police station); • Industry activities (if including components which store, treat or use hazardous materials); • Substation; • Utility installation.
0.2% AEP level	• Emergency services; • Hospital; • Major electricity infrastructure; • Special industry.

Table 8.2.4.3.c - Degree of flood

Criteria	Low	Medium	High	Extreme
Wading ability	If necessary children and the elderly could wade. (Generally, safe wading velocity depth product is less than 0.25)	Fit adults can wade. (Generally, safe wading velocity depth product is less than 0.4)	Fit adults would have difficulty wading. (Generally, safe wading velocity depth product is less than 0.6)	Wading is not an option.
Evacuation distances	< 200 metres	200-400 metres	400-600 metres	600 metres
Maximum flood depths	< 0.3 metre	< 0.6 metre	< 1.2 metres	1.2 metres
Maximum flood velocity	< 0.4 metres per second	< 0.8 metres per second	< 1.5 metres per second	1.5 metres per second
Typical means of egress	Sedan	Sedan early, but 4WD or trucks later	4WD or trucks only in early stages, boats or helicopters	Large trucks, boats or helicopters
Timing Note: This category cannot be implemented until evacuation times have been established in the Counter Disaster Plan (Flooding)	Ample flood forecasting. Warning and evacuation routes remain passable for twice as long as evacuation time.	Evacuation routes remain trafficable for 1.5 times as long as the evacuation.	Evacuation routes remain trafficable for only up to minimum evacuation time.	There is insufficient evacuation time.

Note: The evacuation times for various facilities or areas would (but not necessarily) be included in the Counter Disaster Plan.

Generally safe wading conditions assume even walking surfaces and no obstructions, steps, soft underfoot etc.

8.2.6 Landscape values overlay code

8.2.6.1 Application

(1) This code applies to assessing a material change of use, reconfiguring a lot, operational work or building work within the Landscape values overlay, if:

(a) self-assessable or assessable development where the code is identified as being applicable in the Assessment criteria for the Overlay Codes contained in the Levels of Assessment Tables in section 5.6;

(b) impact assessable development.

(2) Land in the Landscape values overlay is identified on the Landscape values overlay map in Schedule 2 and includes in following sub-categories:

(a) High landscape value sub-category;

(b) Medium landscape value sub-category;

(c) Scenic route buffer / view corridor area sub-category;

(d) Coastal scenery area sub-category.

(3) When using this code, reference should be made to Part 5.

8.2.6.2 Purpose

(1) The purpose of the Landscape values overlay code is to:

(a) implement the policy direction of the Strategic Framework, in particular:

(i). Theme 2: Environment and landscape values Element 3.5.5 Scenic amenity;

(ii). Theme 3: Natural resource management Element 3.6.4 – Resource extraction.

(b) enable an assessment of whether development is suitable on land within the Landscape values overlay sub-categories.

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) areas of High landscape value are protected, retained and enhanced;

(b) areas of Medium landscape value are managed to integrate and limit the visual impact of development;

(c) the landscape values of the Coastal scenery area are managed to integrate and limit thevisual impact of development;

(d) development maintains and enhances the significant landscape elements and featureswhich contribute to the distinctive character and identity of Douglas Shire;

(e) ridges and vegetated hillslopes are not developed in a way that adversely impacts onlandscape values;

(f) watercourses, forested mountains and coastal landscape character types remain predominantly natural in appearance in order to maintain the region's diverse characterand distinctive tropical image, in particular:

(i). areas in the coastal landscape character type which are predominantly natural and undeveloped in appearance retain this natural landscape character;

(ii). watercourses which are predominantly natural and undeveloped in appearance retain this natural landscape character;

(iii). the rural character of cane fields and lowlands landscape character types which are predominantly rural or natural in appearance are maintained;

(iv). landscape values are maintained when viewed from lookouts, scenic routes, gateways and public places.

(g) views towards High landscape value areas and the Coral Sea are not diminished;

(h) development is consistent with the prevailing landscape character of its setting, and is neither visually dominant nor visually intrusive;

(i) advertising devices do not detract from the landscape values, character types or amenity of an area.

Criteria for assessment

Table 8.2.1.3.a – Acid sulfate soils overlay code – assessable development

Performance outcomes	Acceptable outcomes	Applicant response
For assessable development		
PO1 Development within High landscape value areas identified on the Landscape values overlay maps contained in Schedule 2: (a) avoids detrimental impacts on the landscape values of forested skylines, visible hillslopes, ridgelines, the coastal foreshore or the shoreline of other water bodies through the	**AO1.1** Buildings and structures are not more than 8.5 metres and two storeys in height. Note - Height is inclusive of roof height.	**Not applicable** Development would not occur within a High Landscape Value Area.
	AO1.2 Buildings and structures are setback not less than 50 metres from ridgelines or peaks.	**Not applicable** Development would not occur within a High Landscape Value Area.

Performance outcomes	Acceptable outcomes	Applicant response
loss of vegetation; (b) is effectively screened from view from a road, lookout or other public place by an existing natural landform or native vegetation, or will be effectively screened by native vegetation within 3 years of construction; (c) retains existing vegetation and incorporates new landscaping to enhance existing vegetation and visually soften built form elements; (d) incorporates development of a scale, design, height, position on site, construction materials and external finishes that are compatible with the landscape values of the locality; (e) avoids detrimental impacts on landscape values and excessive changes to the natural landform as a result of the location, position on site, scale, design, extent and alignment of earthworks, roads, driveways, retaining walls and other on-ground or in-ground infrastructure; (f) avoids detrimental impacts on landscape values and views as a result of the location, position on site, scale, design and alignment of telecommunications facilities, electricity towers, poles and lines and other tall infrastructure; (g) extractive industry operations are avoided. Note - A visual impact assessment is undertaken in accordance with Planning scheme policy SC6.6 – Landscape	**AO1.3** Development is screened from view from roads or other public places by an existing natural landform or an existing native vegetation buffer.	**Not applicable** Development would not occur within a High Landscape Value Area.
	AO1.4 Where development on land steeper than 1 in 6 (16.6%) cannot be avoided: (a) development follows the natural; contours of the site; (b) buildings are split level or suspended floor construction, or a combination of the two; (c) lightweight materials are used to areas with suspended floors. Note - Examples of suitable lightweight materials include timber or fibre cement boards or sheeting for walls and factory treated metal sheeting for walls and roofs.	**Not applicable** Development would not occur within a High Landscape Value Area..
	AO1.5 The external features, walls and roofs of buildings and structures have a subdued and non-reflective palette. Note - Examples of suitable colours include shades of green, olive green, blue green, grey green, green blue, indigo, brown, blue grey, and green yellow.	**Not applicable** Development would not occur within a High Landscape Value Area.
	AO1.6 No clearing of native vegetation occurs on land	**Not applicable** Development would not occur within a High

Performance outcomes	Acceptable outcomes	Applicant response
values in order to satisfy performance outcomes.	with a slope greater than 1 in 6 (16.5%).	Landscape Value Area.
	AO1.7 Where for accommodation activities or reconfiguration of a lot in a High landscape value area, development demonstrates that the height, design, scale, positioning on-site, proposed construction materials and external finishes are compatible with the landscape values. Note - A visual impact assessment undertaken in accordance with Planning scheme policy SC6.6 – Landscape values may be required.	**Not applicable** Development would not occur within a High Landscape Value Area.
	AO1.8 Advertising devices do not occur.	**Complies with AO1.8** Development would not occur within a High Landscape Value Area.
Development within the Medium landscape value area		
PO2 Development within Medium landscape value areas identified on the Landscape values overlay maps contained in Schedule 2: (a) avoids detrimental impacts on the landscape values of forested skylines, visible hillslopes, ridgelines, the coastal foreshore or the shoreline of other water bodies through the loss of vegetation;	**AO2.1** Buildings and structures are not more than 8.5 metres and two storeys in height. Note - Height is inclusive of the roof height.	**Not applicable** There are no buildings or structures proposed as part of this application.
	AO2.2 Development is screened from view from roads or other public places by an existing natural landform or an existing native vegetation buffer.	**Complies with AO2.2** The site is separated from the Captain Cook Highway by of the order of 500metres and screened by paddocks of Sugar Cane and is screened from Bonnie Doon Road by an existing

Performance outcomes	Acceptable outcomes	Applicant response
(b) is effectively screened from view from a road, lookout or other public place by an existing natural landform or native vegetation, or will be effectively screened by native vegetation within 5 years of construction; (c) retains existing vegetation and incorporates new landscaping to enhance existing vegetation and visually soften built form elements; (d) incorporates development of a scale, design, height, position on site, construction materials and external finishes that are compatible with the landscape values of the locality; (e) avoids detrimental impacts on landscape values and excessive changes to the natural landform as a result of the location, position on site, scale, design and alignment of earthworks, roads, driveways, retaining walls and other on-ground or in-ground infrastructure; (f) avoids detrimental impacts on landscape values and views as a result of the location, position on site, scale, design and alignment of telecommunications facilities, electricity towers, poles and lines and other tall infrastructure; (g) extractive industry operations are avoided, or where they cannot be avoided, are screened from view.		vegetated buffer. Additional buffer planting is able to be secured by condition of approval if considered necessary.
	AO2.3 Where development on land steeper than 1 in 6 (16.6%) cannot be avoided: (a) development follows the natural; contours of the site; (b) buildings are split level or suspended floor construction, or a combination of the two; (c) lightweight materials are used to areas with suspended floors. Note - Examples of suitable lightweight materials include timber or fibre cement boards or sheeting for walls and factorytreated metal sheeting for walls and roofs.	**Not applicable** The site does not contain land steeper than 1 in 6.
	AO2.4 The external features, walls and roofs of buildings and structures have a subdued and non-reflective palette. Note - Examples of suitable colours include shades of green, olive green, blue green, grey green, green blue, indigo, brown, blue grey, and green yellow	**Not applicable** There are no buildings or structures proposed as part of this application.
	AO2.5 No clearing of native vegetation occurs on land with a slope greater than 1 in 6 (16.6%).	**Not applicable** The site does not contain land steeper than 1 in 6.

Performance outcomes	Acceptable outcomes	Applicant response
Note - A visual impact assessment is undertaken in accordance with Planning scheme policy SC6.6 – Landscape values in order to satisfy performance outcomes.	**AO2.6** Advertising devices do not occur.	**Complies with AO2.6** No advertising devices are proposed.
Development within a Scenic route buffer / view corridor area		
PO3 Development within a Scenic route buffer / view corridor area as identified on the Landscape values overlay maps contained in Schedule 2: (a) retains visual access to views of the surrounding landscape, the sea and other water bodies; (b) retains existing vegetation and incorporates landscaping to visually screen and soften built form elements whilst not impeding distant views or view corridors; (c) incorporates building materials and external finishes that are compatible with the visual amenity and the landscape character; (d) minimises visual impacts on the setting and views in terms of: (i). the scale, height and setback of buildings; (ii). the extent of earthworks and impacts on the landform including the location and configuration of access roads and driveways; (iii). the scale, extent and visual	**AO3.1** Where within a Scenic route buffer / view corridor area, the height of buildings and structures is not more than identified within the acceptable outcomes of the applicable zone code.	**Not applicable** The site is not within a Scenic Route Buffer / View Corridor Area.
	AO3.2 No clearing of native vegetation is undertaken within a Scenic route buffer area.	**Not applicable** The site is not within a Scenic Route Buffer / View Corridor Area.
	AO3.3 Where within a Scenic route buffer / view corridor area development is set back and screened from view from a scenic route by existing native vegetation with a width of at least 10 metres and landscaped in accordance with the requirements of the landscaping code.	**Not applicable** The site is not within a Scenic Route Buffer / View Corridor Area.
	AO3.4 Development does not result in the replacement of, or creation of new, additional, or enlarged advertising devices.	**Not applicable** The site is not within a Scenic Route Buffer / View Corridor Area.

Performance outcomes	Acceptable outcomes	Applicant response
prominence of advertising devices. Note - A visual impact assessment is undertaken in accordance with Planning scheme policy SC6.6 – Landscape values in order to satisfy performance outcomes.		
Development within the Coastal scenery area		
PO4 The landscape values of the Coastal scenery zone as identified on the Landscape values overlay maps contained in Schedule 2 are managed to integrated and limit the visual impact of development. Note - A visual impact assessment is undertaken in accordance with Planning scheme policy SC6.6 – Landscape values in order to satisfy performance outcomes.	**AO4.1** The dominance of the natural character of the coast is maintained or enhanced when viewed from the foreshore.	**Not applicable** The site is not within the Coastal Scenery Area.
	AO4.2 Where located adjacent to the foreshore buildings and structures are setback: (a) Where no adjoining development, a minimum of 50 metres from the coastal high water mark and the setback area is landscaped with a native vegetation buffer that has a minimum width of 25 metres; or (b) Where there is adjoining development, setbacks will be consistent with that of adjoining buildings and structures, but not less than 10 metres from the coastal high water mark. The setback area is landscaped in accordance with the requirements of the Landscaping code.	**Not applicable** The site is not within the Coastal Scenery Area.
	AO4.3	**Not applicable**

Performance outcomes	Acceptable outcomes	Applicant response
	Where separated from the foreshore by land contained within public ownership (e.g. unallocated State land, esplanade or other public open space), buildings and structures area setback: (a) where no adjoining development, a minimum of 6 metres from the coastward property boundary. The setback area is landscaped in accordance with the requirements of the Landscaping code; or (b) where there is adjoining development, setbacks will be consistent with that of adjoining buildings and structures. The setback area is landscaped in accordance with the requirements of the Landscaping code.	The site is not within the Coastal Scenery Area.
PO5 Development is to maximise opportunities to maintain and/or enhance natural landscape values through the maintenance and restoration of vegetated buffers between development and coastal waters, where practical. Note – A visual impact assessment is undertaken in accordance with Planning scheme policy SC6.6 – Landscape values in satisfaction of a performance outcome.	**AO5** No clearing of native vegetation is undertaken within a Coastal scenery area zone, except for exempt vegetation damage undertaken in accordance with the Vegetation management code	**Not applicable** The site is not within the Coastal Scenery Area.

8.2.7 Natural areas overlay code

8.2.7.1 Application

(1) This code applies to assessing a material change of use, reconfiguring a lot, operational work or building work within the Natural areas overlay, if:

(a) self-assessable or assessable development where the code is identified as being applicable in the Assessment criteria for the Overlay Codes contained in the Levels of Assessment Tables in section 5.6;

(b) impact assessable development.

(2) Land in the Natural areas overlay is identified on the Natural areas overlay map in Schedule 2 and includes the following sub-categories:

(a) MSES – Protected area;

(b) MSES – Marine park;

(c) MSES – Wildlife habitat;

(d) MSES – Regulated vegetation;

(e) MSES – Regulated vegetation (intersecting a Watercourse);

(f) MSES – High ecological significance wetlands;

(g) MSES – High ecological value waters (wetlands);

(h) MSES – High ecological value waters (watercourse);

(i) MSES – Legally secured off set area.

Note – MSES = Matters of State Environmental Significance.

(3) When using this code, reference should be made to Part 5.

8.2.7.2 Purpose

(1) The purpose of the Natural areas overlay code is to:

(a) implement the policy direction in the Strategic Framework, in particular:

(i) Theme 2: Environment and landscape values, Element 3.5.3 Biodiversity, Element 3.5.4 Coastal zones;

(ii) Theme 3: Natural resource management Element 3.6.2 Land and catchment management, Element 3.6.3 Primary production, forestry and fisheries.

(b) enable an assessment of whether development is suitable on land within the Biodiversity area overlay sub-categories.

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) development is avoided within:

(i) areas containing matters of state environmental significance (MSES);

(ii) other natural areas;

(iii) wetlands and wetland buffers;

(iv) waterways and waterway corridors.

(b) where development cannot be avoided, development:

(i) protects and enhances areas containing matters of state environmental significance;

(ii) provides appropriate buffers;

(iii) protects the known populations and supporting habitat of rare and threatened flora and fauna species, as listed in the relevant State and Commonwealth legislation;

(iv) ensures that adverse direct or indirect impacts on areas of environmental significance are minimised through design, siting, operation, management and mitigation measures;

(v) does not cause adverse impacts on the integrity and quality of water in upstream or downstream catchments, including the Great Barrier Reef World Heritage Area;

(vi) protects and maintains ecological and hydrological functions of wetlands, waterways and waterway corridors;

(vii) enhances connectivity across barriers for aquatic species and habitats;

(viii) rehabilitates degraded areas to provide improved habitat condition, connectivity, function and extent;

(ix) protects areas of environmental significance from weeds, pests and invasive species.

(c) strategic rehabilitation is directed to areas on or off site, where it is possible to achieve expanded habitats and increased connectivity.

Criteria for assessment

Table 8.2.7.3.a - Natural areas overlay code – assessable development

Performance outcomes	Acceptable outcomes	Applicant response
For self-assessable and assessable development		

Performance outcomes	Acceptable outcomes	Applicant response
Protection of matters of environmental significance		
PO1 Development protects matters of environmental significance.	**AO1.1** Development avoids significant impact on the relevant environmental values. or **AO1.2** A report is prepared by an appropriately qualified person demonstrating to the satisfaction of the assessment manager, that the development site does not contain any matters of state and local environmental significance. or **AO1.3** Development is located, designed and operated to mitigate significant impacts on environmental values. For example, a report certified by an appropriately qualified person demonstrating to the satisfaction of the assessment manager, how the proposed development mitigates impacts, including on water quality, hydrology and biological processes.	**Complies with AO1.1** The proposed development would be undertaken in a way to avoid areas of environmental values. No development or extraction would occur within the Wetlands trigger area to the south of the site and no regulated vegetation would be removed to facilitate the development.
Management of impacts on matters of environmental significance		
PO2 Development is located, designed and constructed to avoid significant impacts on	**AO2** The design and layout of development minimises adverse impacts on ecologically important areas	**Complies with AO2** The proposed development would be undertaken in a way to avoid areas of environmental

Performance outcomes	Acceptable outcomes	Applicant response
matters of environmental significance.	by: (a) focusing development in cleared areas to protect existing habitat; (b) utilising design to consolidate density and preserve existing habitat and native vegetation; (c) aligning new property boundaries to maintain ecologically important areas; (d) ensuring that alterations to natural landforms, hydrology and drainage patterns on the development site do not negatively affect ecologically important areas; (e) ensuring that significant fauna habitats are protected in their environmental context; and (f) incorporating measures that allow for the safe movement of fauna through the site.	significance. No development or extraction would occur within the Wetlands trigger area to the south of the site and no regulated vegetation would be removed to facilitate the development.
PO3 An adequate buffer to areas of state environmental significance is provided and maintained.	**AO3.1** A buffer for an area of state environmental significance (Wetland protection area) has a minimum width of: (a) 100 metres where the area is located outside Urban areas; or (b) 50 metres where the area is located within an Urban areas. or **AO3.2**	**Complies with AO3.1** The site contains a wetland protection area. All development would be outside of the state identified wetland trigger area or setback, which is a 500 metre buffer.

Performance outcomes	Acceptable outcomes	Applicant response
	A buffer for an area of state environmental significance is applied and maintained, the width of which is supported by an evaluation of environmental values, including the function and threats to matters of environmental significance.	
PO4 Wetland and wetland buffer areas are maintained, protected and restored. Note – Wetland buffer areas are identified in AO3.1.	**AO4.1** Native vegetation within wetlands and wetland buffer areas is retained.	**Complies with AO4.1** No vegetation removal is proposed within the wetlands or wetland buffer areas on the site.
	AO4.2 Degraded sections of wetlands and wetland buffer areas are revegetated with endemic native plants in patterns and densities which emulate the relevant regional ecosystem.	**Not applicable** The proposed extraction area would be located outside of the wetlands and wetlands buffer area.
PO5 Development avoids the introduction of non-native pest species (plant or animal), that pose a risk to ecological integrity.	**AO5.1** Development avoids the introduction of non-native pest species.	**Complies with AO5.1** No non-native species would be introduced to the site as part of this application.
	AO5.2 The threat of existing pest species is controlled by adopting pest management practices for long-term ecological integrity.	**Not applicable** No pest species have been identified on the site.
Ecological connectivity		
PO6	**AO6.1**	**Not applicable**

Performance outcomes	Acceptable outcomes	Applicant response
Development protects and enhances ecological connectivity and/or habitat extent.	Development retains native vegetation in areas large enough to maintain ecological values, functions and processes. and	No native vegetation is required to be removed to facilitate the development.
	AO6.2 Development within an ecological corridor rehabilitates native vegetation. and	**Not applicable** The site is not identified as containing an ecological corridor.
	AO6.3 Development within a conservation corridor mitigates adverse impacts on native fauna, feeding, nesting, breeding and roosting sites and native fauna movements.	**Not applicable** The site is not identified as containing a conservation corridor.
PO7 Development minimises disturbance to matters of state environmental significance (including existing ecological corridors).	**AO7.1** Development avoids shading of vegetation by setting back buildings by a distance equivalent to the height of the native vegetation. and	**Complies with AO7.1** No buildings or structure are proposed as part of this application.
	AO7.2 Development does not encroach within 10 metres of existing riparian vegetation and watercourses.	**Complies with AO7.1** There is no riparian vegetation present on site within the extraction area.
Waterways in an urban area		

Performance outcomes	Acceptable outcomes	Applicant response
PO8 Development is set back from waterways to protect and maintain: (a) water quality; (b) hydrological functions; (c) ecological processes; (d) biodiversity values; (e) riparian and in-stream habitat values and connectivity; (f) in-stream migration	**AO8.1** Where a waterway is contained within an easement or a reserve required for that purpose, development does not occur within the easement or reserve; or **AO8.2** Development does not occur on the part of the site affected by the waterway corridor. Note – Waterway corridors are identified within Table 8.2.7.3.b.	**Not applicable** The site is not in an urban area.
Waterways in a non-urban area		
PO9 Development is set back from waterways to protect and maintain: (a) water quality; (b) hydrological functions; (c) ecological processes; (d) biodiversity values; (e) riparian and in-stream habitat values and connectivity; (f) in-stream migration.	**AO9** Development does not occur on that part of the site affected by a waterway corridor. Note – Waterway corridors are identified within Table 8.2.7.3.b.	**Complies with AO(** The only water way identified on the SPP environment mapping occurs in the north of the site and no development would occur within 20 metres of that waterway.

Table 8.2.7.3.b — Widths of waterway corridors for waterways

Waterways classification	Waterway corridor width
Waterways in Urban areas	10 metres measured perpendicular from the top of the high bank.
Waterways in Other areas	For a dwelling house, 10 metres measured perpendicular from the top of the high bank. For all other development, 20 metres measured perpendicular from the top of the high bank.

8.2.9 Potential landslide hazard overlay code

8.2.9.1 Application

(1) This code applies to assessing a material change of use, reconfiguring a lot, operational work or building work within the Potential landslide hazard overlay; if

(a) self-assessable or assessable development where the code is identified as being applicable in the Assessment criteria for the Overlay Codes contained in the Levels of Assessment Tables in section 5.6;

(b) impact assessable development.

(2) Land in the Potential landslip hazard overlay is identified on the Potential landslide hazard overlay maps in Schedule 2 and includes the following sub-categories:

(a) Places of potential landslide hazard sub-category.

(3) When using this code, reference should be made to Part 5.

Note – The Potential landslide hazard overlay shows modelled areas where the factors contributing to landslip potential accumulate to provide a moderate or higher risk if certain factors are exacerbated (e.g factors include significant vegetation clearing, filling and excavation, changes to soil characteristics, changes to overland water flow, or changes to sub-surface water flow). It shows areas that the Council has identified where landslides may occur and where land may be impacted by a landslide, but does not mean that landslides will occur or that the land will be impacted by a landslide. Other areas not contained within the potential landslide hazard overlay may sustain landslides or be impacted by landslides and consideration should be given to this issue, where appropriate.

8.2.9.2 Purpose

(1) The purpose of the Potential landslide hazard overlay code is:

(a) implement the policy direction of the Strategic Framework, in particular:

(i). Theme 1: Settlement pattern Element 3.4.7 Mitigation of hazards.

(b) enable an assessment of whether development is suitable on land within the Potential landslip hazard overlay.

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) development is located, designed and constructed to not put at risk the safety of people, property and the environment;

(b) development is not at risk from and does not pose a risk to adjacent and nearby sites from landslides;

(c) ensures that community infrastructure is protected from the effects of potential landslides;

(d) ensures that vegetation clearing, stormwater management and filling and/or excavation does not create a landslide hazard and/or rectifies potential pre-existing landslide risks;

(e) development does not occur where works to provide a solution for safety of people, property or the environment involves complex engineering solutions to overcome the risk, or would result in a built form or outcome that causes an adverse visual impact on the Hillslopes or Landscape values of Douglas Shire.

Criteria for assessment

Table 8.2.9.3.a – Potential landslide hazard overlay code – assessable development

Performance outcomes	Acceptable outcomes	Applicant response
For self-assessable and assessable development		
PO1 The siting and design of development does not involve complex engineering solutions and does not create or increase the potential landslide hazard risk to the site or adjoining premises through: (a) building design; (b) increased slope; (c) removal of vegetation; (d) stability of soil; (e) earthworks; (f) alteration of existing ground water or surface water paths; (g) waste disposal areas.	**AO1.1** Development is located on that part of the site not affected by the Potential landslide hazard overlay. or **AO1.2** Development is on an existing stable, benched site and requires no further earthworks or **AO1.3** A competent person certifies that: (a) the stability of the site, including associated buildings and infrastructure, will be maintained during the course of the development and will remain stable for the life of the development; (b) development of the site will not increase the risk of landslide hazard activity on other land, including land above the site;	**Complies with AO1.1** The proposed extraction area and associated development is located outside of the Potential Landslide Hazard area located adjacent the eastern boundary.

Performance outcomes	Acceptable outcomes	Applicant response
	(c) the site is not subject to the risk of landslide activity on other land; (d) any measures identified in a site-specific geotechnical report for stabilising the site or development have been fully implemented; (e) development does not concentrate existing ground water and surface water paths; (f) development does not incorporate on-site waste water disposal. Note – Planning scheme policy SC6.9 – Natural hazards provides guidance on preparing a site specific geo-technical assessment. Note – Development may alter the conditions of ground water and surface water paths in accordance with a site-specific geotechnical report but should ensure that its final disbursement is as-per pre-developed conditions. Consideration for location, velocity, volume and quality should be given	
PO2 The siting and design of necessary retaining structures does not cause an adverse visual impact on landscape character or scenic amenity quality of the area.	**AO2** Excavation or fill: (a) is not more than 1.2 metres in height for each batter or retaining wall; (b) is setback a minimum of 2 metres from property boundaries; (c) is stepped with a minimum 2 metre wide berm to incorporate landscaping in accordance with Planning scheme policy SC6.7 – Landscaping;	**Not applicable** No development would occur on land identified within the Potential landslide hazard overlay.

Performance outcomes	Acceptable outcomes	Applicant response
	(d) does not exceed a maximum of 3 batters and 3 berms (i.e. Not greater than 3.6 metres in height) on any one lot.	
Additional requirements for Community infrastructure		
PO3 Development for community infrastructure: (a) is not at risk from the potential landslide hazard areas; (b) will function without impediment from a landslide; (c) provides access to the infrastructure without impediment from the effects of a landslide; (d) does not contribute to an elevated risk of a landslide to adjoining properties.	**AO3** Development is designed in accordance with the recommendations of a site-specific geotechnical assessment which makes reference to the community infrastructure and its needs and function. Note - A site specific geotechnical assessment will detail requirements that will address the Acceptable Outcomes of this Performance Outcome. Planning scheme policy SC6.9 – Natural hazards provides guidance on preparing a site specific geotechnical assessment.	**Not applicable** No development would occur on land identified within the Potential landslide hazard overlay.

8.2.10 Transport network overlay code

8.2.10.1 Application

(1) This code applies to assessing a material change of use, reconfiguring a lot, operational work or building work within the Transport network overlay; if:

(a) self-assessable or assessable development where the code is identified as being applicable in the Assessment criteria for the Overlay Codes contained in the Levels of Assessment Tables in section 5.6;

(b) impact assessable development.

(2) Land within the Transport network overlay is identified on the Transport network (Road Hierarchy) overlay map and the Transport network (Pedestrian and Cycle) overlay map in Schedule 2 and includes the following sub-categories:

(a) Transport network (Road Hierarchy) overlay sub-categories:

i. State controlled road sub-category;

ii. Sub-arterial road sub-category;

iii. Collector road sub-category;

iv. Access road sub-category;

v. Industrial road sub-category;

vi. Major rural road sub-category;

vii. Minor rural road sub-category;

viii. Unformed road sub-category;

ix. Major transport corridor buffer area sub-category.

(b) Transport network (Pedestrian and Cycle) overlay sub-categories:

i. Principal route;

ii. Future principal route;

iii. District route;

iv. Neighbourhood route;

v. Strategic investigation route.

(3) When using this code, reference should be made to Part 5.

8.2.10.2 Purpose

(1) The purpose of the Transport network overlay code is to:

(a) implement the policy direction of the Strategic Framework, in particular:

i. Theme 1: Settlement pattern Element 3.4.2 Urban settlement, Element 3.4.3 Activity centres;

ii. Theme 6: Infrastructure and transport Element 3.9.4 Transport;

(b) enable an assessment of whether development is suitable on land within the Transportnetwork overlay.

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) development provides for transport infrastructure (including active transport infrastructure);

(b) development contributes to a safe and efficient transport network;

(c) development supports the existing and future role and function of the transport network;

(d) development does not compromise the safety and efficiency of major transport infrastructure and facilities.

8.2.10.3 Criteria for assessment

Table 8.2.10.3.a – Transport network overlay code – assessable development

Performance outcomes	Acceptable outcome	Applicant response
For assessable development		
PO1 Development supports the road hierarchy for the region. Note -A Traffic impact assessment report prepared in accordance with Planning scheme policy SC6.10 - Parkingand access is one way to demonstrate achievement of the Performance Outcomes.	**AO1.1** Development is compatible with the intended role and function of the transport network as identified on the Transport network overlay maps contained in Schedule 2.	**Complies with AO1.1** Access to the site would be via Bonnie Doon Road and an unnamed road to the north. This is consistent with the requirements of the State Assessment and Referral Agency that has advised that this intersection has capacity to accommodate the traffic generated by the development. The unnamed road and its intersection with Bonnie Doon Road in accordance with the guidelines contained in the FNQROC Development Manual as part of a subsequent Operational Works

Performance outcomes	Acceptable outcome	Applicant response
		Application.
	AO1.2 Development does not compromise the safety and efficiency of the transport network.	**Complies with AO1.2** Upgrade works to the unnamed road and its intersection with Bonnie Doon Road, in accordance with a subsequent Operational Works Application, would ensure that the development does not compromise the transport network.
	AO1.3 Development is designed to provide access via the lowest order road, where legal and practicable access can be provided to that road	**Complies with AO1.3** Access is proposed to be via the lower order unnamed road to the north.
PO2 Transport infrastructure is provided in an integrated and timely manner. Note - A Traffic impact assessment report prepared in accordance with Planning scheme policy SC6.10 – Parking and access is one way to demonstrate achievement of the Performance Outcomes.	**AO2** Development provides infrastructure (including improvements to existing infrastructure) in accordance with: (a) the Transport network overlay maps contained in Schedule 2; (b) any relevant Local Plan. Note – The Translink Public Transport Infrastructure Manual provides guidance on the design of public transport facilities.	**Not applicable** No additional transport infrastructure is proposed.
PO3 Development involving sensitive land uses within a major transport corridor buffer area is located, designed and maintained to avoid or mitigate adverse impacts on amenity for the sensitive land use.	**AO3** No acceptable outcomes are prescribed. Note – Part 4.4 of the Queensland Development Code provides requirements for residential building design in a designated transport noise corridor.	**Not applicable** The site is not within a major transport corridor buffer area.

Performance outcomes	Acceptable outcome	Applicant response
PO4 Development does not compromise the intended role and function or safety and efficiency of major transport corridors. Note - A Traffic impact assessment report prepared in accordance with Planning scheme policy SC6.10 - Parkingand access is one way to demonstrate achievement of the Performance Outcomes.	**AO4.1** Development is compatible with the role and function (including the future role and function) of major transport corridors.	**Complies with AO4.1** Consistent with the response received from the State Assessment and Referral Agency. Access would be via Bonnnie Doon Road which has capacity to accommodate the additional traffic movements generated by the development.
	AO4.2 Direct access is not provided to a major transport corridor where legal and practical access from another road is available.	**Not applicable** The site does not directly adjoin a major transport corridor.
	AO4.3 Intersection and access points associated with major transport corridors are located in accordance with: (a) the Transport network overlay maps contained in Schedule 2; and (b) any relevant Local Plan.	**Not applicable** The site does not directly adjoin a major transport corridor.
	AO4.4 The layout of development and the design of the associated access is compatible with existing and future boundaries of the major transport corridor or major transport facility.	**Not applicable** The site does not directly adjoin a major transport corridor.
PO5 Development retains and enhances existing vegetation between a development and a major transport corridor, so as to provide screening to potential noise, dust, odour and visual impacts	**AO5** No acceptable outcomes are prescribed.	**Not applicable** The site does not directly adjoin a major transport corridor.

Performance outcomes	Acceptable outcome	Applicant response
emanating from the corridor.		
Pedestrian and cycle network		
PO6 Lot reconfiguration assists in the implementation of the pedestrian and cycle movement network to achieve safe, attractive and efficient pedestrian and cycle networks.	**AO6.1** Where a lot is subject to, or adjacent to an element of the pedestrian and cycle Movement network (identified on the Transport network overlay maps contained in Schedule 2) the specific location of this element of the pedestrian and cycle network is incorporated in the design ofthe lot layout.	**Not applicable** There is no pedestrian or cycle network in the area surrounding the site.
	AO6.2 The element of the pedestrian and cycle network is constructed in accordance with the Design Guidelines set out in Sections D4 and D5 of the Planning scheme policy SC6.5 – FNQROC Regional Development Manual.	**Not applicable** There is no pedestrian or cycle network in the area surrounding the site.

9.3.10 Extractive industry code

9.3.10.1 Application

(1) This code applies to assessing development for Extractive Industry, if:

(a) assessable development where the code is an applicable code identified in the assessment criteria column of a table of assessment; or

(b) impact assessable development.

(2) When using this code, reference should be made to Part 5.

9.3.10.2 Purpose

(1) The purpose of the Extractive industry code is to assess the suitability of development to which this code applies:

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) extractive industries are established in locations that are adequately separated from sensitive land uses and do not have significant ecological, landscape or rural value;

(b) a separation area is established to maintain a buffer between the extractive industry and existing and future sensitive land uses;

(c) external operations such as haulage routes do not adversely impact on amenity and well- being of the community;

(d) extractive industry operations are designed and managed to operate safely and avoid adverse impacts on amenity of adjacent sensitive land uses;

(e) extractive industries cause no adverse impact on scenic amenity;

(f) extractive industry sites are effectively and progressively rehabilitated including the achievement of a stable land form that is safe and suitable for other appropriate uses.

9.3.10.3 Criteria for assessment

Table 9.3.10.3.a – Extractive industry code – assessable development

Performance outcomes	Acceptable outcomes	Applicant Response
For assessable development		
PO1 An Environmental management plan is prepared	**AO1** No acceptable outcomes are prescribed.	**Complies with PO1** A site and development specific Environmental Management Plan has been prepared and has

Performance outcomes	Acceptable outcomes	Applicant Response
and implemented to ensure: (a) that the long term objectives of the use are clearly articulated; (b) potential conflicts or environmental impacts are avoided or minimised; (c) contingency planning for identified risks. Note – Planning scheme policy SC6.4 – Environmental management plans provides more detail on the requirements of an Environmental management plan for extractive industries. Thoroughly addressing this performance outcome is likely to also address all other performance outcomes and acceptable outcomes within this code.		been submitted with the application. Further information has been provided to support this Environmental Management Plan and is provided at **Appendix A -** Response to the Department of Environment, Science and Innovation.
PO2 The use is outside mapped areas of environmental significance. Note – Refer to the definition of Environmental significance in Schedule 1.2.	**AO2** No acceptable outcomes are prescribed.	**Complies with PO2** The proposed extraction areas would be located outside of mapped areas of environmental significance and would be suitably separated from areas of environmental significance.
PO3 Development ensures that the operation of the use is designed and implemented to: (a) promote the efficient extraction of the resource; (b) protect the natural environment, including ecological features, significant habitats and native vegetation; (c) not adversely affect the environmental values of ground waters and receiving surface waters.	**AO3** No acceptable outcomes are prescribed.	**Complies with AO3** The development would be undertaken in stages, with each stages remediated following the extraction. No extraction would occur within an area of environmental significance and the removal of sand would not extend to below the water table.
PO4	**AO4**	**Complies with PO4**

Performance outcomes	Acceptable outcomes	Applicant Response
Extractive industry operations are adequately separated from sensitive land uses to minimise potential for nuisance.	Extractive resource separation areas to sensitive land uses are: (a) 1,000 metres where the extractive resource involves blasting or crushing (namely rock); or (b) 200 metres for any other extractive industry resource not involving blasting or crushing (namely sand, clay, gravel and soil).	The proposal plan provides a 50 metres setback to the nearest sensitive receptor. This setback has been assessed by the Department of Environment, Tourism, Science and Innovation (DETSI) when considering the initial Environmental Assessment Report and Environmental Management Report. These reports were further supported by information provided in response to an information request from DETSI. A copy of the response to this information request is provided at **Appendix A**. The assessment included consideration of the following environmental values: • Waters; • Stormwaters • Air (dust); and, • Noise. The report and assessment concluded that the proposed development with a 50 metre setback is not anticipated to have an adverse impact on the sensitive receptor to the north.
PO5 Development must achieve an acceptable standard of visual amenity, having regard to the characteristics of the site, the resource, rehabilitation and visual screening, staging, and the desirable qualities of the surrounding area and locality.	**AO5** No acceptable outcomes are prescribed.	**Complies with PO5** The proposed extraction area would be setback 500 metres from the Captain Cook Highway and 350 metres form Bonnie Doon Road. It would be screened by cane fields to the west and south, buffer planting to the north and mangroves to the east. Extraction would occur in stages and at the conclusion of each stage the land would be

Performance outcomes	Acceptable outcomes	Applicant Response
		rehabilitated. The proposed development would not adversely affect the visual amenity of the area.
PO6 The site of an extractive industry is of suitable size and dimensions to accommodate the use and incorporates significant buffering to effectively screen adjoining and nearby land uses from extractive operations.	**AO6.1** The site is of sufficient area to provide for the following: (a) the extractive use; (b) areas of stockpiles; (c) sufficient car parking area to accommodate the level of car parking generated, including staff demand; (d) vehicle access and manoeuvring areas; (e) staff facilities.	**Complies with AO6.1** There is sufficient area on site to accommodate all requirements as shown on the site plan. Given the small scale of the operation, vehicles on site would be limited and there would be limited stockpiling.
	AO6.2 The use is designed to incorporate a densely vegetated buffer of a minimum of 10 metres to all road frontages and to all perimeter boundaries.	**Complies with AO6.2** The development would provide a 10 metre setback to the eastern side boundary and the northern and southern boundaries would be buffered by existing vegetation. The buffer to the western boundary would be provided by the existing sugar cane.
PO7 Development mitigates the potential adverse effects of noise, dust, ground vibration, lighting or air blast overpressure from operations.	**AO7** No acceptable outcomes are prescribed.	**Complies with PO7** The environmental impacts on the development have been assessed by the Department of Environment, Tourism, Science and Innovation (DETSI). This included the Environmental Assessment Report and Environmental Management Report submitted with the application. These reports were further supported

Performance outcomes	Acceptable outcomes	Applicant Response
		by information provided in response to an information request from DETSI. A copy of the response to this information request is provided at **Appendix A**. The assessment included consideration of the following environmental values: • Waters; • Stormwaters • Air (dust); and, • Noise. The report and assessment concluded that the proposed development would not have an adverse impact from dust, noise or vibration.
PO8 The operation of the extractive industry does not compromise public safety.	**AO8.1** Safety fencing and signage is provided around extractive industry stockpiles and operation to prevent unauthorised access.	**Able to comply with AO8.1** Given the small scale of the use security fencing is not considered necessary; however, should this be required a condition can be attached to any approval granted.
	AO8.2 A single 8.0 metre wide access is designed for the site and constructed to a standard capable of accommodating heavy traffic in accordance with Australian Standards including adequate sight distance.	**Able to comply with AO8.2** An 8.0 metre wide access is able to be provided and would form part of a subsequent Operational Works Application.
	AO8.3 Blasting does not result in materials escaping or being ejected from the site.	**Not applicable** No blasting is proposed.

Performance outcomes	Acceptable outcomes	Applicant Response
	AO8.4 Prior to any blasting, notices of warning which provide an alert to those working on the site and to passers-by are erected and kept clearly exhibited on the approaches to, and not less than 800 metres from the site of the blasting.	**Not applicable** No blasting is proposed.
PO9 The extractive industry provides for blasting, crushing, screening and loading to be carried out safely and in accordance with best practice management standards so that disturbance to surrounding land uses is minor and that impacts from emissions are minimised.	**AO9.1** Blasting operations are confined to the hours of 9.00am to 5.00pm, Monday to Friday. Other operations are limited to 7.00am to 6.00pm Monday to Saturday.	**Not applicable** No blasting is proposed.
	AO9.2 No operations are undertaken on Sundays or public holidays.	**Complies with AO9.2** No operations are proposed on Sundays or public holidays.
	AO9.3 The transport of materials is managed through: (a) vehicle haulage routes within the site that are surfaced with hardstand, crushed aggregate or similar treatment(s) to reduce the potential to generate raised dust; (b) the complete covering of extractive materials on haulage vehicles; (c) vehicle haulage routes outside the site are predominantly higher order roads capable of catering for the anticipated tonnage of the vehicles, and are not through established residential areas.	**Able to comply with AO9.3** The proposal is for a small scale operation and would be limited to a front end loader and tipper truck for the transport of material. The haul access would be extended for each stage of the development and would be constructed to a standard suitable to accommodate the vehicles. All vehicle loads would be covered when leaving the site and the haulage route would be in accordance with the requirements of the Department of Transport and Main Roads.

Performance outcomes	Acceptable outcomes	Applicant Response
PO10 The site is progressively rehabilitated in accordance with an approved rehabilitation plan to ensure that: (a) a re-contoured and stable landform is achieved with the reinstatement of appropriate soil profiles; (b) revegetation of areas disturbed by operations; (c) there are no adverse environmental or visual amenity impacts; (d) the landform is suitable for alternative uses.	**AO10** No acceptable outcomes are prescribed.	**Complies with PO10** Rehabilitation of the site would be undertaken in accordance with the Site Based Management Plan submitted with the application.

9.4.1 Access, parking and servicing code

9.4.1.1 Application

(1) This code applies to assessing:

(a) operational work which requires a compliance assessment as a condition of a development permit; or

(b) a material change of use or reconfiguring a lot if:

(i) self-assessable or assessable development where this code is identified in the assessment criteria column of the table of assessment;

(ii) impact assessable development, to the extent relevant.

(2) When using this code, reference should be made to Part 5.

9.4.1.2 Purpose

(1) The purpose of the Access, parking and servicing code is to assess the suitability of access, parking and associated servicing aspects of a development.

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) sufficient vehicle parking is provided on-site to cater for all types of vehicular traffic accessing and parking on-site, including staff, guests, patrons, residents and short term delivery vehicles;

(b) sufficient bicycle parking and end of trip facilities are provided on-site to cater for customer and service staff;

(c) on-site parking is provided so as to be accessible and convenient, particularly for any short term uses;

(d) development provides walking and cycle routes through the site which link the development to the external walking and cycling network;

(e) the provision of on-site parking, loading / unloading facilities and the provision of access to the site do not impact on the efficient function of street network or on the area in which the development is located;

(f) new vehicular access points are safely located and are not in conflict with the preferred ultimate streetscape character and local character and do not unduly disrupt any current or future on-street parking arrangements.

9.4.1.3 Criteria for assessment

Table 9.4.1.3.a – Access, parking and servicing code – assessable development

Performance outcomes	Acceptable outcomes	Applicant response
For self-assessable and assessable development		
PO1 Sufficient on-site car parking is provided to cater for the amount and type of vehicle traffic expected to be generated by the use or uses of the site, having particular regard to: (a) the desired character of the area; (b) the nature of the particular use and its specific characteristics and scale; (c) the number of employees and the likely number of visitors to the site; (d) the level of local accessibility; (e) the nature and frequency of any public transport serving the area; (f) whether or not the use involves the retention of an existing building and the previous requirements for car parking for the building (g) whether or not the use involves a heritage building or place of local significance; (h) whether or not the proposed use involves the retention of significant vegetation.	**AO1.1** The minimum number of on-site vehicle parking spaces is not less than the number prescribed in Table 9.4.1.3.b for that particular use or uses. Note - Where the number of spaces calculated from the table is not a whole number, the number of spaces provided is the next highest whole number.	**Complies with AO1.1** Extractive Industry uses are not provided with a minimum number of on-site spaces within Table 9.4.1.3.b. Notwithstanding this, there is adequate space on site to accommodate the vehicle parking demand.
	AO1.2 Car parking spaces are freely available for the parking of vehicles at all times and are not used for external storage purposes, the display of products or rented/sub-leased.	**Complies with AO1.2** Car parking spaces would be maintained exclusively for vehicle parking.
	AO1.3 Parking for motorcycles is substituted for ordinary vehicle parking to a maximum level of 2% of total ordinary vehicle parking.	**Not applicable** No specific motorcycle parking is proposed or required.
	AO1.4 For parking areas exceeding 50 spaces parking, is provided for recreational vehicles as a substitute for ordinary vehicle parking to a maximum of 5% of total ordinary vehicle parking rate.	**Not applicable** Less than 50 parking spaces are proposed.

Performance outcomes	Acceptable outcomes	Applicant response
PO2 Vehicle parking areas are designed and constructed in accordance with relevant standards.	**AO2** Vehicle parking areas are designed and constructed in accordance with Australian Standard: (a) AS2890.1; (b) AS2890.3; (c) AS2890.6.	**Complies with AO2** The proposed parking areas would be constructed in accordance with relevant standard.
PO3 Access points are designed and constructed: (a) to operate safely and efficiently; (b) to accommodate the anticipated type and volume of vehicles (c) to provide for shared vehicle (including cyclists) and pedestrian use, where appropriate; (d) so that they do not impede traffic or pedestrian movement on the adjacent road area; (e) so that they do not adversely impact upon existing intersections or future road or intersection improvements; (f) so that they do not adversely impact current and future on-street parking arrangements; (g) so that they do not adversely impact on existing services within the road reserve	**AO3.1** Access is limited to one access cross over per site and is an access point located, designed and constructed in accordance with: (a) Australian Standard AS2890.1; (b) Planning scheme policy SC6.5 – FNQROC Regional Development Manual - access crossovers.	**Complies with AO3.1** Access would be limited to one crossover only.
	AO3.2 Access, including driveways or access crossovers: (a) are not placed over an existing: (i) telecommunications pit; (ii) stormwater kerb inlet; (iii) sewer utility hole; (iv) water valve or hydrant.	**Complies with AO3.2** The access would not interfere with existing infrastructure.

Performance outcomes	Acceptable outcomes	Applicant response
adjacent to the site; (h) so that they do not involve ramping, cutting of the adjoining road reserve or any built structures (other than what may be necessary to cross over a stormwater channel).	(b) are designed to accommodate any adjacent footpath; (c) adhere to minimum sight distance requirements in accordance with AS2980.1.	
	AO3.3 Driveways are: (a) designed to follow as closely as possible to the existing contours, but are no steeper than the gradients outlined in Planning scheme policy SC6.5 – FNQROC Regional Development Manual; (b) constructed such that where there is a grade shift to 1 in 4 (25%), there is an area with a grade of no more than 1 in in 6 (16.6%) prior to this area, for a distance of at least 5 metres; (c) on gradients greater than 1 in 6 (16.6%) driveways are constructed to ensure the cross-fall of the driveway is one way and directed into the hill, for vehicle safety and drainage purposes; (d) constructed such that the transitional change in grade from the road to the lot is fully contained within the lot and not within the road reserve; (e) designed to include all necessary associated drainage that intercepts and directs storm water runoff to the storm water drainage system.	**Not applicable** The site and access is flat.

Performance outcomes	Acceptable outcomes	Applicant response
	AO3.4 Surface construction materials are consistent with the current or intended future streetscape or character of the area and contrast with the surface construction materials of any adjacent footpath.	**Complies with AO3.4** The surface material would be consistent with the rural environment.
PO4 Sufficient on-site wheel chair accessible car parking spaces are provided and are identified and reserved for such purposes.	**AO4** The number of on-site wheel chair accessible car parking spaces complies with the rates specified in AS2890 Parking Facilities.	**Not applicable** No wheel chair accessible spaces are required.
PO5 Access for people with disabilities is provided to the building from the parking area and from the street.	**AO5** Access for people with disabilities is provided in accordance with the relevant Australian Standard.	**Not applicable** No buildings or structures are proposed.
PO6 Sufficient on-site bicycle parking is provided to cater for the anticipated demand generated by the development	**AO6** The number of on-site bicycle parking spaces complies with the rates specified in Table 9.4.1.3.b	**Not applicable** No on-site bicycle parking is required.
PO7 Development provides secure and convenient bicycle parking which: (a) for visitors is obvious and located close to the building's main entrance; (b) for employees is conveniently located to	**AO7.1** Development provides bicycle parking spaces for employees which are co-located with end-of-trip facilities (shower cubicles and lockers);	**Not applicable** The application is not required to provide bicycle parking.
	AO7.2	**Not applicable**

Performance outcomes	Acceptable outcomes	Applicant response
provide secure and convenient access between the bicycle storage area, end-of-trip facilities and the main area of the building; (c) is easily and safely accessible from outside the site.	Development ensures that the location of visitor bicycle parking is discernible either by direct view or using signs from the street.	The application is not required to provide bicycle parking.
	AO7.3 Development provides visitor bicycle parking which does not impede pedestrian movement.	**Not applicable** The application is not required to provide bicycle parking.
PO8 Development provides walking and cycle routes through the site which: (a) link to the external network and pedestrian and cyclist destinations such as schools, shopping centres, open space, public transport stations, shops and local activity centres along the safest, most direct and convenient routes; (b) encourage walking and cycling; (c) ensure pedestrian and cyclist safety.	**AO8** Development provides walking and cycle routes which are constructed on the carriageway or through the site to: (a) create a walking or cycle route along the full frontage of the site; (b) connect to public transport and existing cycle and walking routes at the frontage or boundary of the site.	**Not required** There are no walking or cycle routes in the area of the site.
PO9 Access, internal circulation and on-site parking for service vehicles are designed and constructed: (a) in accordance with relevant standards; (b) so that they do not interfere with the amenity of the surrounding area; (c) so that they allow for the safe and convenient	**AO9.1** Access driveways, vehicle manoeuvring and onsite parking for service vehicles are designed and constructed in accordance with AS2890.1 and AS2890.2.	**Complies with AO9.1** All parking and manoeuvring areas would be designed and constructed to an appropriate standard.
	AO9.2 Service and loading areas are contained fully	**Complies with AO9.2** All loading and unloading of vehicles would be

Performance outcomes	Acceptable outcomes	Applicant response
movement of pedestrians, cyclists and other vehicles.	within the site.	completed within the site.
	AO9.3 The movement of service vehicles and service operations are designed so they: (a) do not impede access to parking spaces; (b) do not impede vehicle or pedestrian traffic movement.	**Not applicable** No service vehicles would be required to enter or leave the site.
PO10 Sufficient queuing and set down areas are provided to accommodate the demand generated by the development.	**AO10.1** Development provides adequate area on-site for vehicle queuing to accommodate the demand generated by the development where drive through facilities or drop-off/pick-up services are proposed as part of the use, including, but not limited to, the following land uses: (a) car wash; (b) child care centre; (c) educational establishment where for a school; (d) food and drink outlet, where including a drive through facility; (e) hardware and trade supplies, where including a drive-through facility; (f) hotel, where including a drive-through facility; (g) service station.	**Not applicable** No vehicle queueing is required.

Performance outcomes	Acceptable outcomes	Applicant response
	AO10.2 Queuing and set-down areas are designed and constructed in accordance with AS2890.1.	**Not applicable** No vehicle queueing is required.

9.4.3 Environmental performance code

9.4.3.1 Application

(1) This code applies to assessing:

(a) building work for outdoor lighting;

(b) a material change of use or reconfiguring a lot if:

(i) assessable development where the code is identified in the assessment criteriacolumn of a table of assessment; or

(ii) impact assessable development, to the extent relevant.

Note – Where for the purpose of lighting a tennis court in a Residential zone, a compliance statement prepared by a suitablyqualified person must be submitted to Council with the development application for building work.

(2) When using this code, reference should be made to Part 5.

9.4.3.2 Purpose

(1) The purpose of the Environmental performance code is to ensure development is designed andoperated to avoid or mitigate impacts on sensitive receiving environments.

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) activities that have potential to cause an adverse impact on amenity of adjacent andsurrounding land, or environmental harm is avoided through location, design and operation of the development;

(b) sensitive land uses are protected from amenity related impacts of lighting, odour, airborneparticles and noise, through design and operation of the development;

(c) stormwater flowing over, captured or discharged from development sites is of a qualityadequate to enter receiving waters and downstream environments;

(d) development contributes to the removal and ongoing management of weed species.

9.4.3.3 Criteria for assessment

Table 9.4.3.3.a – Environmental performance code – assessable development

Performance outcomes	Acceptable outcomes	Applicant response
Lighting		
PO1	**AO1.1**	**Not applicable**

Performance outcomes	Acceptable outcomes	Applicant response
Lighting incorporated within development doesnot cause an adverse impact on the amenity of adjacent uses and nearby sensitive land uses.	Technical parameters, design, installation, operation and maintenance of outdoor lighting comply with the requirements of Australian standard AS4282-1997 Control of the obtrusive effects of outdoor lighting.	No outdoor lighting is proposed.
	AO1.2 Development that involves flood lighting is restricted to a type that gives no upward component of light where mounted horizontally.	**Not applicable** No outdoor lighting is proposed.
	AO1.3 Access, car parking and manoeuvring areas are designed to shield nearby residential premises from impacts of vehicle headlights.	**Complies with AO1.3** The driveway access is not directly across from any residence and there would be no night time activities.
Noise		
PO2 Potential noise generated from the development is avoided through design, location and operation of the activity. Note – Planning Scheme Policy SC6.4 – Environmental management plans provides guidance on preparing a report to demonstrate compliance with the purpose and outcomes of the code.	**AO2.1** Development does not involve activities that would cause noise related environmental harm or nuisance; or **AO2.2** Development ensures noise does not emanate from the site through the use of materials, structures and architectural features to not cause an adverse noise impact on adjacent uses.	**Complies with AO2.1** The Department of Environment, Tourism, Science and Innovation (DETSI) have assessed the environmental impacts of the proposed development. The development is not anticipated to result in any environmental harm.
	AO2.3 The design and layout of development ensures car parking areas avoid noise impacting directly on adjacent sensitive land uses through one or	**Not applicable** There would be no car parking areas provided as part of the development.

Performance outcomes	Acceptable outcomes	Applicant response
	more of the following: (a) car parking is located away from adjacent sensitive land uses; (b) car parking is enclosed within a building; (c) a noise ameliorating fence or structure is established adjacent to car parking areas where the fence or structure will not have a visual amenity impact on the adjoining premises; (d) buffered with dense landscaping. Editor's note - The *Environmental Protection (Noise) Policy 2008*, Schedule 1 provides guidance on acoustic quality objectives to ensure environmental harm (including nuisance) is avoided.	
Airborne particles and other emissions		
PO3 Potential airborne particles and emissions generated from the development are avoided through design, location and operation of the activity. Note – Planning Scheme Policy SC6.4 – Environmental management plans provides guidance on preparing a report to demonstrate compliance with the purpose and outcomes of the code.	**AO3.1** Development does not involve activities that will result in airborne particles or emissions being generated; or **AO3.2** The design, layout and operation of the development activity ensures that no airborne particles or emissions cause environmental harm or nuisance. Note - examples of activities which generally cause airborne particles include spray painting, abrasive blasting, manufacturing activities and car wash facilities. Examples of emissions include exhaust ventilation from basement or enclosed parking structures, air	**Complies with AO3.1** The Department of Environment, Tourism, Science and Innovation (DETSI) have assessed the environmental impacts of the proposed development. The development is not anticipated to result in any environmental harm, including dust. The operation would continue to be monitored throughout its life to ensure that no environmental harm is caused.

Performance outcomes	Acceptable outcomes	Applicant response
	conditioning/refrigeration ventilation and exhaustion. The *Environmental Protection (Air) Policy 2008*, Schedule 1 provides guidance on air quality objectives to ensure environmental harm (including nuisance) is avoided.	
Odours		
PO4 Potential odour causing activities associated with the development are avoided through design, location and operation of the activity. Note – Planning Scheme Policy SC6.4 – Environmental management plans provides guidance on preparing a report to demonstrate compliance with the purpose and outcomes of the code.	**AO4.1** The development does not involve activities that create odorous emissions; or **AO4.2** The use does not result in odour that causes environmental harm or nuisance with respect to surrounding land uses.	**Complies with AO4.1** The development is for sand extraction only and would not generate odour emissions.
Waste and recyclable material storage		
PO5 Waste and recyclable material storage facilities are located and maintained to not cause adverse impacts on adjacent uses. Note – Planning Scheme Policy SC6.4 – Environmental management plans provides guidance on preparing a report to demonstrate compliance with the purpose and outcomes of the code.	**AO5.1** The use ensures that all putrescent waste is stored in a manner that prevents odour nuisance and is disposed of at regular intervals.	**Complies with AO5.1** The development is for sand extraction only and would not generate putrescent waste.
	AO5.2 Waste and recyclable material storage facilities are located, designed and maintained to not cause an adverse impact on users of the premises and adjacent uses through consideration of: (a) the location of the waste and recyclable material storage areas in relation to the noise and odour generated;	**Not applicable** No waste or recycle facilities are required or proposed in association with the small scale development.

Performance outcomes	Acceptable outcomes	Applicant response
	(b) the number of receptacles provided in relation to the collection, maintenance and use of the receptacles; (c) the durability of the receptacles, sheltering and potential impacts of local climatic conditions; (d) the ability to mitigate spillage, seepage or leakage from receptacles into adjacent areas and sensitive receiving waters and environments. Editor's note - the *Environmental Protection (Waste Management) Policy 2008* provides guidance on the design of waste containers (receptacles) to ensure environmental harm (including nuisance) is avoided.	
Sensitive land use activities		
PO6 Sensitive land use activities are not established in areas which will receive potentially incompatible impacts on amenity from surrounding, existing development activities and land uses.	**AO6.1** Sensitive land use activities are not established in areas that will be adversely impacted upon by existing land uses, activities and potential development possible in an area; or **AO6.2** Sensitive land activities are located in areas where potential adverse amenity impacts mitigate all potential impacts through layout, design, operation and maintenance.	**Not applicable** No sensitive land uses are proposed.
Stormwater quality		
PO7 The quality of stormwater flowing over, through or	**AO7.1** Development activities are designed to ensure	**Not applicable** No buildings or structures are proposed as part of

Performance outcomes	Acceptable outcomes	Applicant response
being discharged from development activities into watercourses and drainage lines is of adequate quality for downstream environments, with respect to: (a) the amount and type of pollutants borne from the activity; (b) maintaining natural stream flows; (c) the amount and type of site disturbance; (d) site management and control measures.	stormwater over roofed and hard stand areas is directed to a lawful point of discharge.	this application.
	AO7.2 Development ensures movement of stormwater over the site is not impeded or directed through potentially polluting activities.	**Complies with AO7.2** The Site Based Management plan submitted with the application addresses the stormwater management across the site.
	AO7.3 Soil and water control measures are incorporated into the activity's design and operation to control sediment and erosion potentially entering watercourses, drainage lines and downstream receiving waters. Note - Planning scheme policy - FNQROC Regional Development Manual provides guidance on soil and water control measures to meet the requirements of the *Environmental Protection Act 1994*. During construction phases of development, contractors and builders are to have consideration in their work methods and site preparation for their environmental duty to protect stormwater quality.	**Complies with AO7.3** The Site Based Management plan submitted with the application addresses the stormwater management across the site, including sediment and erosion control.
Pest plants (for material change of use on vacant land over 1,000m^2)		
PO8 Development activities and sites provide for the removal of all pest plants and implement ongoing measures to ensure that pest plants do not reinfest the site or nearby sites. Editor's note - This does not remove or replace all land owner's obligations or responsibilities under the *Land Protection (Pest and Stock Route Management) Act 2002*.	**AO8.1** The land is free of declared pest plants before development establishes new buildings, structures and practices; or **AO8.2** Pest plants detected on a development site are removed in accordance with a management plan prepared by an appropriately qualified person	**Complies with AO8.1** No pest plants have been identified on the site.

Performance outcomes	Acceptable outcomes	Applicant response
	prior to construction of buildings and structures or earthworks. Note - A declaration from an appropriately qualified person validates the land being free from pest plants. Declared pest plants include locally declared and State declared pest plants.	

9.4.5 Infrastructure works code

9.4.5.1 Application

(1) This code applies to assessing:

(a) operational work which requires an assessment as a condition of a development permit or is assessable development if this code is identified in the assessment criteria column of a table of assessment;

(b) a material change of use or reconfiguring a lot if:

(i) assessable development where this code is identified in the assessment criteria column of the table of assessment;

(ii) impact assessable development, to the extent relevant.

Note – The Filling and excavation code applies to operational work for filling and excavation.

(2) When using this code, reference should be made to Part 5.

9.4.5.2 Purpose

(1) The purpose of the Infrastructure works code is to ensure that development is safely and efficiently serviced by, and connected to, infrastructure.

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) the standards of water supply, waste water treatment and disposal, stormwater drainage, local electricity supply, telecommunications, footpaths and road construction meet the needs of development and are safe and efficient;

(b) development maintains high environmental standards;

(c) development is located, designed, constructed and managed to avoid or minimise impacts arising from altered stormwater quality or flow, wastewater discharge, and the creation of non-tidal artificial waterways;

(d) the integrity of existing infrastructure is maintained;

(e) development does not detract from environmental values or the desired character and amenity of an area.

9.4.5.3 Criteria for assessment

Table 9.4.5.3.a – Infrastructure works code –assessable development

Performance outcomes	Acceptable outcomes	Applicant Response
For self-assessable and assessable development		

Performance outcomes	Acceptable outcomes	Applicant Response
Works on a local government road		
PO1 Works on a local government road do not adversely impact on footpaths or existing infrastructure within the road verge and maintain the flow, safety and efficiency of pedestrians, cyclists and vehicles.	**AO1.1** Footpaths/pathways are located in the road verge and are provided for the hierarchy of the road and located and designed and constructed in accordance with Planning scheme policy SC5 – FNQROC Regional Development Manual.	**Able to comply with AO1.1** Any works required to upgrade the unnamed road to the north would be undertaken in accordance with an operational woks application.
	AO1.2 Kerb ramp crossovers are constructed in accordance with Planning scheme policy SC 5 – FNQROC Regional Development Manual.	**Not applicable** No kerb ramp crossovers are required.
	AO1.3 New pipes, cables, conduits or other similar infrastructure required to cross existing footpaths: (a) are installed via trenchless methods; or (b) where footpath infrastructure is removed to install infrastructure, the new section of footpath is installed to the standard detailed in the Planning scheme policy SC5 – FNQROC Regional Development Manual, and is not less than a 1.2 metre section.	**Able to comply with AO1.3** Any works required to upgrade the unnamed road to the north would be undertaken in accordance with an operational woks application
	AO1.4 Where existing footpaths are damaged as a result of development, footpaths are reinstated ensuring:	**Not applicable** There are no footpaths in the area around the site.

Performance outcomes	Acceptable outcomes	Applicant Response
	(a) similar surface finishes are used; (b) there is no change in level at joins of new and existing sections; (c) new sections are matched to existing in terms of dimension and reinforcement. Note – Figure 9.4.5.3.a provides guidance on meeting the outcomes.	
	AO1.5 Decks, verandahs, stairs, posts and other structures located in the road reserve do not restrict or impede pedestrian movement on footpaths or change the level of the road verges.	**Not applicable** No structures are proposed as part of this application.
Accessibility structures		
PO2 Development is designed to ensure it is accessible for people of all abilities and accessibility features do not impact on the efficient and safe use of footpaths. Note – Accessibility features are those features required to ensure access to premises is provided for people of all abilities and include ramps and lifts.	**AO2.1** Accessibility structures are not located within the road reserve.	**Not applicable** No structures are proposed as part of this application.
	AO2.2 Accessibility structures are designed in accordance with AS1428.3.	**Not applicable** No structures are proposed as part of this application.
	AO2.3 When retrofitting accessibility features in existing buildings, all structures and changes in grade are contained within the boundaries of the lot and not within the road reserve.	**Not applicable** No structures are proposed as part of this application.

Performance outcomes	Acceptable outcomes	Applicant Response
Water supply		
PO3 An adequate, safe and reliable supply of potable, fire fighting and general use water is provided.	**AO3.1** The premises is connected to Council's reticulated water supply system in accordance with the Design Guidelines set out in Section D6 of the Planning scheme policy SC5 – FNQROC Regional Development Manual; or **AO3.2** Where a reticulated water supply system is not available to the premises, on site water storage tank/s with a minimum capacity of 10,000 litres of stored water, with a minimum 7,500 litre tank, with the balance from other sources (e.g. accessible swimming pool, dam etc.) and access to the tank/s for fire trucks is provided for each new house or other development. Tank/s are to be fitted with a 50mm ball valve with a camlock fitting and installed and connected prior to occupation of the house and sited to be visually unobtrusive.	**Not applicable** No buildings or structures are proposed as part of this application.
Treatment and disposal of effluent		
PO4 Provision is made for the treatment and disposal of effluent to ensure that there are no adverse impacts on water quality and no adverse ecological impacts as a result of the system or as a result of increasing the cumulative effect of	**AO4.1** The site is connected to Council's sewerage system and the extension of or connection to the sewerage system is designed and constructed in accordance with the Design Guidelines set out in Section D7 of the Planning scheme policy SC5 –	**Not applicable** No buildings or structures are proposed as part of this application.

Performance outcomes	Acceptable outcomes	Applicant Response
systems in the locality.	FNQROC Regional Development Manual; or **AO4.2** Where not in a sewerage scheme area, the proposed disposal system meets the requirements of Section 33 of the *Environmental Protection Policy (Water) 1997* and the proposed on site effluent disposal system is designed in accordance with the *Plumbing and Drainage Act (2002).*	
Stormwater quality		
PO5 Development is planned, designed, constructed and operated to avoid or minimise adverse impacts on stormwater quality in natural and developed catchments by: (a) achieving stormwater quality objectives; (b) protecting water environmental values; (c) maintaining waterway hydrology.	**AO5.1** A connection is provided from the premises to Council's drainage system; or **AO5.2** An underground drainage system is constructed to convey stormwater from the premises to Council's drainage system in accordance with the Design Guidelines set out in Sections D4 and D5 of the Planning scheme policy SC5 – FNQROC Regional Development Manual.	**Complies with PO5** Stormwater drainage is to be managed in accordance with the principles set out in the Environmental Assessment Report and the Site Based Management Plan. These have been assessed by DETSI as part of the Environmental Assessment and the development is not anticipated to have an adverse impact on water quality.
	AO5.3 A stormwater quality management plan is prepared, and provides for achievable stormwater quality treatment measures meeting design objectives listed in Table 9.4.5.3.b and Table	**Complies with AO5.3** Stormwater Management is identified in the Site Based Management Plan submitted with the application.

Performance outcomes	Acceptable outcomes	Applicant Response
	9.4.5.3.c , reflecting land use constraints, such as: (a) erosive, dispersive and/or saline soil types; (b) landscape features (including landform); (c) acid sulfate soil and management of nutrients of concern; (d) rainfall erosivity.	
	AO5.4 Erosion and sediment control practices are designed, installed, constructed, monitored, maintained, and carried out in accordance with an erosion and sediment control plan.	**Complies with AO5.4** Erosion and sediment control practices would be installed and managed throughout the life of the project.
	AO5.5 Development incorporates stormwater flow control measures to achieve the design objectives set out in **Error! Reference source not found.** and **Error! Reference source not found.**, including management of frequent flows, peak flows, and construction phase hydrological impacts. Note – Planning scheme policy SC5 – FNQROC Regional Development Manual provides guidance on soil and water control measures to meet the requirements of the *Environmental Protection Act 1994.* Note – During construction phases of development, contractors and builders are to have consideration in their work methods and site preparation for their environmental duty to protect stormwater quality.	**Complies with AO5.5** Stormwater Management is identified in the Site Based Management Plan submitted with the application.
Non-tidal artificial waterways		

Performance outcomes	Acceptable outcomes	Applicant Response
PO6 Development involving non-tidal artificial waterways is planned, designed, constructed and operated to: (a) protect water environmental values; (b) be compatible with the land use constraints for the site for protecting water environmental values; (c) be compatible with existing tidal and non-tidal waterways; (d) perform a function in addition to stormwater management; (e) achieve water quality objectives.	**AO6.1** Development involving non-tidal artificial waterways ensures: (a) environmental values in downstream waterways are protected; (b) any ground water recharge areas are not affected; (c) the location of the waterway incorporates low lying areas of the catchment connected to an existing waterway; (d) existing areas of ponded water are included.	**Not applicable** No non-tidal artificial waterways are proposed.
	AO6.2 Non-tidal artificial waterways are located: (a) outside natural wetlands and any associated buffer areas; (b) to minimise disturbing soils or sediments; (c) to avoid altering the natural hydrologic regime in acid sulfate soil and nutrient hazardous areas.	**Not applicable** No non-tidal artificial waterways are proposed.
	AO6.3 Non-tidal artificial waterways located adjacent to, or connected to a tidal waterway by means of a weir, lock, pumping system or similar ensures: (a) there is sufficient flushing or a tidal range of >0.3 m; or (b) any tidal flow alteration does not adversely	**Not applicable** No non-tidal artificial waterways are proposed.

Performance outcomes	Acceptable outcomes	Applicant Response
	impact on the tidal waterway; or (c) there is no introduction of salt water into freshwater environments.	
	AO6.4 Non-tidal artificial waterways are designed and managed for any of the following end-use purposes: (a) amenity (including aesthetics), landscaping or recreation; or (b) flood management, in accordance with a drainage catchment management plan; or (c) stormwater harvesting plan as part of an integrated water cycle management plan; or (d) aquatic habitat.	**Not applicable** No non-tidal artificial waterways are proposed.
	AO6.5 The end-use purpose of the non-tidal artificial waterway is designed and operated in a way that protects water environmental values.	**Not applicable** No non-tidal artificial waterways are proposed.
	AO6.6 Monitoring and maintenance programs adaptively manage water quality to achieve relevant water quality objectives downstream of the waterway**.**	**Not applicable** No non-tidal artificial waterways are proposed.
	AO6.7 Aquatic weeds are managed to achieve a low percentage of coverage of the water surface area,	**Not applicable** No non-tidal artificial waterways are proposed.

Performance outcomes	Acceptable outcomes	Applicant Response
	and pests and vectors are managed through design and maintenance.	
Wastewater discharge		
PO7 Discharge of wastewater to waterways, or off site: (a) meets best practice environmental management; (b) is treated to: (i) meet water quality objectives for its receiving waters; (ii) avoid adverse impact on ecosystem health or waterway health; (iii) maintain ecological processes, riparian vegetation and waterway integrity; (iv) offset impacts on high ecological value waters**.**	**AO7.1** A wastewater management plan is prepared and addresses: (a) wastewater type; (b) climatic conditions; (c) water quality objectives; (d) best practice environmental management**.**	**Not applicable** No waste water would be discharged from the site.
	AO7.2 The waste water management plan is managed in accordance with a waste management hierarchy that: (a) avoids wastewater discharge to waterways; or (b) if wastewater discharge cannot practicably be avoided, minimises wastewater discharge to waterways by re-use, recycling, recovery and treatment for disposal to sewer, surface water and ground water.	**Not applicable** No waste water would be discharged from the site.
	AO7.3 Wastewater discharge is managed to avoid or minimise the release of nutrients of concern so as to minimise the occurrence, frequency and	**Not applicable** No waste water would be discharged from the site.

Performance outcomes	Acceptable outcomes	Applicant Response
	intensity of algal blooms.	
	AO7.4 Development in coastal catchments avoids or minimises and appropriately manages soil disturbance or altering natural hydrology and: (a) avoids lowering ground water levels where potential or actual acid sulfate soils are present; (b) manages wastewater so that: (i) the pH of any wastewater discharges is maintained between 6.5 and 8.5 to avoid mobilisation of acid, iron, aluminium and other metals; (ii) holding times of neutralised wastewater ensures the flocculation and removal of any dissolved iron prior to release; (iii) visible iron floc is not present in any discharge; (iv) precipitated iron floc is contained and disposed of; (v) wastewater and precipitates that cannot be contained and treated for discharge on site are removed and disposed of through trade waste or another lawful method.	**Not applicable** No waste water would be discharged from the site.
Electricity supply		
PO8	**AO8.1**	**Abel to comply with AO8.1**

Performance outcomes	Acceptable outcomes	Applicant Response
Development is provided with a source of power that will meet its energy needs.	A connection is provided from the premises to the electricity distribution network; or **AO8.2** The premises is connected to the electricity distribution network in accordance with the Design Guidelines set out in Section D8 of the Planning scheme policy SC5 – FNQROC Regional Development Manual. Note - Areas north of the Daintree River have a different standard.	When electricity is required an application is able to be mad directly to ergon for the provision of an electricity connection.
	AO9.1 Pad-mount electricity infrastructure is: (a) not located in land for open space or sport and recreation purposes; (b) screened from view by landscaping or fencing; (c) accessible for maintenance.	**Not applicable** No pad-mount electricity infrastructure is proposed or required.
PO9 Development incorporating pad-mount electricity infrastructure does not cause an adverse impact on amenity.	**AO9.2** Pad-mount electricity infrastructure within a building, in a Town Centre is designed and located to enable an active street frontage. Note – Pad-mounts in buildings in activity centres should not be located on the street frontage.	**Not applicable** No pad-mount electricity infrastructure is proposed or required.
Telecommunications		

Performance outcomes	Acceptable outcomes	Applicant Response
PO10 Development is connected to a telecommunications service approved by the relevant telecommunication regulatory authority.	**AO10** The development is connected to telecommunications infrastructure in accordance with the standards of the relevant regulatory authority.	**Not applicable** A connection to Telecommunications services is not considered to be required for this development.
PO11 Provision is made for future telecommunications services (e.g. fibre optic cable).	**AO11** Conduits are provided in accordance with Planning scheme policy SC5 – FNQROC Regional Development Manual.	**Not applicable** A connection to Telecommunications services is not considered to be required for this development.
Road construction		
PO12 The road to the frontage of the premises is constructed to provide for the safe and efficient movement of: (a) pedestrians and cyclists to and from the site; (b) pedestrians and cyclists adjacent to the site; (c) vehicles on the road adjacent to the site; (d) vehicles to and from the site; (e) emergency vehicles.	**AO12.1** The road to the frontage of the site is constructed in accordance with the Design Guidelines set out in Sections D1 and D3 of the Planning scheme policy SC5 – FNQROC Regional Development Manual, for the particular class of road, as identified in the road hierarchy.	**Not applicable** No new roads are proposed.
	AO12.2 There is existing road, kerb and channel for the full road frontage of the site**.**	**Not applicable** No new roads are proposed.
	AO12.3 Road access minimum clearances of 3.5 metres wide and 4.8 metres high are provided for the safe passage of emergency vehicles.	**Not applicable** No new roads are proposed.

Performance outcomes	Acceptable outcomes	Applicant Response
Alterations and repairs to public utility services		
PO13 Infrastructure is integrated with, and efficiently extends, existing networks.	**AO13** Development is designed to allow for efficient connection to existing infrastructure networks.	**Not applicable** No alterations to public utility services is required to facilitate the development.
PO14 Development and works do not affect the efficient functioning of public utility mains, services or installations.	**AO14.1** Public utility mains, services and installations are not required to be altered or repaired as a result of the development; or **AO14.2** Public utility mains, services and installations are altered or repaired in association with the works so that they continue to function and satisfy the relevant Design Guidelines set out in Section D8 of the Planning scheme policy SC5 – FNQROC Regional Development Manual.	**Not applicable** No alterations to public utility services is required to facilitate the development.
Construction management		
PO15 Work is undertaken in a manner which minimises adverse impacts on vegetation that is to be retained**.**	**AO15** Works include, at a minimum: (a) installation of protective fencing around retained vegetation during construction; (b) erection of advisory signage; (c) no disturbance, due to earthworks or storage of plant, materials and equipment, of ground	**Not applicable** No construction activities are proposed.

Performance outcomes	Acceptable outcomes	Applicant Response
	level and soils below the canopy of any retained vegetation; (d) removal from the site of all declared noxious weeds.	
PO16 Existing infrastructure is not damaged by construction activities**.**	**AO16** Construction, alterations and any repairs to infrastructure is undertaken in accordance with the Planning scheme policy SC5 – FNQROC Regional Development Manual. Note - Construction, alterations and any repairs to State-controlled roads and rail corridors are undertaken in accordance with the Transport Infrastructure Act 1994.	**Not applicable** No construction activities are proposed.
For assessable development		
High speed telecommunication infrastructure		
PO17 Development provides infrastructure to facilitate the roll out of high speed telecommunications infrastructure.	**AO17** No acceptable outcomes are prescribed.	**Not applicable** A connection to Telecommunications services is not considered to be required for this development.
Trade waste		
PO18 Where relevant, the development is capable of providing for the storage, collection treatment and disposal of trade waste such that:	**AO18** No acceptable outcomes are prescribed.	**Not applicable** The development would not generate any trade waste.

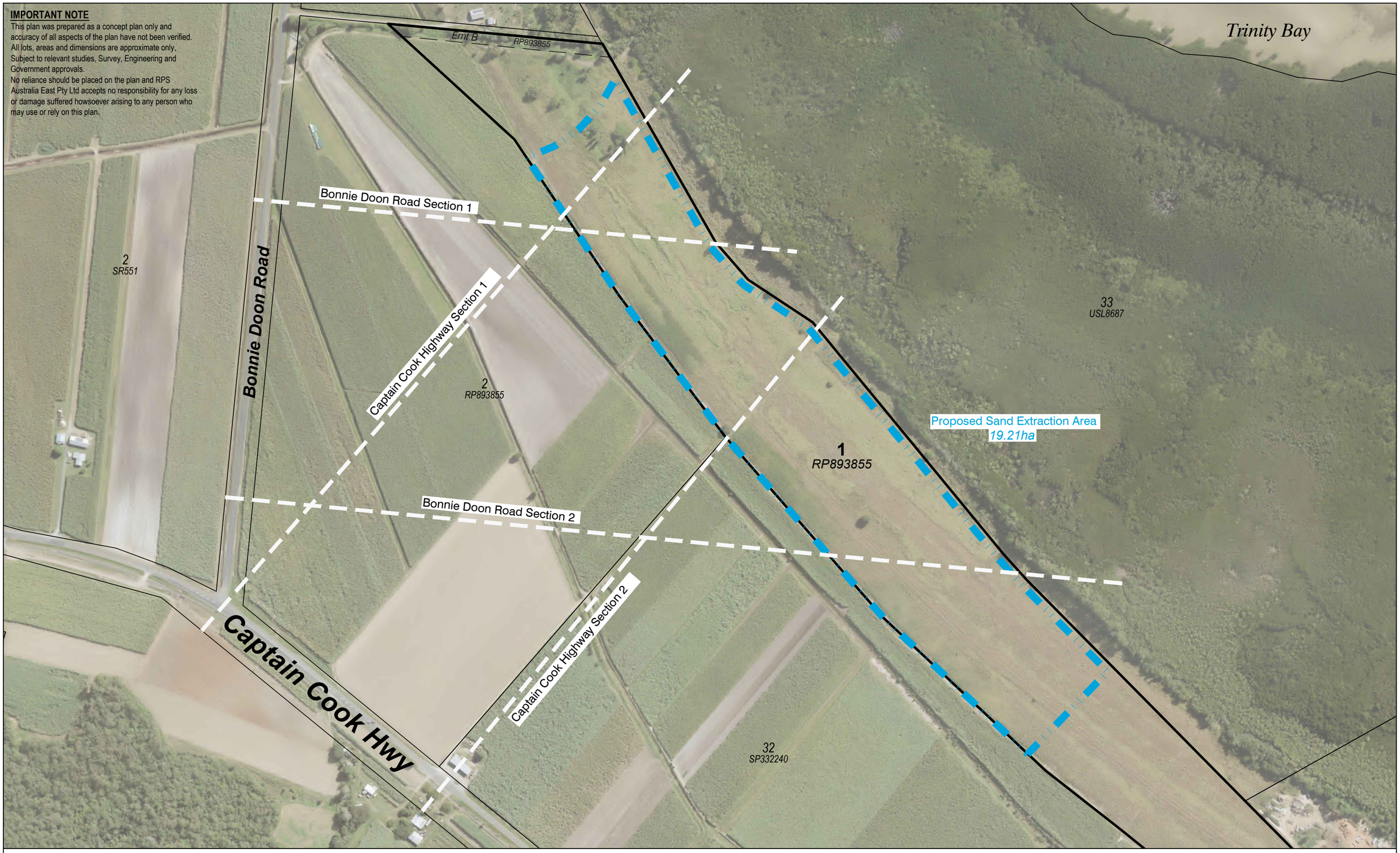
Performance outcomes	Acceptable outcomes	Applicant Response
(a) off-site releases of contaminants do not occur; (b) the health and safety of people and the environment are protected; (c) the performance of the wastewater system is not put at risk.		
Fire services in developments accessed by common private title		
PO19 Hydrants are located in positions that will enable fire services to access water safely, effectively and efficiently.	**AO19.1** Residential streets and common access ways within a common private title places hydrants at intervals of no more than 120 metres and at each intersection. Hydrants may have a single outlet and be situated above or below ground**.**	**Not applicable** No common private title is proposed.
	AO19.2 Commercial and industrial streets and access ways within a common private title serving commercial properties such as factories and warehouses and offices are provided with above or below ground fire hydrants located at not more than 90 metre intervals and at each intersection. Above ground fire hydrants have dual-valved outlets.	**Not applicable** No common private title is proposed.
PO20 Hydrants are suitable identified so that fire services can locate them at all hours. Note – Hydrants are identified as specified in the Department of Transport and Main Roads Technical Note: 'Identification of street hydrants for fire fighting purposes' available under 'Publications'.	**AO20** No acceptable outcomes are prescribed.	**Not applicable** No common private title is proposed.

Appendix C

Proposed Sand Extraction – Visual Site Assessment

IMPORTANT NOTE

This plan was prepared as a concept plan only and accuracy of all aspects of the plan have not been verified. All lots, areas and dimensions are approximate only, Subject to relevant studies, Survey, Engineering and Government approvals.
No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.



NQ Asphalt Pty Ltd

Proposed Sand Extraction

Visual Site Plan - Cross Section Locations

0 50 100 150 200 250 500

PRELIMINARY - FOR DISCUSSION PURPOSES ONLY

RPS AAP Consulting Pty Ltd
ACN 117 883 173
135 Abbott St
PO Box 1949
CAIRNS QLD 4870
T +61 7 4031 1336
F +61 7 4031 2942
W rpsgroup.com

A TETRA TECH COMPANY

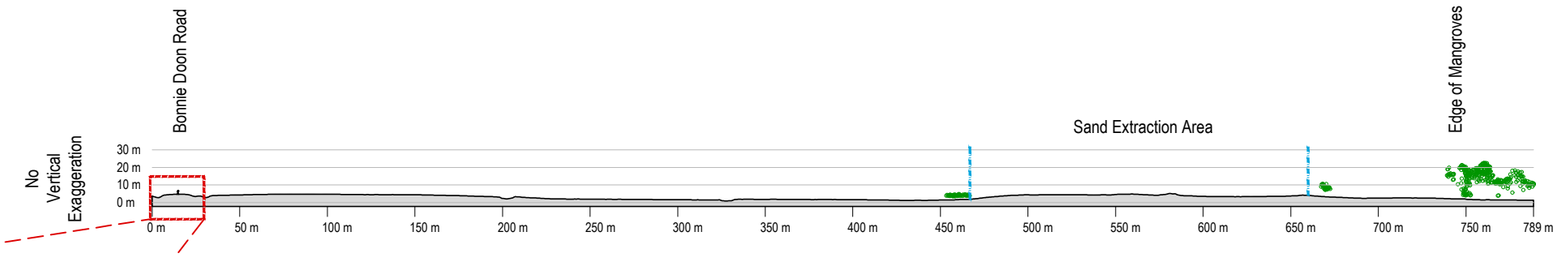
Datum: MGA2020 Z55 | **Scale:** 1:5,000 @ A3 | **Date:** 22-5-2025 | **Drawing:** AU015874-6

IMPORTANT NOTE

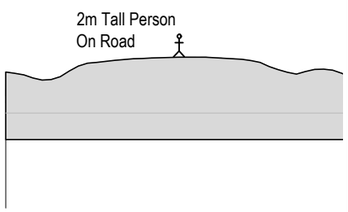
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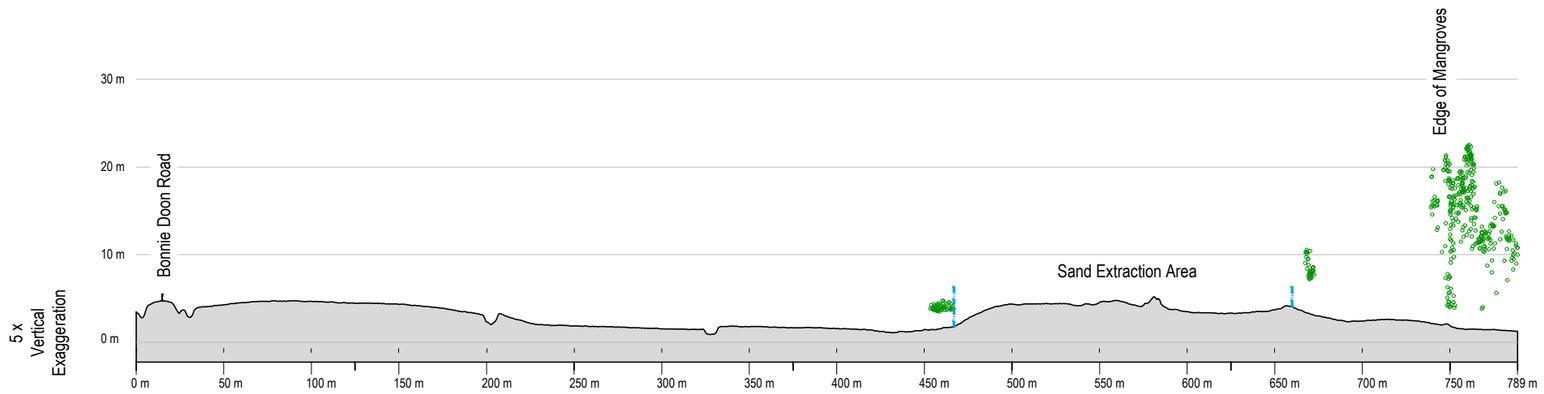
Legend

- Sand Extraction Area
- LIDAR Point - Vegetation
- LIDAR Point - Building
- Existing Terrain



Inset





NQ Asphalt Pty Ltd

Proposed Sand Extraction

Visual Site Plan - Bonnie Doon Road 1

0 35 70 105 140 175 350

PRELIMINARY - FOR DISCUSSION PURPOSES ONLY

RPS AAP Consulting Pty Ltd
ACN 117 883 173
135 Abbott St
PO Box 1949
CAIRNS QLD 4870
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F +61 7 4031 2942
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A TETRA TECH COMPANY

Datum: MGA2020 Z55 | **Scale:** 1:3,500 @ A3 | **Date:** 22-5-2025 | **Drawing:** AU015874-7

Appendix D

Environmental Authority P-EA-100750656

Permit

Environmental Protection Act 1994

Environmental authority P-EA-100750656

This environmental authority is issued by the administering authority under Chapter 5 of the Environmental Protection Act 1994.

Environmental authority number: P-EA-100750656

Environmental authority takes effect on the date that your related development approval ref MCU 2024_5698 takes effect**.** This is the take effect date.

Within 5 business days of the environmental authority taking effect, the administering authority must be given written notice of the occurrence. Prior to the commencement of the **activity**, the administering authority must be given written notice of the proposed date of commencement.

The first annual fee is payable within 20 business days of the take effect date.

The anniversary date of this environmental authority is the same day each year as the take effect date. The payment of the annual fee will be due each year on this day

Environmental authority holder

Name	Registered address
NQ ASPHALT PTY LTD	97-101 Tingira Street, Portsmith QLD 4870

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
ERA 16 - Extraction and Screening 2(a) - Extracting, other than by dredging, in a year, the following quantity of material - 5,000t to 100,000t	Lot 1/RP893855

Additional information for applicants

Environmentally relevant activities

The description of any environmentally relevant **activity** (ERA) for which an environmental authority (EA) is issued is a restatement of the ERA as defined by legislation at the time the EA is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by an EA as to the scale, intensity or manner of carrying out an ERA, the conditions prevail to the extent of the inconsistency.

An EA authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the EA specifically authorises environmental harm.

A person carrying out an ERA must also be a registered suitable operator under the *Environmental Protection Act 1994* (EP Act).

Queensland Government

Contaminated land

It is a requirement of the EP Act that an owner or occupier of land give written notice to the administering authority if they become aware of the following:

- the presence of, or happening of an event involving, a hazardous contaminant on the land that is causing, or is reasonably likely to cause, serious or material environmental harm (notice must be given within 24 hours); or
- if the land is contaminated land – a change in the condition of the land that is causing, or is reasonably likely to cause, serious or material environmental harm (notice must be given within 24 hours); or
- a notifiable **activity** (as defined in Schedule 3) having been carried out, or is being carried out, on the land (notice must be given within 20 business days).

For further information, including the form for giving written notice, refer to the Queensland Government website www.qld.gov.au, using the search term 'duty to notify'.

Take effect

Please note that, in accordance with section 200 of the EP Act, an EA has effect:

a) if the authority is for a prescribed ERA and it states that it takes effect on the day nominated by the holder of the authority in a written notice given to the administering authority – on the nominated day; or

b) if the authority states a day or an event for it to take effect – on the stated day or when the stated event happens; or

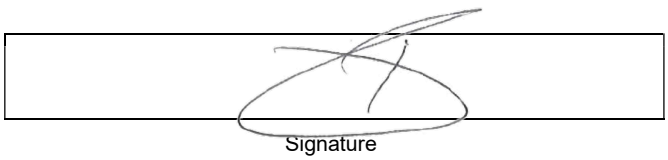
c) otherwise – on the day the authority is issued.

However, if the EA is authorising an **activity** that requires an additional authorisation (a relevant tenure for a resource **activity**, a development permit under the *Planning Act 2016* or an SDA Approval under the *State Development and Public Works Organisation Act 1971*), this EA will not take effect until the additional authorisation has taken effect.

If this EA takes effect when the additional authorisation takes effect, you must provide the administering authority written notice within 5 business days of receiving notification of the related additional authorisation taking effect.

The anniversary day of this environmental authority is the same day each year as the effective date. The payment of the annual fee will be due each year on this day.

If you have incorrectly claimed that an additional authorisation is not required, carrying out the ERA without the additional authorisation is not legal and could result in your prosecution for providing false or misleading information or operating without a valid environmental authority.



Signature

28 May 2025

Date

Tristan Roberts
Manager
Department of the Environment, Tourism, Science and Innovation
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
Energy and Extractive Resources Business Centre
GPO Box 2454, Brisbane QLD 4001
Phone: 1300 130 372 (and select option 4)
Email: EnergyandExtractive@des.qld.gov.au

Obligations under the *Environmental Protection Act 1994*

In addition to the requirements found in the conditions of this environmental authority, the holder must also meet their obligations under the EP Act, and the regulations made under the EP Act. For example, the holder must comply with the following provisions of the Act:

- general environmental duty (section 319)
- duty to notify environmental harm (section 320-320G)
- offence of causing serious or material environmental harm (sections 437-439)
- offence of causing environmental nuisance (section 440)
- offence of depositing prescribed water contaminants in waters and related matters (section 440ZG)
- offence to place contaminant where environmental harm or nuisance may be caused (section 443)

Other permits required

This permit only provides an approval under the *Environmental Protection Act 1994*. In order to lawfully operate you may also require permits / approvals from your local government authority, other business units within the department and other State Government agencies prior to commencing any **activity** at the site. For example, this may include permits / approvals with your local Council (for planning approval), the Department of Transport and Main Roads (to access State controlled roads), the Department of Resources (to clear vegetation), and the Department of Agriculture and Fisheries (to clear marine plants or to obtain a quarry material allocation).

Obligations under the *Mining and Quarrying Safety and Health Act 1999*

If you are operating a quarry, other than a sand and gravel quarry where there is no crushing capability, you will be required to comply with the *Mining and Quarrying Safety and Health Act 1999*. For more information on your obligations under this legislation contact Mine Safety and Health at www.resources.qld.gov.au, or phone 13 QGOV (13 74 68) or your local Mines Inspectorate Office.

Development Approval

This permit is not a development approval under the *Planning Act 2016*. The conditions of this environmental authority are separate, and in addition to, any conditions that may be on the development approval. If a copy of this environmental authority is attached to a development approval, it is for information only, and may not be current. Please contact the Department of Environment, Science and Innovation to ensure that you have the most current version of the environmental authority relating to this site.

Conditions of environmental authority

Ref	Condition
Schedule: General	
G1.0	Activities under this environmental authority must be conducted in accordance with the following limitations: (a) Extraction must only occur within the extraction area identified in *Appendix 1: Site Layout* and bounded by the coordinates listed in *Appendix 2: extraction area coordinates*; and (b) The extraction **activity** must be undertaken in a staged approach in accordance with *Appendix 1: Site Layout*; and (c) The amount of material extracted per year must not exceed 30,000 tonnes per year; and (d) The total **active extraction area** must not exceed 1 ha at any given time; and (e) The total **former extraction area** must not exceed 1 ha at any given time; and (f) The depth of extraction must not exceed 3m **AHD**; and (g) Extraction must not intercept groundwater; and (h) Areas which contain shell grit or **significant Aboriginal objects** must be avoided.
G1.1	The holder of this environmental authority must identify all locations within the extraction area which are likely to contain shell grit prior to undertaking the activity.
G2.0	All reasonable and practicable **measures** must be taken to prevent or minimise environmental harm caused, or likely to be caused, by the activities.
G3.0	Unless specifically authorised by a condition of this environmental authority, this environmental authority does not authorise a relevant act which is: a. an act that causes serious or material environmental harm or an environmental nuisance; or b. an act that contravenes a noise standard; or *c.* a deposit of a contaminant, or release of stormwater run-off, mentioned in section 440ZG of the *Environmental Protection Act 1994.*
G4.0	**Contravention of conditions** Unless specifically authorised by a condition of this environmental authority, details of any contravention of a condition of this environmental authority must: a. be reported to the administering authority within 24 hours of becoming aware of the contravention; and b. include the nature and circumstances of the contravention and any immediate actions taken.

Ref	Condition
G4.1	As soon as reasonably practicable but no later than 5 business days of a report made under condition G4.0 (or a longer period agreed to in writing by the administering authority), an investigation must be undertaken to determine: (a) the potential circumstances and actions that may have contributed to the contravention; and (b) reasonable and practicable measures that will be implemented to address the cause of the contravention to prevent future contraventions of this nature.
G4.2	As soon as reasonably practicable but no later than 5 business days of investigating a contravention under condition G4.1 (or a longer period agreed to in writing by the administering authority), the reasonable and practicable measures identified in the investigation must be implemented.
G4.3	The outcome of the investigation carried out under condition G4.1 and the reasonable and practicable measures implemented under condition G4.2 must be recorded.
G5.0	**Complaints** The following details must be recorded for all complaints received and provided to the administering authority upon request: (a) date and time the complaint was received; and (b) if authorised by the person making the complaint, their name and contact details; and (c) nature and details of the complaint.
G5.1	As soon as reasonably practicable but no later than 5 business days of receiving a complaint (or a longer period agreed to in writing by the administering authority), an investigation must be undertaken to determine: (a) the potential circumstances and actions on site that may have contributed to the basis of the complaint; and (b) reasonable and practicable measures that will be implemented to address the complaint.
G5.2	As soon as reasonably practicable but no later than 5 business days of investigating a complaint under condition G5.1 (or a longer period agreed to in writing by the administering authority), the reasonable and practicable measures identified in the investigation must be implemented.
G5.3	The outcome of the investigation carried out under condition G5.1 and the reasonable and practicable measures implemented under condition G5.2 must be recorded.
G6.0	When required by the administering authority, monitoring must be undertaken in the manner prescribed by the administering authority to investigate a complaint of environmental nuisance arising from the **activity**. The **monitoring results** must be provided within 10 business days to the administering authority upon its request.

<table>
<tr><th>Ref</th><th>Condition</th></tr>
<tr><td>G7.0</td><td>Environmental risk management procedures

Written procedures must be developed and implemented by an appropriately qualified person that ensure:

(a) all potential risks to the environment from the carrying out of the activity are identified and assessed, including:

i. during routine operations; and

ii. outside routine operations (e.g., maintenance, start up and shut down); and

iii. during preparation, rehabilitation, and closure; and

iv. in an emergency (e.g., fire, flood or other natural disaster); and

(b) for each potential risk identified, any necessary measures to prevent or minimise the potential for environmental harm are implemented; and

(c) staff understand their obligations under this environmental authority and the Environmental Protection Act 1994; and

(d) environmental risk management procedures are continually reviewed and improved, based on a reasonable risk-management approach.</td></tr>
<tr><td>G8.0</td><td>Plant and equipment

An appropriately qualified person must install, operate, calibrate, and maintain the plant and equipment required to carry out the activity (including monitoring devices) in a proper and effective manner.</td></tr>
<tr><td>G8.1</td><td>Records of installation, calibration and maintenance carried out under condition G8.0 must be kept.</td></tr>
<tr><td>G9.0</td><td>Record keeping

Unless otherwise specified by a condition of this environmental authority, records must be:

a. kept for the period outlined in Table 1– Record keeping requirements; and

b. provided to the administering authority upon request and in the format requested.

Table 1 – Record keeping requirements
<table><tr><th>Description of records</th><th>Retention requirement</th></tr><tr><td>Monitoring results</td><td>Retain for 15 years</td></tr><tr><td>All other records</td><td>Retain for 5 years</td></tr></table></td></tr>
<tr><td>G10.0</td><td>Chemical storage

Chemicals and fuels in containers of greater than 15 litres must be stored within a secondary containment system.</td></tr>
<tr><td>G11.0</td><td>Monitoring and sampling</td></tr>
</table>

Ref	Condition
	All monitoring and sampling required by the conditions of this environmental authority must be carried out, interpreted, and recorded by an appropriately qualified person.
Schedule: Air	
A1.0	Other than as permitted within this environmental authority, odours or airborne contaminants must not cause environmental nuisance to any **sensitive place** or commercial place.
A1.1	Air quality monitoring, including for dust and point source emissions from the **activity**, must be undertaken in accordance with the latest edition of: (a) The relevant Australian Standards; or (b) A method approved by any other Australian, European or North American jurisdiction/EPAs (if monitoring requirements are not described in the Australian Standards).
A2.0	Dust and particulate matter emissions from the **activity** must not exceed the following concentrations at a sensitive place or a commercial place: (a) dust deposition of 120 milligrams per square metre per day, averaged over 30 days, when monitored in accordance with the latest edition of Australian Standard AS/NZS 3580.10.1 *Methods for sampling and analysis of ambient air, Method 10.1: Determination of particulate matter – Deposited matter – Gravimetric method*; or (b) a concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (am) (PM_{10}) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, when monitored in accordance with the most current edition of the relevant Australian Standards.
A2.1	An effective dust suppression system must be installed, operated and maintained at all times to minimise the release of dust to the atmosphere.
A2.2	Sand stockpiles must not exceed 2m in height and must be covered when the site is not attended.
A2.3	**Minimising windborne emissions from vehicles** All extraction, stockpile, and trafficable areas must be maintained using effective dust suppression measures necessary to minimise the release of dust to the atmosphere.
A2.3	Trucks entering and leaving the premises must be covered at all times, except during loading and unloading.
A2.5	To reduce the frequency and severity of windborne emissions arising from the transportation of any material off-site, the environmental authority holder must: (a) if the load is dry at the time of loading, or otherwise emitting dust during manual handling or loading — ensure loads of material are wet down prior to transportation; (b) ensure any material that may have accumulated on vehicle side rails, tail gates or draw bars is removed prior to the vehicle leaving the loading place;

<table>
<tr><th>Ref</th><th>Condition</th></tr>
<tr><td></td><td>(c) ensure the vehicle is of a type that is suitable to fully contain the material in transit;
(d) ensure the material is not tracked by vehicles outside the approved place; and
(e) ensure vehicles carrying any products from this site are covered by a tarpaulin or solid cover before leaving the approved place.</td></tr>
<tr><td>A3.0</td><td>Requirement to monitor weather
A permanent meteorological station onsite must:
(a) be installed in accordance with the latest version of the Australian Standard AS3580.14: Methods for sampling and analysis of ambient air, Part 14: Meteorological monitoring for ambient air quality monitoring applications
(b) be installed prior to the commencement of the activity; and
(c) monitor the meteorological environment with at least the following parameters specified in Table A1 – Weather monitoring.
Table A1 – Weather monitoring
<table>
<tr><th>Parameter</th><th>Units of measure</th><th>Averaging period</th><th>Frequency</th></tr>
<tr><td>Wind direction at 10m</td><td>degrees</td><td>1 hour</td><td>Continuous</td></tr>
<tr><td>Wind speed at 10m</td><td>m/s</td><td>1 hour</td><td>Continuous</td></tr>
<tr><td>Rainfall</td><td>mm/hr</td><td>1 hour</td><td>Continuous</td></tr>
</table></td></tr>
<tr><td>A3.1</td><td>Monitoring under condition A3.0 is not required when the extraction activity is not being undertaken and the extraction area is:
(a) covered by at least 70% ground cover over 90% of the area; and
(b) the potential for erosion and sedimentation is minimised; and
(c) the landform is in a stable condition.</td></tr>
<tr><td>A3.2</td><td>Additional measures required under high wind conditions
The following actions must be undertaken when measured wind direction is blowing towards sensitive receptors and measured windspeed exceeds the following:
(a) 5.4 m/s: additional dust mitigation measures must be carried out to minimise emissions of dust; and
(b) 15 m/s: all extraction activities that generate dust must cease.</td></tr>
<tr><td>A3.3</td><td>Records must be kept to demonstrate compliance with Condition A3.2 and maintained in accordance with condition G9.0.</td></tr>
</table>

Ref	Condition
Schedule: Biodiversity	
B1.0	Impacts to **matters of state environmental significance (MSES)** or **prescribed environmental matters** are not authorised under this environmental authority.
Schedule: Land	
L1.0	**Contaminants** must not be released to **land**.
L1.1	Acid sulphate soils must not be disturbed by the **activity**.
L2.0	**Erosion and sediment control measures** must: a) minimise erosion and the release of sediment within areas disturbed by the **activity**; and b) prevent releases from the **activity** causing erosion outside of areas disturbed by the **activity**; and c) prevent the release of sediment from areas disturbed by the **activity** to **land** or waters; and d) be implemented and maintained at all times.
L2.1	An erosion and sediment control plan must: a) be developed: i. prior to the commencement of the **activity**; ii. by a **certified professional in erosion and sediment control (CPESC) or registered soil practitioner (RSP)**; and iii. prior to the commencement of any ground disturbance associated with the **activity**; and iv. address site specific flood risks; and v. to ensure compliance with condition L2.0; b) be revised as necessary to ensure that all times the plan covers all areas disturbed by the **activity**; and c) be implemented at all times.
L2.2	**Wet Season Flood Management** In addition to condition L2.0, during the **wet season**, the following apply: a) the storage of chemicals, fuels and oils are not permitted; and b) stockpiling of extracted material on site is not permitted; and c) flood mitigation measures must be implemented to minimise the release of sediments to **land** or **water** from areas disturbed by the **activity**.

Ref	Condition
L3.0	**Disturbed areas** must be rehabilitated so that: a) the potential for erosion and sedimentation is minimised; and b) the potential for environmental nuisance caused by dust is prevented; and c) **land** and water do not contain contaminants capable of causing environmental harm; and d) the landform is in a stable condition; and e) the top layer of the soil profile is re-instated consistent with surrounding soils; and f) the **land** is re-profiled to reflect the final **land** use and is consistent with surrounding landforms and established drainage lines; and g) the **land** is vegetated with ground cover that is established, actively growing, self-sustaining and is not a **declared pest species**. h) the **land** is covered by at least 70% ground cover over 90% of the area.
L3.1	**Former extraction area** must be: (a) stabilised by reinstatement of at least 70% ground cover over 90% of the area; and (b) completed within 3 months of the area becoming no longer an **active extraction area**; or (c) Prior to the beginning of the **wet season** (whichever is sooner).
L3.2	A rehabilitation plan must: (a) be developed: i. prior to the commencement of the **activity**; ii. by an **appropriately qualified person**; iii. to ensure compliance with conditions L3.0 and L3.1; and (a) include final **land** use plans, as well as plans for any planned stages; and (b) plan for topsoil that is extracted as part of the **activity** to be preserved and reused during rehabilitation; and (c) include all areas disturbed by the **activity**; and (d) be implemented at all times.
Schedule: Noise	
N1.0	Other than as permitted within this environmental authority, noise generated by the **activity** must not cause environmental nuisance to any **sensitive place** or commercial place.

<table>
<tr><th>Ref</th><th>Condition</th></tr>
<tr><td>N1.1</td><td>Noise from the activity must not include substantial low frequency noise components and must not exceed the levels identified in Table 1– Noise limits at any sensitive place or commercial place.
Table 1 – Noise limits
<table>
<tr><td rowspan="2">Noise level measured in dB(A)</td><td colspan="3">Monday to Saturday</td><td colspan="3">Sunday and Public Holidays</td></tr>
<tr><td>7am–6pm</td><td>6pm–10pm</td><td>10pm–7am</td><td>9am–6pm</td><td>6pm–10pm</td><td>10pm–9am</td></tr>
<tr><td></td><td colspan="6">Noise measured a sensitive place</td></tr>
<tr><td>$L_{Aeq\ adj,\ 10\ min}$</td><td>42</td><td>No audible noise</td><td>No audible noise</td><td>No audible noise</td><td>No audible noise</td><td>No audible noise</td></tr>
<tr><td>$L_{A1,adj,10\ min}$</td><td>52</td><td>No audible noise</td><td>No audible noise</td><td>No audible noise</td><td>No audible noise</td><td>No audible noise</td></tr>
<tr><td></td><td colspan="6">Noise measured at a commercial place</td></tr>
<tr><td>$L_{Aeq\ adj,\ 10\ min}$</td><td>50</td><td>No audible noise</td><td>No audible noise</td><td>No audible noise</td><td>No audible noise</td><td>No audible noise</td></tr>
</table></td></tr>
<tr><td>N2.0</td><td>All monitoring of noise emissions from the activity must be undertaken when the activity is in operation.</td></tr>
<tr><td>N2.1</td><td>The following must be recorded when undertaking monitoring of noise emissions from the activity:
1. All equipment in operation at the time of the noise measurement; and
2. The mode of operation at the time of the noise measurement.</td></tr>
<tr><td>N2.2</td><td>Noise measurements must be taken using a class 1 sound level meter as classified under AS IEC 61672.</td></tr>
<tr><td>N2.3</td><td>All monitoring of noise emissions from the activity must be undertaken in accordance with the latest edition of the ‘Noise measurement manual’ (available on the Queensland government website), the relevant Australian Standard and the Environmental Protection Regulation 2019 (Chapter 5, Part 4).</td></tr>
<tr><td>N2.5</td><td>Blasting is not permitted.</td></tr>
<tr><td colspan="2">Schedule: Waste</td></tr>
<tr><td>W1.0</td><td>All waste generated in carrying out the activity must be lawfully reused, recycled or removed to a facility that can lawfully accept the waste.</td></tr>
<tr><td colspan="2">Schedule: Water</td></tr>
<tr><td>WT1.0</td><td>Contaminants must not be released to waters.</td></tr>
<tr><td>WT2.0</td><td>Contaminants must not be released to groundwater.</td></tr>
</table>

Definitions

Where a word or phrase in this document is defined in this Schedule, it has its corresponding meaning. Where a word or phrase in this document is not defined in this Schedule, it has the meaning given to it in (in order of priority):

- the *Environmental Protection Act 1994* (EP Act), its regulations or its environmental protection policies;
- the *Acts Interpretation Act 1954*;
- the Macquarie Dictionary (taking account of the context in which the word or phrase is used in this document).

For example, environmental value, environmental harm, environmental nuisance, material environmental harm, serious environmental harm and relevant act are defined in the EP Act and groundwater is defined in the Environmental Protection Regulation 2019.

Defined words or phrases in the singular include the plural and vice versa.

24-hour rainfall event with an Annual Exceedance Probability of 20% means the maximum design rainfall depth from a 24-hour duration precipitation event with an annual exceedance probability of 20%.

The Design Rainfall Depth (mm) for an AEP probability of 20% over a 24-hour duration can be calculated for your location using the Intensity–Frequency–Duration (IFD) Design Rainfall Data System on the Bureau of Meteorology website.

AHD means the Australian height datum adopted by the National Mapping Council of Australia for referencing a level or height back to a standard base level.

Active extraction area means the current area being utilised for the extraction of material.

Annual exceedance probability (AEP) means the probability that a given rainfall total accumulated over a given duration will be exceeded in any one year.

Appropriately qualified person means a person or persons who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis to performance relative to the subject matter using the relevant protocols, standards, methods or literature.

Certified professional in erosion and sediment control (CPESC) or registered soil practitioner (RSP) is a person who is currently a Certified Professional in Erosion and Sediment Control or Registered Soil Practitioner with the International Erosion Control Association (IECA) Australasia.

Commercial place means a place, or part of a place, used as a workplace, an office or for business or commercial purposes.

Declared pest species means species listed as:

- ‘prohibited matter’ or ‘restricted matter’ species under the Biosecurity Act 2014; or
- ‘Weeds of National Significance’ under the Australian Weeds Strategy 2017–2027.

Disturbed areas means areas disturbed by the carrying out of the activity including areas:

(a) that are susceptible to erosion; and/or

(b) that are contaminated by the activity; and/or

(c) that have been utilised for extraction of material; and/or

(d) upon which stockpiles of soil or other materials are located.

Former extraction area means an area that was an **active extraction area** that is no longer being utilised for the extraction of material. If a former extraction area meets the requirements of condition L3.1 it is then considered a **disturbed area**.

LAeq adj, 10min means an A-weighted sound pressure level of a continuous steady sound, adjusted for tonal character, that within a 1-hour period has the same mean square sound pressure of a sound that varies with time.

LA1, 10min means the A-weighted sound pressure level that is exceeded for 1% of a 1-hour period when measured using time-weighting 'F'.

Land has the meaning in the meaning in the Macquarie Dictionary and does not include air or waters.

Monitoring results includes analysis results (laboratory and in situ) and monitoring reports.

Matter(s) of State environmental significance has the meaning of the matters of State environmental significance listed in schedule 2 of the Environmental Offsets Regulation 2014.

Prescribed environmental matters has the meaning in section 10 of the *Environmental Offsets Act 2014*, limited to the matters of State environmental significant listed in schedule 2 of the *Environmental Offsets Regulation 2014*.

Relevant act as defined in section 493A of the EP Act.

Secondary containment system means a system designed, installed and operated to prevent any release of contaminants from the system, or containers within the system.

Sensitive place is any part of the following:

(a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
(b) a motel, hotel or hostel; or
(c) a kindergarten, school, university or other educational institution; or
(d) a medical centre or hospital; or
(e) a protected area under the Nature Conservation Act 1992, the Marine Parks Act 2004 or a World Heritage Area; or
(f) a public park or garden; or
(g) for noise, a place defined as a sensitive receptor for the purposes of the Environmental Protection (Noise) Policy 2019.

Significant Aboriginal object means an object of particular significance to Aboriginal people as determined by an **appropriately qualified person** because of either or both of the following—

(a) Aboriginal tradition; or
(b) the history, including contemporary history, of an Aboriginal party for an area.

Stormwater treatment and retention measures includes stormwater dams/ponds and sediment dams/ponds.

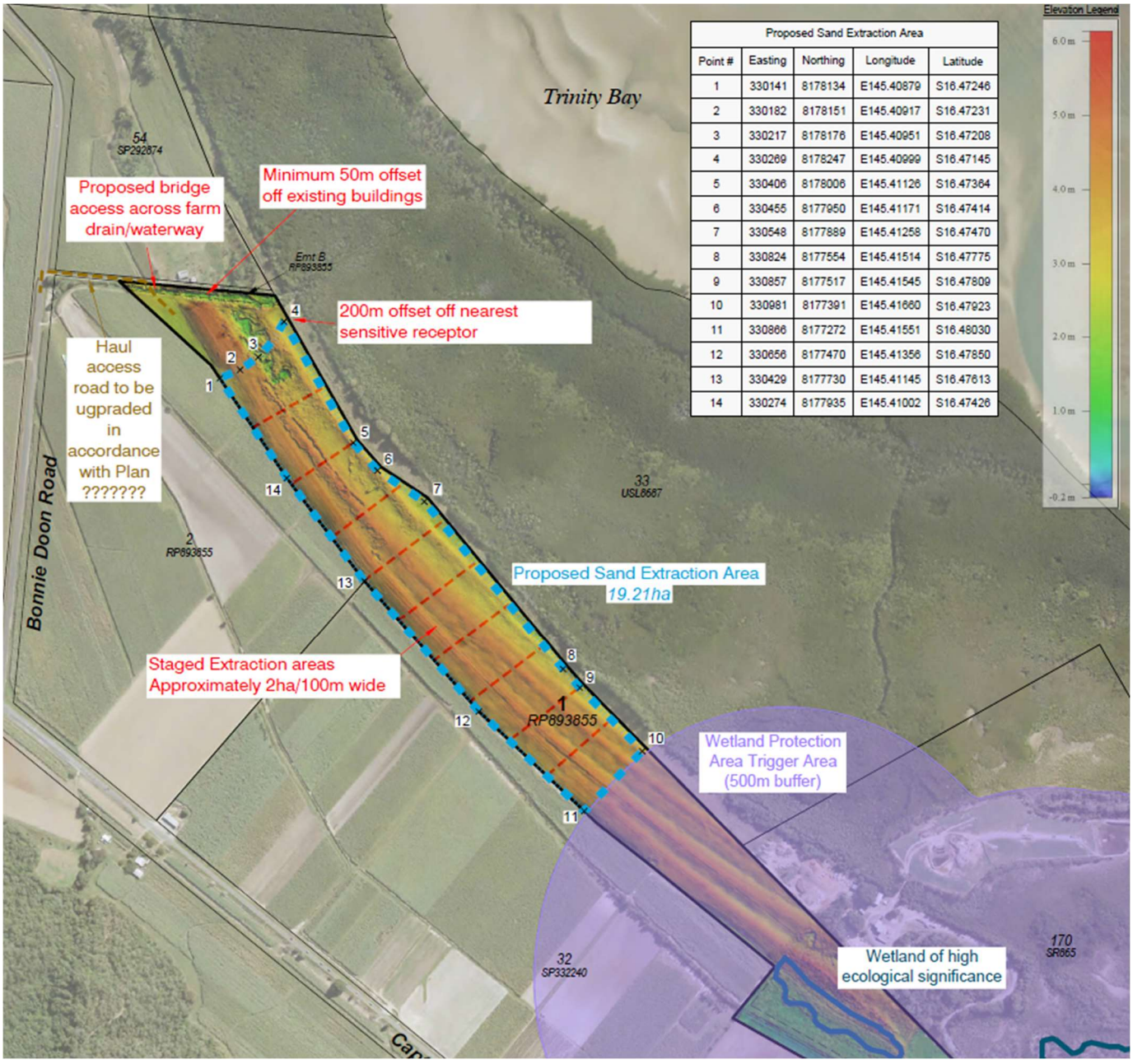
Substantial low frequency noise means a noise emission that has an unbalanced frequency spectrum shown in a one-third octave band measurements, with a predominant component within the frequency range 10 to 200 Hz. It includes any noise emission likely to cause an overall sound pressure level at a noise sensitive place exceeding 55 dB(Z).

Waters includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water, natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part thereof.

Wet season means the time between 1 November and 30 April each year.

Appendices

Appendix 1: Site Layout



Proposed Sand Extraction Area				
Point #	Easting	Northing	Longitude	Latitude
1	330141	8178134	E145.40879	S16.47246
2	330182	8178151	E145.40917	S16.47231
3	330217	8178176	E145.40951	S16.47208
4	330269	8178247	E145.40999	S16.47145
5	330406	8178006	E145.41126	S16.47364
6	330455	8177950	E145.41171	S16.47414
7	330548	8177889	E145.41258	S16.47470
8	330824	8177554	E145.41514	S16.47775
9	330857	8177517	E145.41545	S16.47809
10	330981	8177391	E145.41660	S16.47923
11	330866	8177272	E145.41551	S16.48030
12	330656	8177470	E145.41356	S16.47850
13	330429	8177730	E145.41145	S16.47613
14	330274	8177935	E145.41002	S16.47426

Appendix 2: Extraction Area Coordinates

Sand Extraction Area				
	Map Grid of Australia (MGA) Zone 55		GDA2020	
Point #	Easting	Northing	Longitude	Latitude
1	330141	8178134	E145.40879	S16.47246
2	330182	8178151	E145.40917	S16.47231
3	330217	8178176	E145.40951	S16.47208
4	330269	8178247	E145.40999	S16.47145
5	330406	8178006	E145.41126	S16.47364
6	330455	8177950	E145.41171	S16.47414
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10	330981	8177391	E145.41660	S16.47923
11	330866	8177272	E145.41551	S16.48030
12	330656	8177470	E145.41356	S16.47850
13	330429	8177730	E145.41145	S16.47613
14	330274	8177935	E145.41002	S16.47426

END OF ENVIRONMENTAL AUTHORITY

Appendix E

Amended Proposal Plans

Proposed Sand Extraction Area				
Point #	Easting	Northing	Longitude	Latitude
1	330141	8178134	E145.40879	S16.47246
2	330182	8178151	E145.40917	S16.47231
3	330217	8178176	E145.40951	S16.47208
4	330269	8178247	E145.40999	S16.47145
5	330406	8178006	E145.41126	S16.47364
6	330455	8177950	E145.41171	S16.47414
7	330548	8177889	E145.41258	S16.47470
8	330824	8177554	E145.41514	S16.47775
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10	330981	8177391	E145.41660	S16.47923
11	330866	8177272	E145.41551	S16.48030
12	330656	8177470	E145.41356	S16.47850
13	330429	8177730	E145.41145	S16.47613
14	330274	8177935	E145.41002	S16.47426

Elevation Legend

6.0 m
5.0 m
4.0 m
3.0 m
2.0 m
1.0 m
-0.2 m

Trinity Bay

54
SP292874

Proposed bridge access across farm drain/waterway

Minimum 50m offset off existing buildings

Emt B
RP893855

200m offset off nearest sensitive receptor

Haul access road to be ugpraded in accordance with Plan 102-008-SK11

Extraction Area 10m off eastern lot boundary

33
USL8687

Bonnie Doon Road

2
RP893855

Proposed Sand Extraction Area
19.21ha

Staged Extraction areas
Approximately 2ha/100m wide

1
RP893855

Wetland Protection Area Trigger Area (500m buffer)

32
SP332240

Wetland of high ecological significance

170
SR865

A
RP893855

Emt A
SP332240

131
SR853

Captain Cook Highway

Killaloe Dump Road

31
SP332240

4
SP183012

4
RP907338

155
NR78

IMPORTANT NOTE
This plan was prepared as a concept plan only and accuracy of all aspects of the plan have not been verified. All lots, areas and dimensions are approximate only, Subject to relevant studies, Survey, Engineering and Government approvals.
No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.

DNRM DCDB.
DNRM AERIAL PHOTOGRAPHY.
Based on or contains data provided by the State of Queensland (Department of Resources) [2024]. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.
The aerial photography used in this plan has not been rectified. The image has been overlaid as a best fit on the boundaries shown and position is approximate only.
Photography publish date: Aug 2023.
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NQ Asphalt Pty Ltd
Lot 1 on RP893855
Site Plan - Proposed Sand Extraction

0 80 160 240 320 400 800

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ACN 117 883 173
135 Abbott St
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A TETRA TECH COMPANY

Datum: MGA2020 Z55 | **Scale:** 1:8,000 @ A3 | **Date:** 5-9-2025 | **Drawing:** AU015874-2f

Appendix F

Engineering Report Prepared by Civil Walker Consulting

Ref: 102-008-001L2

22 September 2025

NQ Asphalt
c/- Koppen Developments
Suite 4 / 10 Grafton Street
Cairns Qld 4870
via email: ckoppen@koppens.com.au

Material Change of Use for an Extractive Industry
Captain Cook Highway, Killahoe (Lot 1 on RP893855)
Report on Traffic Engineering Matters

CivilWalker Consulting Engineers (CivilWalker) have been engaged by NQ Asphalt to prepare a report on traffic engineering matters associated with the material change of use application for an extractive currently being assessed on Lot 1 RP893855 by Douglas Shire Council (Council Ref. MCUI 2024_5628/1. The scope of this report is to:

- Confirm outcomes of traffic counts undertaken on Bonnie Doon Road at the Unnamed Road reserve intersection.
- Confirm traffic generation associated with the proposal, estimate existing traffic generation from properties on un-named road and assessment of traffic distribution.
- Review the existing intersection and confirm if there is a warrant for turn lanes on Bonnie Doon Road at the Unnamed Road intersection due to development.
- Undertake a swept path analysis for the design vehicle and determine if any upgrades are required to the intersection.
- Review the existing Unnamed Road carriageway arrangement and determine if any upgrades are required.
- Undertake an intersection stopping sight distance analysis for all intersection legs.
- Review existing property access arrangements on unnamed road and determine if any adjustments are required.
- Provide commentary on how the proposed sand extraction operation will be undertaken.

An aerial view of the site access area is shown below in **Figure 1**.

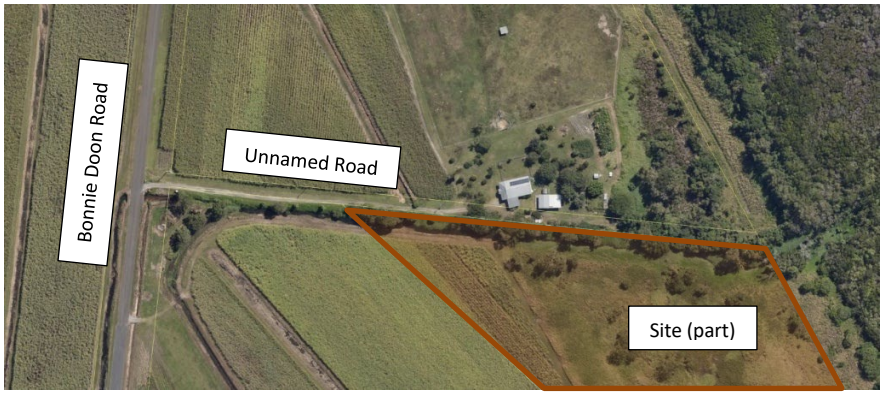


Figure 1 – Aerial View of Site Access Area

Traffic Counts

Traffic counts were undertaken at the Bonnie Doon Road / Unnamed Road intersection on Thursday 5 June 2025 between 8:00am – 8:15am and 4:30pm – 6:00pm. Raw count data and a summary of the peak hour numbers is provided in **Attachment 1**. The counts identified that the AM and PM peak hours were as follows:

- AM Peak 8:00am – 9:00am (174 vehicles total)
- PM Peak 4:30pm – 5:30pm (160 vehicles total)

Peak hour traffic count data is also presented on drawings 102-008-T01 and T02 within **Attachment 2**.

Traffic Generation / Distribution

NQ Asphalt have advised that the vehicles accessing the site will be limited to a truck and dog arrangement for transport of sand and light vehicles (e.g. cars / utility) for general site visitation. NQ Asphalt further advised that a maximum of six (6) truck and dog combinations will visit the site throughout the day. It has been assumed that a maximum of four (4) light vehicles will visit the site per day, being the on-site excavator / loader operator, an assistant and allowance for two separate visitors.

It has been assumed that the on-site excavator operator and assistant will arrive in the AM peak hour and depart in the PM peak hour. It has also been assumed that one of the visitors will arrive and depart in the AM peak hour and the other will arrive and depart in the PM peak hour.

Consideration has also been given to traffic generated by the existing dwelling on Unnamed Road. The abovementioned traffic counts identified that a vehicle left the dwelling and turned left onto Bonnie Doon Road within the AM peak hour and that the same movement also occurred in the PM peak hour. For assessment, it has been conservatively assumed that the above vehicles return in the peak hour they departed (i.e. a right-hand turn into Unnamed Road from Bonnie Doon Road in both peak hours).

The following peak hour traffic movements (considered conservatively high) have been assumed at the Bonnie Doon Road / Unnamed Road intersection:

<u>AM Peak</u>

- 2 x truck and dogs associated with development arrive by turning onto Unnamed Road via a right-hand turn from Bonnie Doon Road.
- Those same 2 x truck and dogs associated with development exit by turning onto Bonnie Doon Road via a left-hand turn from Unnamed Road.
- 3 x light vehicles (excavator/loader operator, assistant and visitor) associated with development arrive by turning onto Unnamed Road via a right-hand turn from Bonnie Doon Road.
- 1 x light vehicle (visitor) associated with development leave by turning onto Boonie Doon Road via a left-hand turn from Unnamed Road.
- 1 x light vehicle (dwelling) enters Unnamed Road via a right-hand turn from Bonnie Doon Road.
- 1 x light vehicle (dwelling) enters Bonnie Doon Road via a left-hand turn from Unnamed Road.

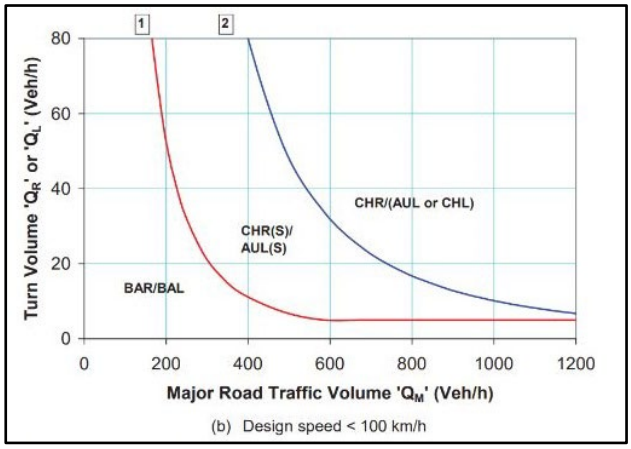
PM Peak

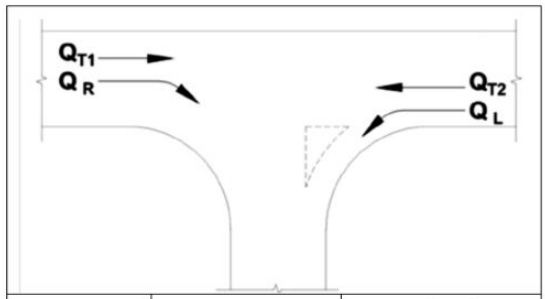
- 2 x truck and dogs associated with development arrive by turning onto Unnamed Road via a right-hand turn from Bonnie Doon Road.
- Those same 2 x truck and dogs associated with development exit by turning onto Bonnie Doon Road via a left-hand turn from Unnamed Road.
- 1 x light vehicle (visitor) associated with development arrives by turning onto Unnamed Road via a right-hand turn from Bonnie Doon Road.
- 3 x light vehicles (excavator/loader operator, assistance and visitor) leave by turning onto Bonnie Doon Road via a left-hand turn from Unnamed Road.
- 1 x light vehicle (dwelling) enters Unnamed Road via a right-hand turn from Bonnie Doon Road.
- 1 x light vehicle (dwelling) enters Bonnie Doon Road via a left-hand turn from Unnamed Road.

The above traffic movements / distributions are shown on drawings 102-008-T01 and T02 within **Attachment 2**.

Intersection Turn Warrants

Based on the above peak hour traffic movements, a turn warrant assessment at the Bonnie Doon Road / Unnamed Road intersection was undertaken in accordance with the Austroads Guide to Road Design Part 4: Intersections and Crossings to determine if provision of turn lanes were required due to development. Figure A10(b) within the Austroads Guide (reproduced as **Figure 2** below) provides the analysis tool to determine what arrangements are appropriate based on vehicle volumes.





Turn type	Splitter island	Q_M (veh/h)
Right	No	= $Q_{T1} + Q_{T2} + Q_L$
Right	Yes	= $Q_{T1} + Q_{T2}$
Left	Yes or no	= Q_{T2}

Figure 2 – Austroads Turn Warrants

A 10-year post development scenario was considered and therefore the existing traffic count volumes were grown at a rate of 2% for a 10-year period (refer drawings T01 and T02 for these calculated volumes). No further development has been allowed for on Unnamed Road other than the subject proposal and therefore the following turn warrant assessment parameters were adopted:

AM Peak

- Q_L = 1 vehicle
- Q_R = 6 vehicles
- Q_{T1} = 74 vehicles
- Q_{T2} = 146 vehicles

- Q_m (left-hand turn) = 146 vehicles
- Q_m (right-hand turn) = 74 + 146 + 1 = 221 vehicles

PM Peak

- Q_L = 1 vehicle
- Q_R = 3 vehicles
- Q_{T1} = 132 vehicles
- Q_{T2} = 70 vehicles
- Q_m (left-hand turn) = 70 vehicles
- Q_m (right-hand turn) = 132 + 70 + 1 = 203 vehicles

Figures 3 and **4** below identify that for both left-hand (green line work) and right-hand (red line work) turn movements, channelised right hand turns (CHR) or auxiliary left hand turns (AUL) are not warranted at the Bonnie Doon Road / Unnamed Road intersection in either the AM or PM peak hours.

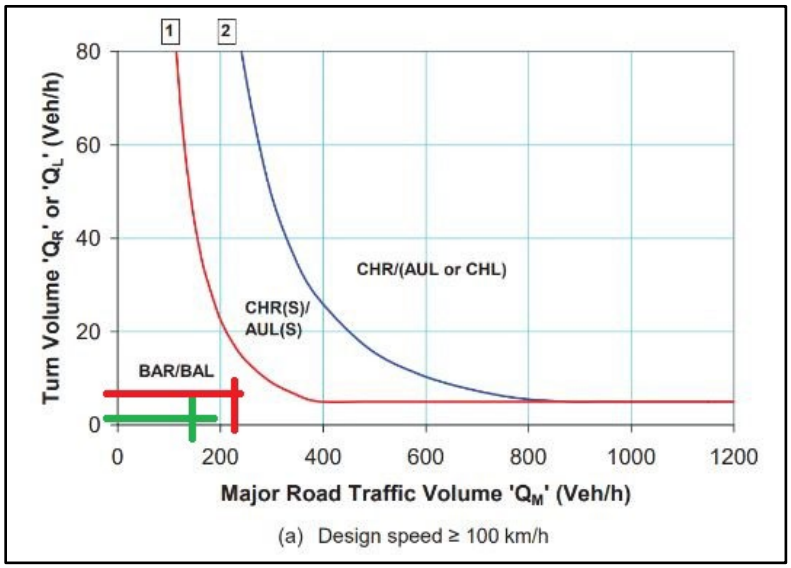


Figure 3 – AM Peak Hour Turn Warrant Assessment

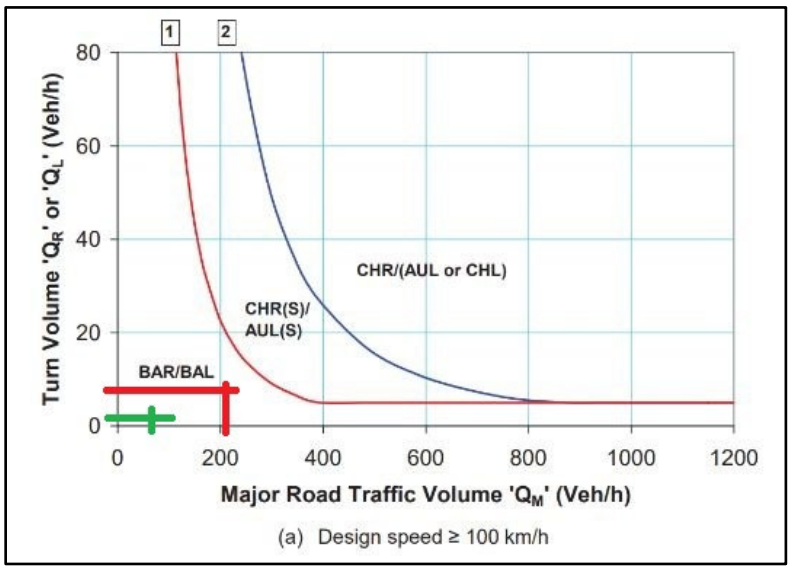


Figure 4 – PM Peak Hour Turn Warrant Assessment

Therefore, based on the turn warrant analysis undertaken, it is considered reasonable to conclude that no separate turn lanes are required for either the right-hand or left-hand turn movements at the Bonnie Doon Road / Unnamed Road intersection due to development.

Boonie Doon Road / Unnamed Road Intersection Arrangement

The existing Bonnie Doon Road / Unnamed Road intersection arrangement was assessed to determine if it was suitable for the proposed vehicle movements. Assessment of intersection movements was undertaken in accordance with the Austroads Design Vehicles and Turning Path Templates Guide (2023) as required by the FNQROC Regional Development Manual (FNQROC).

In accordance with Austroads, the design vehicle for assessment is the largest vehicle likely to regularly operate (rather than the largest vehicle that may operate) at a location. Based on advice from NQ Asphalt, the design vehicle adopted was a 19m long truck and dog arrangement as shown in **Figure 5**.

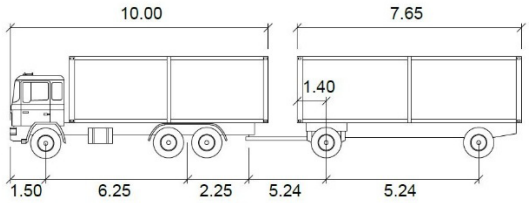


Figure 5 – Design Vehicle for Analysis

Swept path analysis was undertaken using AutoTURN Pro (refer Clause 3.5 of Austroads) with tangential turns in accordance with Clause 3.2 and a 500mm clearance envelope to the vehicle in accordance with Clause 3.4.1 of Austroads. Results of the intersection swept path analysis are shown on drawing 102-008-SK12 (**Attachment 3**).

Analysis determined that upgrade of the existing intersection arrangement is required as shown on drawing 102-008-SK10 (**Attachment 3**) which involves:

- Realignment of Unnamed Road (if necessary) so that it remains in road reserve and does not enter private freehold land (being Lot 2 on RP893855) at the Bonnie Doon Road reserve boundary, subject to survey to confirm location of the road.
- Widening of the Unnamed Road carriageway at the intersection to accommodate design vehicle turn movements.
- Relocation of the existing electrical supply pole on Unnamed Road.
- Extension of the existing Bonnie Doon Road culvert and associated adjustment to the existing drain on the eastern side of the intersection. This work will be undertaken such that there is no adverse impact on the existing drainage system.

Note that none of the above works are proposed as part of the current application, but will be applied for as part of a future operational works application as relevant subject to development permit conditions.

Unnamed Road Carriageway Arrangement

The existing Unnamed Road carriageway beyond the Bonnie Doon Road intersection was also assessed to determine if it was suitable for proposed vehicle movements. It is noted that the existing road carriageway appears to veer outside the road reserve boundary into adjacent Lot 2 on RP893855) as shown on drawings 102-008-SK10 and 102-008-SK11 (**Attachment 3**). Survey work will be required to confirm any boundary encroachment. This item will be addressed as part of a future operational works application if relevant.

Based on FNQROC requirements for rural roads, Table D1.4 identifies that for roads with less than 50 vehicle movements per day, the IPWEAQ Lower Order Road Design requirements apply. After development traffic movements on Unnamed Road will remain below 50 vehicles per day as follows:

- Six truck and dog vehicles visit per day (6 movements in and 6 movements out, being 12 total).
- Four light vehicles visit per day (4 movements in and 4 movements out, being 8 total).
- Allowance for 4 vehicle movements per day by the existing residence.
- Total vehicle movements per day equals 24.

If the above assumptions are doubled, the total vehicle movements will remain below 50 vehicles per day. It is therefore considered reasonable to adopt the IPWEAQ Lower Order Road Design (LORD) requirements as noted within FNQROC.

Referencing Table 4 within LORD, a road with 10-50 vehicles per day is considered a “local access” road with the following parameters:

- Design speed = 40 – 70km/h.
- 6.5m wide formation.
- 3.5m wide minimum seal width.
- 3% crossfall for sealed and 5% crossfall for unsealed.

NQ Asphalt propose to provide a 6.5m wide formation that is sealed for its full width with 3% crossfall and a signed speed limit of 60km/h.

An assessment of the proposed horizontal curve was undertaken to determine if road widening is required for the proposed design vehicle movement. Similar to the intersection, a swept path analysis was undertaken using AutoTURN Pro with tangential turns and a 500mm clearance envelope to the vehicles. Results of the analysis are shown on drawings 102-008-SK13 and 102-008-SK14 (**Attachment 3**) which confirmed that road widening is required as shown on drawing 102-008-SK11 (**Attachment 3**).

The proposed road alignment will cross an existing drain with the subject lot. It is proposed that a culvert crossing be constructed such that there is no adverse impact on the existing drainage system.

Intersection Sight Distance Analysis

A sight distance analysis was undertaken for both Bonnie Doon Road and Unnamed Road at the intersection. In accordance with the Austroads Guide to Road Design Part 3: Geometric Design (Clause 5.3), stopping sight distance is calculated as follows:

$$SSD = \frac{R_T V}{3.6} + \frac{V^2}{254(d + 0.01a)}$$

where

R_T = reaction time (sec)
V = operating speed (km/h)
d = coefficient of deceleration (longitudinal friction factor)
a = longitudinal grade (%, + for upgrades and – for downgrades)

For Bonnie Doon Road, the parameters with Austroads were adopted, with the equation variables being as follows for a truck:

- R_T = 2.5 seconds (high speed road)
- V = 100km/h (operating speed)
- d = 0.29 (breaking by single unit trucks, semi-trailers and B-doubles)
- a = 0.02% (based on Lidar data for the 100m south of the Unnamed Road intersection)
- a = 0.12% (based on Lidar data for the 100m south of the Unnamed Road intersection)

Therefore, the intersection stopping sight distance was calculated as follows:

- SSD (south side of intersection) = 204.6m
- SSD (north side of intersection) = 205.1m

For Unnamed Road, the parameters within IPWEAQ's LORD manual were adopted, with the equation variables being as follows for a truck:

- R_T = 2.0 seconds
- V = 60 km/h (operating speed)
- d = 0.29 (breaking by single unit trucks, semi-trailers and B-doubles)
- a = 0.5% (based on minimum FNQROC longitudinal grade requirement)

Therefore, the intersection stopping sight distance was calculated as follows:

- SSD = 81.4m

Drawing 102-008-SK15 within **Attachment 3** shows the outcome of analysis, confirming compliance is meet with sight stopping distance requirements.

Existing Property Access Arrangements

Existing properties adjacent to Unnamed Road are identified on RPS Drawing AU015874-2d (Attachment 1) and are detailed below:

- Lot 54 on SP292874 (northern boundary)
- Lot 2 on RP893855 (southern boundary)
- Lot 1 on RP893855 (southern boundary, the subject site)
- Lot 33 on USL 8687

Lot 54 contains an existing dwelling which currently gains access from Unnamed Road. As noted above, the road pavement is located outside the road reserve for a portion of its length, being within Lot 2 (refer **Figure 2** below). The proposed road work associated with development will resolve this

issue and realign the Lot 54 driveway (within road reserve) with an appropriate connection to the new road (refer drawing 102-008-SK11 within **Attachment 3** for details).

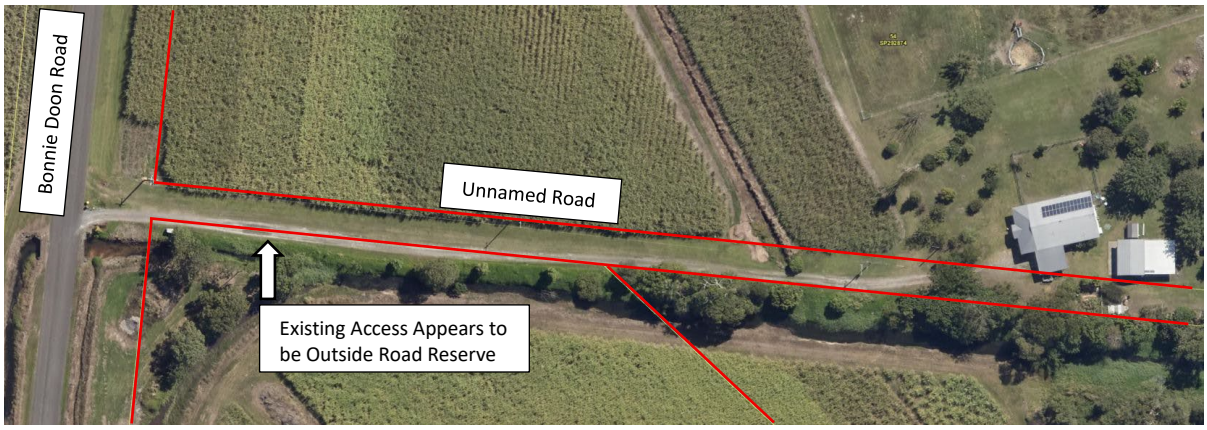


Figure 2 – Current Lot 54 Access Arrangement

A sight distance analysis has been undertaken for the proposed access arrangement at Lot 54 which confirms compliance with the IPWEAQ LORD requirements (refer drawing 102-008-SK16, **Attachment 3**) based on the following parameters for a truck on Unnamed Road:

- R_T = 2.0 seconds.
- V = 60 km/h (operating speed).
- d = 0.29 (breaking by single unit trucks, semi-trailers and B-doubles).
- a = 0.5% (based on minimum FNQROC longitudinal grade requirement).
- Stopping Site Distance, SSD = 81m.

Lot 2 is a working property that does not contain a dwelling. There is a drain within Lot 2 (north boundary) adjacent to Unnamed Road that does not allow direct access to the road. Access to Lot 2 is currently afforded by a driveway arrangement on Bonnie Doon Road (refer Figure 3 below). The proposed work will not impact on the Lot 2 driveway.



Figure 3 – Current Lot 2 Access Arrangement

Lot 1 is the subject site and proposed access is discussed earlier in this report.

Lot 33 is unallocated state land which is generally swampy in nature. It currently has frontage to Unnamed Road however no formal access arrangement is currently in place. The proposed work does not impact on any current access arrangement.



Figure 4 – Lot 33 No Current Access Arrangement

Site Extraction Arrangement

Correspondence from RPS Consulting (AU015874 dated 12 September 2025, **Attachment 4**) provides details on the sand extraction operation however the below provides additional detail on the operation. Reference is made to drawings 102-008-SK17 and 102-008-SK18, **Attachment 3**) with commentary provided below:

- A 200m buffer will be provided between the northern property boundary and the proposed sand excavation boundary.
- Vehicles will access the site from the proposed new road and enter the sand extraction area via a ramp which will have a maximum longitudinal gradient of 1 in 10 (i.e. 10%) at the maximum depth of excavation.
- Vehicles will turnaround with the excavation area and exit via the proposed new road arrangement discussed above.

Concluding Remark

We trust that the above provides the information you require for assessment of the application to continue. Please contact me if you require any further information.

Yours faithfully

CivilWalker Consulting Engineers



Daryl Walker

Director | Principal Engineer

BE(Hons) ME DipPM RPEQ 19806 RPEng 1259

enc. Attachment 1 – Raw Traffic Count Data
Attachment 2 – Traffic Data Drawings
Attachment 3 – General Drawings
Attachment 4 – Previous RPS Correspondence

CivilWalker
CONSULTING ENGINEERS

Attachment 1

Raw Traffic Count Data

HV	LV	BONNIE DOON ROAD	LV	HV
2	56	→	110	5
0	0	←	0	0

AM PEAK

Date: 05.06.2025

AM PEAK

Time: 8:00 - 9:00 am

Project #: 102-008

Project: Cooya Sands

Client: Koppen

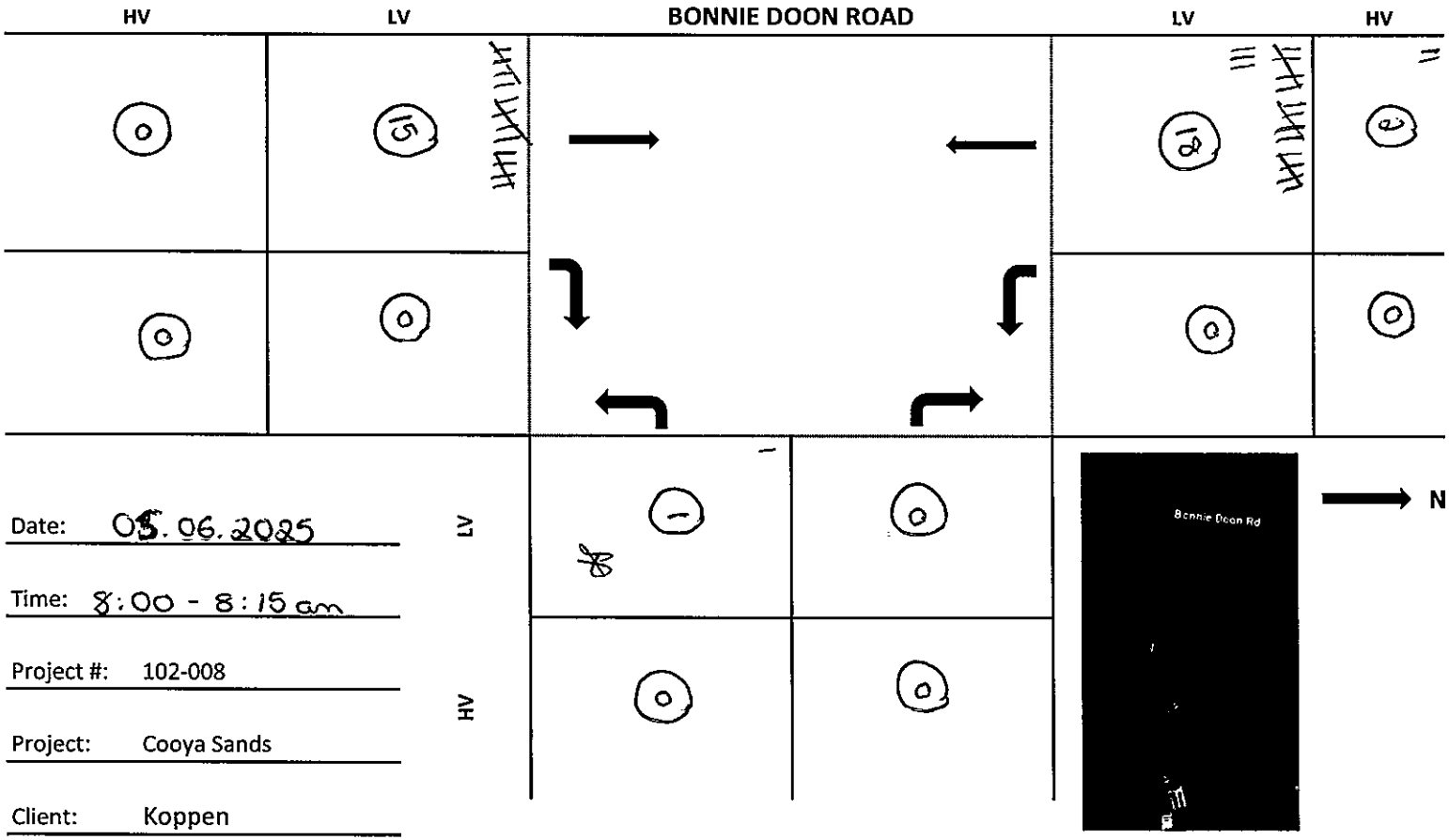
LV	1	0
HV	0	0



N

TOTAL = 174

PEAK



Date: 05.06.2025

Time: 8:00 - 8:15 am

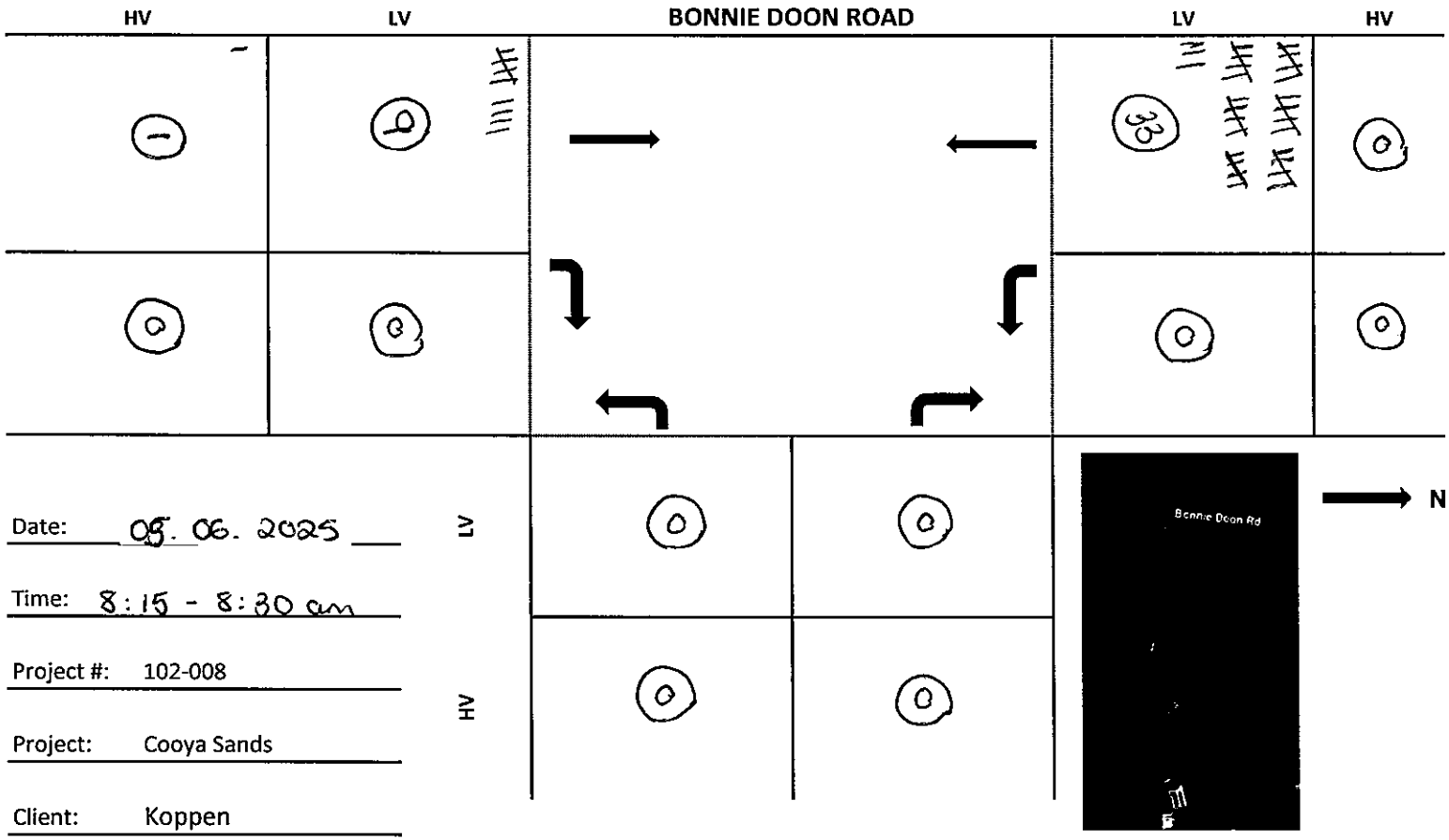
Project #: 102-008

Project: Cooya Sands

Client: Koppen

TOTAL = 36

PEAK



Date: 05. 06. 2025

Time: 8:15 - 8:30 am

Project #: 102-008

Project: Cooya Sands

Client: Koppen

TOTAL = 43

PEAK

HV	LV	BONNIE DOON ROAD	LV	HV
1	19	→	33	0
0	0	←	0	0

LV	0	0	
HV	0	0	

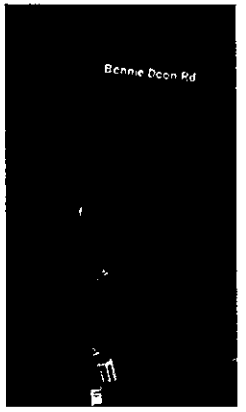
Date: 03. 06. 2025

Time: 8:30 - 8:45 am

Project #: 102-008

Project: Cooya Sands

Client: Koppen



N

TOTAL = 50

PEAK

HV	LV	BONNIE DOON ROAD	LV	HV
0	19	→	38	3
0	0	←	0	0

LV	0	0	
HV	0	0	

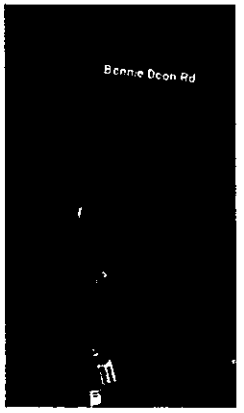
Date: 05. 06. 2025

Time: 8:45 - 9:00 am

Project #: 102-008

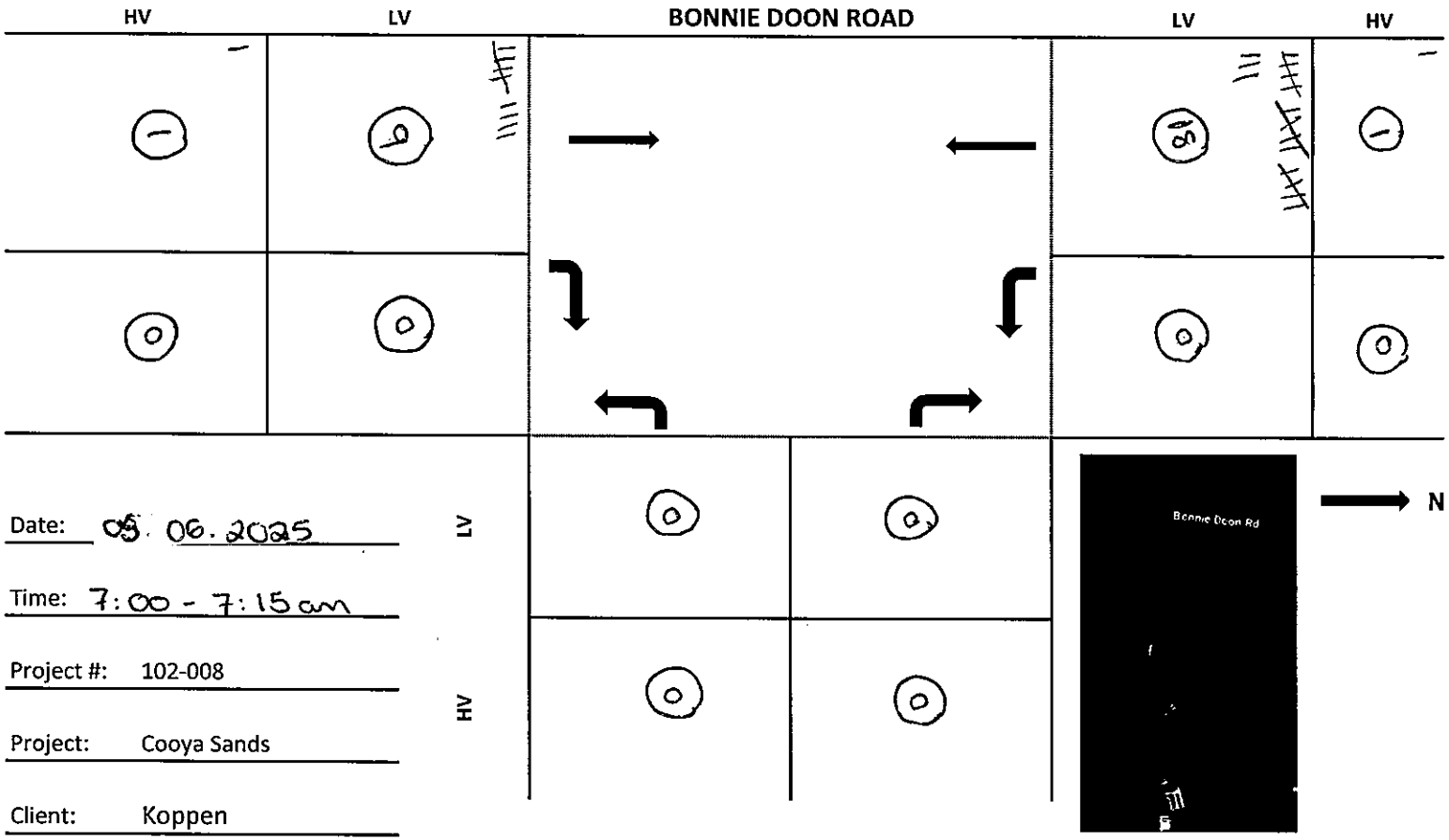
Project: Cooya Sands

Client: Koppen



N

TOTAL = 45



Date: 05.06.2025

Time: 7:00 - 7:15 am

Project #: 102-008

Project: Cooya Sands

Client: Koppen

TOTAL = 29

HV	LV	BONNIE DOON ROAD	LV	HV
0	6	→	20	0
0	0	←	0	0

	LV	0	0
	HV	0	0

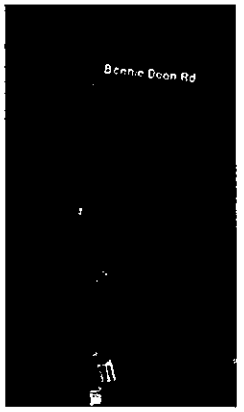
Date: 03.06.2025

Time: 7:15 - 7:30am

Project #: 102-008

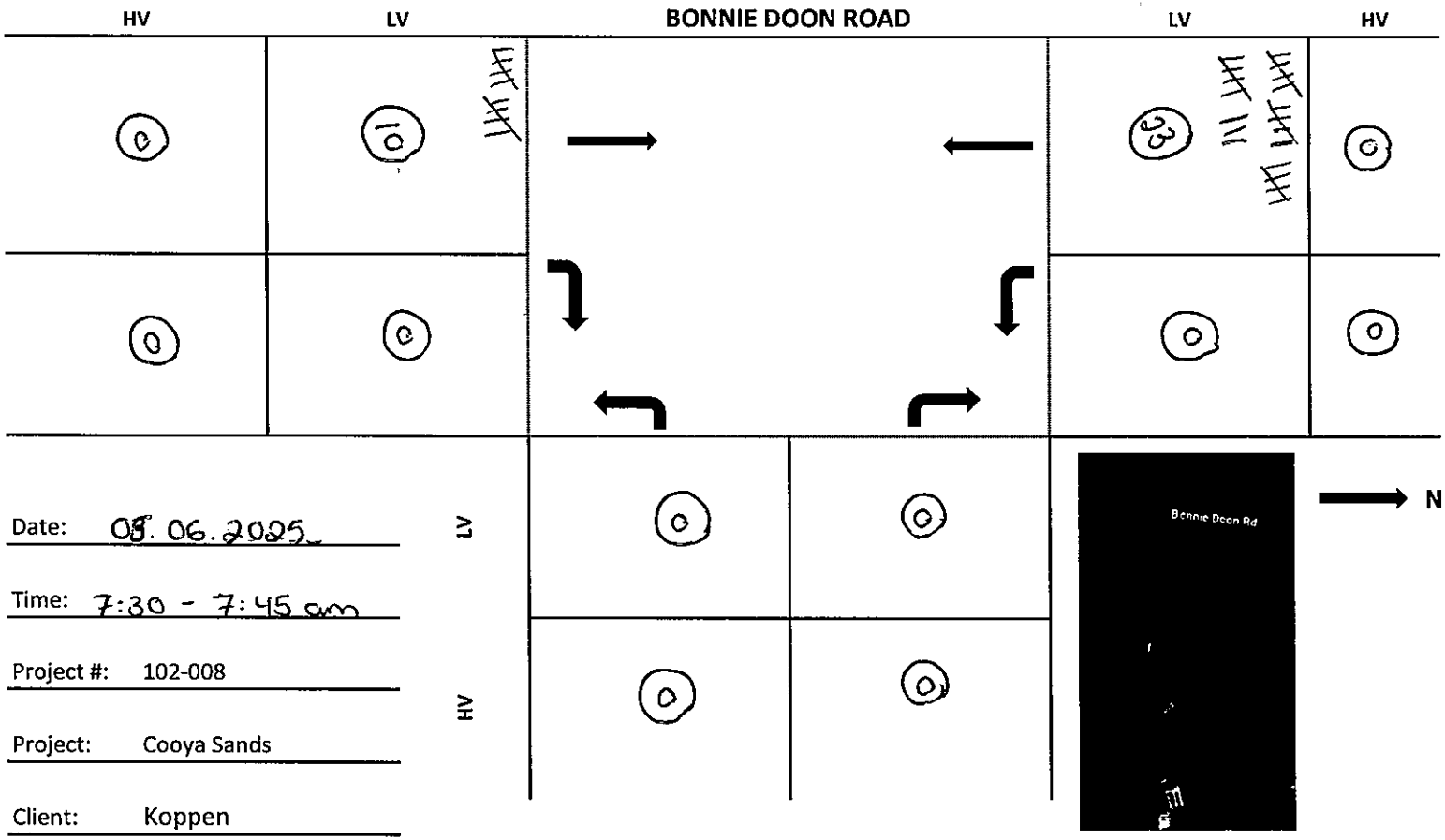
Project: Cooya Sands

Client: Koppen



N

TOTAL = 26



Date: 08.06.2025

Time: 7:30 - 7:45 am

Project #: 102-008

Project: Cooya Sands

Client: Koppen

TOTAL = 33

HV	LV	BONNIE DOON ROAD	LV	HV
1	6	→	18	0
0	0	←	0	0

	LV	0	0
	HV	0	0

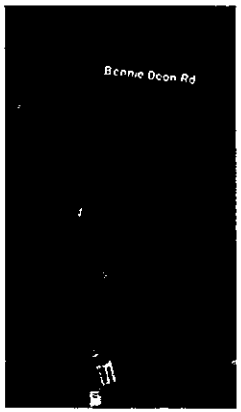
Date: 05.06.2025

Time: 7:45 - 8:00 am

Project #: 102-008

Project: Cooya Sands

Client: Koppen



N

TOTAL = 25

HV	LV	BONNIE DOON ROAD	LV	HV
1	15	→	08	0
		←		
		↓	0	0
		↑		

LV	0	0	
HV	0	0	

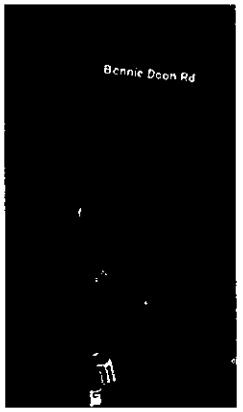
Date: 05.06.2025

Time: 9:00 - 9:15 am

Project #: 102-008

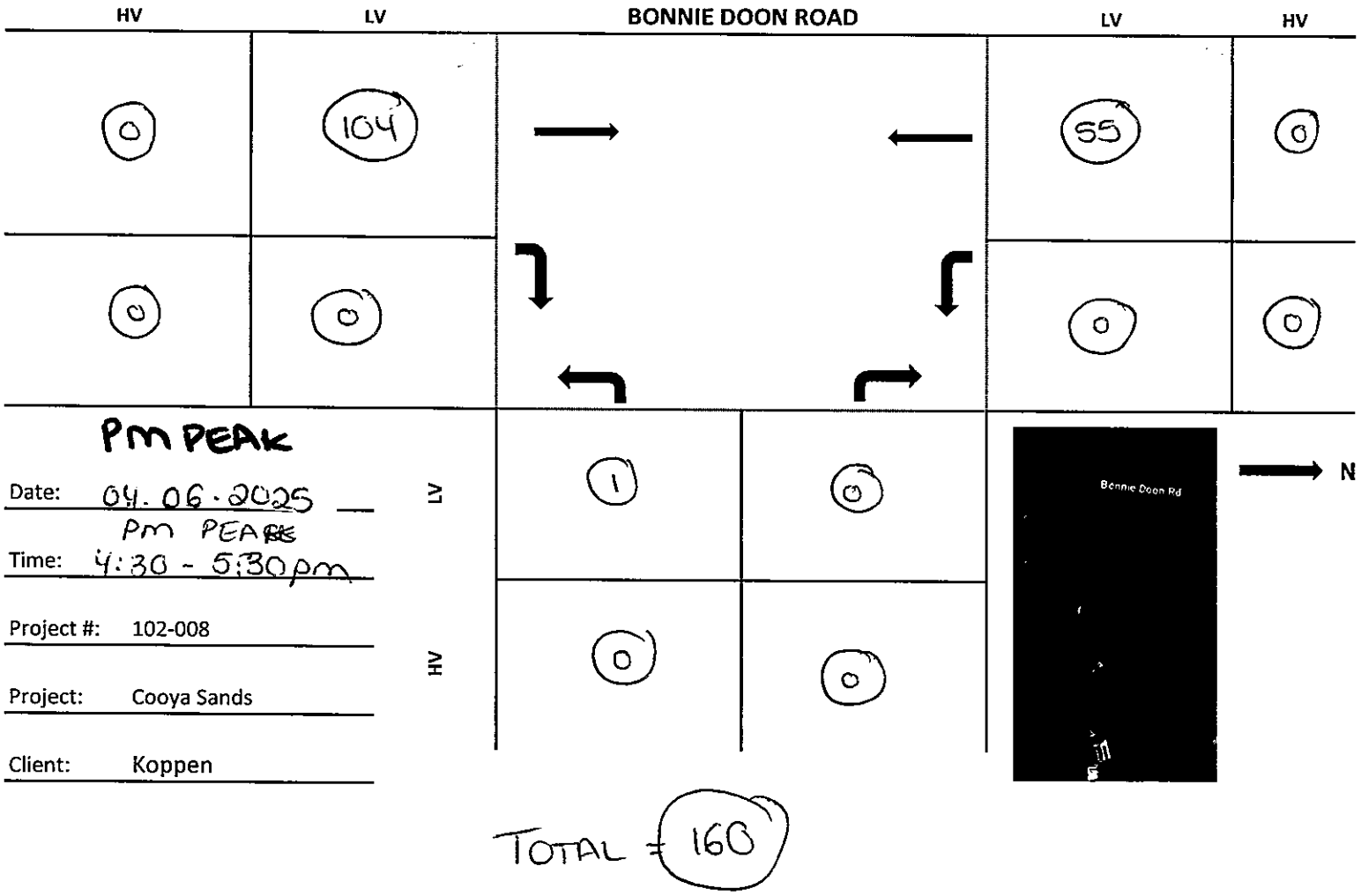
Project: Cooya Sands

Client: Koppen



N

TOTAL = 36


HV
LV
BONNIE DOON ROAD
LV
HV
0
104
55
0
0
0
0
0
PM PEAK
Date: 04.06.2025
PM PEAK
Time: 4:30 - 5:30pm
Project #: 102-008
Project: Cooya Sands
Client: Koppen
LV
HV
1
0
0
0
Bonnie Doon Rd
N
TOTAL = 160

PEAK

HV	LV	BONNIE DOON ROAD	LV	HV
0	38	→	19	0
0	0	←	0	0

LV	0	0	
HV	0	0	

Date: 04.06.2025

Time: 4:30 - 4:45 pm

Project #: 102-008

Project: Cooya Sands

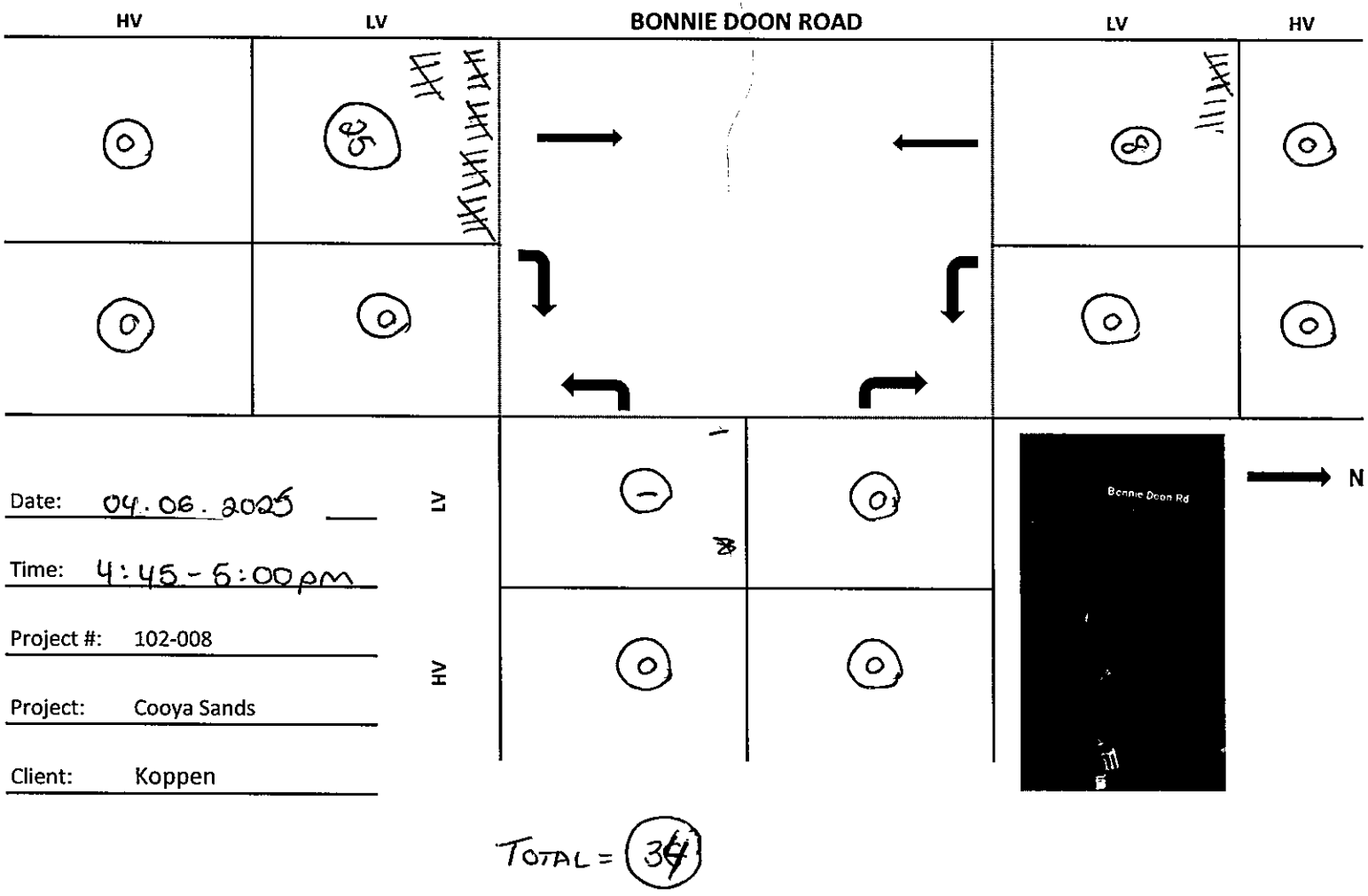
Client: Koppen



N

TOTAL = 47

PEAK



Date: 04.06.2025

Time: 4:45 - 5:00pm

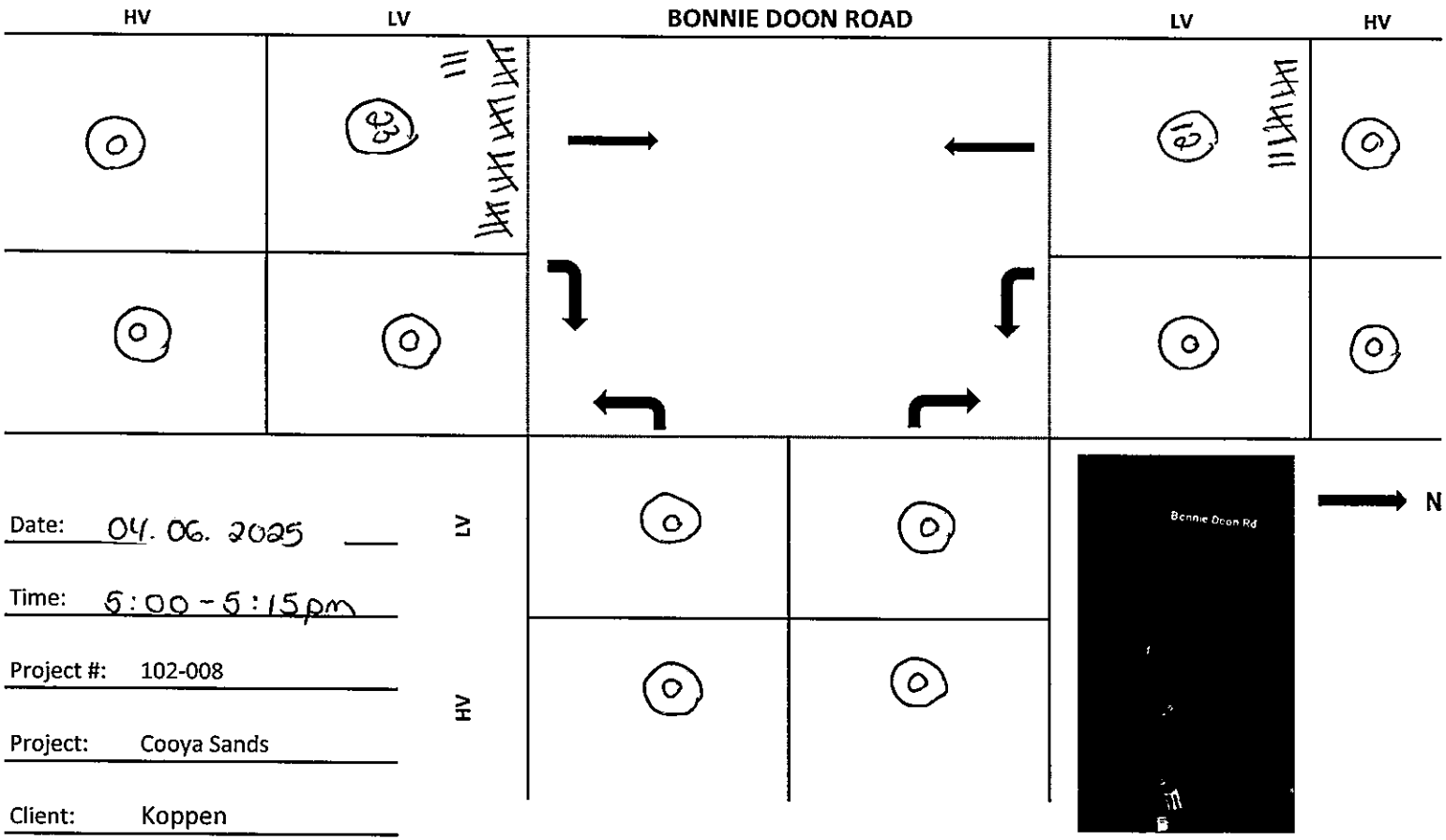
Project #: 102-008

Project: Cooya Sands

Client: Koppen

TOTAL = 34

PEAK



Date: 04. 06. 2025

Time: 5:00 - 5:15pm

Project #: 102-008

Project: Cooya Sands

Client: Koppen

TOTAL = 35

PEAK

HV	LV		BONNIE DOON ROAD		LV	HV
0	38	LV	→	←	16	0
0	0		↓	↑	0	0
			←	→		

Date: 04.06.2025

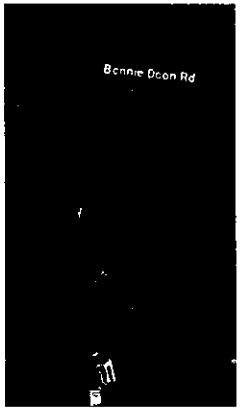
Time: 5:15 - 5:30pm

Project #: 102-008

Project: Cooya Sands

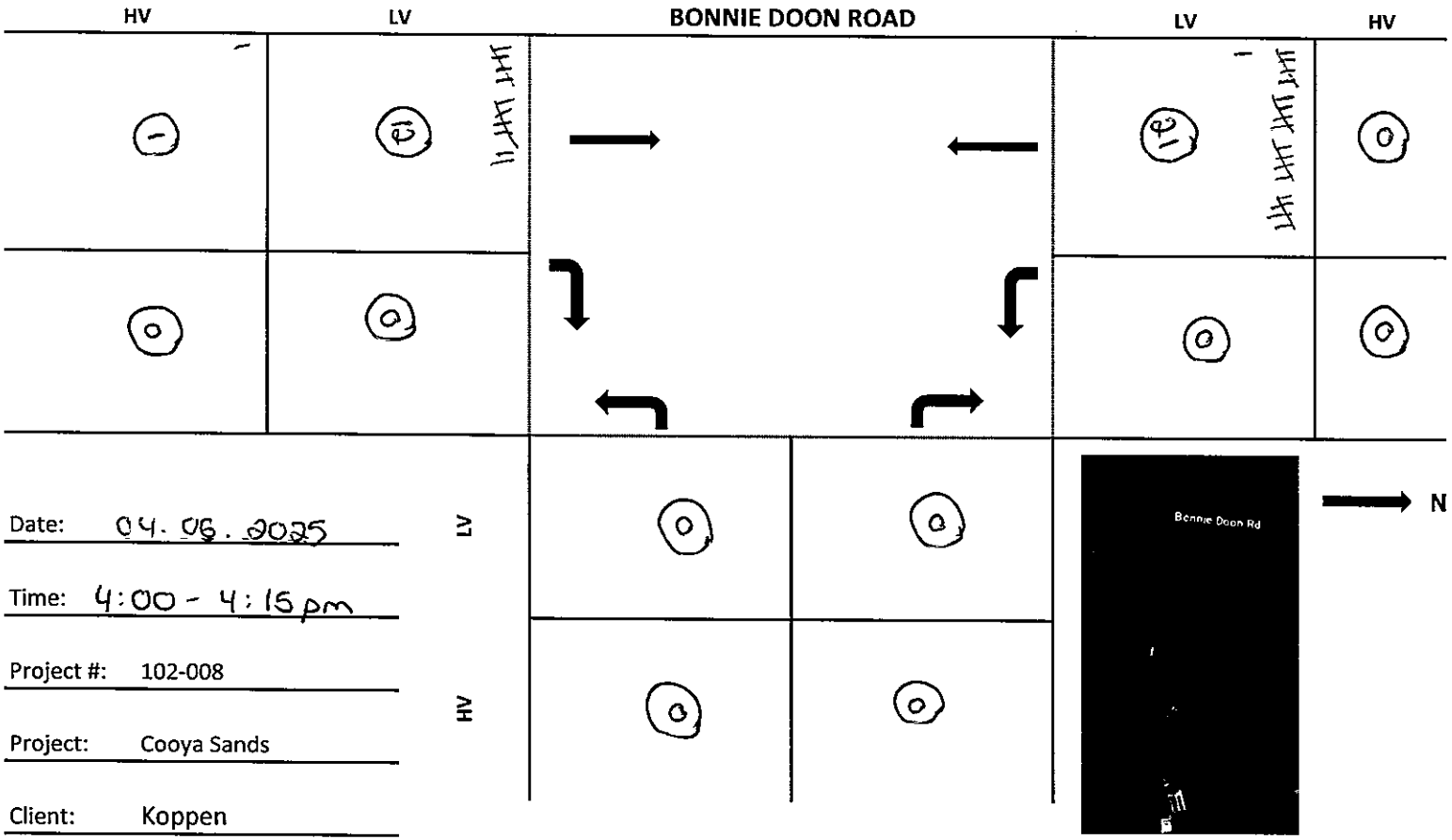
Client: Koppen

LV	0	0
HV	0	0



N

TOTAL = 54



Date: 04.06.2025

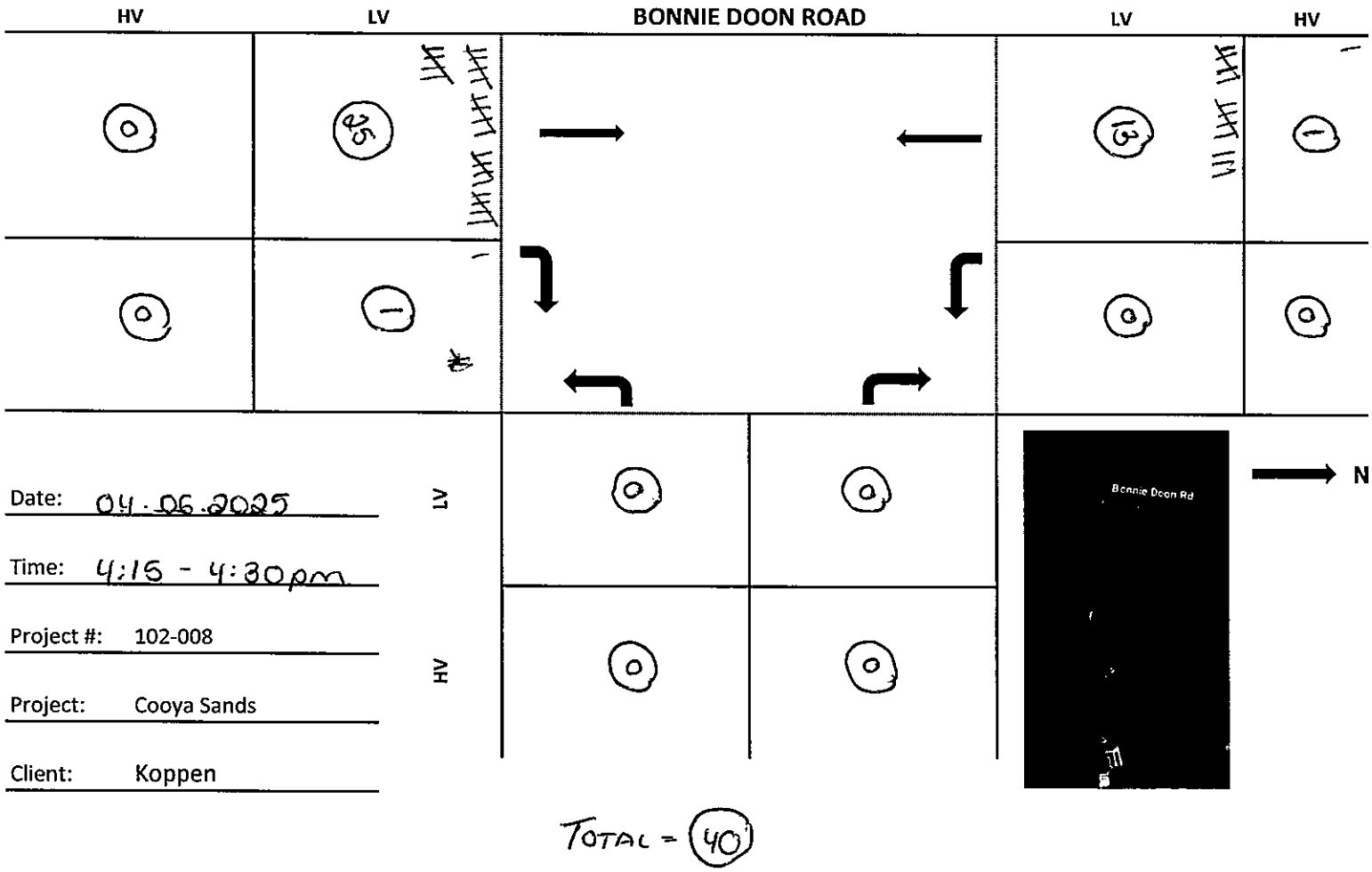
Time: 4:00 - 4:15 pm

Project #: 102-008

Project: Cooya Sands

Client: Koppen

TOTAL = 34



Date: 04.06.2025

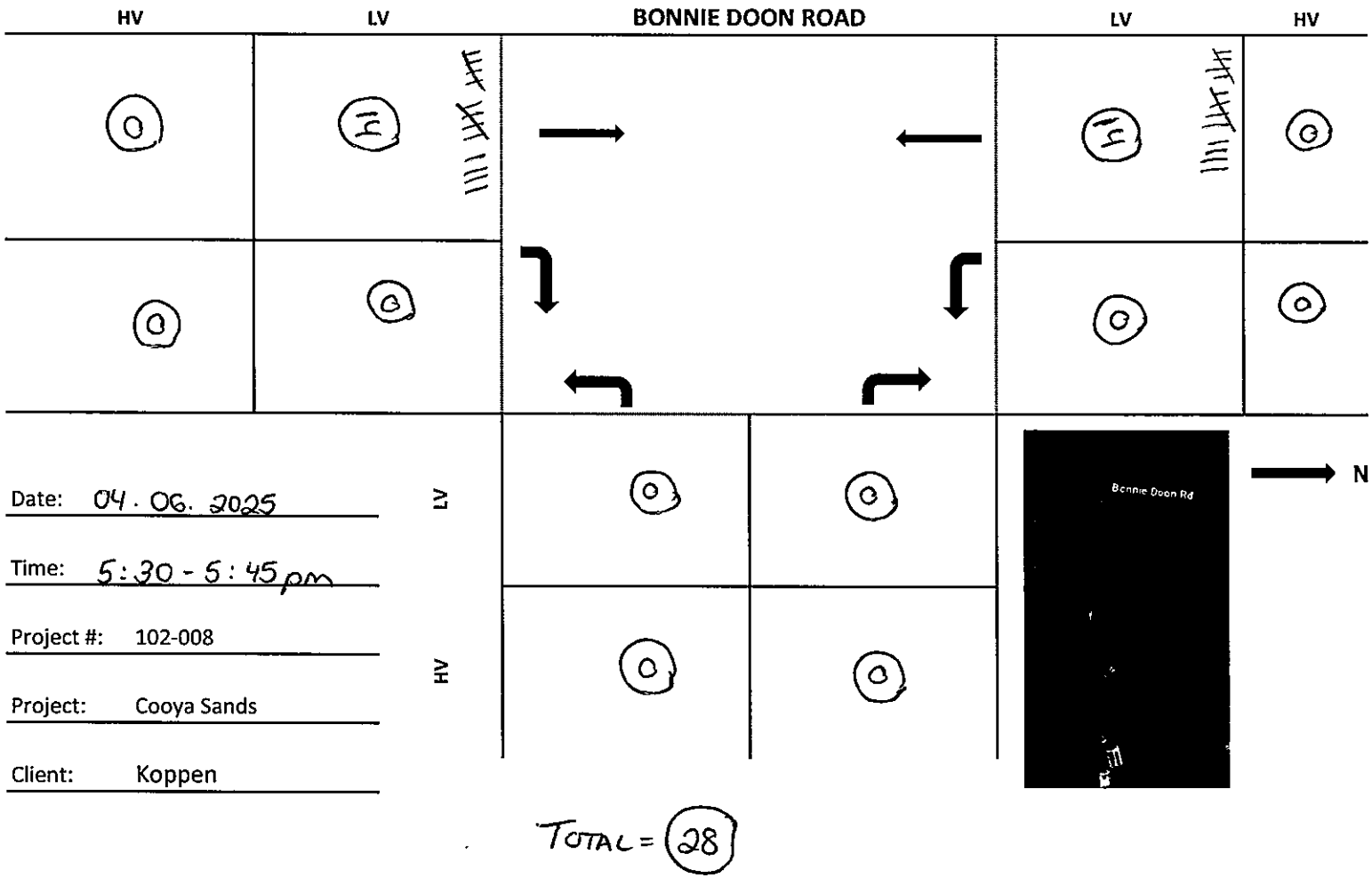
Time: 4:15 - 4:30pm

Project #: 102-008

Project: Cooya Sands

Client: Koppen

TOTAL = 40



Date: 04. 06. 2025

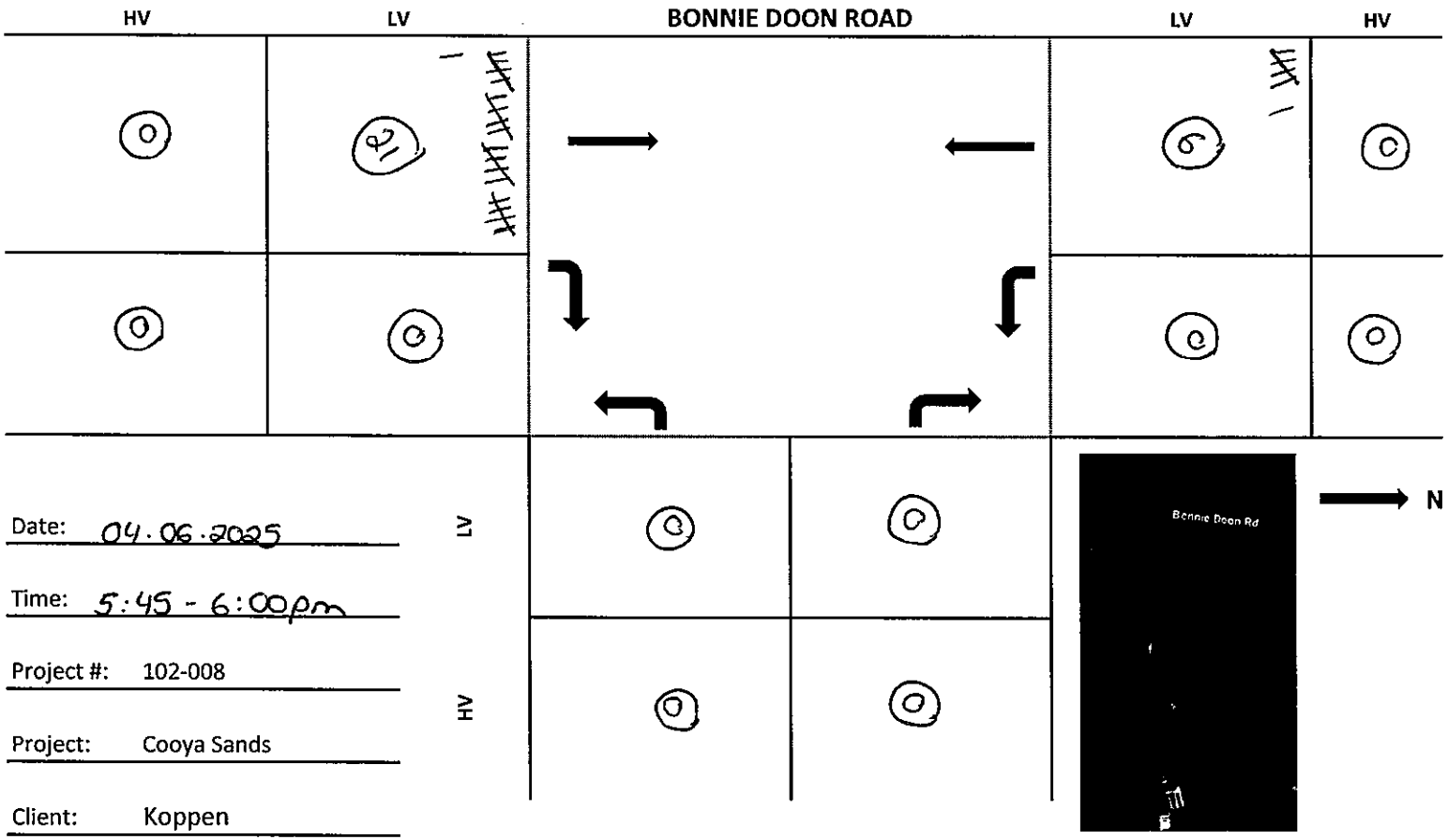
Time: 5:30 - 5:45 pm

Project #: 102-008

Project: Cooya Sands

Client: Koppen

TOTAL = 28



Date: 04.06.2025

Time: 5:45 - 6:00pm

Project #: 102-008

Project: Cooya Sands

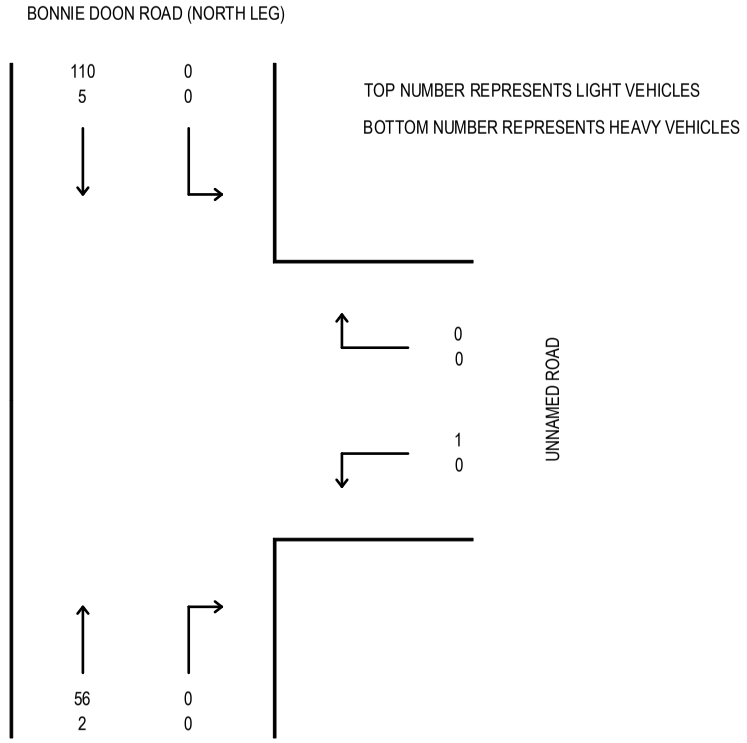
Client: Koppen

TOTAL = 27

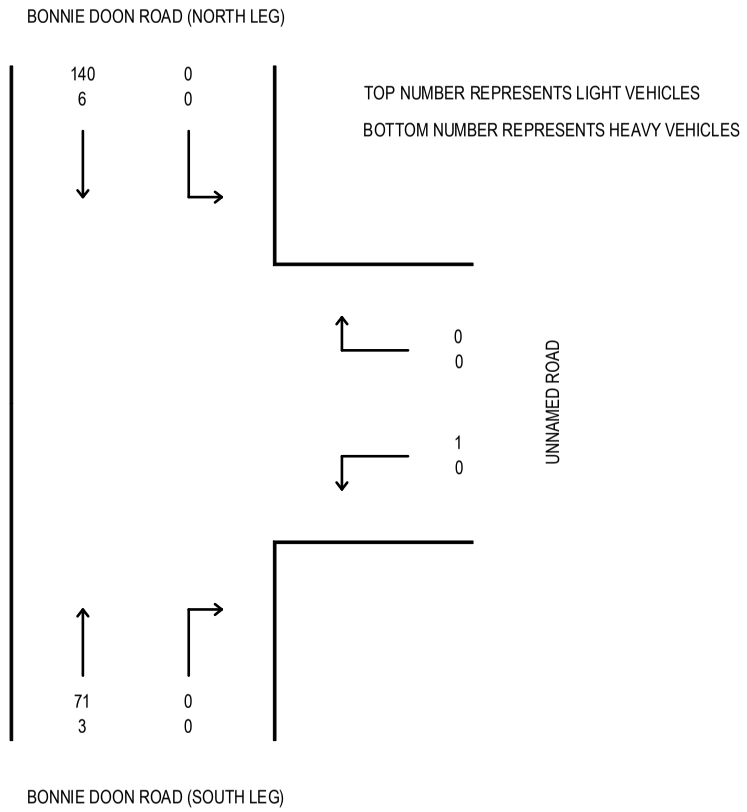
CivilWalker
CONSULTING ENGINEERS

Attachment 2

Traffic Data Drawings

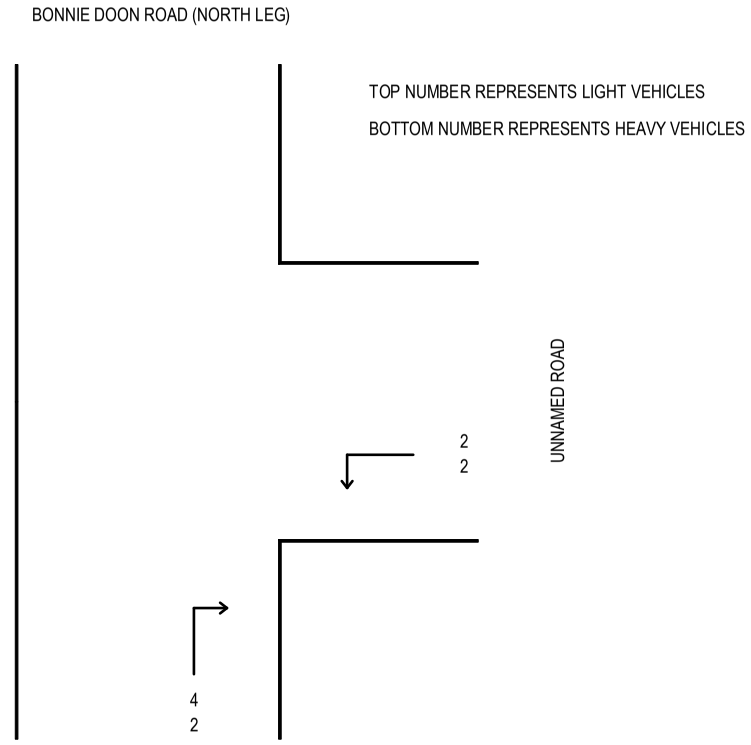


TRAFFIC COUNT DATA 2025 (EXISITNG)



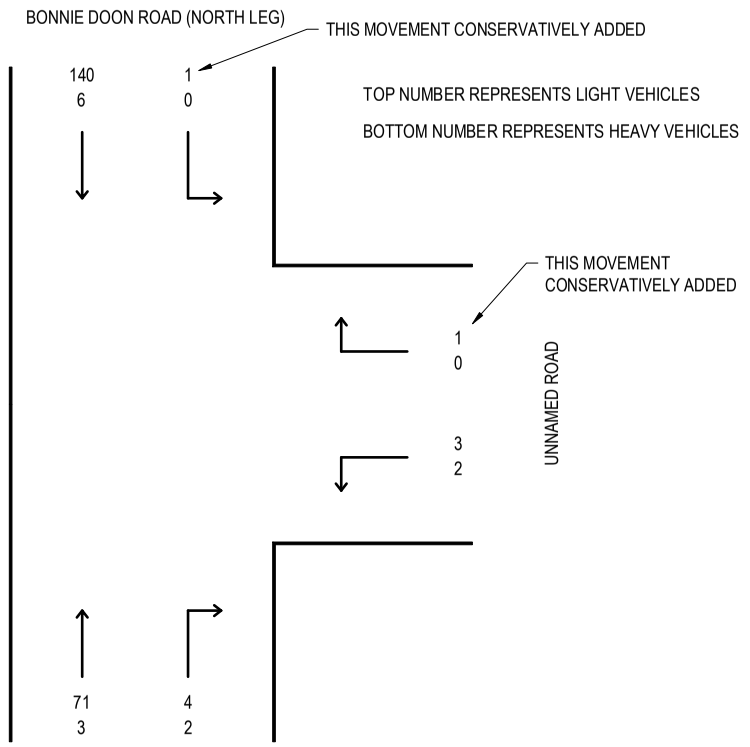
EXISTING SCENARIO TRAFFIC 2037 (10-YEAR HORIZON POST DEVELOPMENT)

2% GROWTH RATE APPLIED



DEVELOPMENT GENERATED TRAFFIC

THESE VOLUMES INCLUDE THE ADDITIONAL TRAFFIC IDENTIFIED FOR THE DWELLING AS NOTED IN THE "TRAFFIC GENERATION" SECTION OF REPORT 102-008-001L



POST DEVELOPMENT + 10 YEARS TRAFFIC

REVISIONS					
1	26.08.25	INITIAL ISSUE			
NO.	DATE	DESCRIPTION	DESIGN	APPROVED	

CLIENT: NQ ASPHALT PTY LTD

SCALE

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker CONSULTING ENGINEERS

DRAWN	CW	CHECKED	DJW
DESIGNED	CW	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

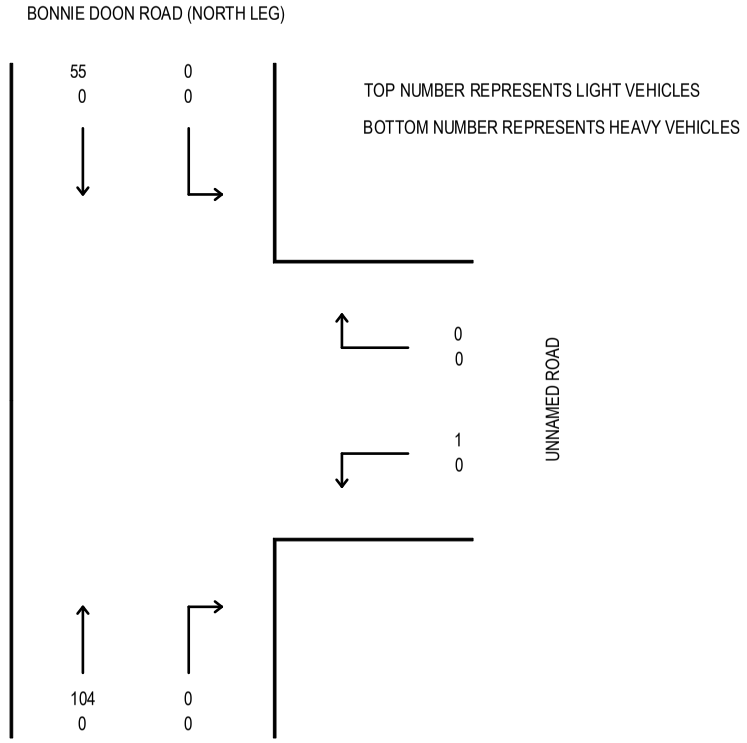
COOYA SAND EXTRACTION

TRAFFIC DISTRIBUTION

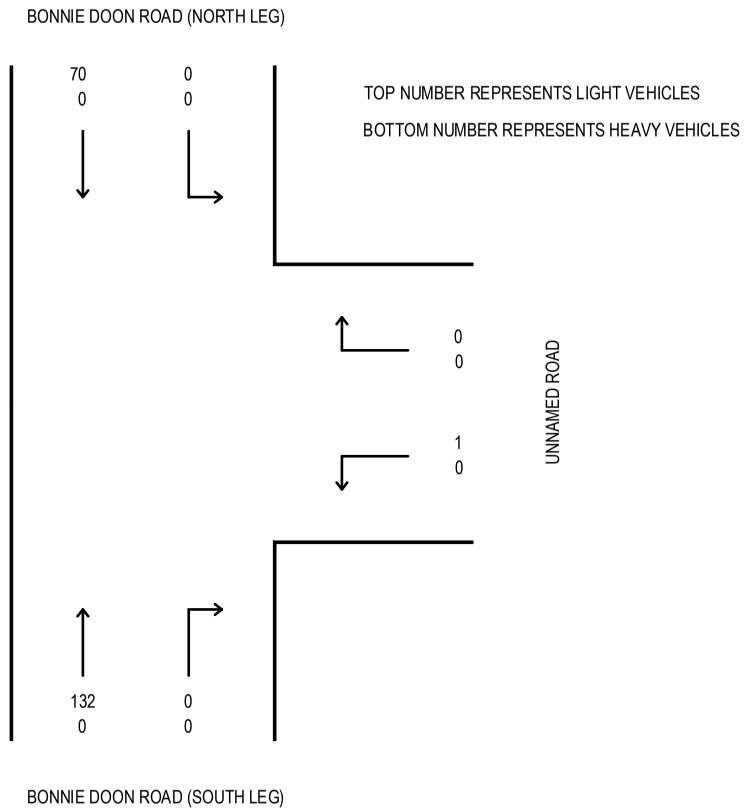
AM PEAK HOUR

DRAWING NO. 102-008-T01

REVISION 1

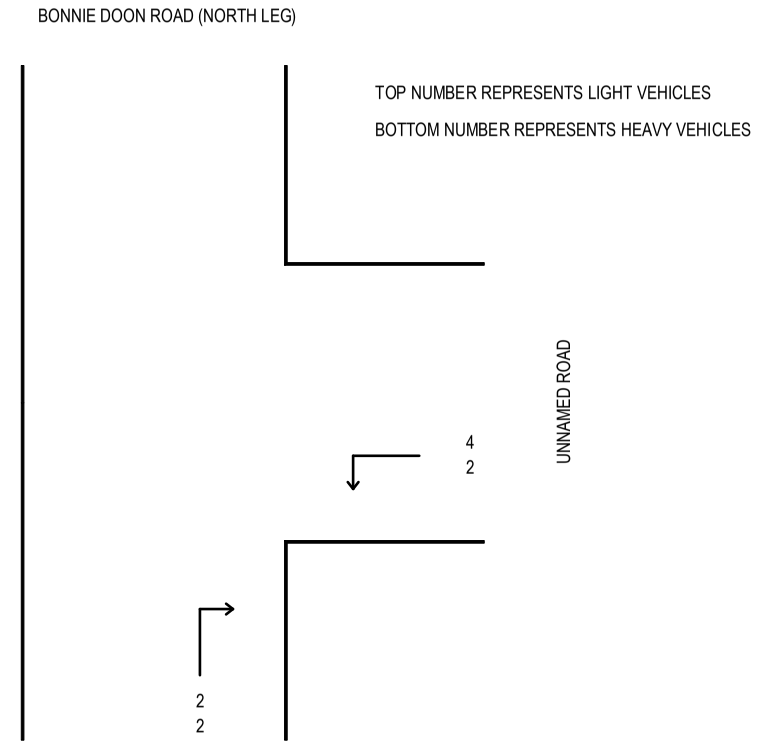


TRAFFIC COUNT DATA 2025 (EXISITNG)



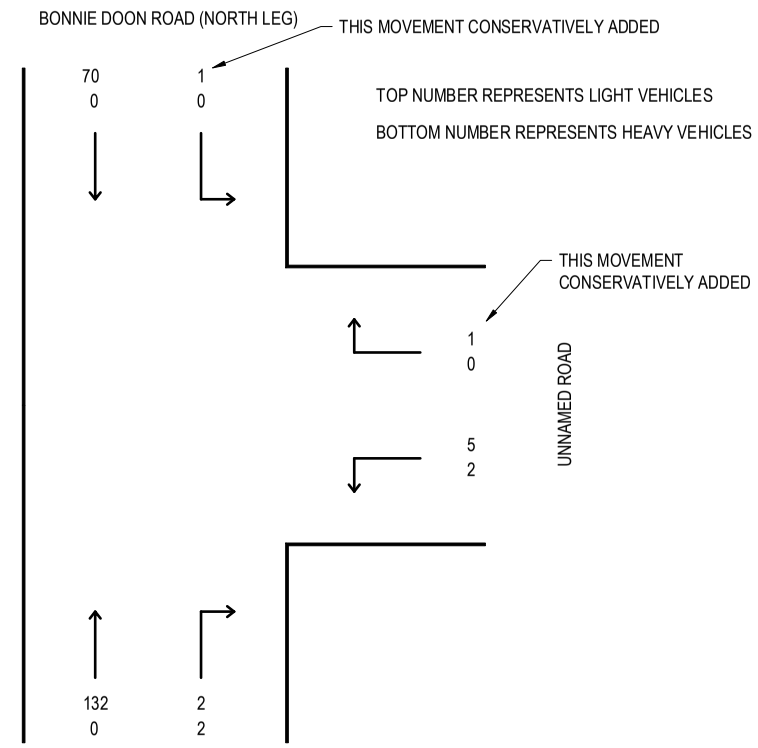
EXISTING SCENARIO TRAFFIC 2037 (10-YEAR HORIZON POST DEVELOPMENT)

2% GROWTH RATE APPLIED



DEVELOPMENT GENERATED TRAFFIC

THESE VOLUMES INCLUDE THE ADDITIONAL TRAFFIC IDENTIFIED FOR THE DWELLING AS NOTED IN THE "TRAFFIC GENERATION" SECTION OF REPORT 102-008-001L



POST DEVELOPMENT + 10 YEARS TRAFFIC

REVISIONS					
1	26.08.25	INITIAL ISSUE			
NO.	DATE	DESCRIPTION	DESIGN	APPROVED	

CLIENT: NQ ASPHALT PTY LTD

SCALE: ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker CONSULTING ENGINEERS

DRAWN	CW	CHECKED	DJW
DESIGNED	CW	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

COOYA SAND EXTRACTION

TRAFFIC DISTRIBUTION

PM PEAK HOUR

DRAWING NO. 102-008-T02

REVISION 1

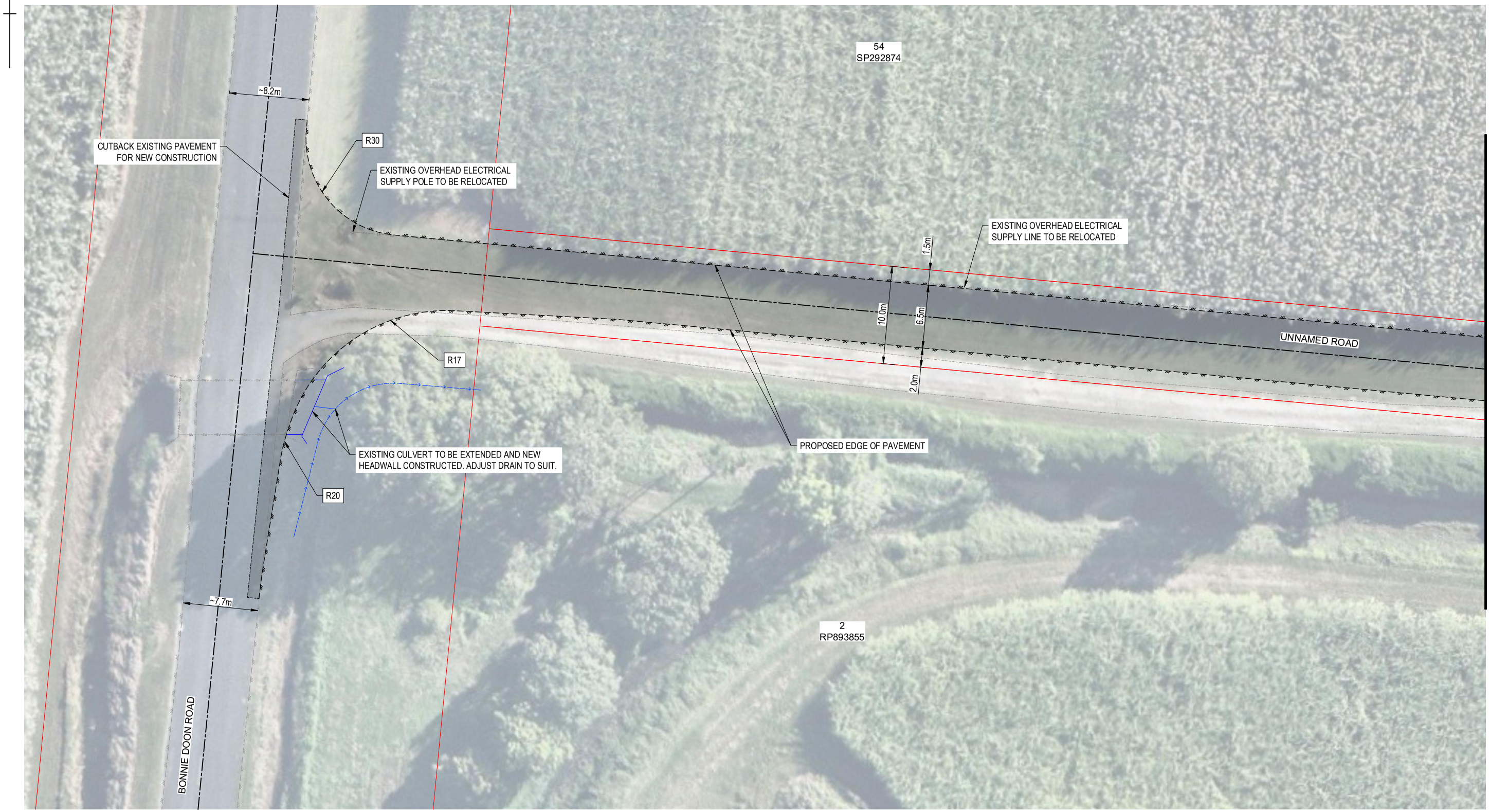
CivilWalker
CONSULTING ENGINEERS

Attachment 3

General Drawings

LEGEND

- PROPERTY BOUNDARY
- EXISTING EDGE OF BITUMEN
- PROPOSED EDGE OF BITUMEN
- NEW PAVEMENT



REVISIONS					
NO.	DATE	DESCRIPTION	DESIGN	APPROVED
1	24/08/25	INITIAL ISSUE		

CLIENT

NQ ASPHALT PTY. LTD.

SCALE

1:200 0 2 4 6 8 10 12 A1
1:400 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker CONSULTING ENGINEERS

DRAWN	CMD	CHECKED	DJW
DESIGNED	CMD	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

COOYA SAND EXTRACTION

PROPOSED ACCESS ROAD LAYOUT (SHEET 1 OF 2)

DRAWING NO. 102-008-SK10

REVISION 1

LEGEND

PROPERTY BOUNDARY

EXISTING EDGE OF BITUMEN

PROPOSED EDGE OF BITUMEN

NEW PAVEMENT

JOINS 102-008-SK10

54
SP292874

EXISTING OVERHEAD ELECTRICAL SUPPLY LINE TO BE RELOCATED

UNNAMED ROAD

1.5m
6.5m
3.25m
3.25m
2.0m

R70
R9
R3
R90

4.00m
4.00m

PROPOSED GRAVEL DRIVEWAY ADJUSTMENT (LOT 54)

JOIN TO EXISTING DRIVEWAY

3.25m
3.25m

PROVIDE STORMWATER PIPE AND HEADWALLS TO EXISITNG DRAIN PATH

2
RP893855

1
RP893855

REVISIONS

NO.	DATE	DESCRIPTION	DESIGN	APPROVED
2	22/09/25	MINOR UPDATE	CW	DJW
1	24/08/25	INITIAL ISSUE		

CLIENT

NQ ASPHALT PTY. LTD.

SCALE

1:200 0 2 4 6 8 10 12 A1
1:400 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker
CONSULTING ENGINEERS

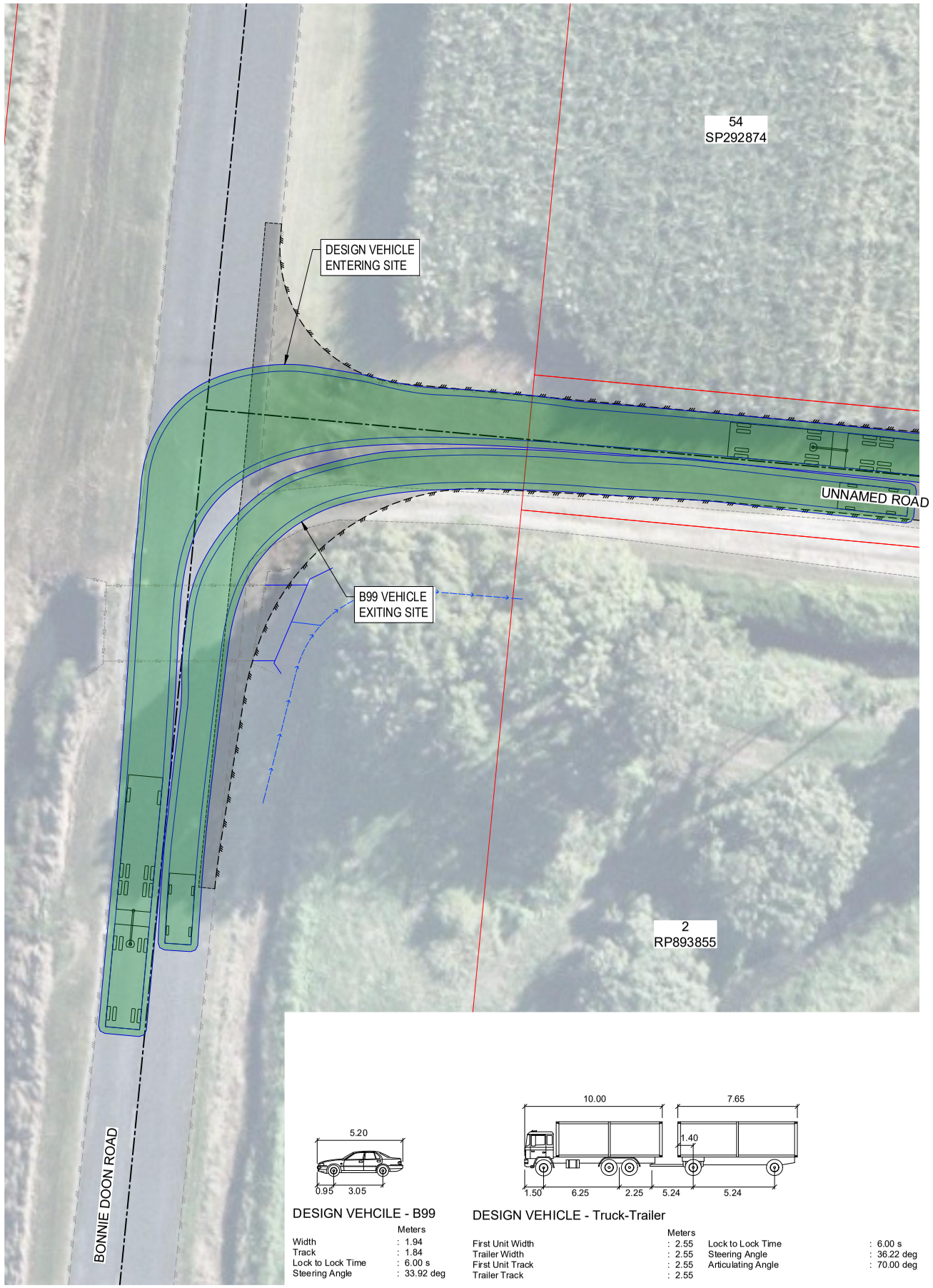
DRAWN	CMD	CHECKED	DJW
DESIGNED	CMD	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

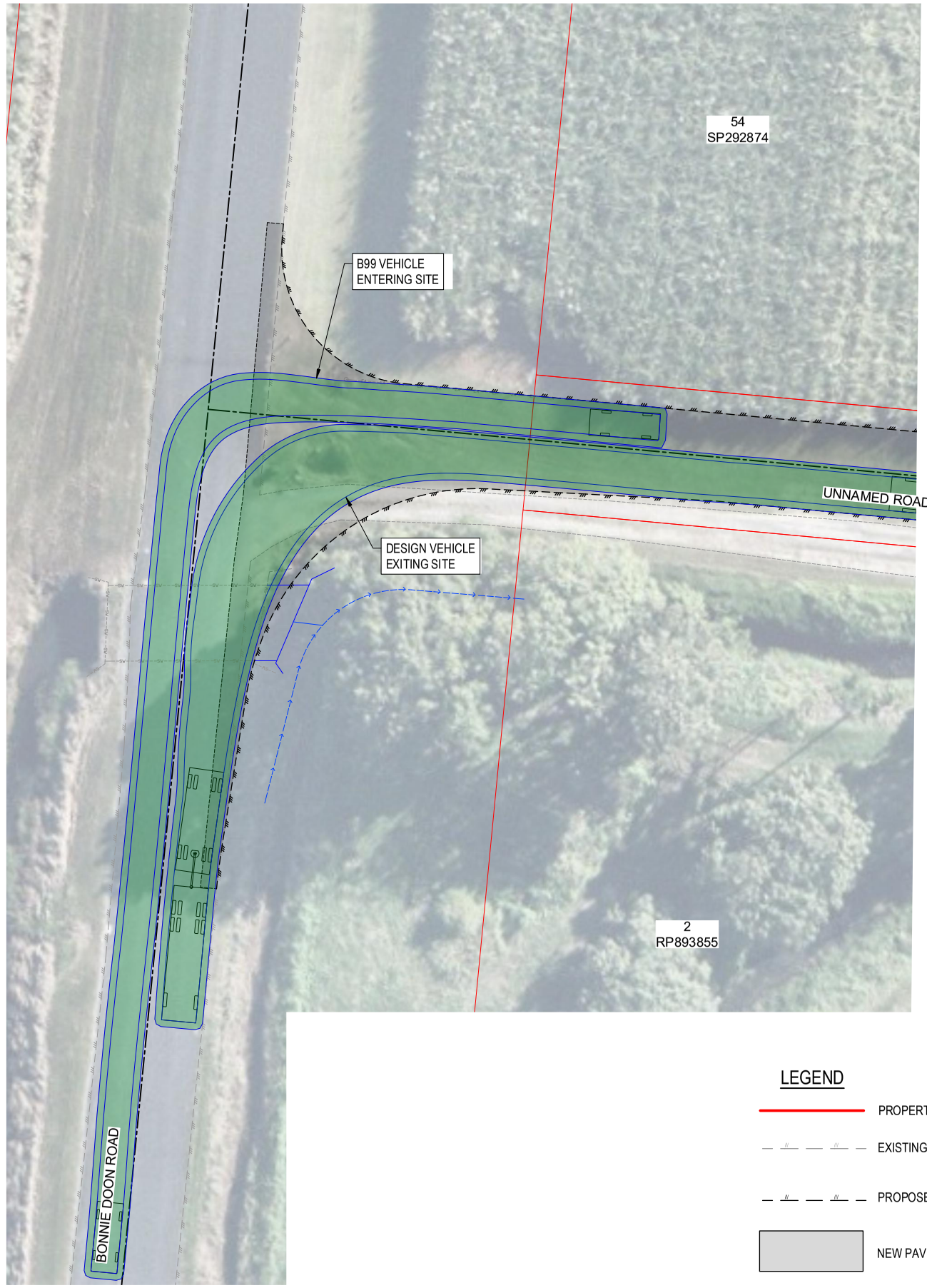
COOYA SAND EXTRACTION

PROPOSED ACCESS ROAD LAYOUT (SHEET 2 OF 2)

DRAWING NO. 102-008-SK11

REVISION 2





DESIGN VEHCILE - B99

	Meters
Width	: 1.94
Track	: 1.84
Lock to Lock Time	: 6.00 s
Steering Angle	: 33.92 deg

DESIGN VEHICLE - Truck-Trailer

	Meters		
First Unit Width	: 2.55	Lock to Lock Time	: 6.00 s
Trailer Width	: 2.55	Steering Angle	: 36.22 deg
First Unit Track	: 2.55	Articulating Angle	: 70.00 deg
Trailer Track	: 2.55		

LEGEND

- PROPERTY BOUNDARY
- EXISTING EDGE OF BITUMEN
- PROPOSED EDGE OF BITUMEN
- NEW PAVEMENT

REVISIONS					
NO.	DATE	DESCRIPTION	DESIGN	APPROVED
1	24/08/25	INITIAL ISSUE		

CLIENT: NQ ASPHALT PTY. LTD.

SCALE
1:200 0 2 4 6 8 10 12 A1
1:400 A3
ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker CONSULTING ENGINEERS

DRAWN	CMD	CHECKED	DJW
DESIGNED	CMD	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

COOYA SAND EXCTRACTION

VEHICLE SWEPTH PATH ANALYSIS

DRAWING NO. 102-008-SK12

REVISION 1

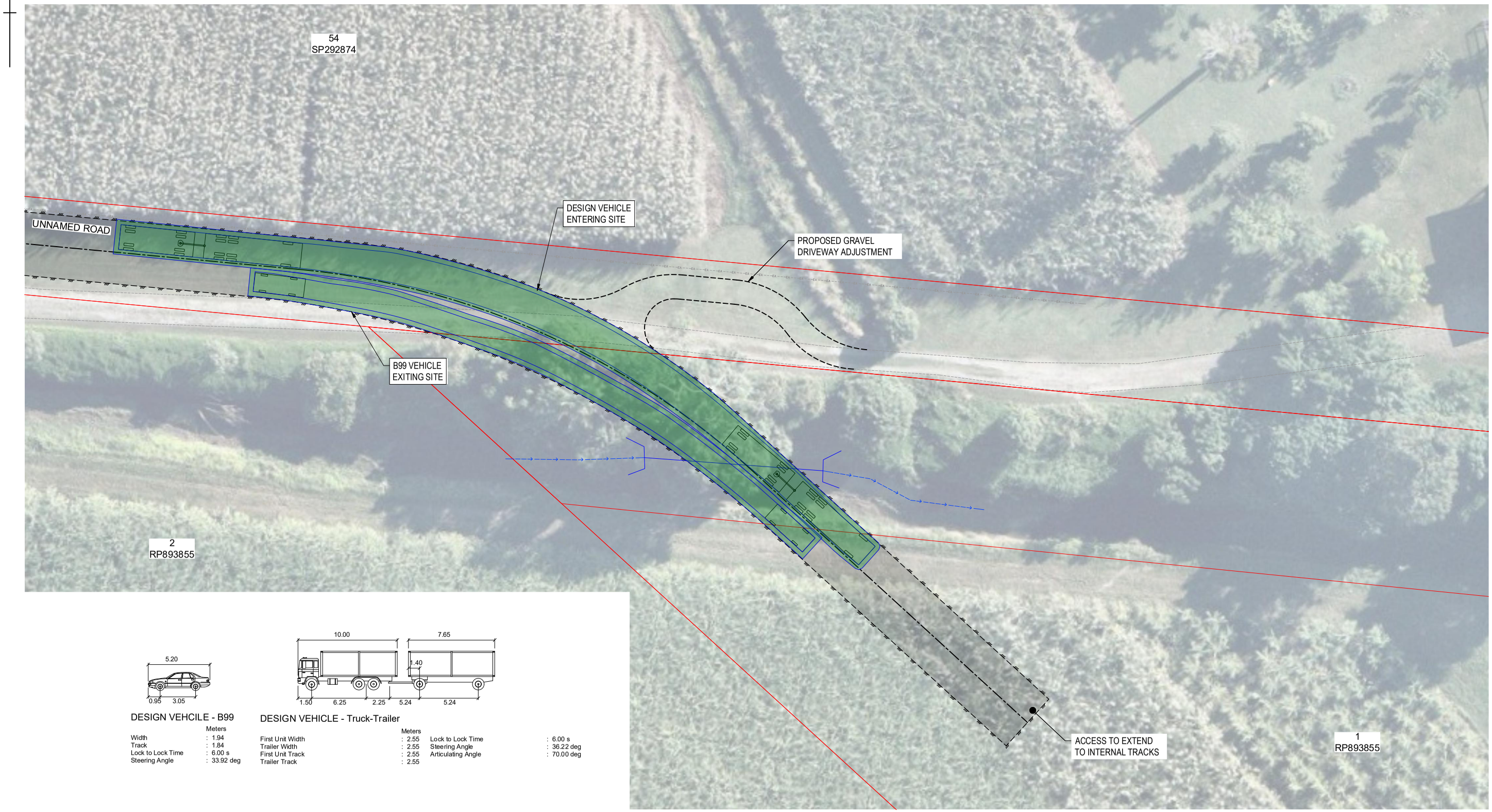
LEGEND

PROPERTY BOUNDARY

EXISTING EDGE OF BITUMEN

PROPOSED EDGE OF BITUMEN

NEW PAVEMENT



DESIGN VEHICLE - B99

	Meters
Width	: 1.94
Track	: 1.84
Lock to Lock Time	: 6.00 s
Steering Angle	: 33.92 deg

DESIGN VEHICLE - Truck-Trailer

	Meters		
First Unit Width	: 2.55	Lock to Lock Time	: 6.00 s
Trailer Width	: 2.55	Steering Angle	: 36.22 deg
First Unit Track	: 2.55	Articulating Angle	: 70.00 deg
Trailer Track	: 2.55		

REVISIONS	NO.	DATE	DESCRIPTION	DESIGN	APPROVED
	2	22/09/25	MINOR UPDATE	CW	DJW
	1	24/08/25	INITIAL ISSUE		

CLIENT

NQ ASPHALT PTY. LTD.

SCALE

1:200 0 2 4 6 8 10 12 A1

1:400 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker CONSULTING ENGINEERS

DRAWN	CMD	CHECKED	DJW
DESIGNED	CMD	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

COOYA SAND EXTRACTION

VEHICLE SWEPT PATH ANALYSIS

DRAWING NO. 102-008-SK13

REVISION 2

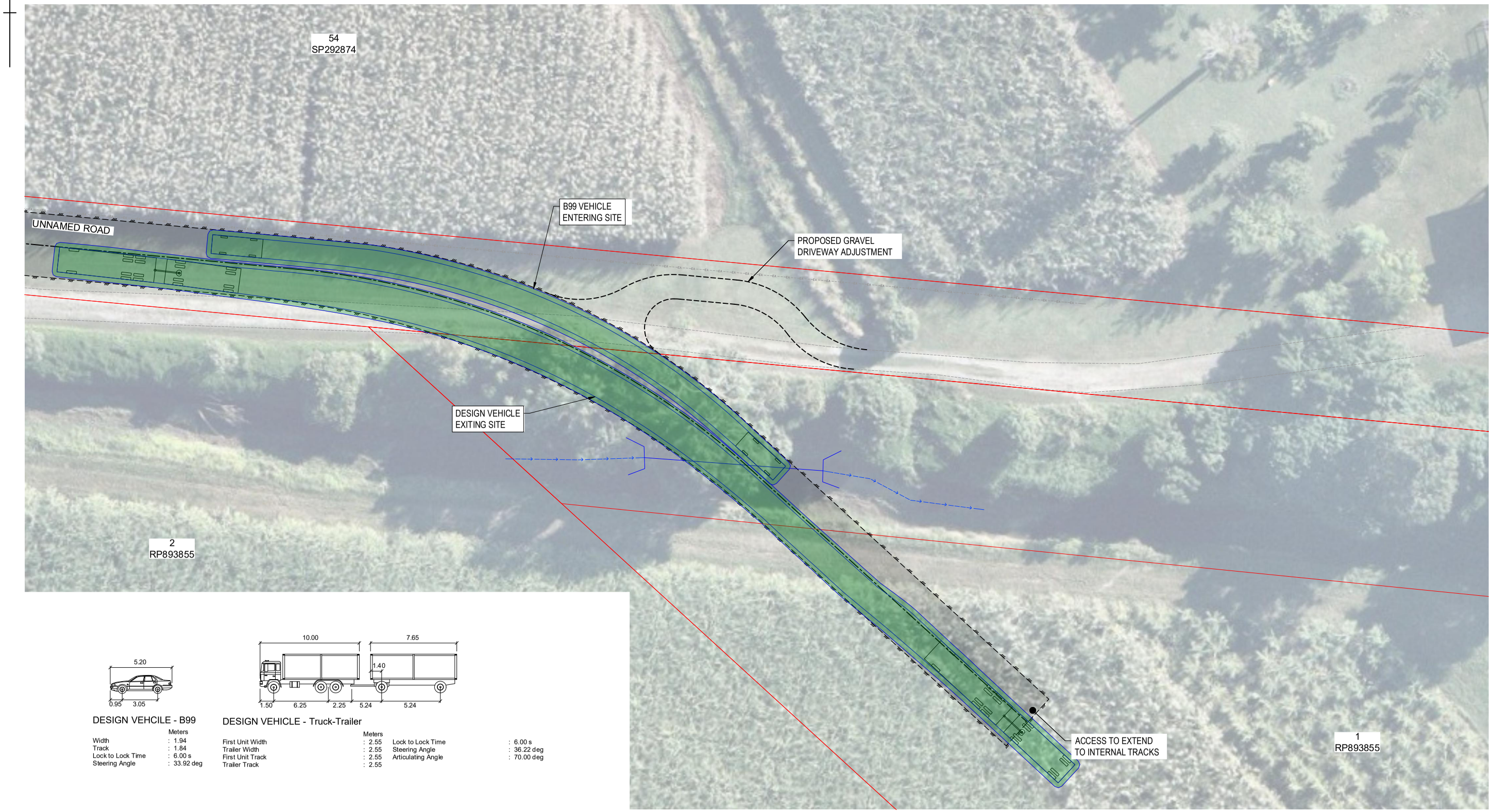
LEGEND

PROPERTY BOUNDARY

EXISTING EDGE OF BITUMEN

PROPOSED EDGE OF BITUMEN

NEW PAVEMENT



DESIGN VEHICLE - B99

	Meters
Width	: 1.94
Track	: 1.84
Lock to Lock Time	: 6.00 s
Steering Angle	: 33.92 deg

DESIGN VEHICLE - Truck-Trailer

	Meters		
First Unit Width	: 2.55	Lock to Lock Time	: 6.00 s
Trailer Width	: 2.55	Steering Angle	: 36.22 deg
First Unit Track	: 2.55	Articulating Angle	: 70.00 deg
Trailer Track	: 2.55		

REVISIONS					
2	22/09/25	MINOR UPDATE		CW	DJW
1	24/08/25	INITIAL ISSUE			
NO.	DATE	DESCRIPTION		DESIGN	APPROVED

CLIENT

NQ ASPHALT PTY. LTD.

SCALE

1:200 0 2 4 6 8 10 12 A1

1:400 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker CONSULTING ENGINEERS

DRAWN	CMD	CHECKED	DJW
DESIGNED	CMD	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

COOYA SAND EXCTRACTION

VEHICLE SWEPTH PATH ANALYSIS

DRAWING NO. 102-008-SK14

REVISION 2



LEGEND

- PROPERTY BOUNDARY
- EXISTING EDGE OF BITUMEN
- PROPOSED EDGE OF BITUMEN
- NEW PAVEMENT

SIGHT DISTANCE PARAMETERS

(BONNIE DOON ROAD SOUTHERN APPROACH)

- V=100km/h
- Rt=2.5s
- COEF DECEL = 0.29 (TRUCK)
- a=0.02
- SSD=205m

SIGHT DISTANCE PARAMETERS

(BONNIE DOON ROAD NORTHERN APPROACH)

- V=100km/h
- Rt=2.5s
- COEF DECEL = 0.29 (TRUCK)
- a=0.12
- SSD=205m

SIGHT DISTANCE PARAMETERS

(UNNAMED ROAD)

- V=60km/h
- Rt=2.0s
- COEF DECEL = 0.29 (TRUCK)
- a=0.5
- SSD=82m

REVISIONS

NO.	DATE	DESCRIPTION	DESIGN	APPROVED
1	24/08/25	INITIAL ISSUE		

CLIENT: NQ ASPHALT PTY. LTD.

SCALE: 1:1000 / 1:2000 — 0 10 20 30 40 50 60 — A1 / A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker CONSULTING ENGINEERS

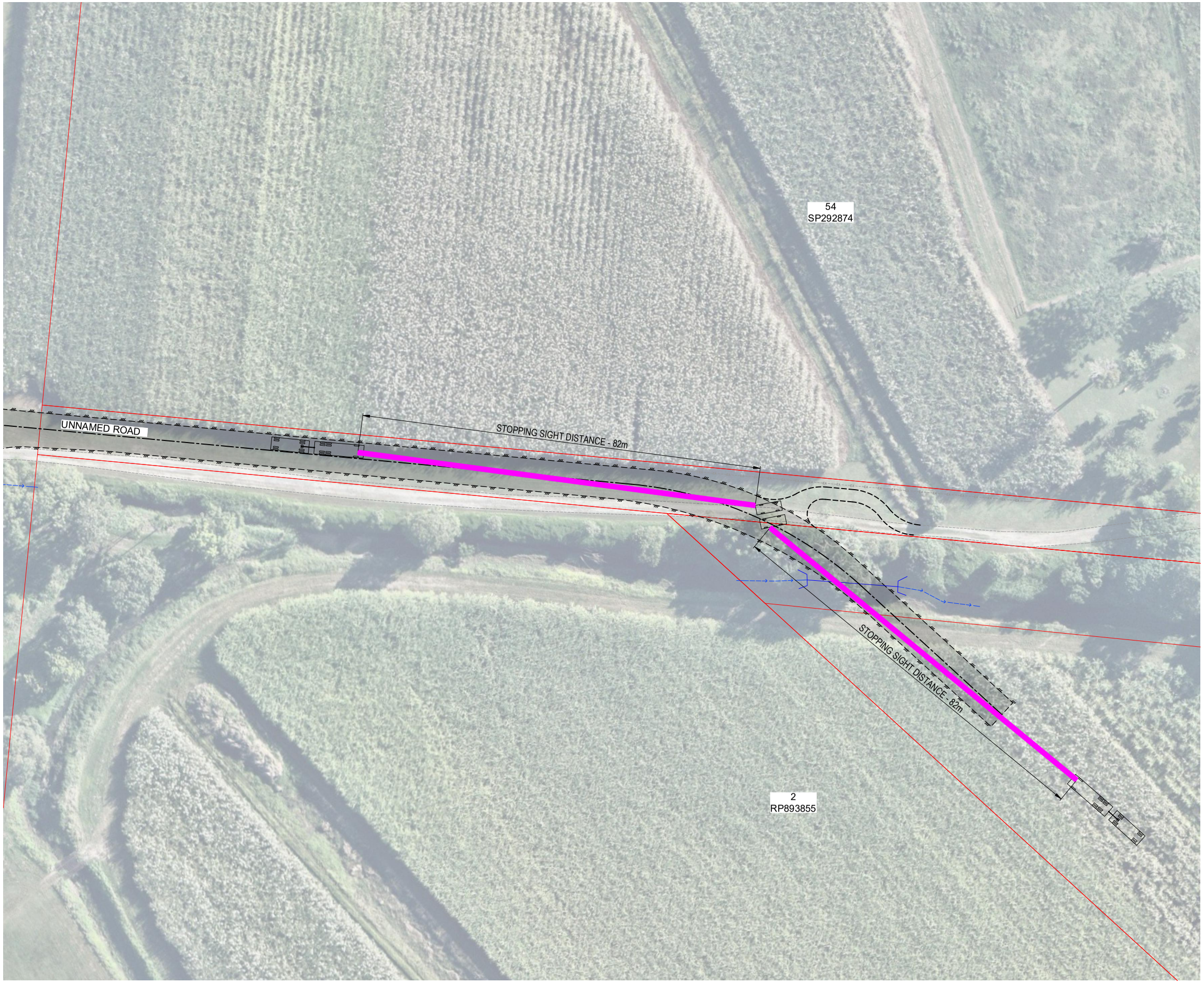
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APPROVED			
DATE:		RPEQ:	

COOYA SAND EXCTRACTION

INTERSECTION SIGHT DISTANCE

DRAWING NO. 102-008-SK15

REVISION 1



LEGEND

- PROPERTY BOUNDARY
- EXISTING EDGE OF BITUMEN
- PROPOSED EDGE OF BITUMEN
- NEW PAVEMENT

SIGHT DISTANCE PARAMETERS

(UNNAMED ROAD)

- V=60km/h
- Rt=2.0s
- COEF DECEL = 0.29 (TRUCK)
- a=0.5
- SSD=82m

REVISIONS					
2	22/09/25	MINOR UPDATE		CW	DJW
1	24/08/25	INITIAL ISSUE			
NO.	DATE	DESCRIPTION		DESIGN	APPROVED

CLIENT

NQ ASPHALT PTY. LTD.

SCALE

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1:800 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker CONSULTING ENGINEERS

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DESIGNED	CMD	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

COOYA SAND EXCTRACTION

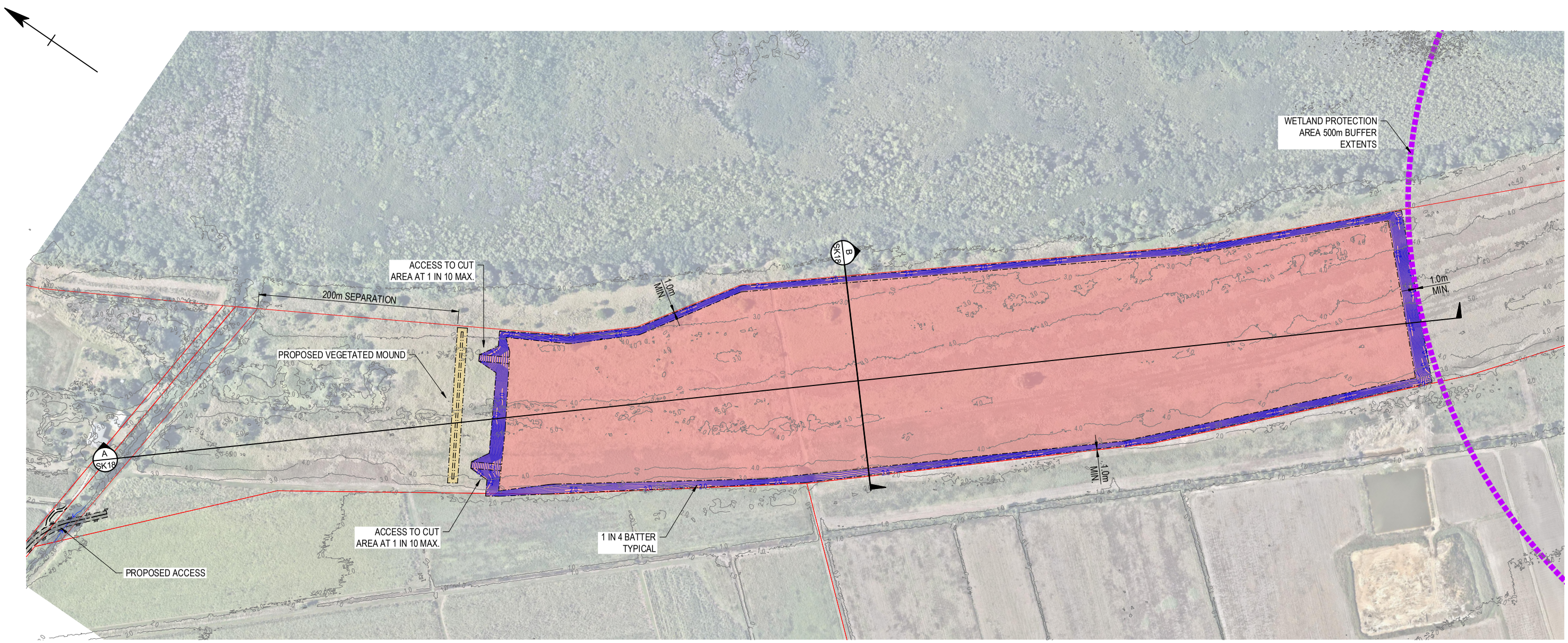
ACCESS SIGHT DISTANCE

DRAWING NO. 102-008-SK16

REVISION 2

LEGEND

- AREA OF EARTHWORK CUT
- AREA OF EARTHWORK FILL
- 9.8 — DESIGN CONTOUR (200mm INTERVALS)
- 9.8 — EXISTING CONTOUR (200mm INTERVALS)
- EARTHWORK BATTER INTERFACE
- PROPERTY BOUNDARY



REVISIONS					
	2	22/09/25	MINOR UPDATE	CW	DJW
	1	24/08/25	INITIAL ISSUE		
	NO.	DATE	DESCRIPTION	DESIGN	APPROVED

CLIENT

NQ ASPHALT PTY. LTD.

SCALE

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1:4000 A3

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker CONSULTING ENGINEERS

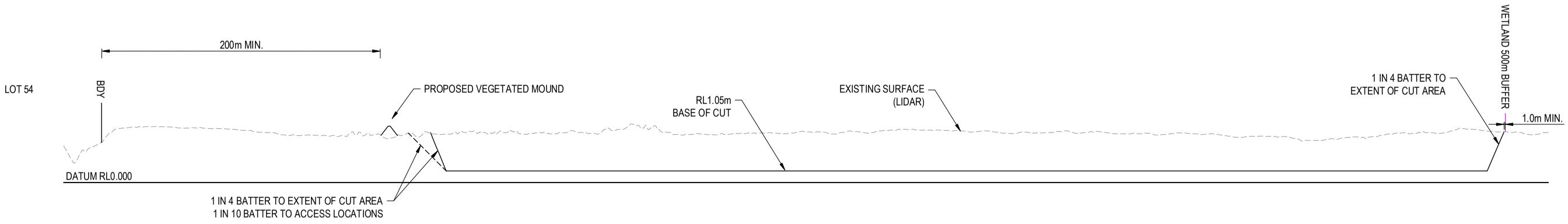
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DESIGNED	CMD	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

COOYA SAND EXCTRACTION

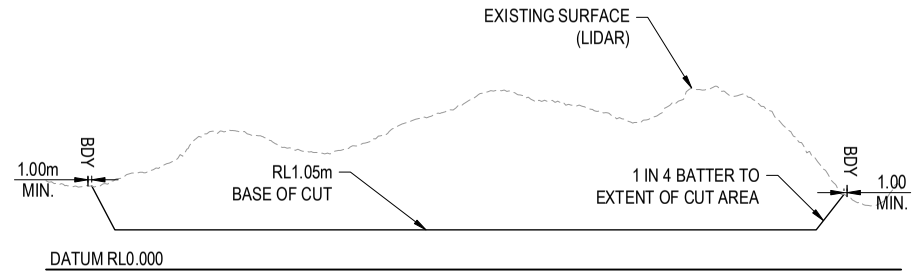
SITE EARTHWORKS

DRAWING NO. 102-008-SK17

REVISION 2



SECTION A (SK17)
SCALE 1:2000 (H)
SCALE 1:200 (V)



SECTION B (SK17)
SCALE 1:1000 (H)
SCALE 1:100 (V)

1:1000 / 1:2000 0 10 20 30 40 50 60 — A1 / A3 — HORIZONTAL

1:100 / 1:200 0 1 2 4 6 — A1 / A3 — VERTICAL

REVISIONS				
NO.	DATE	DESCRIPTION	DESIGN	APPROVED
2	22/09/25	MINOR UPDATE	CW	DJW
1	24/08/25	INITIAL ISSUE		

CLIENT

NQ ASPHALT PTY. LTD

SCALE

1:2000 / 1:4000 0 20 40 60 80 100 120 — A1 / A3 — HORIZONTAL

1:200 / 1:400 0 2 4 6 8 10 12 — A1 / A3 — VERTICAL

ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE

CivilWalker CONSULTING ENGINEERS

DRAWN	CMD	CHECKED	DJW
DESIGNED	CMD	CHECKED	DJW
APPROVED			
DATE:		RPEQ:	

COOYA SAND EXTRACTION

SITE EARTHWORKS SECTIONS

DRAWING NO. 102-008-SK18

REVISION 2

CivilWalker
CONSULTING ENGINEERS

Attachment 4

Previous RPS Correspondence

MAKING COMPLEX EASY
A TETRA TECH COMPANY

135 Abbott Street
Cairns QLD 4870
T +61 7 4031 1336

Our ref: AU015874

Date: 12 September 2025

Chief Executive Officer
Douglas Shire Council
PO Box 723
Mossman QLD 4873

Attn: Jenny Elphinstone, Senior Planning Officer

Dear Jenny,

Captain Cook Highway, Killaloe - Material Change of Use for an Extractive Industry for the extraction of approximately 30,000 tonnes of sand per year.
Response to further issues letter and submission received during Public Notification
Your Ref: MCUI 2024_5628/1

We refer to Councils further issues request of 14 February 2025 for the development application for this site and to the representations received by Council during the Public Notification period.

We provide our response to this Further Issues letter and to the representations below.

1 Proposed Project Overview and Intent

When Tropical Cyclone Jasper crossed the Far North Queensland coast in December 2023, the weather system impacted many North Queensland communities and essential infrastructure, including the Captain Cook Highway between Port Douglas and Cairns and other local and state road networks. During this significant weather event, a substantial number of landslips occurred, together with significant damage to road infrastructure. In response, the Queensland State Government engaged a recognised contractor to undertake road reconstruction works to repair damage to the Captain Cook Highway between Port Douglas and Cairns.

Road reconstruction works require the reinstatement of the road foundations with provision of asphalt resurfacing to the Department of Transport and Main Roads (TMR) specifications to extend the life of the road pavement. Sand is a critical resource for the manufacture of asphalt to create a durable and flexible pavement material to meet TMR specification. Suitable sand resources in Far North Queensland are somewhat limited, and the provision of locally sourced sand would facilitate asphalt manufacture at NQ Asphalt's approved plant, eliminating the needs for long distance transport. The proposal seeks to extract sand from the subject site to facilitate manufacture of asphalt to support road construction projects, including the reconstruction of the Captain Cook Highway in the aftermath of Tropical Cyclone Jasper.

2 Response to further issues

Our detailed response to the issues request items is provided below.

2.1 Level of Extraction

> The surrounding land is affected by storm tide inundation, coastal erosion and flooding. The creation of a large depression on the land will change the dynamics of the impacts of storm tide inundation, coastal erosion and flooding. Specific details on the pre, post and extraction phases for these matters is required. Plans should clearly demonstrate the operation and nominate all relative levels to finished surface. Given these concerns a bulk earthworks plan illustrating the intended extent of extraction that is to also align with the location and depth of the resource should be provided.

The development proposes the reduction of an existing sand dune/ridge to its natural ground level. It is not proposed to extract sand below RL3.0AHD, which is the ground level at the foot of the dune, and create a 'large depression". This was addressed in the supporting planning report submitted with the application. Further details of the level of extraction are contained within the response to the information requested by the Department of Environment, Tourism, Science and Innovation (DETSI), attached at **Appendix A - Response to the Department of Environment, Tourism, Science and Innovation**.

In address the concerns of DETSI a 10m buffer is proposed to the eastern boundary to address concerns relating to storm tide inundation and to prevent impacts to the adjoining mangrove forest.

Below in **Figure 1** is a cross section providing an illustration of the proposed depth of extraction.

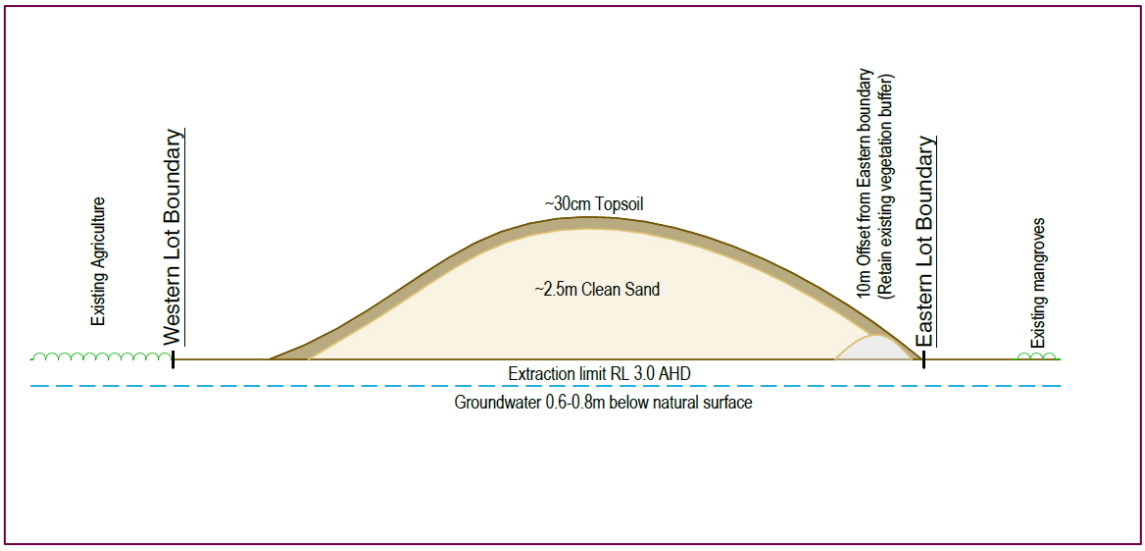


Figure 1: Indicative Cross Section

Source: RPS AAP Consulting Pty Ltd

2.2 Response to Planning Scheme Considerations Including Other Environmental Impacts

- The Assessment is required against the whole of the Scheme, including the land use code and the other development codes. A full assessment should be provided including scenic amenity considerations.
- The Environmental Assessment should clarify the sources of impacts, assess the impacts and determine the ability and extent of the activity that can occur without detrimentally impacting on neighbouring land and nearby sensitive uses.

A detailed response to the relevant provisions of the Strategic Framework and a summary of the assessment against the relevant Planning Scheme Codes is provided below. Refer to **Appendix B–** Detailed code responses, for further information.

Strategic Framework

The provisions of the Strategic Framework that are relevant to the assessment of the application are contained within Theme 3, Natural Resource Management and Element 3.6.4, Resource Extraction. These sections state:

3.6 Theme 3 – Natural resource management

(1) The natural resources of the Shire, such as agricultural land, and in particular land suitable for sugar cultivation, forestry, water, fisheries and extractive resources are protected or managed in a sustainable manner to ensure their ecological and economic values are assured.

(2) Natural resources are well managed through federal, state, local government, regional resource management bodies, traditional owners and the community.

(3) Extractive activities do not unduly compromise natural landscape values.

3.6.4 Element – Resource extraction

(1) Douglas Shire is not, and is not likely to be, a major resource extraction area. However where extraction does occur, it is small-scale, visually unobtrusive and managed in an environmentally responsible manner. All land disturbed by mining and extractive industries is appropriately rehabilitated.

3.6.4.1 Specific outcomes

(1) Coal Seam Gas ('CSG') extraction does not occur in Douglas Shire.

(2) Other extractive industries do not detrimentally impact on community well-being or the Shire's ecological, landscape, scenic amenity and rural production values, and in particular the sugar industry.

(3) *Extractive industries are either progressively rehabilitated to a natural state, or are rehabilitated upon completion of extractive activities, with all buildings, machinery and other associated infrastructure being removed.*

The Strategic Framework acknowledges that extractive industry will occur in the shire and that these resources should be protected to ensure that their economic values are assured. Relevant to the operation of an extractive industry are the following:

- The extractive activity does not unduly compromise natural landscape values;
- The extractive activity is small-scale;
- The extractive activity is visually unobtrusive;
- The extractive activity is managed in an environmentally responsible manner; and,
- All land disturbed by extractive industries is appropriately rehabilitated.

The proposal is for the extraction of sand from an existing low sand ridge that has a maximum height of 6m AHD. The sand ridge is not a prominent feature on the natural landscape and its removal would not compromise landscape values.

In terms of scale, the extraction would be limited to 30,000t per annum, which is not considered to be large scale and would equate to in the order of 2,307 tip truckloads or an average of less than 10 truck and dog movements per working day and an additional four (4) light vehicle movements per day. Whilst the supporting Planning Report submitted with the application estimated traffic movements would comprise in the order of 5 x 20 tonne haul vehicle trips per day, the applicant has advised that a maximum of six (6) truck and dog haul vehicle trips would occur daily. This is indicative of a small scale operation. In contrast a large scale operation would see in the order of 40 truck movements per day (Ardmore Park Quarry) and 49 truck movements per day (Jandra Quarry). It is considered that the proposal is small scale.

In terms of visual intrusion, the site is located approximately 500 metres from the Captain Cook Highway at the nearest point and the extraction activities would occur more than 300 metres from Bonnie Doon Road and more than 200 metres from the nearest sensitive receiver. No building development on the site, consistent with the provisions of the rural zone code, would have a height greater than 10 metres.

In order to demonstrate that the proposed development would be no more visually intrusive than the current rural use of the land, RPS undertook a visual impact assessment of the site. The assessment indicates that the proposal for extraction of sand from the existing low sand ridge would not be visually discernible from Boon Doon Road or the Captain Cok Highway. The visual site plans of the proposed development are provided for reference as **Appendix C**.

The proposal would not be visually obtrusive.

The impact of the development on the Environment was considered in detail as part of the determination oi the application for an Environmental Authority. Consistent with the Environmental Assessment Report and the requirements of the Department of Environment, Science and Innovation, the development will be undertaken in an environmentally sensitive manner and the site will be remediated following extraction. This was addressed in the response to the information requested by the Department of Environment, Tourism, Science and Innovation (DETSI), which is provided for reference as **Appendix A**.

Following their assessment, the Department of Environment, Tourism, Science and Innovation were satisfied that the environmental impacts would be appropriately managed and have granted an Environmental Authority for the proposed extraction of sand from Lot 1 on SP893855. A copy of Environmental Authority P-EA-100750656 is provided for reference as **Appendix D**.

The proposed development is considered to be consistent with the Strategic Framework that facilitates appropriate extractive industries in the Rural Zone.

2.2.1 Planning Scheme Codes

A summary of the assessment of the proposed development against the relevant Planning Scheme Code is provided in the table below. For a detailed assessment, refer to **Appendix B** – Detailed Code Responses.

Planning Scheme Codes	Applicability	Response
Zone Code		
Rural Zone Code	Applies	Complies with relevant Assessment Benchmarks.
Overlay Codes		
Acid Sulphate Soils Overlay Code	Applies	Complies with applicable Assessment Benchmarks.
Bushfire Hazard Overlay Code	Applies	Complies with applicable Assessment Benchmarks
Coastal Environment Overlay Code	Applies	Complies with applicable Assessment Benchmarks.

Planning Scheme Codes	Applicability	Response
Flood and Storm Tide Hazard Overlay Code	Applies	Complies with applicable Assessment Benchmarks
Landscape Values Overlay Code	Applies	Complies with applicable Assessment Benchmarks
Natural Areas Overlay Code	Applies	Complies with applicable Assessment Benchmarks
Potential Landslide Hazard Overlay Code	Applies	Complies with applicable Assessment Benchmarks. No development would occur on land identified within the Potential landslide hazard overlay.
Transport Network Overlay Code	Applies	Complies or is able to comply with applicable Assessment Benchmarks. A subsequent Operational Works application will be required to upgrade the unnamed road to the north and its intersection with Bonie Doon Road in accordance with the requirements of the FNQROC Development Manual.
Extractive Industry Code	Applies	Consideration is required in respect of Performance Outcome PO4, refer below.
Access, Parking and Servicing Code	Applies	Complies with relevant Assessment Benchmarks.
Environmental Performance Code	Applies	Complies with relevant Assessment Benchmarks.
Infrastructure Works Code	Applies	Complies or is able to comply with the relevant Assessment Benchmarks

2.2.2 Town Planning Considerations

Performance Outcome PO4 of the Extractive Industry Code and the associated Acceptable Outcomes state:

> ***PO4***
>
> *Extractive industry operations are adequately separated from sensitive land uses to minimise potential for nuisance.*
>
> ***AO4***
>
> *Extractive resource separation areas to sensitive land uses are:*
>
> *(a) 1,000 metres where the extractive resource involves blasting or crushing (namely rock); or*
>
> *(b) 200 metres for any other extractive industry resource not involving blasting or crushing (namely sand, clay, gravel and soil).*

In order to address concerns raised by submitters and Council Officers, the proposal plan has been amended to increase the setback from 50 metres to the nearest sensitive receptor to 200 metres from the nearest sensitive receptor, which complies with the Acceptable Outcome The amended proposal plan is provided at **Appendix E.**

This setback has been assessed by the Department of Environment, Tourism, Science and Innovation (DETSI) when considering the response to an information request from DETSI. A copy of the response to this information request is provided at **Appendix A.**

The assessment included consideration of the following environmental values:

- Waters;
- Stormwaters;
- Air (dust); and,
- Noise.

The report and assessment concluded that the proposed development, with a 200 metre setback, is not anticipated to have an adverse impact on the sensitive receptor to the north. The proposed development complies with the Acceptable Outcome.

A detailed assessment against the relevant Planning Scheme Codes is provided at **Appendix B**.

2.2.3 Environmental Assessment

Additional detail in respect of the environmental impacts has been provided as a response to further information requested by DETSI, attached at **Appendix A**. Prior to addressing these concerns a meeting was held with the officers of DETSI and it is understood that this additional information clarifies the sources of impacts, assesses the impacts and determines the ability and extent of the activity that can occur without detrimentally impacting on neighbouring land and nearby sensitive uses.

2.3 Possible Acid Sulfate Soils

Given the unknown depth of extraction, concern remains regarding pH level of the extracted material and that of exposed material. Further advice is required.

As provided to DETSI in the response to their information request, copy provided at **Appendix A**, the proposed sand extraction area does not contain PASS material as it is a dunal type deposit which is approximately 2,000m long and 200 – 250m wide and 2m to 5m above natural ground level. It was historically cleared, has been farmed under cane production in the past, then grassed and slashed for a number of years.

The proposed sand extraction would not occur below the highest level of groundwater and there would be no dewatering of the landform as a result of sand extraction or interaction with PASS material.

The site was extensively drilled in 1994 by Cairns Sand, with the report stating that the deposit has an average depth of clean sand of 3.5 metres and is covered in a think (300mm) layer of topsoil. The water depth was observed at 3.5m to 4m.

Refer to **Appendix A** for further details and advice on the potential for Acid Sulfate Soils on the site and the potential for disturbance as a result of the proposed development.

2.4 Road Upgrade and Intersection Design

Should Council be of an opinion to support the development further details will be required for this consideration. Advice to date has been insufficient.

In accordance with the response for the State Assessment and Referral Agency, the access to the site is required to be via Bonnie Doon Road and the unnamed road to the north of the site. This will necessitate upgrades to the intersection with Bonnie Doon Road and the unnamed road and to the unnamed road.. This would include, but not limited to road widening of the carriageway at the intersection to accommodate design

vehicle swept paths; improved pavement to accommodate the heavier vehicles with seal at the intersection; relocation of the existing electricity supply pole on the unnamed road; culvert extension and new headwall at Boonie Doon Road intersection; provision of a culvert crossing on the unnamed road to avoid adverse impact on the existing drainage feature and road widening of the unnamed road.

The engineering report is provided for reference as **Appendix G**.

It would be preferrable to defer the expense of assessing and designing the road upgrades to a subsequent Operational Works Application. On this basis it is requested that Council consider attaching a condition to any approval granted that states:

> *The unnamed road reserve is required to be upgraded to accommodate the traffic anticipated to be generated by the development. The upgrades, including intersection upgrades, pavement improvements and site access shall be undertaken in accordance with the findings of an engineering assessment that is to be submitted in association with an application for Operational Works.*

3 Properly Made Submissions

The applicant is recommended to consider the grounds raised in the properly made submissions and be aware of the level of concern the proposal has raised in the community.

The properly made submissions received by Council during the Public Notification Period have been considered in detail by the applicant's consultant team. A summary of the grounds of submission and the comments on those grounds is provide din the table below.

Planning Representations / Objections	Number of Submissions	RPS Comments
1 Proposal inconsistent with adjoining land uses (farming). • Rural to industrial; • The site is not located within a key resource area; and, • Demand for sand resources in the region being addressed elsewhere	3	The proposed sand extraction is relatively small scale and is not required to be located within a Key Resource Area. Extractive Industries are typically located in rural areas where the number and density of sensitive land uses are limited. The Strategic Framework of the Planning Scheme protects extractive resources from incompatible land uses and acknowledges that small scale extractive industry will occur within the shire. This element of the Strategic Framework is recognised as being, in part, the purpose of the Rural Zone Code. The resources would service regional demand requirements, including demand for sand in the wider FNQ Region. The Queensland Quarry Demand and Supply Risks Report 2023 commissioned by the Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development found that the demand for quarry material in the region is forecasted to strengthen, rising to 830 Kt by 2029-30, to then average around 930 Kt over the remainder of the forecast period to 2040.

Planning Representations / Objections	Number of Submissions	RPS Comments
2 Inconsistency with Resource Extraction element (3.6.4) of the Strategic Framework: • Size, scale & location • Detrimental impact on community wellbeing & scenic amenity • Insufficient rehabilitation of the site	7 (568)	Section 3.6.4 of the Strategic Framework states: *Douglas Shire is not, and is not likely to be, a major resource extraction area. However where extraction does occur, it is small-scale, visually unobtrusive and managed in an environmentally responsible manner. All land disturbed by mining and extractive industries is appropriately rehabilitated.* The Strategic Framework does not preclude the establishment and operation of an extractive industry in the Douglas Shire. In the alternative, it acknowledges that extraction may occur and that it is acceptable where it is small scale, visually unobtrusive and environmentally sensitive. In this instance the extraction would be limited to 30,000t per annum, which is not considered to be large scale and would equate to in the order of 2,307 tip truckloads or an average of less than 10 movements per working day. In terms of visual intrusion, the site is located approximately 500 metres from the Captain Cook Highway at the nearest point and the extraction activities would occur more than 300 metres from Bonnie Doon Road and 200 metres from the nearest sensitive receiver. No buildings development on the site, consistent with the provisions of the rural zone code, would have a height greater than 10 metres. The proposed development would be no more visually intrusive than the current rural use of the land. Consistent with the Environmental Assessment Report and the requirements of the Department of Environment, Tourism, Science and Innovation, the development will be undertaken in an environmentally sensitive manner and the site will be remediated following extraction. Refer to **Appendix A** - Response to the Department of Environment, Tourism, Science and Innovation. The proposed development is considered to be consistent with the Strategic Framework that facilitates appropriate extractive industries in the Rural Zone.

Planning Representations / Objections	Number of Submissions	RPS Comments
3 9.3.10 Extractive Industry Code • Inconsistent with overall outcomes (adequate separation from sensitive land uses). • Sensitive land uses within 15m up to 1 km from site. Amenity impacts. • Application states 50m buffer to closest dwelling house. Acceptable Outcome is 200m. • Haulage route on unnamed road impacts on amenity and impacts on road users. • Any proposed upgrades to unnamed road may affect neighbouring properties (flood impacts). • Buffer & proposed mitigation measures may not reduce amenity impacts. • Potential visual amenity impacts • Proposed rehabilitation of the site inadequate to achieve remediation at same level of adjoining land.	8 (568) (+1 not properly made)	The overall outcomes of the Extractive Industry Code state: *(a) extractive industries are established in locations that are adequately separated from sensitive land uses and do not have significant ecological, landscape or rural value;* *(b) a separation area is established to maintain a buffer between the extractive industry and existing and future sensitive land uses;* *(c) external operations such as haulage routes do not adversely impact on amenity and wellbeing of the community;* *(d) extractive industry operations are designed and managed to operate safely and avoid adverse impacts on amenity of adjacent sensitive land uses;* *(e) extractive industries cause no adverse impact on scenic amenity;* *(f) extractive industry sites are effectively and progressively rehabilitated including the achievement of a stable land form that is safe and suitable for other appropriate uses.* This has been addressed above and a detailed assessment against the provisions of the Extractive Industry Code is provided in **Appendix B**.
4 Inconsistency with the Landscape Values Overlay • Overlay prescribes extractive industry operations are avoided in High Landscape Values areas • Site contains mapped High Landscape Values in the eastern portion of the site	13	The proposed extraction is not located within the mapped areas of High Landscape Values. The only area of the site mapped as High Landscape Value is in the south of the site in an area contiguous with the wetland trigger area. No operations are to occur within the wetland trigger area or a mapped area of High Landscape Value.
5 Detrimental Impact on Visual Amenity • Application acknowledged sand ridges, however, does not demonstrate compliance with visual impact mitigation requirements. • Lack of a Visual Impact Assessment	16 (568)	This ground of objection has been addressed above and in the responses to the Planning Scheme codes provided in **Appendix B**. The proposed excavation areas would be approximately 500 metres from the Captain Cook Highway and 350 metres from Bonnie Doon Road. It would not involve any

Planning Representations / Objections	Number of Submissions	RPS Comments
• Visually intrusive and significant alteration of the natural landform, inconsistent with the Strategic Framework. • Visual intrusion due to haul vehicle activity & sediment retention. No measures proposed to mitigate potential impacts.		buildings and would involve the removal of a sand ridge with a height of 6m AHD, or approximately 3m above the balance of the site, which is not considered to be a significant land form.
6. Clearing of Native Vegetation • Application refers to potential impacts on High-value regrowth in the southern portion of the site. • Loss of Biodiversity (impacts on flora & fauna) and potential impacts on biodiversity	13	The site is generally category X vegetation and the extraction would occur in this area. No native vegetation would be removed to facilitate the development. Reference to the high value regrowth relates to a vegetated area in the south of the site and no extraction would occur within 500 metres of these wetlands to ensure they are not impacted.
7. Retention of Vegetation • Screening of the proposed development • Haul route across a farm drain and unnamed road lack adequate measures to mitigate dust, noise and visual impact.	11	The screening of the development is addressed in the detailed responses to the planning scheme codes attached at **Appendix B**. The extraction area would be screened form the north, south and east by existing vegetation and screened form the west by sugar cane. In respect of the haul route, it is required by the state government to be via the unnamed road to the north and Bonnie Doon Road. The unnamed road to the north and Bonnie Doon Road will require minor upgrade works, in accordance with an engineering assessment to be submitted in association with an application for Operational Works.
8. Changes to Natural Landforms	5	The impact on the coastal landforms have been addressed with the Department of Environment, Tourism, Science and Innovation (DETSI) (Coastal). DETSI have granted Environmental Authority P-EA-100750656, which is provided for reference as **Appendix D**.
9. Compatibility with the Road Hierarchy • Vehicle movements of 5 x 20t trucks per day (10 trucks daily). • Potential traffic hazard • Requirement for upgrades to Boonie Doon Road to accommodate haul vehicles.	13 (568) (+1 not properly made)	The State Assessment and Referral Agency (SARA) and the Department of Transport and Main Roads (DTMR) have assessed the application and the potential traffic impacts on Bonnie Doon Road. They have required all haulage to be via Bonnie Doon Road to the Captain Cook Highway, which has been determined to have sufficient capacity to accommodate the traffic generated without requiring improvements.

Planning Representations / Objections	Number of Submissions	RPS Comments
10. Traffic Impact Assessment • Lack of comprehensive traffic impact assessment • Lack of detail on vehicle manoeuvring from unnamed road and on-site	12	It is considered that a detailed Traffic Impact Assessment is not required, as supported by the response from SARA and DTMR. However, the applicant engaged engineers to undertake a traffic count and to assess estimated traffic generation associated with the proposed development. Investigation confirmed that upgrades will be required to the intersection of Bonnie Doon Road and the Unnamed road to the north, which can be addressed through an operational works application and an engineering assessment.
11. Site adjoins Wetland of significance to Eastern Kuku Yalanji People • Separation of the proposed extractive industry activities on the eastern boundary • Lack of Cultural Heritage Assessment • Potential fragmentation of existing ecological corridors • Hydrological disturbance • Inadequate marine plant survey (not HAT data or sp)	8 (568)	A search of the Cultural Heritage Database and Register has not identified any cultural heritage site points or site polygons within the site. Refer to **Appendix H** – Cultural Heritage Database and Register Search Report. On this basis, an assessment was not considered necessary. Notwithstanding, the proposed development would provide a buffer area of 500 metres to the wetlands to ensure that they are not impacted. No native vegetation is required to be removed to facilitate the development, which would occur in stages with rehabilitation occurring at the end of each stage. No ecological corridors or essential habitat areas have been identified in the area of extraction and on this basis no known ecological corridors would be impacted. Further details on the impact of the development on matters of hydrology are addressed in **Appendix A** - Response to the Department of Environment, Tourism, Science and Innovation.
12. Potential Erosion Impacts	4 (+1 not properly made)	These have been addressed in the Site Based Management Plan and Environmental Assessment Report submitted with the application.
13. Potential Salinity Issues • Potential impacts on aquifer	4	The impacts on hydrology have been considered by DETSI and in the response to DETSI provided at **Appendix A**.
14. Potential Flood Impacts • Increased risk associated with extraction activities • Flood Capacity impacts • Potential damming effect of proposed bridge across farm drain/waterway	16 (568) (+2 not properly made)	The proposal is for an extractive industry. It would not result in a decrease in the flood storage capacity of the land and it would not result in a change to the drainage pattern of the area. The site access would be designed such that the free flow of water was not affected

Planning Representations / Objections	Number of Submissions	RPS Comments
• Reports refers to retain or reinstate existing drain, not commitment to maintaining functional integrity		and the functional integrity of the drain would not be affected.
15. Air and Noise (Potential Amenity Impacts) • Dust • Extraction activity • Air brakes of 20t truck • No background noise monitoring	14 (568) (+1 not properly made)	Proposed extraction activity would operate intermittently at maximum of 6 x 20t trucks / day. The environmental impacts have been considered by the officers of DETSI who the responsible agency for the implementation of environmental protection policies, including those related to noise and dust. It is understood that the proposed development is considered to be acceptable by DETSI who will continue to monitor the project through its life.
16. Potential impacts on water sources • Impacts of watercourses and springs • Impacts on wetlands • Post extraction left with large hole that would impact mangroves in wetland • Impacts of water quality	8	The proposal is for the removal of the sand dune only. No excavation would occur below the water table and the development would not result in a large hole or depression. In order to preserve the integrity of the wetland it is not proposed to undertake any excavation within 500 metres of the wetland and no marine vegetation or remnant vegetation is required to be removed to facilitate the development. The environmental Impacts, including those on water and wetlands have been considered by DETSI, who are responsible for implementing the Environmental Protection Act, and it is understood that they have raised no objection to the development.
17. Inconsistencies within Application • Failure to definitively define depth of excavation: - Planning report states 0.5 – 1m below natural ground level; - EAR states 1 – 3m from existing surface profile - Response to IR states extracted to a level equivalent to level of farmland to the south-west of the site. - Dispute height of sand ridges • Application does not definitively state amount of material to be extracted: - Reports states in the order of 30,000t or 20,000 – 30,000t	4	The depth of excavation has now clearly been established. Refer to **Appendix A** - Response to the Department of Environment, Tourism, Science and Innovation. Similarly, additional bore hole testing has been undertaken and the findings of these recent bore holes is consistent with those of 1994.

Planning Representations / Objections	Number of Submissions	RPS Comments
- Soil test hole logs are from 1994, and object to use of these for depth of soil, sand, water etc		
18. Inconsistencies with EA on Lot 1 on RP893855 • P-EA-100727892 proposed extraction area includes wetland protection area • Permit subject to cancellation	2	The proposed activity is the subject of a new application (A-EA-NEW-100750082). This has been assessed and determined by DETSI. DETSI have granted Environmental Authority P-EA-100750656, which is provided for reference as **Appendix D**.
14. Proposed Site Extraction Plan • Proposed extraction area extends along the western & eastern boundary. Potential amenity impacts.	3	The extraction area would be setback 10 metres from the eastern boundary, greater that 500 metres from the southern boundary and 200 metres from the northern boundary. Amenity impacts have been addressed above and in the detailed planning scheme code responses attached at **Appendix B**.
15 Council Information Request response • Response does not provide a copy of the advice from TMR as to preferred access route along Boon Doon Road to Captain Cook Highway.	1	A copy of the SARA pre-application response and the subsequent formal referral response are provided at **Appendix I.** This confirms that the requirement is for the site to be accessed via Bonnie Doon Road.
16 Acid Sulphate Soils Overlay Code • No preliminary ASS investigation/assessment • ASS potential for extraction • No co-ordinates provided for test pit despite DSC IR • Historical soil logs did not include any PASS testing	4	As provided to DETSI in the response to their information request, copy provided at **Appendix A**, the proposed sand extraction area does not contain PASS material as it is a dunal type deposit which is approximately 2,000m long and 200 – 250m wide and 2m to 5m above natural ground level. It was historically cleared, has been farmed under cane production in the past, then grassed and slashed for a number of years. The proposed sand extraction would not occur below the highest level of groundwater and there would be no dewatering of the landform as a result of sand extraction or interaction with PASS material. The site was extensively drilled in 1994 by Cairns Sand, with the report stating that the deposit has an average depth of clean sand of 3.5 metres and is covered in a think (300mm) layer of topsoil. The water depth was observed at 3.5m to 4m. Refer to **Appendix A** for further details and advice on the potential for Acid Sulfate Soils on the site and the potential for disturbance as a result of the proposed development.
17. Coastal Processes – Coastal Environment Overlay Code	2	The subject site is not located within the coastal management district; however, the

Planning Representations / Objections	Number of Submissions	RPS Comments
• Erosion prone area of the site, potentially encroaches the proposed extraction area.		erosion prone area encroaches into the southern portion of the site and small areas of the site adjacent the eastern and north western boundary. The extraction area is setback 10 meters form the eastern boundary, outside of the erosion prone area, 500 metres from the wetland and outside of the erosion prone area, and outside of the erosion prone area identified in the north west. Amended Plans clearly identifying the extraction area are provided at **Appendix E**.
18. Flood & Storm Tide Hazard Overlay • Removal of the sand ridges may potentially result in storm tide inundation to adjoining properties • Lack of pre & post flooding modelling as per DSC IR • Proposal entails lowering the site's natural elevation by 0.5-3m, potential impact on flood events.	4	The removal of the sand ridge would increase the flood capacity of the site and decrease the inundation of adjoining properties. A detailed assessment against the Flood and Storm Tide Hazard Overlay is provided at **Appendix B.**
19. Inadequacy of SBMP, noted in report as a desktop assessment • Lack of weed management plan	2	A weed management plan is able to be prepared as a condition of approval, if considered necessary.
20. Rehabilitation plan is vague • Inconsistencies in report, windrows or earthen bunds	2	The extraction is intended to be staged with stages occurring in 100 metre intervals from the north and in areas of approximately 2 hectares. Rehabilitation of the stages is to occur progressively as the sand is extracted. Refer to **Appendix E** for the amended proposal plans, including the staging plans.
21. Inconsistent with the intent for the Environmental Management Zone	2	The proposed extraction area is wholly located within the Rural Zone and the Environmental Management Zone provisions are not relevant to the assessment of the application.
22. Bushfire Hazard Overlay • Sufficient separation from areas of mapped hazardous vegetation • Storage of hazardous materials • Evacuation routes	2	The proposed extraction area is located approx. 680m north of the identified High and Medium Potential Bushfire Intensity areas. No hazardous materials would be stored on-site. The existing unnamed road would be maintained as an evacuation route.

Planning Representations / Objections	Number of Submissions	RPS Comments
		A detailed assessment against the Bushfire Hazard Overlay Code is provided at **Appendix B**.
23. Potential Landslide Hazard Overlay • Slope stability	2	The proposed extraction area is not identified within a potential landslide hazard area and the provisions of the landslide hazard overlay relating to slope stability are not considered relevant. Refer to **Appendix B** for a detailed assessment against the relevant Planning Scheme Codes.

We welcome the opportunity to discuss the proposed development if Council consider it necessary and would trust that the matters can be addressed to avoid any consideration of a pre-liminary approval.

We look forward to continuing working with you on this development. In the meantime, if you have any queries please contact the writer (contact details below).

Yours sincerely,
for RPS AAP Consulting Pty Ltd

Stacey Devaney
Principal Planner
stacey.devaney@rpsconsulting.com
07 4031 1336

enc
Appendix A: Response to Department of Environment, Tourism, Science and Innovation
Appendix B: Detailed Planning Scheme Code Responses
Appendix C: Proposed Sand Extraction – Visual Site Assessment
Appendix D: Environmental Authority P-EA-100750656
Appendix E: Amended Proposal Plans
Appendix F: Engineering Report prepared by Civil Walker Consulting
Appendix G: Cultural Heritage Database and Register Search Report
Appendix H: SARA Pre-application Response and Formal Referral Response

Appendix A

Response to Department of Environment, Tourism, Science and Innovation

MAKING COMPLEX EASY
A TETRA TECH COMPANY

135 Abbott Street
Cairns QLD 4870
T +61 7 4031 1336

Our ref: 15874

Date: 13 March 2025

ATTENTION: CHAD HARRIS, ENERGY AND EXTRACTIVE RESOURCES, DETSI

Dear Chad,

Response to Information Request for NQ Asphalt, Ref P-EA-100750656

Thank you for your letter dated 28 January 2025 with respect to the proposed sand extraction activities on Lot 1 on RP893855, application reference number A-EA-NEW-100750082.

A response to the issues raised is provided below.

1.1 Environmental Values – Waters

Issue: Acid Sulphate Soils and Groundwaters

Action: The following information is requested:

1. *Demonstrate that the final landform and underlying soils likely to be exposed to dewatering does not contain PASS. note: field tests can be undertaken to easily identify potential acid sulphate soils, these can be found in the National acid sulfate soils sampling and identification methods manual.*
2. *If investigations identify the likelihood of the presence of PASS, an Acid Sulphate Soils Management Plan (ASSMP) must be provided that includes management and mitigation measures that avoids or treats PASS present in the proposed final landform.*
    a. *The ASSMP must consider the recommended component requirements for the management plan in Appendix 2 of the Queensland's Acid Sulphate Technical Manual*
3. *Provide further information on the groundwater levels at both the extraction area, and the nearby High Ecological Significance Wetlands.*
    a. *Demonstrate that the extraction activity will not adversely affect the associated wetland through groundwater changes.*
        i. *Note: this can be done through a conceptual site model which includes identification of underlying soil types, groundwater levels and discussion of potential changes to groundwater post sand extraction.*

Response to Actions 1 - 3

1.1.1 Avoidance of PASS Exposure and ASSMP

The proposed sand extraction area does not contain PASS material as it is a dunal type deposit, has been oxidised for potentially hundreds of years due to its elevation, is approximately 2,000m long and 200 – 250m wide and 2m to 5m above natural ground level, refer to Plate 1 and Figure 1 below, and Appendix A which shows the elevation of the landform.

It was historically cleared, has been farmed under cane production in the past, then grassed and slashed for

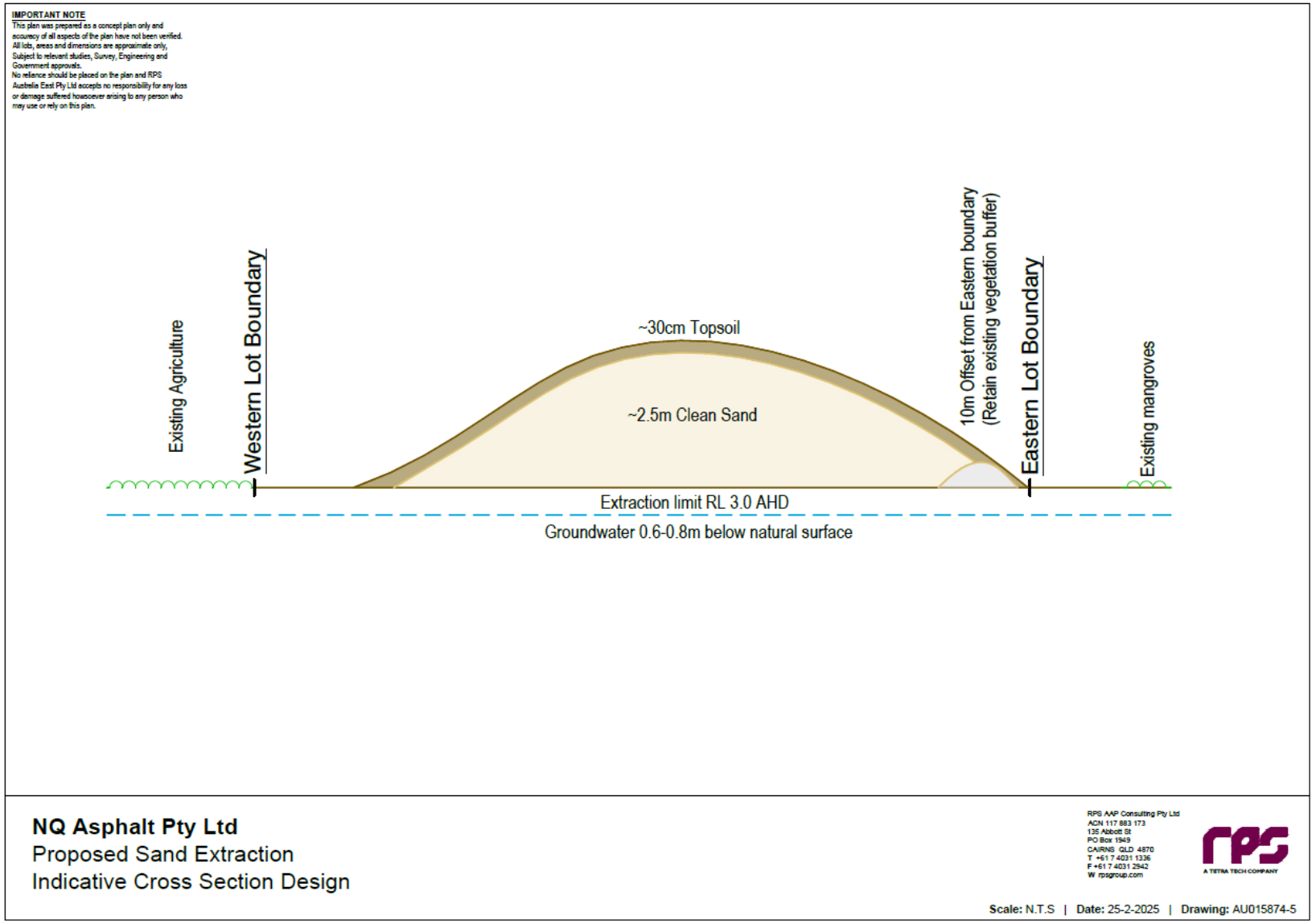


Figure 1 Concept Design of Proposed Sand Extraction

The Cairns Sand report confirmed that the sand resource has two types of sand – a core of fine sand approximately 60m wide and 2m in depth with a grading listed in Table 1 below:

Table 1 – Grading of Fine Sand

Sieve	% Passing
4.75mm	100
2.36mm	99
1.18mm	92
600um	78
300um	34
150um	9
75um	0.5

The fine sand is flanked on both side by deposits of medium sand with an average depth of 3.5m with a grading as specified in Table 2 below:

Table 2 – Grading of Medium Sand

Sieve	% Passing
4.75mm	100
2.36mm	96
1.18mm	73
600µm	29
300µm	15
150µm	5
75µm	0.3

In the Information Request letter, you note that several bores indicated clays, muds or shell grit in the Cairns Sand Report. This has been reviewed and summarised as follows:

Test Hole 10 – Water at 4m, clay below this. It is noted that sand extraction is not proposed to this depth.

Test Hole 18 – Medium sand at 2m with shell grit contamination. A buffer of 10m is proposed from the eastern boundary to avoid shell grit. Sand extraction will not be undertaken in areas of shell grit as it contaminates the product.

Test Hole 22 – Medium sand at 2m with shell grit contamination. A buffer of 10m is proposed from the eastern boundary to avoid shell grit. Sand extraction will not be undertaken in areas of shell grit as it contaminates the product.

Test Hole 29 – Medium sand with layers of fine sand to 3.6m, mud below. It is noted that sand extraction is not proposed to this depth.

Test Hole 30 – Fine sand to 3.6m, groundwater at 3.6m and mud at 3.8m. It is noted that sand extraction is not proposed beyond the groundwater table.

Test Hole 32 – Medium to coarse sand with shell grit contamination at 2m, water at 3.6m. As stated above, shell grit will be avoided and extraction is not proposed below the groundwater table.

Test Hole 33 – Medium sand becoming finer with depth, mud at 4m. Extraction will not go to this depth.

Test Hole 51 – fine to medium sand with water and mud at 2.5m depth. Extraction is not proposed to this depth in this area.

A 10m buffer has been proposed on the eastern boundary to buffer the adjoining mangrove forest and avoid the shell grit areas, refer t**o Figure 1.**

The bore logs from the six (6) groundwater bores installed on 5 February 2025 are included in Appendix D. Soil sampling analysed PASS at 1m intervals during bore installation, refer to Appendix E. PASS material was observed at 3m to 5m below ground level at BH3, and 4 – 5m below ground level at BH5. It is noted that there was a lower PASS result at 0m at BH3 but this may have been a contaminated sample as a number of the bores collapsed during drilling and needed to be redrilled and it is noted that there is no PASS between 1 – 2m below this level.

The height of the groundwater bores were also surveyed which confirmed that the standing groundwater level is 2.1 to 2.7m AHD.

As a result, it is proposed that sand extraction continues to a depth of 3m AHD allowing a buffer to the highest groundwater level observed.

A cross section of the site showing groundwater depth, maximum sand extraction depth and elevation of the dune is provided in Figure 1.

1.1.2 PASS Management Plan Requirement

Given the likelihood of any potential PASS exposure is negligible, an Acid Sulphate Soil Management Plan is not warranted to extract the former sand dune as it is well above natural ground level and NQ Asphalt has committed to extracting sand only above the highest observed groundwater level (3mAHD). If acid sulphate soils are identified they will be managed in accordance with

1.1.3 Groundwater and the HES Wetland

The sand resource will be progressively stripped, and the topsoil will be reused as part of the progressive rehabilitation, refer to Appendix C, and the maximum disturbance area will be limited to one (1) hectare. Surface water will drain into a small basin and reused on site as required for dust suppression if needed. It will be sized to ensure that a 1 in 5 year 24 hour ARI event will be captured and retained with no release offsite. This detention based will ensure that any sediment laded waters are captured and treated with no release unless in extreme events when the receiving environmental is already impacted.

As a result, surface water will continue to infiltrate through the sand to the underlying groundwater and no change will likely occur as a result of the site activities.

The extracted sand will be stockpiled and loaded into a haul truck and approximately four (4) trips per day proposed as the proposed extraction is relatively small scale, estimated at approximately 30,000t per year.

Sand extraction has been buffered to the HES wetland by 500m to prevent any potential impacts to this area, refer to Appendix A for the Site Layout Plan. The wetland is influenced by tidal inundation from the drainage line to the south of the site. Extraction activities will begin from the north and progress south allowing the largest buffer feasible to the wetland area to be maintained as long as possible. The tidal influence from the south will continue into the wetland area, although it is noted that this area has historically been impacted due to the introduction of a tidal gate further downstream. In addition, the landfill and waste transfer station to the south east of the proposed extraction site have the potential for impacts to the existing groundwater and surface water systems that flow directly into the HES wetland.

To conclude, due to the limited extraction area and limited extraction depth, surface water and groundwater will not be materially different to pre-extraction operations and will not detrimentally impact the HES wetland due to the significant buffer, progressive rehabilitation and surface water management.

1.2 Environmental Value – Water (stormwater)

Action: To enable an assessment of the risks to the receiving environment, additional specific information is requested below:

4. *Discuss the following:*
    a. *extraction methodology and strategy to minimise sediment generation, if the activity is proposed to be staged, provide a map showing the extent of each stage of extraction, and*
    b. *site specific stormwater management and mitigation measures, noting that groundwater is high in the area which may result in overland flow with minimal rainfall, and*
    c. *any proposed monitoring and management strategies to ensure that the receiving environment is not impacted by the activity.*
5. *Provide a wet season preparation plan that demonstrates that the site is prepared to minimise sediment generation when the site may be unattended ahead of each wet season.*
    a. *This is critical information as anecdotal evidence suggests that the site may be inaccessible as the area is subject to flooding.*

Response to Actions 4 - 5

1.2.1 Extraction methodology

As stated above, the proposed extraction methodology would involve one person on site to extract the sand in a small excavator who will then load a truck and drive it to Cairns for use in the concrete batch plant or asphalt plant. The maximum area of disturbance will be limited to one (1) hectare and will be progressively rehabilitated with the existing topsoil to be reused as part of the progressive rehabilitation, refer to Appendix C.

1.2.2 Stormwater Management and Mitigation Measures

As stated above, the area of disturbance will be limited to a maximum of one (1) hectare at any time, reducing the potential disturbance area for stormwater to be contaminated by overland flow. Any overland flow from storm events will be captured in a sedimentation basin designed to hold a 1 in 5 year 24 hour ARI event for the nominated maximum extraction area of 1 hectare. This water will be retained and reused on site for dust suppression purposes as required. The maximum extraction depth will ensure that extraction will not interfere with groundwater.

The extracted sand will be stockpiled and loaded into a haul truck and approximately four (4) trips per day proposed as the proposed extraction is relatively small scale, estimated at approximately 30,000t per year.

1.2.3 Monitoring and Management

If required, ongoing groundwater monitoring can be undertaken at the six (6) groundwater bores installed on the site in February 2025. Surface water monitoring can be undertaken within the stormwater detention pond prior to release, however, this would only potentially occur in events greater than a 1 in 5 year 24 hour ARI when the receiving environment is already impacted due to elevated stormwater flow.

NQ Asphalt Pty Ltd has operated in Cairns for decades and understands the risks of wet season including flooding and cyclones. The site will prepare for wet season by undertaking campaign extraction and stockpiling during the dry season, and if required, transporting reserves of sand to receival sites if wet weather is predicted to occur. Whilst flooding may occur in the region, flooding of the site is unlikely due to the elevations of the resource being higher than surrounding landforms.

1.3 Environmental Value – Air (dust)

Action: To allow an assessment of potential impacts to the receiving environmental values of Air, please provide further information detailed below:

6. *Demonstrate that dust generation will be effectively minimised from the sand extraction, loading, vehicle movements and extraction pits given the above wind conditions. note: these risks may be lower if extraction pits are limited to mapped stages. These risks are further reduced if the proposed extraction areas are broken down into smaller stages and previous areas are stabilised with ground cover.*

In addition to the above, please provide further information which demonstrates that dust generation is minimised and managed when the site is not in operation.

Response to Action 6

The Low Isles Lighthouse (BOM Site Number 031037) shows that the mean 9am wind speed is 21.2km/hr collated from data from 1967 to 2024 from the south east, refer to Plate 2 below for the wind rose. The mean The mean 3pm windspeed is 24.8 also from a south east direction, refer to Plate 3. As a result, the prevalent wind will result in a north west direction.

The nearest sensitive receptor is directly to the north of the proposed site and a 50m vegetated buffer has been proposed to mitigate any potential for dust nuisance.

As stated above, extraction is limited to a maximum area of one (1) hectare that will be progressively rehabilitated and move south along the site, putting more distance between the operations and the sensitive receptor to the north thereby reducing potential for dust over the longer term of the operations.

It is noted that the surrounding area is rural in nature and often the neighbouring farmer has been observed to be ploughing fields or harvesting crops which can result in elevated dust intermittently.

A stormwater basin will be installed on site and water will be reused from this for dust suppression purposes as required. Minimal stockpiles will be kept on site to reduce the potential dust as the extracted sand will generally be loaded straight into the waiting haul truck.

Subsequently, given the small-scale nature of the operation, the current rural and industrial uses of the adjoining land, the pre-dominant wind direction, the available water in the stormwater dam for dust suppression, and the vegetated 50m buffer to the north, it is anticipated that the works will not have an impact on the sensitive receptor to the north. If complaints are received, further mitigation measures will be considered and the Environmental Management Plan details the complaints procedure.

Rose of Wind direction versus Wind speed in km/h (01 Oct 1967 to 20 Mar 2024)
Custom times selected, refer to attached note for details

LOW ISLES LIGHTHOUSE
Site No: 031037 • Opened Jan 1887 • Still Open • Latitude: -16.3842° • Longitude: 145.5592° • Elevation 2.m

An asterisk (*) indicates that calm is less than 0.5%.
Other important info about this analysis is available in the accompanying notes.

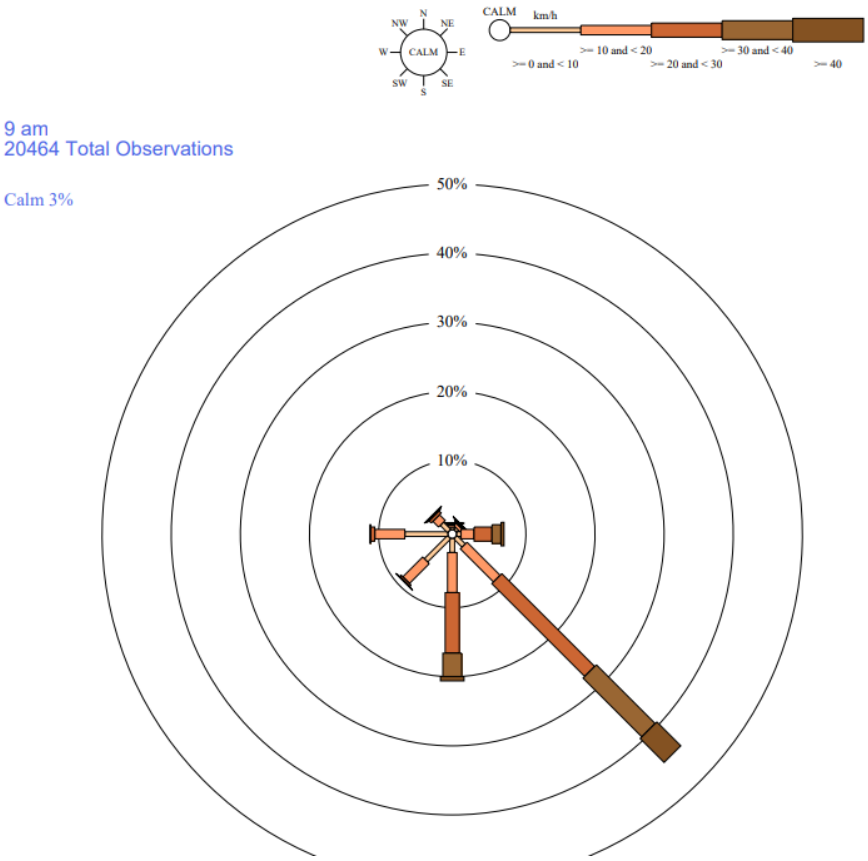


Plate 2 – Low Isles Wind Rose 9am

Our ref: 15874

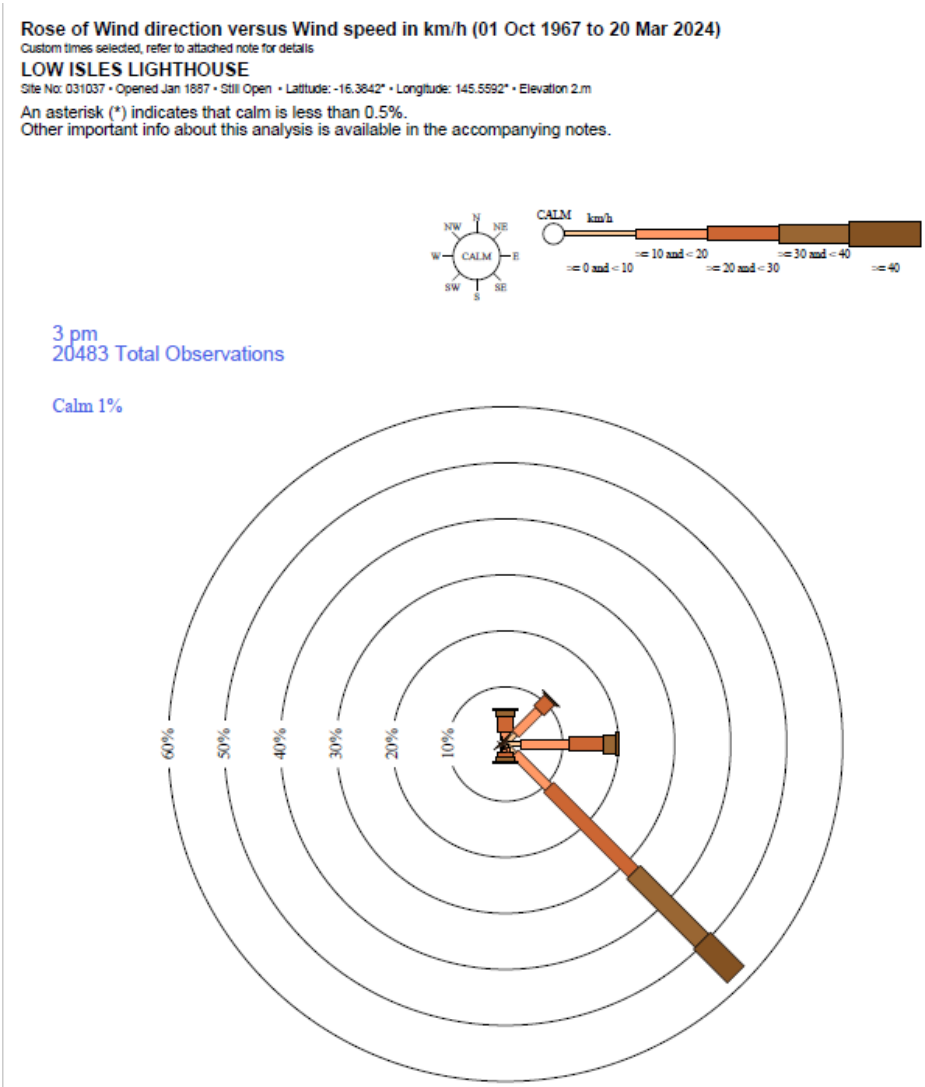


Plate 3 – Low Isles Wind Rose 3pm

NQ Asphalt has supplied the information requested in the DETSI Information Request notice dated 28 January 2025, however, if you need further clarification, please don't hesitate to contact the undersigned.

NQ Asphalt requests that DETSI proceeds with the assessment of the application.

Yours sincerely,
for RPS AAP Consulting Pty Ltd

Megan Davis
Practice Lead - Environmental Management and Remediation (Qld)
megan.davis@rpsconsulting.com
+61 7 4276 1023

cc: Callum Koppen, NQ Asphalt Pty Ltd

Appendix A Site Layout Plan

Proposed Sand Extraction Area				
Point #	Easting	Northing	Longitude	Latitude
1	330060	8178276	E145.40804	S16.47117
2	330182	8178277	E145.40918	S16.47117
3	330256	8178270	E145.40987	S16.47124
4	330406	8178006	E145.41126	S16.47364
5	330455	8177950	E145.41171	S16.47414
6	330548	8177889	E145.41258	S16.47470
7	330824	8177554	E145.41514	S16.47775
8	330857	8177517	E145.41545	S16.47809
9	330981	8177391	E145.41660	S16.47923
10	330866	8177272	E145.41551	S16.48030
11	330656	8177470	E145.41356	S16.47850
12	330429	8177730	E145.41145	S16.47613
13	330274	8177935	E145.41002	S16.47426
14	330124	8178164	E145.40863	S16.47218
15	330091	8178209	E145.40833	S16.47178

Elevation Legend

6.0 m
5.0 m
4.0 m
3.0 m
2.0 m
1.0 m
-0.2 m

Trinity Bay

54
SP292874

Proposed bridge access across farm drain/waterway

Minimum 50m offset off existing buildings

Emt B
RP893855

10m offset off drain easement

Haul access (6m wide)

10m offset off eastern boundary

Bonnie Doon Road

2
RP893855

33
USL8687

Proposed Sand Extraction Area
21.05ha

1
RP893855

Wetland Protection Area Trigger Area (500m buffer)

32
SP332240

Wetland of high ecological significance

170
SR865

A
RP893855

Emt A
SP332240

131
SR853

Captain Cook Highway

Killaloe Dump Road

31
SP332240

4
RP907338

155
NR78

4
SP183012

IMPORTANT NOTE

This plan was prepared as a concept plan only and accuracy of all aspects of the plan have not been verified. All lots, areas and dimensions are approximate only, Subject to relevant studies, Survey, Engineering and Government approvals.
No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.

DNRM DCDB.
DNRM AERIAL PHOTOGRAPHY.

Based on or contains data provided by the State of Queensland (Department of Resources) [2024]. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.
The aerial photography used in this plan has not been rectified. The image has been overlaid as a best fit on the boundaries shown and position is approximate only.
Photography publish date: Aug 2023.
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NQ Asphalt Pty Ltd
Lot 1 on RP893855
Site Plan - Proposed Sand Extraction

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A TETRA TECH COMPANY

Datum: MGA2020 Z55 | **Scale:** 1:8,000 @ A3 | **Date:** 25-2-2025 | **Drawing:** AU015874-2d

Appendix B Cairns Sand Report

Third Party data follows.

No warranty can be given for the accuracy or reliability of the data from the seller of seller's agent. Interested parties should make their own enquiries and investigations.

QUAID FARM PROJECT

CONTENTS

1.0 Introduction

2.0 Method

3.0 Details of Resources

4.0 Summary

Attachments

- Test Hole Locations
- Test Hole Logs
- Laboratory Work Sheet

1.0 INTRODUCTION

An evaluation of the sand resources available on a property owned by the Quaid Family. The property is located in the Douglas Shire, and is approximately 70 km north of Cairns and 9 km north of the concrete plant at Craiglea and is adjacent the Cook Highway. The Sand deposit is a Dune type deposit, lying in a north-west, south-east direction and is approximately 2,000 metres long and 200-250 metres wide. The area is bounded by cane land to the west and a mangrove swamp to the east. The area had been under cane in the past, however this had been discontinued some years ago and the area has been kept slashed since, except for 200 metres at the south-eastern end, which is under regrowth. There is an disused pit at the north-eastern corner of the area had operated under an Extractive Industry Permit.

2.0 METHOD

This area was sampled using the north-west south-east axis as a baseline and then traverses were made across this line every 100-150 metres. Test pits were dug using a backhoe at 30 metre (in some cases, 50 metre) intervals at each traverse. Locations of test holes are shown on the attached sheet.

3.0 DETAILS OF RESOURCES

Investigation revealed two types of sand in the deposit. There is a core of fine sand approximately 60 metres wide with an average thickness of 2 metres running the length of the area underlying approximately a metre of medium sand. This fine sand has a nominal grading listed below :-

Sieve	% Passing
4.75mm	100
2.36mm	99
1.18mm	92
600um	78
300um	34
150um	9
75um	0.5

The fine sand is flanked on both sides by deposits of medium sand with an average depth of 3.5 metres, however there is a strip of sand approximately 75 metres wide along the extreme eastern edge adjacent the mangroves is heavily contaminated by shellgrit. This medium sand has a nominal grading listed below :-

Sieve	% Passing
4.75mm	100
2.36mm	96
1.18mm	73
600um	29
300um	15
150um	5
75um	0.3

3.0 DETAILS OF RESOURCES (cont.)

There were also found thin layers of coarse sand at the water table at a depth of 3.5 to 4 metres.

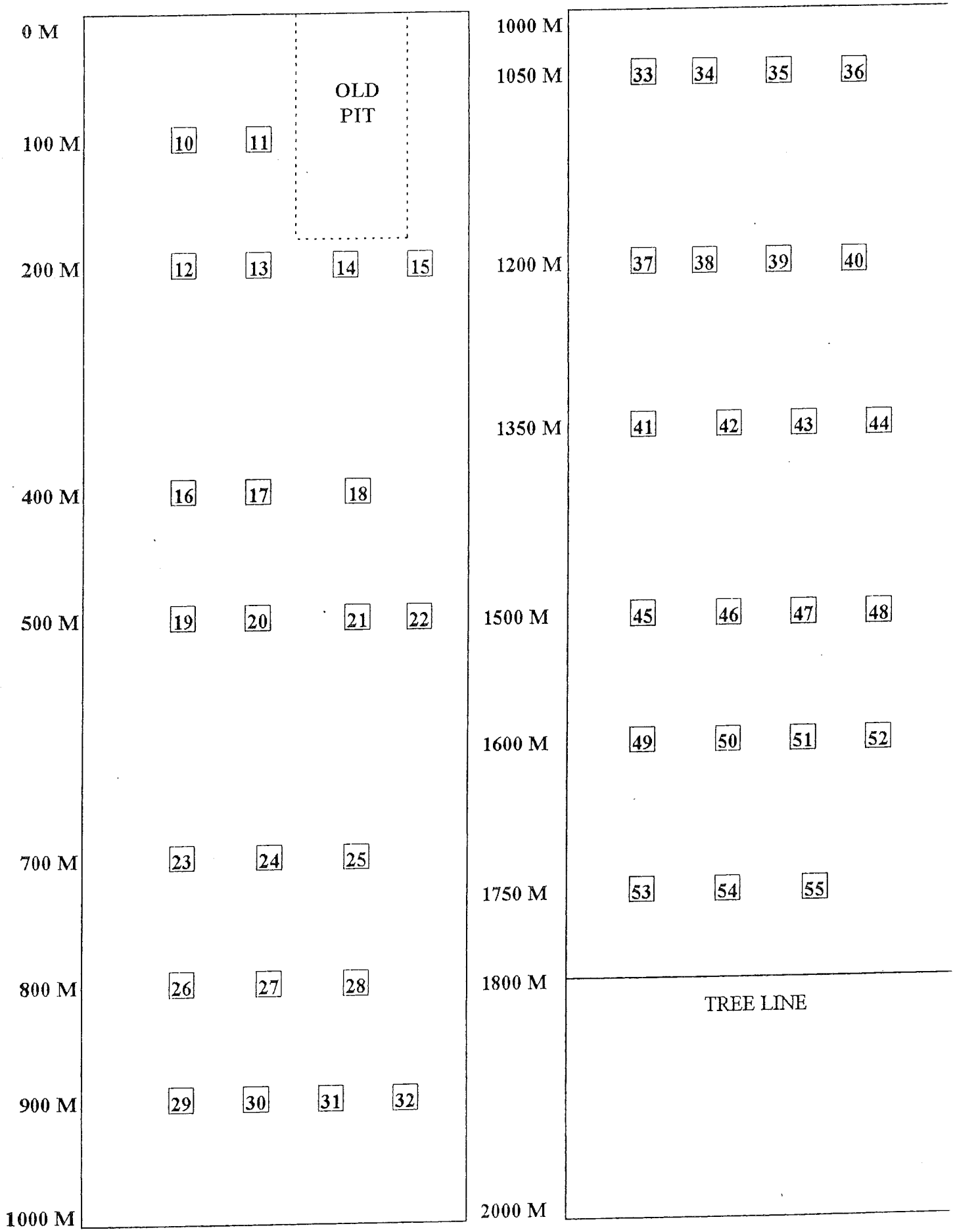
4.0 SUMMARY

This deposit contains approximately 1M tonnes of reserve, discounting the sand contaminated with shellgrit, of which approximately 300,000 tonnes is fine sand. The deposit has an average depth of 3.5 metres and is covered by a thin (300mm) layer of topsoil (Blacksand). The sand appears clean and free of contamination except a strip adjacent the mangroves, however all samples tested in accordance with A.S.1141.34 failed with organic contamination.

S. M. Kenny
Plant Manager, Cairns Sand.

QUAID FARM
TEST HOLE LOCATIONS

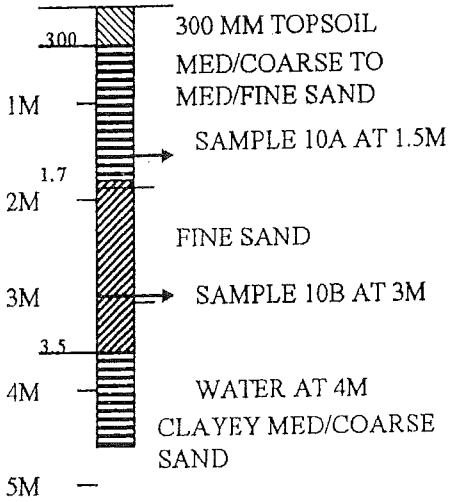




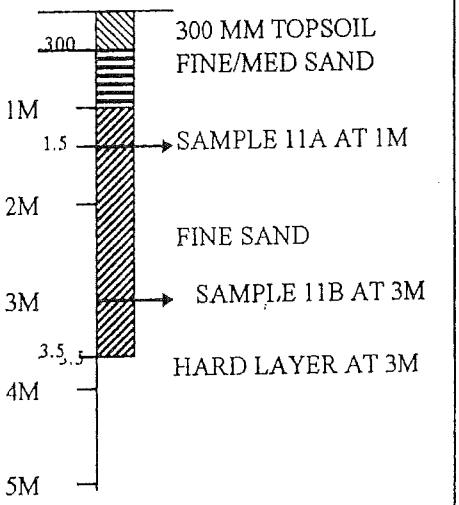
QUAID FARM

TEST HOLE LOGS

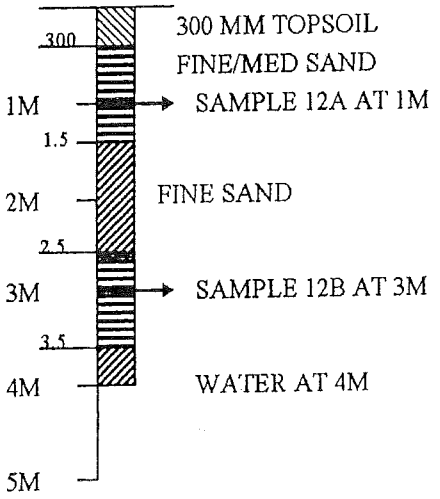
TEST HOLE 10



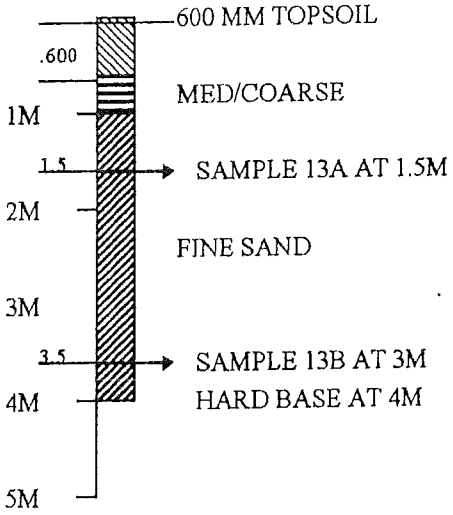
TEST HOLE 11



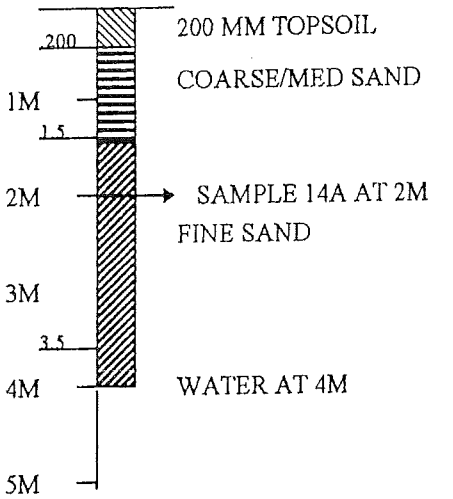
TEST HOLE 12



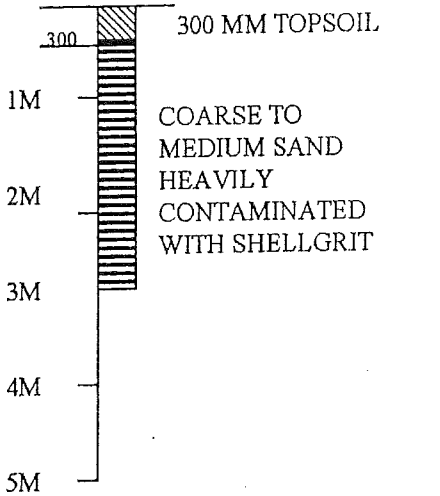
TEST HOLE 13



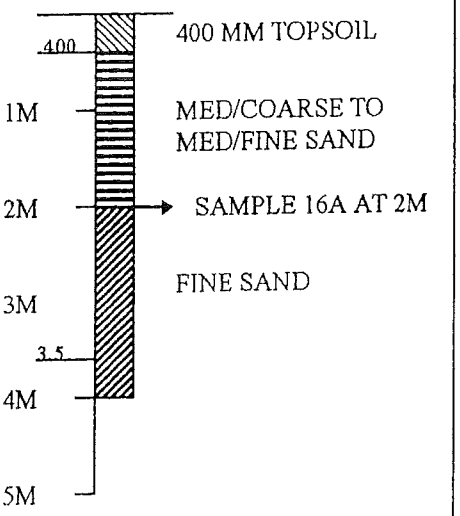
TEST HOLE 14



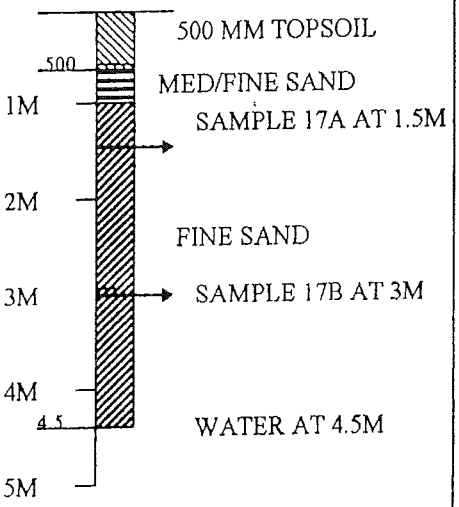
TEST HOLE 15



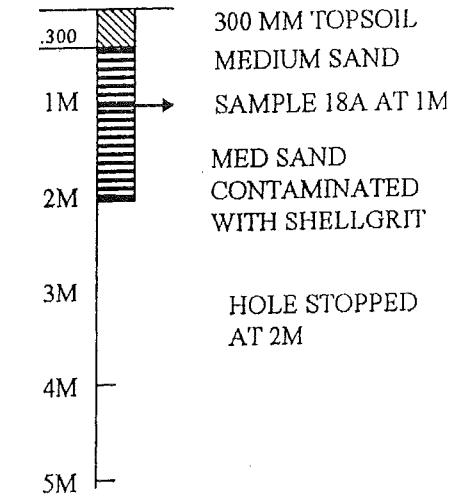
TEST HOLE 16



TEST HOLE 17



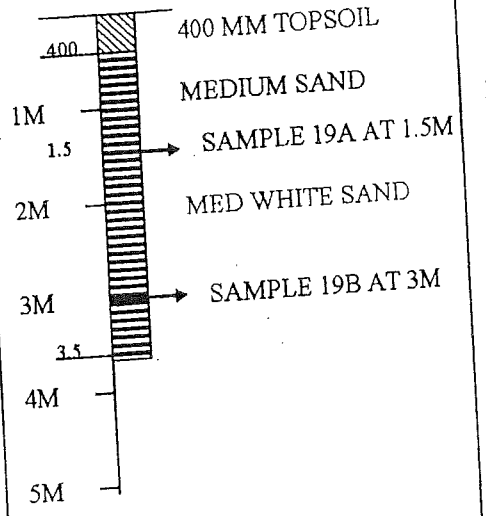
TEST HOLE 18



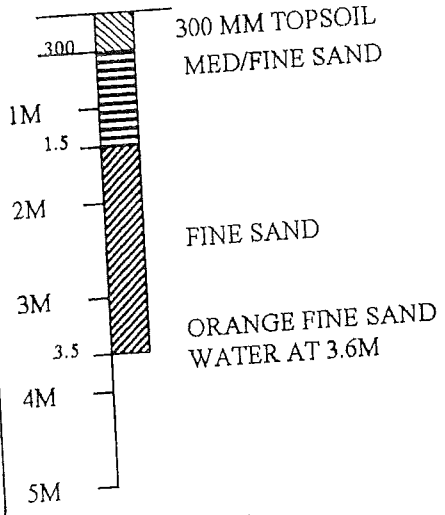
QUAID FARM

TEST HOLE LOGS

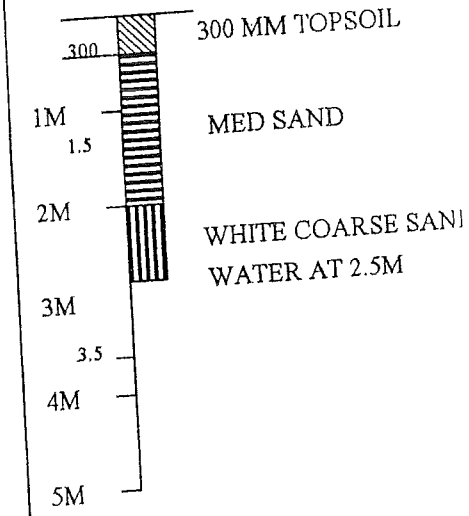
TEST HOLE 19



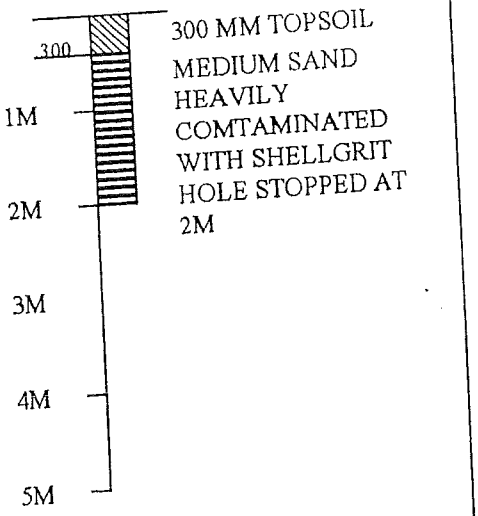
TEST HOLE 20



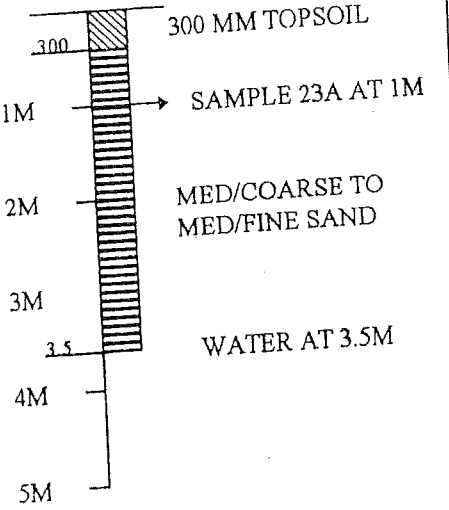
TEST HOLE 21



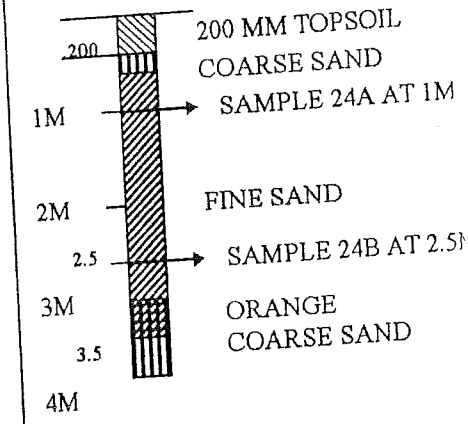
TEST HOLE 22



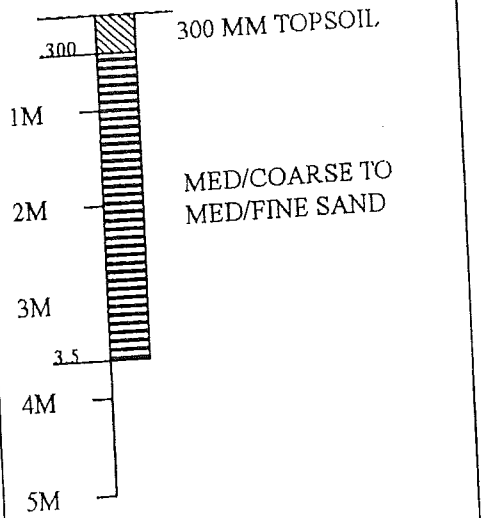
TEST HOLE 23



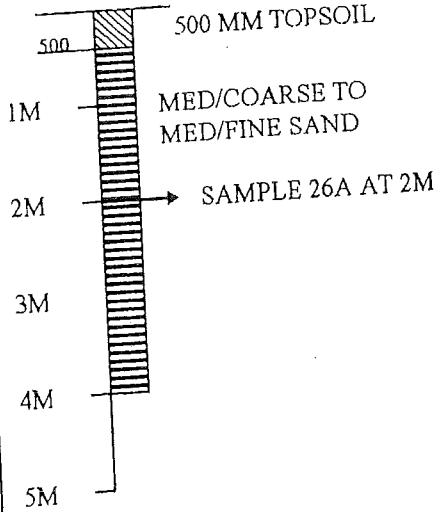
TEST HOLE 24



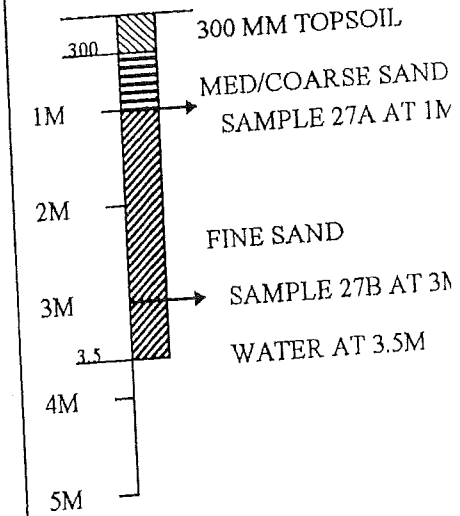
TEST HOLE 25



TEST HOLE 26



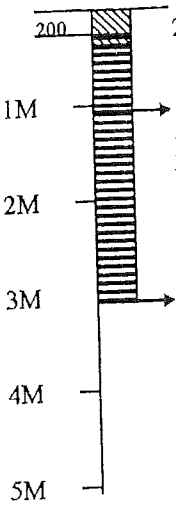
TEST HOLE 27



QUAID FARM

TEST HOLE LOGS

TEST HOLE 28



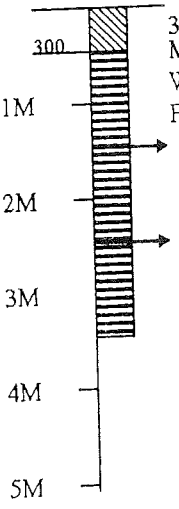
200 MM TOPSOIL

SAMPLE 28A AT 1M

MEDIUM SAND WITH LAYERS OF FINE SAND

SAMPLE 28B AT 3M

TEST HOLE 29



300 MM TOPSOIL

MEDIUM SAND WITH LAYERS OF FINE SAND

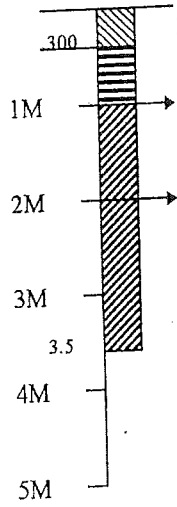
SAMPLE 29A AT 1.5M

SAMPLE 29B AT 2.5M

WHITE MED SAND

MUD AT 3.6M

TEST HOLE 30



300 MM TOPSOIL

MED/COARSE SANI

SAMPLE 30A AT 1M

SAMPLE 30B AT 2M

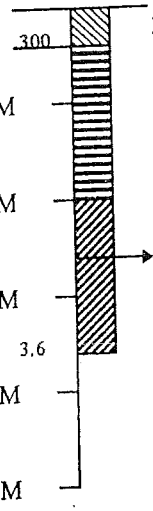
FINE SAND

ORANGE FINE SANI

WATER AT 3.6M

MUD AT 3.8M

TEST HOLE 31



300 MM TOPSOIL

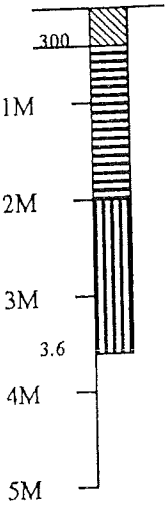
MED/COARSE SAND

SAMPLE 31A AT 2.5M

FINE SAND

GRAY/WHITE COARSE SAND AND WATER AT 3.6M

TEST HOLE 32



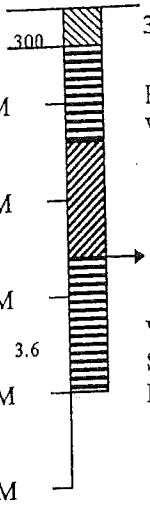
300 MM TOPSOIL

MED/COARSE SAND HEAVILY CONTAMINATED WITH SHELLGRIT

COARSE SAND AND WATER AT 3.6M

APPEARS NO EVIDENCE OF SHELL

TEST HOLE 33



300 MM TOPSOIL

MEDIUM SAND BECOMING FINER WITH DEPTH

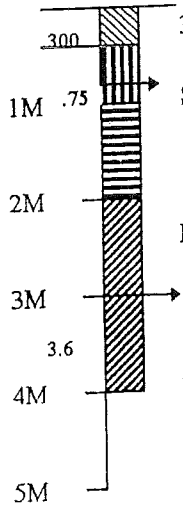
FINE WHITE SAND

SAMPLE 33A AT 2.

WHITE MED/FINE SAND

MUD AT 4M

TEST HOLE 34



300 MM TOPSOIL

MED/COARSE SAND

SAMPLE 34A AT .75M

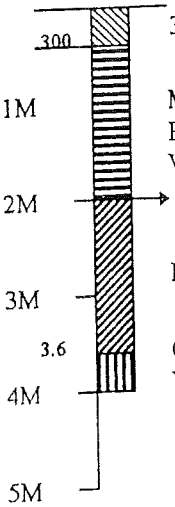
MED/FINE SAND

FINE/MED-FINE

SAMPLE 34B AT 2.5M

WATER AT 4M

TEST HOLE 35



300 MM TOPSOIL

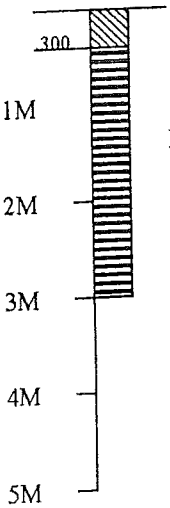
MED/COARSE BECOMING FINE WITH DEPTH

SAMPLE 35A AT 2M

FINE SAND

COARSE SAND AND WATER AT 3.6M

TEST HOLE 36



300 MM TOPSOIL

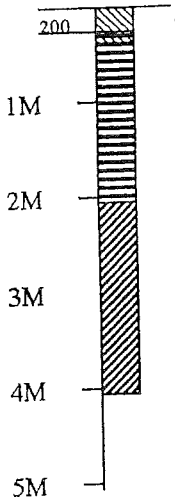
MEDIUM SAND

COARSE SAND AND WATER AT 3M

QUAID FARM

TEST HOLE LOGS

TEST HOLE 37



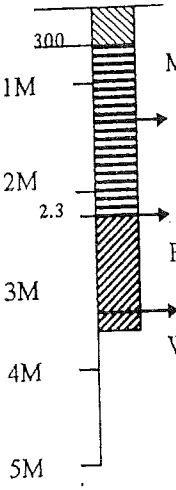
200 MM TOPSOIL

MEDIUM SAND BECOMING FINER WTHH DEPTH

FINE SAND WITH LAYERS OF MED/FINE SAND

WATER AT 4M

TEST HOLE 38



MED/FINE SAND

SAMPLE 38A AT 1M

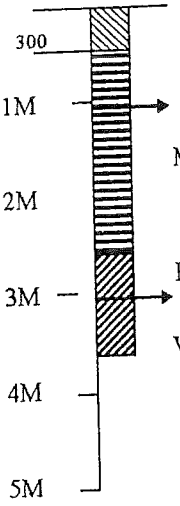
SAMPLE 38B AT 2M

FINE SAND

SAMPLE 38C AT 3M

WATER AT 3.6M

TEST HOLE 39



300MM TOPSOIL

SAMPLE 39A AT 1M

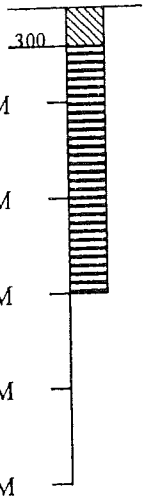
MEDIUM SAND

FINE SAND

SAMPLE 39B AT 3M

WATER AT 3.6M

TEST HOLE 40

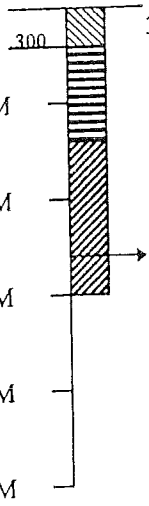


300 MM TOPSOIL

MEDIUM SAND

GRAY/WHITE COARSE SAND AND WATER AT 3M

TEST HOLE 41



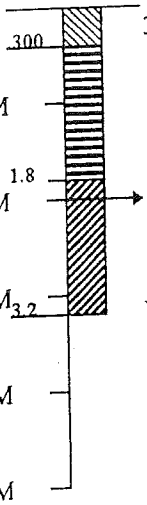
300 MM TOPSOIL

MEDIUM SAND

FINE SAND

SAMPLE 41A AT 2.5M

TEST HOLE 42



300 MM TOPSOIL

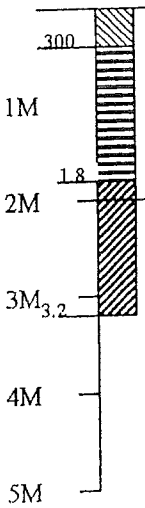
MEDIUM SAND

SAMPLE 42A AT 2M

FINE SAND

WATER AT 3.2M

TEST HOLE 43



300 MM TOPSOIL

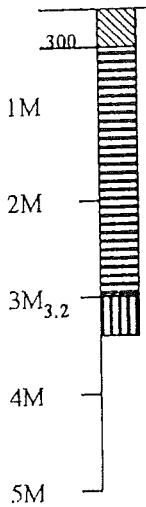
MEDIUM SAND

SAMPLE 43A AT 2M

FINE SAND

WATER AT 3.2M

TEST HOLE 44

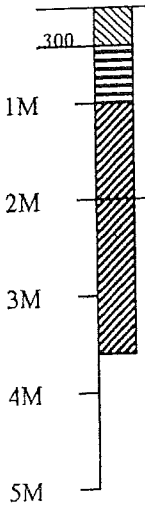


300 MM TOPSOIL

MEDIUM SAND

COARSE SAND AND WATER AT 3.2M

TEST HOLE 45



300 MM TOPSOIL

MEDIUM SAND

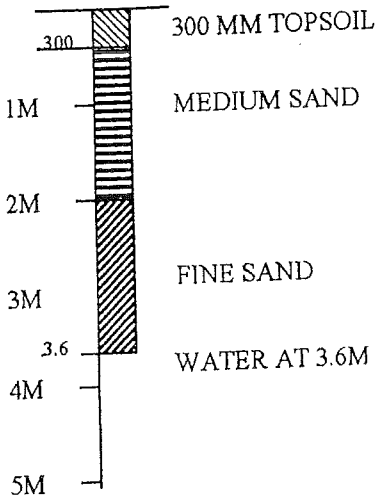
SAMPLE 45A AT 2M

FINE SAND

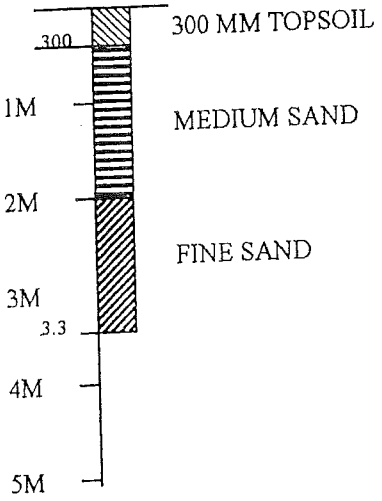
QUAID FARM

TEST HOLE LOGS

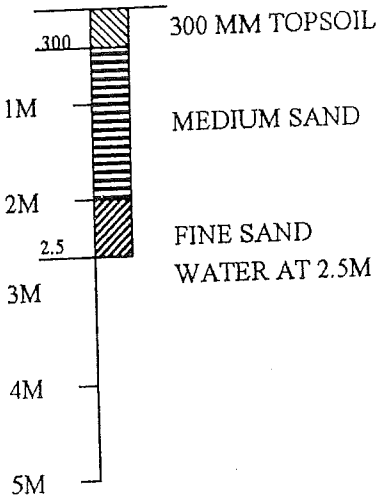
TEST HOLE 46



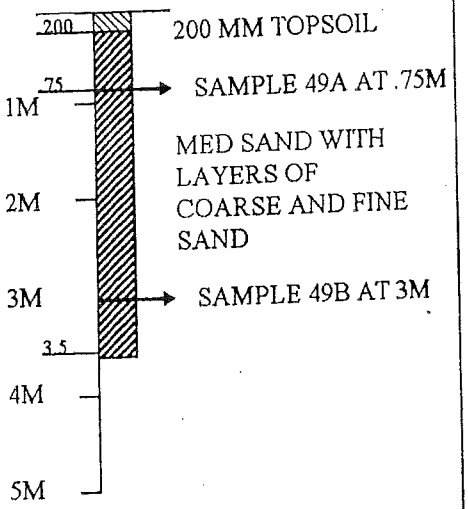
TEST HOLE 47



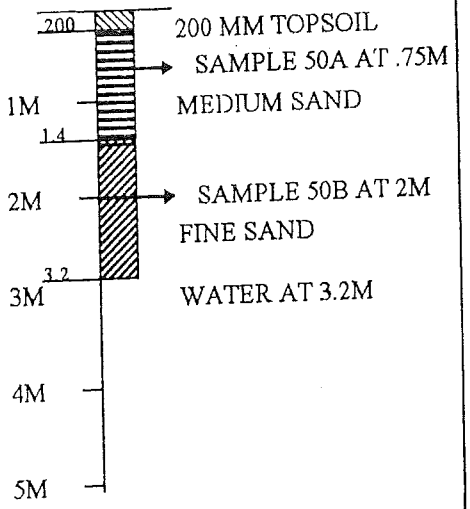
TEST HOLE 48



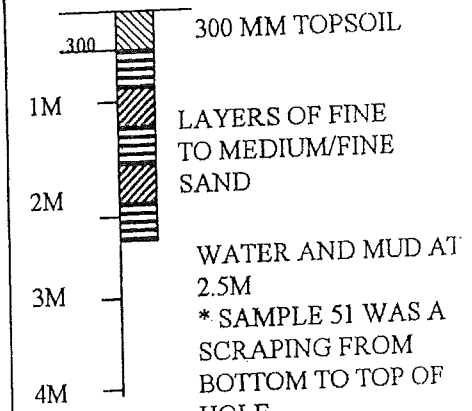
TEST HOLE 49



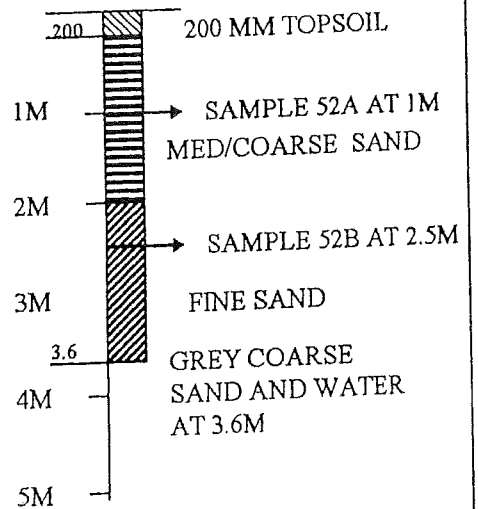
TEST HOLE 50



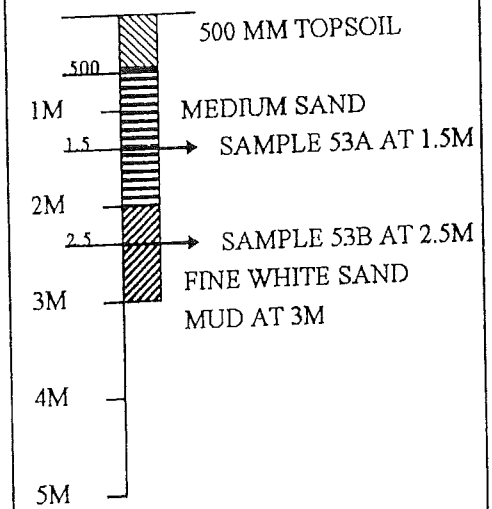
TEST HOLE 51



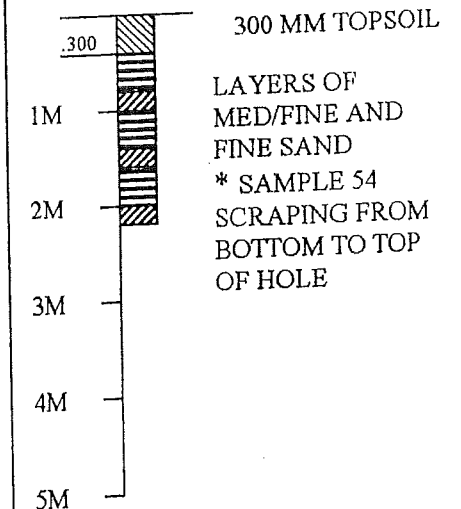
TEST HOLE 52



TEST HOLE 53

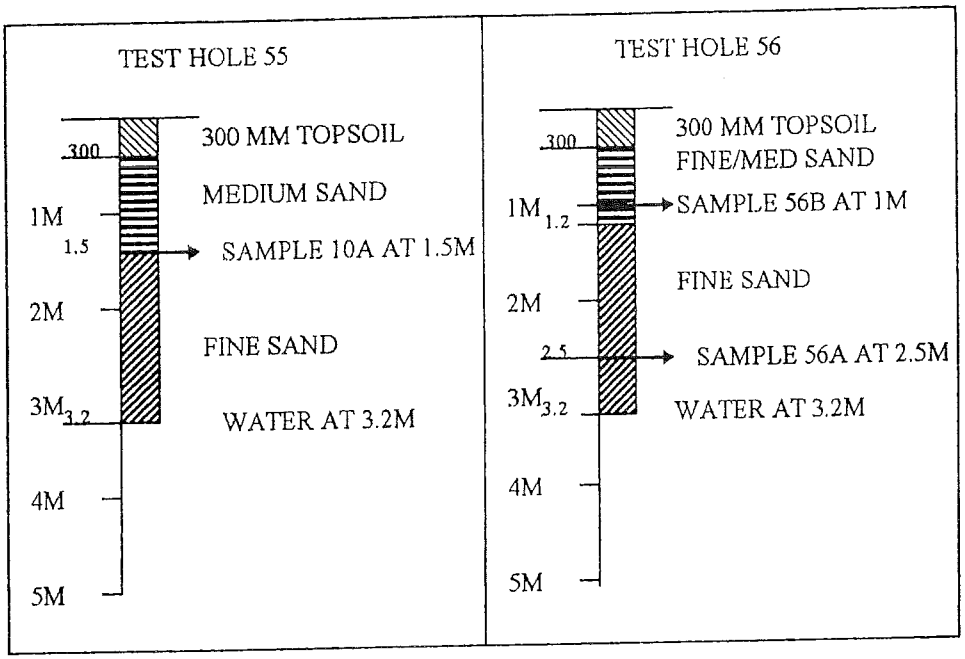


TEST HOLE 54



QUAID FARM

TEST HOLE LOGS



07? 783998

PIONEER ROSEHILL

21-06-1994 09:54

PIONEER CONCRETE (QLD.) PTY. LTD.

AS 1141.11/Q103B PARTICLE SIZE DISTRIBUTION (DRY)

		TV 944				TV 945				TV 946				TV 947			
SAMPLE NUMBER		TV 944				TV 945				TV 946				TV 947			
DATE SAMPLED		7-6-94				7-6-94				7-6-94				7-6-94			
AGG. SIZE/TYPE		MEDIUM SAND				FINE SAND				FINE SAND				FINE SAND			
QUARRY ORIGIN		QUAIDS FARM				QUAIDS FARM				QUAIDS FARM				QUAIDS FARM			
SAMPLED FROM		HOLE 10 A				HOLE 10B				HOLE 11 A				HOLE 11 B			
TESTED BY: DATE		J. DAVIS 17-6-94				J. DAVIS 17-6-94				J. DAVIS 17-6-94				J. DAVIS 17-6-94			
	SIEVE	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS
TOTAL DRY MASS		234.8				192.6				155.2				183.5			
	53.0mm																
	37.5mm																
	26.5mm																
	19.0mm																
	13.2mm																
	9.5mm																
	6.7mm																
	4.75mm	—			100	—			100	—			100	—			100
	2.36mm	2.4	1.0	1.0	99.0	0.8	0.4	0.4	99.6	1.0	0.6	0.6	99.4	2.0	1.1	1.1	98.9
	1.18mm	46.4	18.7	19.8	80.2	11.2	5.4	5.8	94.2	13.4	8.0	8.6	91.4	10.5	4.6	5.7	94.3
	600mm	137.2	38.7	58.4	41.6	47.5	18.8	24.7	75.3	24.3	7.0	15.7	84.3	30.3	5.3	11.1	88.9
	425mm																
	300mm	208.0	30.2	88.6	11.4	119.9	37.6	62.3	37.7	107.0	53.3	68.9	31.1	89.9	37.9	49.0	51.0
	150mm	231.7	10.1	98.7	1.3	178.5	30.4	92.7	7.3	152.5	29.3	98.3	1.7	177.4	47.7	96.7	3.3
	0.075mm	234.2	1.1	99.7	0.3	190.6	6.3	99.0	1.0	155.0	1.6	99.9	0.1	183.0	3.1	99.7	0.3
	PAN																
MOISTURE CONTENT %																	
FINENESS MODULUS		2.7				1.9				1.9				1.6			
CLAY & FINE SILT % AS1141, SECT 33																	
ORGANIC COLOUR TEST AS1141, SECT 34																	
CHECKED BY		J Davis 17-6-94				J Davis 17-6-94				J Davis 17-6-94				J Davis 17-6-94			
COMMENTS																	

PIONEER CONCRETE (QLD.) PTY. LTD.

AS 1141.11/Q103B PARTICLE SIZE DISTRIBUTION (DRY)

		TV 948				TV 949				TV 950				TV 951			
SAMPLE NUMBER																	
DATE SAMPLED		7-6-94				7-6-94				7-6-94				7-6-94			
AGG. SIZE/TYPE		FINE SAND				FINE SAND				FINE SAND				FINE SAND			
QUARRY ORIGIN		QUAIDS FARM				QUAIDS FARM				QUAIDS FARM				QUAIDS FARM			
SAMPLED FROM		HOLE 12A				HOLE 12B				HOLE 13A				HOLE 13B			
TESTED BY: DATE		J. DAVIS 17-6-94				J. DAVIS 17-6-94				J. DAVIS 17-6-94				J. DAVIS 17-6			
SIEVE		CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	%
TOTAL DRY MASS		144.2				266.8				221.1				233.5			
	53.0mm																
	37.5mm																
	26.5mm																
	19.0mm																
	13.2mm																
	9.5mm																
	6.7mm													—			
	4.75mm													4.1	1.8	1.8	
	2.36mm	—			100	—			100	—			100	19.3	6.5	8.3	
	1.18mm	7.3	5.1	5.1	94.9	20.5	7.7	7.7	92.3	3.7	1.7	1.7	98.3	46.7	11.7	20.0	
	.600mm	77.8	48.9	54.0	46.0	115.2	35.5	43.2	56.8	25.9	10.0	11.7	88.3	112.4	28.1	48.1	
	.425mm																
	.300mm	124.8	32.6	86.5	13.5	228.9	42.6	85.8	14.2	80.2	24.6	36.3	63.7	206.4	90.3	88.4	
	.150mm	141.5	11.6	98.1	1.9	263.5	13.0	98.8	1.2	178.0	44.2	80.5	19.5	233.0	11.4	98.8	
	0.075mm	143.8	1.6	99.7	0.3	266.1	1.0	99.7	0.3	220.3	19.1	99.6	0.4				
	PAN																
MOISTURE CONTENT %																	
FINENESS MODULUS		2.4				2.4				1.3				1.7			
CLAY & FINE SILT % AS1141, SECT 33																	
ORGANIC COLOUR TEST AS1141, SECT 34																	
CHECKED BY		J Davis 17-6-94				J Davis 17-6-94				J Davis 17-6-94				J Davis 17-6			
COMMENTS																	

PIONEER CONCRETE (QLD.) PTY. LTD.

AS 1141.11/Q103B PARTICLE SIZE DISTRIBUTION (DRY)

		TV 952				TV 953				TV 954				TV 955			
SAMPLE NUMBER																	
DATE SAMPLED		7-6-94				7-6-94				7-6-94				7-6-94			
AGG. SIZE/TYPE'		FINE SAND				MEDIUM SAND				FINE SAND				FINE SAND			
QUARRY ORIGIN		QUAIDS FARM				QUAIDS FARM				QUAIDS FARM				QUAIDS FARM			
SAMPLED FROM		HOLE 14				HOLE 16A				HOLE 16B				HOLE 17A			
TESTED BY: DATE		J. DAVIS 17-6-94				J. DAVIS 17-6-94				J. DAVIS 17-6-94				J. DAVIS 17-6-94			
	SIEVE	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS
TOTAL DRY MASS		150.9				339.3				219.7				226.8			
	53.0mm																
	37.5mm																
	26.5mm																
	19.0mm																
	13.2mm																
	9.5mm																
	6.7mm													—			100
	4.75mm	—			100	—			100	—			100	0.5	0.2	0.2	99.8
	2.36mm	6.5	0.3	0.3	99.7	9.6	2.8	2.8	97.2	1.4	0.6	0.6	99.4	11.9	5.0	5.2	94.8
	1.18mm	1.8	0.9	1.2	98.8	95.2	25.2	28.1	71.9	20.2	8.6	9.2	90.8	48.4	16.1	21.3	78.7
	.600mm	15.1	8.8	10.0	90.0	219.9	36.8	64.8	35.2	69.5	22.4	31.6	68.4	71.4	10.1	31.5	68.5
	.425mm																
	.300mm	40.7	17.0	27.0	73.0	295.1	22.2	87.0	13.0	135.1	29.9	61.5	38.5	107.2	15.8	47.3	52.7
	.150mm	131.2	60.0	86.9	13.1	331.6	10.8	97.7	2.3	201.1	30.0	91.5	8.5	214.7	47.4	94.7	5.3
	0.075mm	150.4	12.7	99.7	0.3	338.7	2.1	99.8	0.2	218.1	7.7	99.3	0.7	226.6	5.2	99.9	0.1
	PAN																
MOISTURE CONTENT %																	
FINENESS MODULUS		1.3				2.8				1.9				2.0			
CLAY & FINE SILT % AS1141, SECT 33																	
ORGANIC COLOUR TEST AS1141, SECT 34																	
CHECKED BY		J Davis 17-6-94				J Davis 17-6-94				J Davis 17-6-94				J Davis 17-6-94			
COMMENTS																	

P.01 077 783996 PIONEER ROSENEATH QUARRY 21-06-1994 09:56

PIONEER CONCRETE (QLD.) PTY. LTD.

AS 1141.11/Q103B PARTICLE SIZE DISTRIBUTION (DRY)

SAMPLE NUMBER		TV 956				TV 957				TV 958				TV 959			
DATE SAMPLED		7-6-94				7-6-94				7-6-94				7-6-94			
AGG. SIZE/TYPE		FINE SAND				FINE SAND				FINE SAND				MEDIUM SAND			
QUARRY ORIGIN		QUAIDS FARM				QUAIDS FARM				QUAIDS FARM				QUAIDS FARM			
SAMPLED FROM		HOLE 17B				HOLE 18A				HOLE 19A				HOLE 19B			
TESTED BY: DATE		J. DAVIS			17-6-94	J. DAVIS			17-6-94	J. DAVIS			17-6-94	J. DAVIS			17-6-94
	SIEVE	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS
TOTAL DRY MASS		181.2				239.2				254.8				247.4			
	53.0mm																
	37.5mm																
	26.5mm																
	19.0mm																
	13.2mm																
	9.5mm																
	6.7mm																
	4.75mm	—			100	—			100	—			100	—			100
	2.36mm	6.2	3.4	3.4	96.6	12.3	5.1	5.1	94.9	0.6	0.2	0.2	99.8	14.7	5.9	5.9	94.1
	1.18mm	23.9	9.8	13.2	86.8	49.8	15.7	20.8	79.2	26.2	10.0	10.3	89.7	99.3	34.4	40.3	59.7
	600mm	55.1	17.2	30.4	69.6	175.0	52.3	73.2	26.8	120.3	36.9	47.2	52.8	176.0	30.8	71.1	28.9
	425mm																
	300mm	105.8	28.0	58.4	41.6	197.7	5.3	78.5	21.5	204.9	33.2	80.4	19.6	216.2	16.2	87.4	12.6
	150mm	145.4	21.9	80.2	19.8	213.0	10.6	89.0	11.0	243.0	15.0	95.4	4.6	240.6	9.9	97.3	2.7
	0.075mm	180.8	19.5	99.8	0.2	237.9	10.4	99.5	0.5	253.8	4.2	99.6	0.4	246.8	2.5	99.8	0.2
	PAN																
MOISTURE CONTENT %																	
FINENESS MODULUS			1.9				2.7				2.3				3.0		
CLAY & FINE SILT % AS1141, SECT 33																	
ORGANIC COLOUR TEST AS1141, SECT 34																	
CHECKED BY		J Davis			17-6-94	J Davis			17-6-94	J Davis			17-6-94	J Davis			17-6-94
COMMENTS																	

PIONEER ROSEHEATH QUARRY

SAMPLE NUMBER	TW 974				TW 975				TW 976				TW 977			
DATE SAMPLED	16-6-94				16-6-94				16-6-94				16-6-94			
AGG. SIZE/TYPE	MEDIUM SAND				MEDIUM SAND				MEDIUM SAND				FINE SAND			
QUARRY ORIGIN	QUAIDS FARM				QUAIDS FARM				QUAIDS FARM				QUAIDS FARM			
SAMPLED FROM	HOLE 29 A				HOLE 29B				HOLE 30 A				HOLE 30B			
TESTED BY: CATE	J. DAVIS 22-6-94				J. DAVIS 22-6-94				J. DAVIS 22-6-94				J. DAVIS 22-6-94			
SIEVE	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS
TOTAL DRY MASS	196.2				210.0				314.4				196.6			
53.0mm																
37.5mm																
26.5mm																
19.0mm																
13.2mm																
9.5mm																
6.7mm																
4.75mm	—			100	—			100	—			100				
2.36mm	7.5	3.8	3.8	96.2	1.2	0.6	0.6	99.4	1.0	0.3	0.3	99.7	—			100
1.18mm	80.1	37.0	40.8	59.2	34.3	33.1	16.3	83.7	16.2	4.8	5.2	94.8	0.9	0.5	0.5	99.5
.600mm	159.7	40.6	81.4	18.6	138.4	49.6	65.9	34.1	243.9	97.5	77.6	22.4	52.7	22.9	26.8	73.2
.425mm																
.300mm	181.5	11.1	92.5	7.5	171.6	15.8	81.7	18.3	288.8	14.3	91.9	8.1	133.8	41.3	68.1	31.9
.150mm	192.1	5.4	97.9	2.1	193.3	10.3	92.0	8.0	303.1	4.5	96.4	3.6	177.9	22.4	90.5	9.5
0.075mm	195.7	1.8	99.7	0.3	209.6	7.8	99.8	0.2	313.7	3.4	99.8	0.2	196.1	9.3	99.7	0.3
PAN																
MOISTURE CONTENT %																
FINENESS MODULUS	3.2				2.6				3.0				1.9			
CLAY & FINE SILT % AS1141, SECT 33																
ORGANIC COLOUR TEST AS1141, SECT 34																
CHECKED BY	22-6-94				22-6-94				22-6-94				22-6-94			
COMMENTS																

01-07-1994 15:20 0277 7833948 P.08

PIONEER CONCRETE (QLD.) PTY. LTD.

AS 1141.11/QT103B PARTICLE SIZE DISTRIBUTION (DRY)

SAMPLE NUMBER	TN 978				TN 979				TN 980				TN 98			
DATE SAMPLED	16-6-94				16-6-94				16-6-94				16-6-94			
AGG. SIZE/TYPE	FINE SAND				FINE SAND				FINE SAND				MEDIUM SAND			
QUARRY ORIGIN	QUAIDS FARM				QUAIDS FARM				QUAIDS FARM				QUAIDS FARM			
SAMPLED FROM	HOLE 31 A				HOLE 33 A				HOLE 33 B				HOLE 34 A			
TESTED BY: DATE	J. DAVIS 22-6-94				J. DAVIS 22-6-94				J. DAVIS 22-6-94				J. DAVIS 22-6-94			
SIEVE	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS
TOTAL DRY MASS	257.6				188.1				129.9				163.5			
53.0mm																
37.5mm																
26.5mm																
19.0mm																
13.2mm																
9.5mm																
6.7mm																
4.75mm	–			100	–			100	–			100	–			100
2.36mm	0.8	0.3	0.3	99.7	1.0	0.5	0.5	99.5	0.3	0.7	0.2	99.8	1.9	1.2	1.2	98.8
1.18mm	9.5	3.5	3.8	96.2	9.4	4.5	5.0	95.0	6.3	4.6	4.8	95.2	22.1	12.4	13.5	86.5
.600mm	24.2	14.7	9.6	90.4	48.2	30.6	25.6	74.4	18.7	9.5	14.4	85.6	70.7	29.7	43.2	56.8
.425mm													131.7	37.3	80.6	19.4
.300mm	82.7	23.3	32.9	67.1	73.1	13.2	38.9	61.1	54.5	27.6	42.0	58.0	151.8	12.3	92.8	7.2
.150mm	219.6	54.4	87.3	12.7	129.3	29.9	68.7	31.3	101.6	36.3	78.2	21.8	158.6	4.2	97.0	3.0
0.075mm	250.9	12.4	99.7	0.3	187.4	30.9	99.6	0.4	129.5	21.5	99.7	0.3	163.1	2.8	99.8	0.2
PAN																
MOISTURE CONTENT %																
FINENESS MODULUS	1.3				1.4				1.4				3.3			
CLAY & FINE SILT % AS1141, SECT 33																
ORGANIC COLOUR TEST AS1141, SECT 34																
CHECKED BY	J Davis 22-6-94				J Davis 22-6-94				J Davis 22-6-94				J Davis 22-6-94			
COMMENTS																

01-07-1994 15:15 PIONEER ROSENEATH QUARRY 07 3289 [illegible]

SAMPLE NUMBER	TN 982				TN 983				TN 984				TN 985			
DATE SAMPLED	16-6-94				16-6-94				16-6-94				16-6-94			
AGG. SIZE/TYPE	FINE SAND				MEDIUM SAND				FINE SAND				FINE SAND			
QUARRY ORIGIN	QUAIOS FARM				QUAIOS FARM				QUAIOS FARM				QUAIOS FARM			
SAMPLED FROM	HOLE 35A				HOLE 38A				HOLE 29B				HOLE 29C			
TESTED BY: DATE	J. DAVIS 22-6-94				J. DAVIS 22-6-94				J. DAVIS 22-6-94				J. DAVIS 22-6-94			
SIEVE	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS
TOTAL DRY MASS	150.6				227.7				225.2				164.3			
53.0mm																
37.5mm																
26.5mm																
19.0mm																
13.2mm																
9.5mm																
6.7mm																
4.75mm	—			100	—			100	—			100	—			100
2.36mm	2.8	1.9	1.9	98.1	2.7	1.2	1.2	98.8	0.8	0.4	0.4	99.6	0.4	0.2	0.2	99.8
1.18mm	15.1	8.2	10.0	90.0	47.4	19.6	20.8	79.2	28.2	12.2	12.5	87.5	3.5	1.9	2.1	97.9
600mm	56.3	27.4	37.4	62.6	160.4	49.6	70.4	29.6	66.9	17.2	29.7	70.3	11.7	5.0	7.1	92.9
425mm																
300mm	83.5	18.1	55.4	44.6	204.8	19.5	89.9	10.1	132.1	29.0	58.7	41.3	58.8	28.7	35.8	64.2
150mm	131.8	32.1	87.5	12.5	218.3	5.9	95.9	4.1	184.0	23.0	81.7	18.3	131.3	44.1	79.9	20.1
0.075mm	150.2	12.2	99.7	0.3	227.1	3.9	99.7	0.3	224.6	18.0	99.7	0.3	163.8	19.8	99.7	0.3
PAN																
MOISTURE CONTENT %																
FINENESS MODULUS	1.9				2.8				1.8				1.3			
CLAY & FINE SILT % AS1141, SECT 33																
ORGANIC COLOUR TEST AS1141, SECT 34																
CHECKED BY	J Davis 22-6-94				J Davis 22-6-94				J Davis 22-6-94				J Davis 22-6-94			
COMMENTS																

01-07-1994 15:19 PIONEER ROSEHEATH QUARRY 077 783598 P.07

SAMPLE NUMBER	TN 986	TN 987	TN 988	TN 990
DATE SAMPLED	16-6-94	16-6-94	16-6-94	16-6-94
AGG. SIZE/TYPE	MEDIUM SAND	MEDIUM SAND	FINE SAND	FINE SAND
QUARRY ORIGIN	QUADS FARM	QUADS FARM	QUADS FARM	QUADS FARM
SAMPLED FROM	HOLE 39A	HOLE 39B	HOLE 41A	HOLE 42A
TESTED BY: DATE	J. DAVIS 22-6-94	J. DAVIS 22-6-94	J. DAVIS 22-6-94	J. DAVIS 22-6-94

SIEVE	TN 986 CUM WT RETAIN	TN 986 IND % RETAIN	TN 986 CUM % RETAIN	TN 986 % PASS	TN 987 CUM WT RETAIN	TN 987 IND % RETAIN	TN 987 CUM % RETAIN	TN 987 % PASS	TN 988 CUM WT RETAIN	TN 988 IND % RETAIN	TN 988 CUM % RETAIN	TN 988 % PASS	TN 990 CUM WT RETAIN	TN 990 IND % RETAIN	TN 990 CUM % RETAIN	TN 990 % PASS
TOTAL DRY MASS	259.7				212.5				172.5				212.4			
53.0mm																
37.5mm																
28.5mm																
19.0mm																
13.2mm																
9.5mm																
6.7mm					—			100	—			100				
4.75mm	—			100	0.6	0.3	0.3	99.7	0.6	0.3	0.3	99.7	—			100
2.36mm	4.9	1.9	1.9	98.1	8.5	3.7	4.0	96.0	4.6	2.3	2.7	97.3	2.7	1.3	1.3	98.7
1.18mm	36.3	12.1	14.0	86.0	28.3	9.3	13.3	86.7	19.6	8.7	11.4	88.6	21.5	8.9	10.1	89.9
600mm	170.7	51.8	65.7	34.3	97.4	32.5	45.8	54.2	56.6	21.4	32.8	67.2	75.3	25.3	35.5	64.5
425mm																
300mm	224.4	20.7	86.4	13.6	142.9	21.4	67.2	32.8	82.2	14.8	47.7	52.3	114.5	18.5	53.9	46.1
150mm	241.0	6.4	92.8	7.2	176.9	16.0	83.2	16.8	116.2	9.7	67.4	32.6	168.3	25.3	79.2	20.8
0.075mm	259.1	7.0	99.8	0.2	211.8	16.4	99.7	0.3	172.1	32.4	99.8	0.2	211.7	20.4	99.7	0.3
PAN																
MOISTURE CONTENT %																
FINENESS MODULUS	2.6				2.1				1.6				1.8			
CLAY & FINE SILT % AS1141, SECT 33																
ORGANIC COLOUR TEST AS1141, SECT 34																
CHECKED BY	22-6-94				22-6-94				22-6-94				22-6-94			
COMMENTS																

01-07-1994 15:19 PIONEER ROSEWORTH QUARRY 077 783598 P.05

SAMPLE NUMBER	TN 990				TN 991				TN 992				TN 993			
DATE SAMPLED	16-6-94				16-6-94				16-6-94				16-6-94			
AGG. SIZE/TYPE	FINE SAND				MEDIUM SAND				MEDIUM SAND				MEDIUM SAND			
QUARRY ORIGIN	QUAIDS FARM				QUAIDS FARM				QUAIDS FARM				QUAIDS FARM			
SAMPLE LOCATION	HOLE 43-A				HOLE 45-A				HOLE 49-A				HOLE 49-B			
TESTED BY / DATE	J.DAVIS 22-6-94				J.DAVIS 22-6-94				J.DAVIS 22-6-94				J.DAVIS 22-6-94			
SIEVE	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS
TOTAL DRY MASS	287.0				219.7				153.0				144.3		-	
53.0mm																
37.5mm																
26.5mm																
19.0mm																
13.2mm																
9.5mm																
6.7mm b	—			100												
4.75mm ✓	0.3	0.1	0.1	99.9	—			100				100	—			100
2.36mm ✓	21.2	7.3	7.4	92.6	5.8	2.6	2.6	97.4	8.7	5.5	5.5	94.5	3.0	2.1	2.1	97.9
1.18mm ✓	54.5	11.6	19.0	81.0	42.7	16.8	19.4	80.6	85.0	48.3	53.6	46.2	33.2	20.9	23.0	77.0
.600mm ✓	112.7	20.3	39.3	60.7	108.9	30.1	49.6	50.4	131.6	29.5	83.3	16.7	82.7	34.3	57.3	42.7
425mm																
.300mm ✓	162.9	17.5	56.8	43.2	167.7	26.8	76.3	23.7	144.4	8.1	91.4	8.6	112.5	20.7	78.0	22.0
.150mm ✓	261.1	34.2	91.0	9.0	210.0	19.3	95.6	4.4	154.6	6.5	97.8	2.2	139.8	18.9	96.9	3.1
0.075mm ✓	286.4	8.8	99.8	0.2	219.0	4.1	99.7	0.3	157.7	2.0	99.8	0.2	143.8	2.8	99.7	0.3
PAN																
MOISTURE CONTENT %																
FINENESS MODULUS	2.1				2.4				3.3				2.6			
CLAY & FINE SILT % AS1141, SECT 33																
ORGANIC COLOUR TEST AS1141, SECT 34																
CHECKED BY	J.Davis 22-6-94				J.Davis 22-6-94				J.Davis 22-6-94				J.Davis 22-6-94			
COMMENTS																

01-07-1994 15:18 PIONEER RUGELEATH QUARRY 077 783998 P.05

PIONEER CONCRETE (QLD.) PTY. LTD.

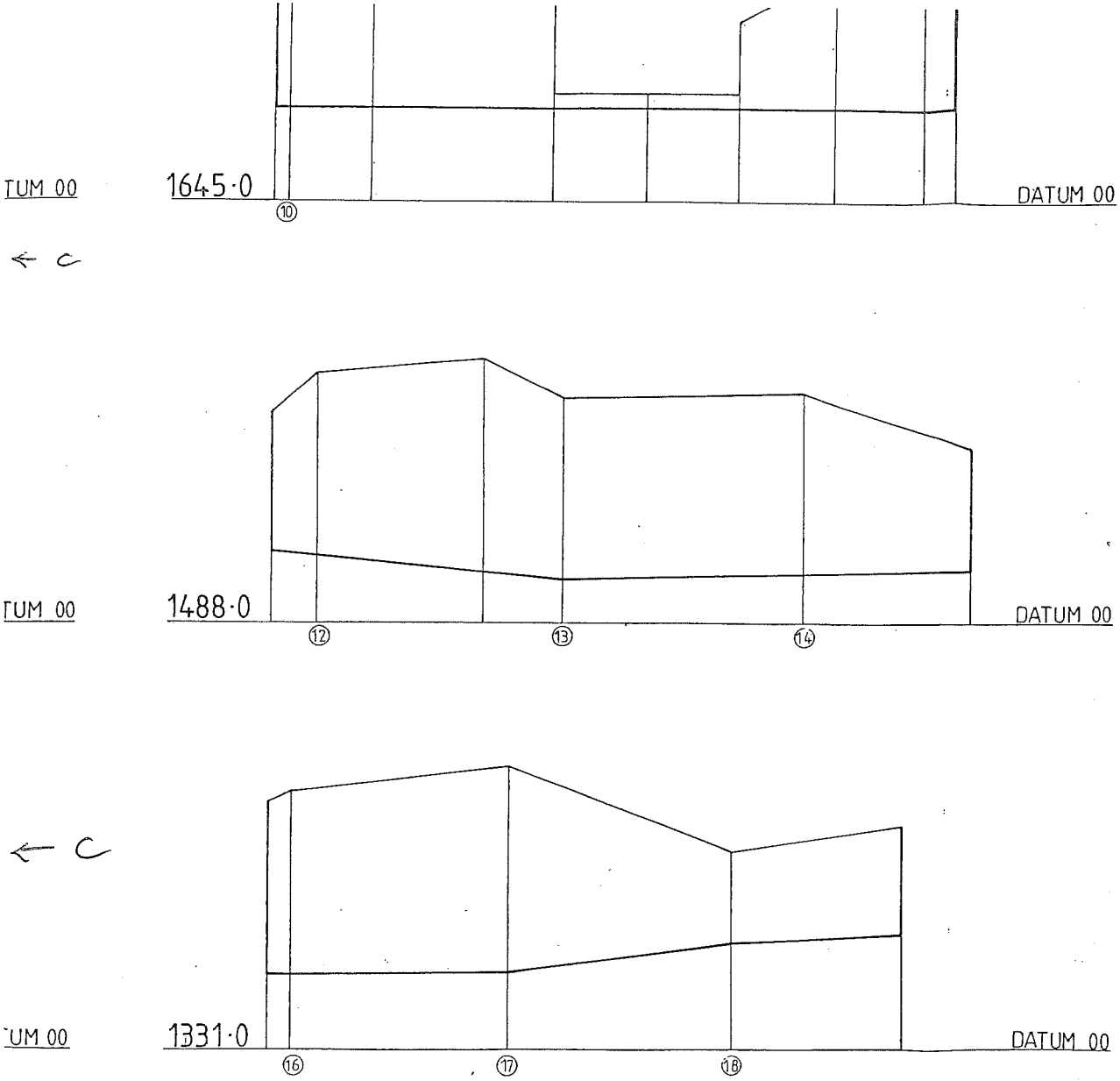
AS 1141.11/12 FINE PARTICLE SIZE DISTRIBUTION (DRY)

SAMPLE NUMBER		TN 994				TN 995				TN 996				TN 997			
DATE SAMPLED		16-6-94				16-6-94				16-6-94				16-6-94			
AGG. SIZE/TYPE		FINE SAND				MEDIUM SAND				MEDIUM SAND				MEDIUM SAND			
QUARRY ORIGIN		QUAIDS FARM				QUAIDS FARM				QUAIDS FARM				QUAIDS FARM			
SAMPLED FROM		HOLE 50 B				HOLE 50 A				HOLE 51 A				HOLE 52 A			
TESTED BY: DATE		J. DAVIS 23-6-94				J. DAVIS 23-6-94				J. DAVIS 23-6-94				J. DAVIS 23-6-94			
	SIEVE	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS
TOTAL DRY MASS		172.0				209.3				297.2				307.4			
	53.0mm																
	37.5mm																
	26.5mm																
	19.0mm																
	13.2mm																
	9.5mm																
	5.7mm	—			100									—			100
	4.75mm	1.1	0.6	0.6	99.4	—			100	—			100	2.7	0.9	0.9	99.1
	2.36mm	14.0	7.5	8.1	91.9	26.6	12.7	12.7	87.3	13.8	4.6	4.6	95.4	40.4	12.3	13.1	86.9
	1.18mm	32.6	10.8	19.0	81.0	111.0	40.3	53.0	47.0	80.3	22.4	27.0	73.0	182.2	96.1	59.3	40.7
	600mm	54.9	13.0	31.9	68.1	176.2	31.2	84.2	15.8	187.4	36.0	63.1	36.9	285.1	33.5	92.7	7.3
	425mm																
	300mm	103.2	28.1	60.0	40.0	192.4	7.7	91.9	8.1	207.7	6.8	69.9	30.1	292.0	2.2	95.0	5.0
	150mm	126.0	13.3	73.3	26.7	200.6	3.9	95.8	4.2	265.5	19.4	89.3	10.7	300.6	2.8	97.8	2.2
	0.075mm	171.6	26.5	99.8	0.2	209.0	4.0	99.9	0.1	296.2	10.3	99.7	0.3	306.6	2.0	99.7	0.3
	PAN																
MOISTURE CONTENT %																	
FINENESS MODULUS		1.9				3.4				2.5				3.6			
CLAY & FINE SILT % AS1141, SECT 33																	
ORGANIC COLOUR TEST AS1141, SECT 34																	
CHECKED BY		J Davis 24-6-94				J Davis 24-6-94				J Davis 24-6-94				J Davis 24-6-94			
COMMENTS																	

SAMPLE NUMBER	TV 998				TV 999				TV 1000				TV 1001			
DATE SAMPLED	16-6-94				16-6-94				16-6-94				16-6-94			
AGG. SIZE/TYPE	FINE SAND				MEDIUM SAND				FINE SAND				MEDIUM SAND			
QUARRY ORIGIN	QUAIDS FARM				QUAIDS FARM				QUAIDS FARM				QUAIDS FARM			
SAMPLED FROM	HOLE 52B				HOLE 53A				HOLE 53B				HOLE 54			
TESTED BY: DATE	J. DAVIS 23-6-94				J. DAVIS 23-6-94				J. DAVIS 23-6-94				J. DAVIS 23-6-94			
SIEVE	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS
TOTAL DRY MASS	219.8				175.7				228.1				196.8			
53.0mm																
37.5mm																
26.5mm																
19.0mm																
13.2mm																
9.5mm																
6.7mm					—			100								
4.75mm	—			100	0.6	0.3	0.3	99.7	—			100	—			100
2.36mm	2.7	1.2	1.2	98.8	19.1	7.7	8.0	92.0	1.9	0.8	0.8	99.2	19.9	10.1	10.1	89.9
1.18mm	12.8	4.6	5.8	94.2	84.0	39.8	47.8	52.2	21.1	8.4	9.3	90.7	71.7	26.3	36.4	63.6
600mm	41.8	13.2	19.0	81.0	139.8	31.8	79.6	20.4	80.6	26.1	35.3	64.7	134.3	31.8	68.2	31.8
425mm																
300mm	78.8	16.8	35.9	64.1	167.9	16.0	95.6	4.4	208.6	56.1	91.5	8.5	159.7	12.9	81.1	18.9
150mm	179.8	46.0	81.8	18.2	175.4	4.3	99.8	0.2	223.3	6.4	97.9	2.1	170.6	5.5	86.7	13.3
0.075mm	218.9	17.8	99.6	0.4	175.7	0.2	100.0	0	227.0	1.6	99.5	0.5	196.2	13.0	99.7	0.3
PAN																
MOISTURE CONTENT %																
FINENESS MODULUS	1.4				3.3				2.3				2.8			
CLAY & FINE SILT % AS1141, SECT 33																
ORGANIC COLOUR TEST AS1141, SECT 34																
CHECKED BY	J. DAVIS 24-6-94				J. DAVIS 24-6-94				J. DAVIS 24-6-94				J. DAVIS 24-6-94			
COMMENTS																

SAMPLE NUMBER	TN 1002				TN 1003				TN 1004				TN 1005			
DATE SAMPLED	16-6-94				16-6-94				16-6-94				16-6-94			
AGG. SIZE/TYPE	FINE SAND				FINE SAND				MEDIUM SAND				MEDIUM SAND			
QUARRY ORIGIN	QUAIDS FARM				QUAIDS FARM				QUAIDS FARM				QUAIDS FARM			
SAMPLED FROM	HOLE 55 A				HOLE 56 A				HOLE 54 B				QF 6/6			
TESTED BY: DATE	J. DAVIS 23-6-94				J. DAVIS 23-6-94				J. DAVIS 23-6-94				J. DAVIS 23-6-94			
SIEVE	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS	CUM WT RETAIN	IND % RETAIN	CUM % RETAIN	% PASS
TOTAL DRY MASS	192.6				137.6				293.4				271.6			
53.0mm																
37.5mm																
26.5mm																
19.0mm																
13.2mm																
9.5mm																
6.7mm					—			100					—			100
4.75mm	—			100	0.6	0.4	0.4	99.6	—			100	1.1	0.4	0.4	99.6
2.36mm	2.7	1.4	1.4	98.6	3.7	2.7	2.7	97.3	19.6	6.7	6.7	93.3	13.2	4.5	4.9	95.1
1.18mm	16.3	7.1	8.5	91.5	11.6	5.7	8.4	91.6	133.3	38.8	45.4	54.6	49.1	13.2	18.1	81.9
.600mm	79.2	32.7	41.1	58.9	45.0	24.3	32.7	67.3	244.9	38.0	83.5	16.5	99.4	14.8	32.9	67.1
.425mm																
.300mm	121.1	21.8	62.9	37.1	62.7	12.9	45.6	54.4	264.9	6.8	90.3	9.7	170.9	30.0	62.9	37.1
.150mm	138.8	7.1	70.0	30.0	90.2	20.0	65.6	34.4	283.2	6.2	96.5	3.5	263.5	34.1	97.0	3.0
0.075mm	191.9	29.6	99.6	0.4	137.2	34.2	99.7	0.3	292.5	3.2	99.7	0.3	271.1	2.8	99.8	0.2
PAN																
MOISTURE CONTENT %																
FINENESS MODULUS	1.8				1.6				3.2				2.2			
CLAY & FINE SILT % AS1141, SECT 33																
ORGANIC COLOUR TEST AS1141, SECT 34																
CHECKED BY	24-6-94				24-6-94				24-6-94				24-6-94			
COMMENTS																

01-07-1994 15:16 PIONEER RUSSELEATH QUARRY 07? 7833988 P.02

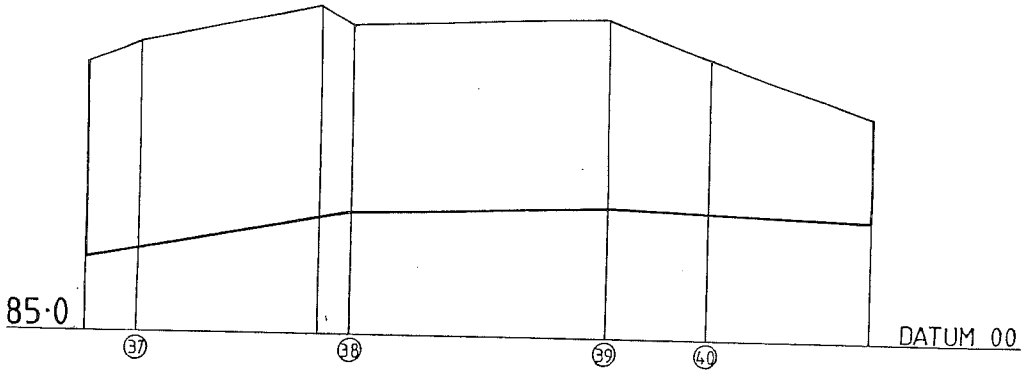


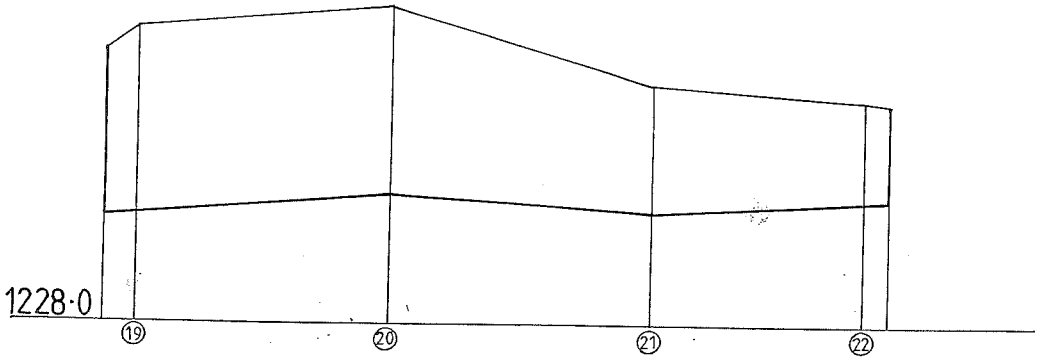
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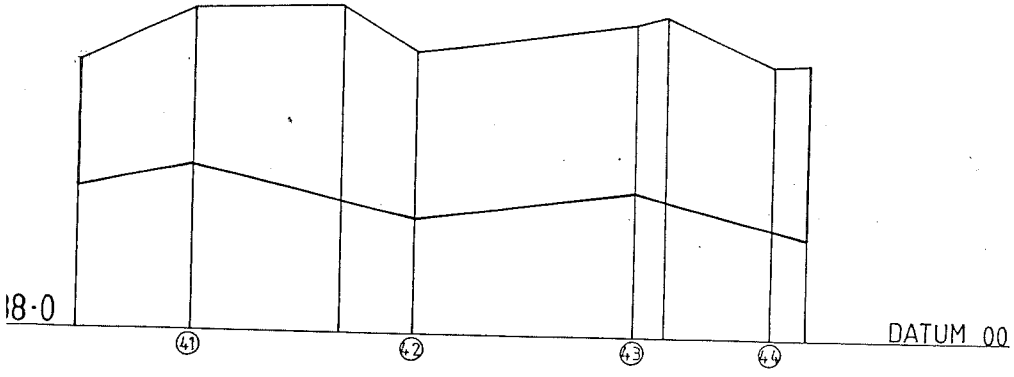
Depth of sand calculated from test hole logs established by Pioneer Concrete on 7-6-94.

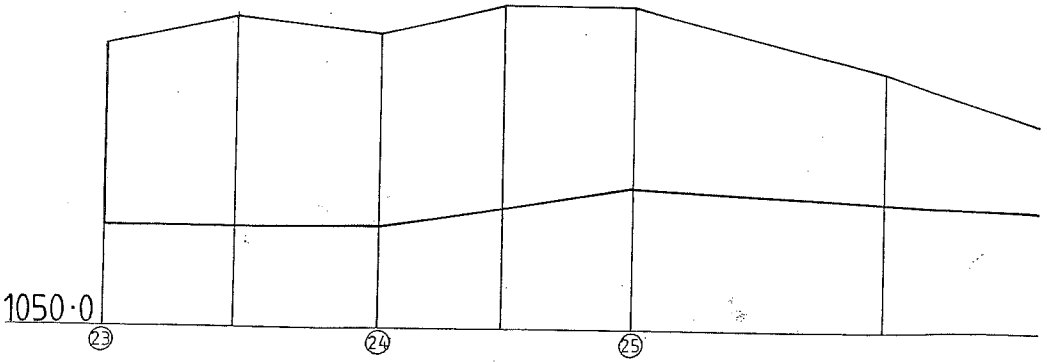
⑫=Test hole number.

Lot 2 on R.P. 719248 ORIG. Por. 90, Por. 79 and Por. 78		
SITE INVESTIGATION TO ESTABLISH QUANTITY OF SAND		
HIGHAM and DODDS PLANNING CONSULTANTS	SCALE AS SHOWN	PLAN N°. 250894 Sheet 3 of 3


85·0
37
38
39
40
DATUM 00

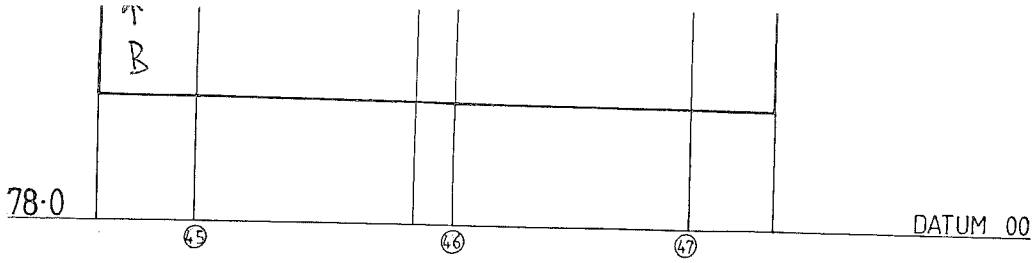

1228·0
19
20
21
22

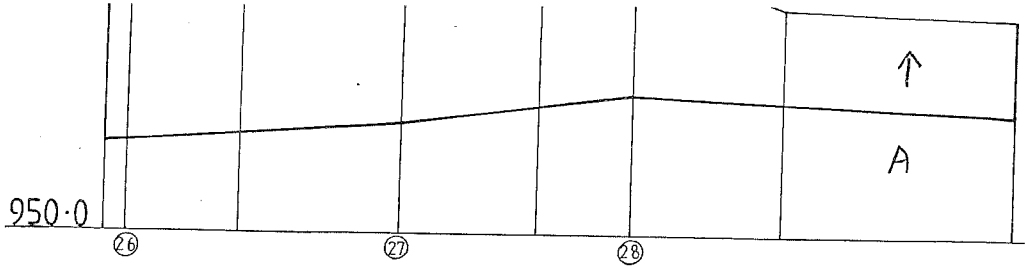

18·0
41
42
43
44
DATUM 00


1050·0
23
24
25

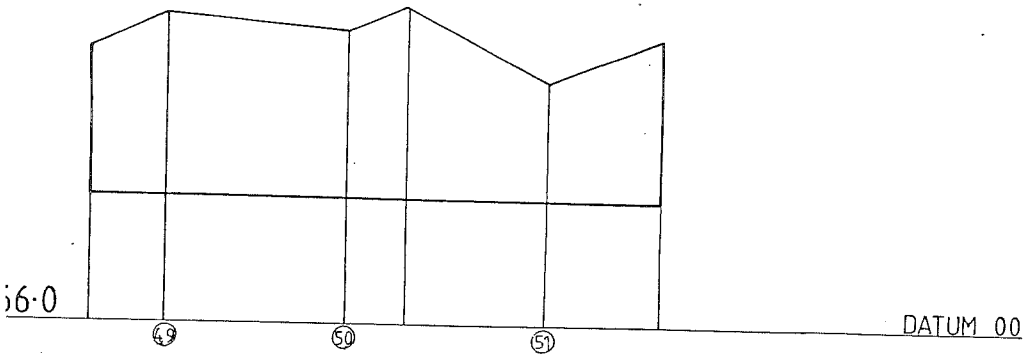

B

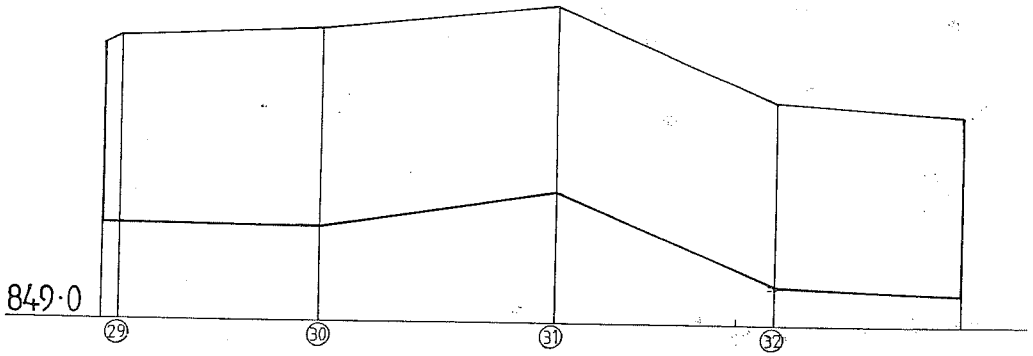

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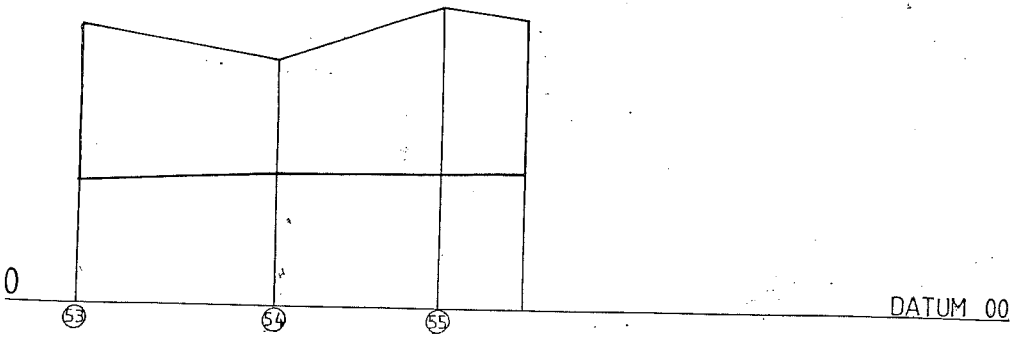


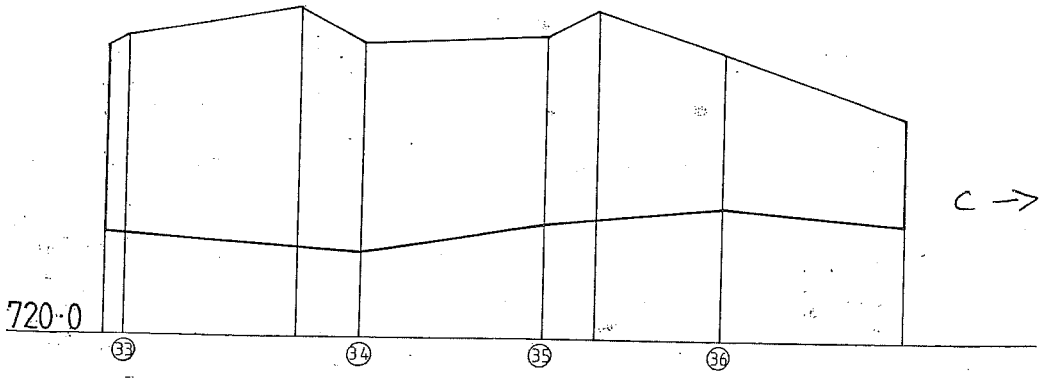


C →









C →

CROSS SECTIONS

HOR. 1:1000
VERT 1:100

Appendix C Staging Plan for Proposed Extraction



IMPORTANT NOTE

This plan was prepared as a concept plan only and accuracy of all aspects of the plan have not been verified. All lots, areas and dimensions are approximate only, Subject to relevant studies, Survey, Engineering and Government approvals.
No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.

DNRM DCDB.
DNRM AERIAL PHOTOGRAPHY.

Based on or contains data provided by the State of Queensland (Department of Resources) [2024]. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.
The aerial photography used in this plan has not been rectified. The image has been overlaid as a best fit on the boundaries shown and position is approximate only.
Photography publish date: Aug 2023.
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NQ Asphalt Pty Ltd
Lot 1 on RP893855
Staging Plan - Proposed Sand Extraction

0 15 30 45 60 75 150

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W rpsgroup.com

A TETRA TECH COMPANY

Datum: MGA2020 Z55 | **Scale:** 1:1,500 @ A3 | **Date:** 29-1-2025 | **Drawing:** AU015874-3

Appendix D Groundwater Bore Logs

BORE LOG SHEET

SAXON DRILLING

Borehole No:	BH - 1				
Date:	5-2-25	Sheet:	1	of	1

Client:	R.P.S	Project:	Sand Quarry		
Location:	Bonnie Doon Road	Position:		Mine Grid:	
Angle from Horizontal:	90°	Rig Type:	Commachio 305	Mounting:	TRACK
Driller:	B. SAXON	Date Started:	5-2-25	Date Completed:	5-2-25
Logged By:	B. SAXON	Company:	Saxon Drilling		

Drilling				Material					Piezometer	
Scale	Drilling Method	Hole Support/Casing	Samples & Tests	Depth RL/Metres	Graphic Log	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE colour, grain size, structure, weathering, strength	Moisture Condition	Comments/ Observations	Piezometer Log	Components
	125mm Auger.	H.W.T CASING Full Hole length.	Samples taken every meter.	5m	.5	0m - 5m Black Sands 1m - 2m Orang Coarse Sand. 1m - 3m Coarse Sands 3m - 4m Orange Sandy Clay. 4m - 5m Stiff Gray Clay 20% Fine Sand. 5m - End Hole		Water at .8m		

COMMENTS

Hole Collapsing threw Wet Sands, Hole Cased and Flushed before Installation of Well.

BORE LOG SHEET

SAXON DRILLING

Borehole No: BH 2

Date: 6-2-25 Sheet: 1 of 1

Client:	R.P.S	Project:	Sand Quarry		
Location:	Bonnie Doon Road	Position:		Mine Grid:	
Angle from Horizontal:	90°	Rig Type:	Commachio 305	Mounting:	TRACK.
Driller:	B. Saxon	Date Started:	6-2-25	Date Completed:	6-2-25
Logged By:	B. Saxon	Company:	Saxon Drilling		

Drilling				Material					Piezometer	
Scale	Drilling Method	Hole Support/Casing	Samples & Tests	Depth RL/Metres	Graphic Log	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE colour, grain size, structure, weathering, strength	Moisture Condition	Comments/ Observations	Piezometer Log	Components
	125mm Auger	H.W.T CASING	Samples every 1 meter	5m		0m - 1m Coarse Sands 1m - 2m Coarse Sands 2~~.8~~m - 4m Sand becoming clayey 4m - 5m Blue stiff Clay.		Water .8m		

COMMENTS

Water at .8m

BORE LOG SHEET

CASEY DRILLING

		Borehole No:	BH 3		
Date:	5.2.25	Sheet:	1	of	1

Client:	R.P.S	Project:	Sand Quarry		
Location:	Bonnie Doon Road	Position:		Mine Grid:	
Angle from Horizontal:	90°	Rig Type:	Commachio 305	Mounting:	TRACK.
Driller:	B. Saxer	Date Started:	5.2.25	Date Completed:	5.2.25
Logged By:	B. Saxer.	Company:			

Drilling				Material					Piezometer	
Scale	Drilling Method	Hole Support/Casing	Samples & Tests	Depth RL/Metres	Graphic Log	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE colour, grain size, structure, weathering, strength	Moisture Condition	Comments/ Observations	Piezometer Log	Components
1 2 3 4 5 6 7 8 9 10 11 12	125mm Auger.	H.W.T CASING Full length of Hole	Samples Taken every meter	5m		0m-3m Coarse White Sand Lots of Sea shells 3-4m Sand becoming finer becoming Clayey. 4m-5 STIFF Grey Clays.		Water at .7m		

COMMENTS

Water at .7m. Hole Cased to 5m. Flushed before Install.

BORE LOG SHEET

SOXON DRILLING

Borehole No:	BH. 4				
Date:	5.2.25	Sheet:	1	of	1

Client:	R.P.S	Project: ~~Bonnie Doon Road~~	Sand Quarry		
Location:	Bonnie Doon Road	Position:		Mine Grid:	
Angle from Horizontal:	90°	Rig Type:		Mounting:	
Driller:	B Soxon	Date Started:		Date Completed:	
Logged By:	B. Soxon	Company:	Soxon Drilling		

Drilling				Material					Piezometer	
Scale	Drilling Method	Hole Support/Casing	Samples & Tests	Depth RL/Metres	Graphic Log	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE colour, grain size, structure, weathering, strength	Moisture Condition	Comments/ Observations	Piezometer Log	Components
	Auger	H.W.T., Full Length of Hole	Samples every 1 meter			0m-1m 1m-2m 2m-3 3-4 4m-5m		Water .6m Coarse to Medium Sand Brown Sand-Coarse, Becoming clayey Blue stiff Clay Clay- Blue to Gray - stiff.		

COMMENTS

Water at .6m -

BORE LOG SHEET

SAXON DRILLING

Borehole No:	5				
Date:	6-2-25	Sheet:	1	of	1

Client:	R.P.S	Project:	Sand Quarry		
Location:	Bonnie Doon ROAD	Position:		Mine Grid:	
Angle from Horizontal:	90°	Rig Type:	Commachio 305	Mounting:	TRACK.
Driller:	B. Saxon	Date Started:	6-2-25	Date Completed:	6-2-25
Logged By:	B. Saxon	Company:	Saxon Drilling		

Drilling				Material					Piezometer	
Scale	Drilling Method	Hole Support/Casing	Samples & Tests	Depth RL/Metres	Graphic Log	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE colour, grain size, structure, weathering, strength	Moisture Condition	Comments/ Observations	Piezometer Log	Components
						0-1m Coarse white Sands 1m-2m Course Orange Sands. 2m-3 clayey & Finer Sand. 3m-4m Grey stiff Clays. 4m-5m Grey stiff Clays.		Water .6m		

1 2 3 4 5 6 7 8 9 10 11 12

COMMENTS

Water at .6m

BORE LOG SHEET

SAXON DRILLING

Borehole No:	6 - near Refuse tip				
Date:	6-2-25	Sheet:	1	of	1

Client:	R.P.S	Project:	Sand Quarry		
Location:	Bonnie Doon Road	Position:		Mine Grid:	
Angle from Horizontal:	90	Rig Type:	Commachio 305	Mounting:	Track
Driller:	B-Saxon	Date Started:	6-2-25	Date Completed:	6-2-25
Logged By:	B-Saxon	Company:	Saxon Drilling		

Drilling				Material					Piezometer	
Scale	Drilling Method	Hole Support/Casing	Samples & Tests	Depth RL/Metres	Graphic Log	Description SOIL TYPE, colour, structure, minor components (origin), and ROCK TYPE colour, grain size, structure, weathering, strength	Moisture Condition	Comments/ Observations	Piezometer Log	Components
	125mm Auger.	HWT - Full length of Hole	Samples every meter	6m		0m - 3m Coarse white, Orange Sands 3m - 3.5m Sand becoming clayey 3.5m - 6m GRAY STIFF clays		Water 2.7m		

COMMENTS

Water 2.7m

Appendix E PASS Report

135 Abbott Street
Cairns QLD 4870
T +61 7 4031 1336

Our ref: L83185 15874

Date: 18 February 2025

NQ Asphalt Pty Ltd

To Whom it May Concern,

Sand Product and Acid Sulfate Soil Content Testing 7 February 2025

An RPS Environmental Consultant visited the NQ Asphalt Sand site on 7 February 2025 to assist with the installation of 6 Groundwater monitoring wells on Lot 1 RP893855. During the bore installation sand samples were collected from 1m intervals to be analysed for Chromium Suite to determine if Acid Sulfate Soils (ASS) are present within the soils on site.

Method

Sand product sampling was conducted according to the Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils (ASS) in Queensland 1998. The approved sampling technique under this manual is as follows:

A compound sampling program was implemented with small samples taken from random locations over a particular Sand Product Pile; these are then combined and placed into an air-tight polyethylene bag (with the air excluded). The combined sample of a particular sand product is then clearly marked with a permanent marker and placed into an esky containing ice to keep samples cool and minimize sulfide oxidation. This is then repeated for other grades of sand being produced at the site. The chilled samples were transported within a 24-hour timeframe to a NATA accredited laboratory for analysis.

All quality standards and procedures were carried out according to Australian Standard AS 4969- 2008, the Laboratory Methods Guidelines (2004) Ahern CR, McElnea AE, Sullivan LA and Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils (ASS) in Queensland 1998.

Bore and sample locations

The groundwater bores have been installed along the northeast and southwest boundaries of the site. Refer to **Appendix A** for the Borehole Location plan.

Results

Sand samples taken from the bore holes were sent to a NATA accredited laboratory for analysis. The laboratory report of results is included in **Appendix B**, with a summary of the key results below in **Table 1**:

Table 1 – Sand sample results

Sample	Sulphur Trail (s-net Acidity %w/w S)	Acid Trail (a-net Acidity mol H^+/t)	pH KCl
BH1 0m	*0.0025*	*2.5*	6.4
BH1 1m	*0.0025*	*2.5*	6.3
BH1 2m	*0.0025*	*2.5*	5.9
BH1 3m	*0.0025*	*2.5*	5.6
BH1 4m	*0.0025*	*2.5*	5.8
BH1 5m	*0.0025*	*2.5*	5.8
BH2 0m	*0.0025*	*2.5*	6.4
BH2 1m	*0.0025*	*2.5*	9.7
BH2 2m	*0.0025*	*2.5*	9.7
BH2 3m	*0.0025*	*2.5*	9.7
BH2 4m	*0.0025*	*2.5*	9.5
BH2 5m	*0.0025*	*2.5*	9.5
BH3 0m	**0.036**	**22**	**5.3**
BH3 1m	*0.0025*	*2.5*	6.3
BH3 2m	*0.0025*	*2.5*	6.3
BH3 3m	**0.088**	**55**	**4.8**
BH3 4m	**0.29**	**180**	**4.7**
BH3 5m	**0.16**	**98**	**4.6**
BH4 0m	*0.0025*	*2.5*	7.8
BH4 1m	*0.0025*	*2.5*	9.8
BH4 2m	*0.0025*	*2.5*	9.8
BH4 3m	*0.0025*	*2.5*	9.8
BH4 4m	*0.0025*	*2.5*	9.5
BH4 5m	*0.0025*	*2.5*	9.5
BH5 0m	0.012	7	5.5
BH5 1m	*0.0025*	*2.5*	6.4
BH5 2m	*0.0025*	*2.5*	6.2
BH5 3m	*0.0025*	*2.5*	5.8
BH5 4m	**0.29**	**180**	**4.7**
BH5 5m	**0.044**	**27**	**4.6**
BH6 0m	*0.0025*	*2.5*	6.4
BH6 1m	*0.0025*	*2.5*	6.3
BH6 2m	*0.0025*	*2.5*	6.3
BH6 3m	*0.0025*	*2.5*	6.1
BH6 4m	*0.0025*	*2.5*	6.4
BH6 5m	*0.0025*	*2.5*	9.4
BH6 6m	*0.0025*	*2.5*	9.4

Columns 2 & 3 must be compared against the Action Criteria >1000 tonnes disturbed column of **Table 2**

Table 2 - Texture Based Acid Sulfate Soil Action Criteria (QASSTM)

Type of Material		Action Criteria 1-1000 Tonnes Disturbed		Action Criteria >1000 Tonnes Disturbed	
Texture Range MacDonald et al. (1990)	Approx. Clay Content (%)	%S equiv. (oven-dry basis) e.g. S_{TOR} or S_{POS}	Mol H^+/tonne (oven-dry basis) e.g TPA or TSA	Sulfur trail %S oxidisable (oven-dry basis) e.g. S_{TOS} or S_{POS}	Acid Trail mol H^+/tonne (oven-dry basis) e.g. TPA or TSA
Fine Medium to heavy clays, and silty clays	>40%	0.1	62	0.03	18
Medium Sandy loams to light clays	5-40	0.006	36		
Coarse Sandy to loamy sands and peats	<5	0.03	18		

Discussion

The Chromium Suite laboratory analysis results in **Table 1** show that BH3 3m, 4m and 5m and BH5 4m and 5m recorded results above the weighted action criteria (*Ahern et al 1998*), refer to **Table 2**, while all other samples recorded below**.** Additionally, the pH KCl for the samples above the weighted action criteria recorded between 4.6 to 4.8, whereas the samples below recorded 5.3 to 9.8 can be seen in **Table 1.**

These results indicate Acid Sulfate soils present at the below locations would require management with limiting rates if >1000 tonnes disturbed.

Table 3 - Liming Rate

Sample	Liming Rate kg Ca CO3/T
BH3 0m	1.7
BH3 3m	4.1
BH3 4m	14
BH3 5m	7.4
BH5 4m	13
BH5 5m	*2*

Should you require any further details or clarification, please do not hesitate to contact RPS on (07) 4031 1336.

Yours sincerely,
for RPS AAP Consulting Pty Ltd



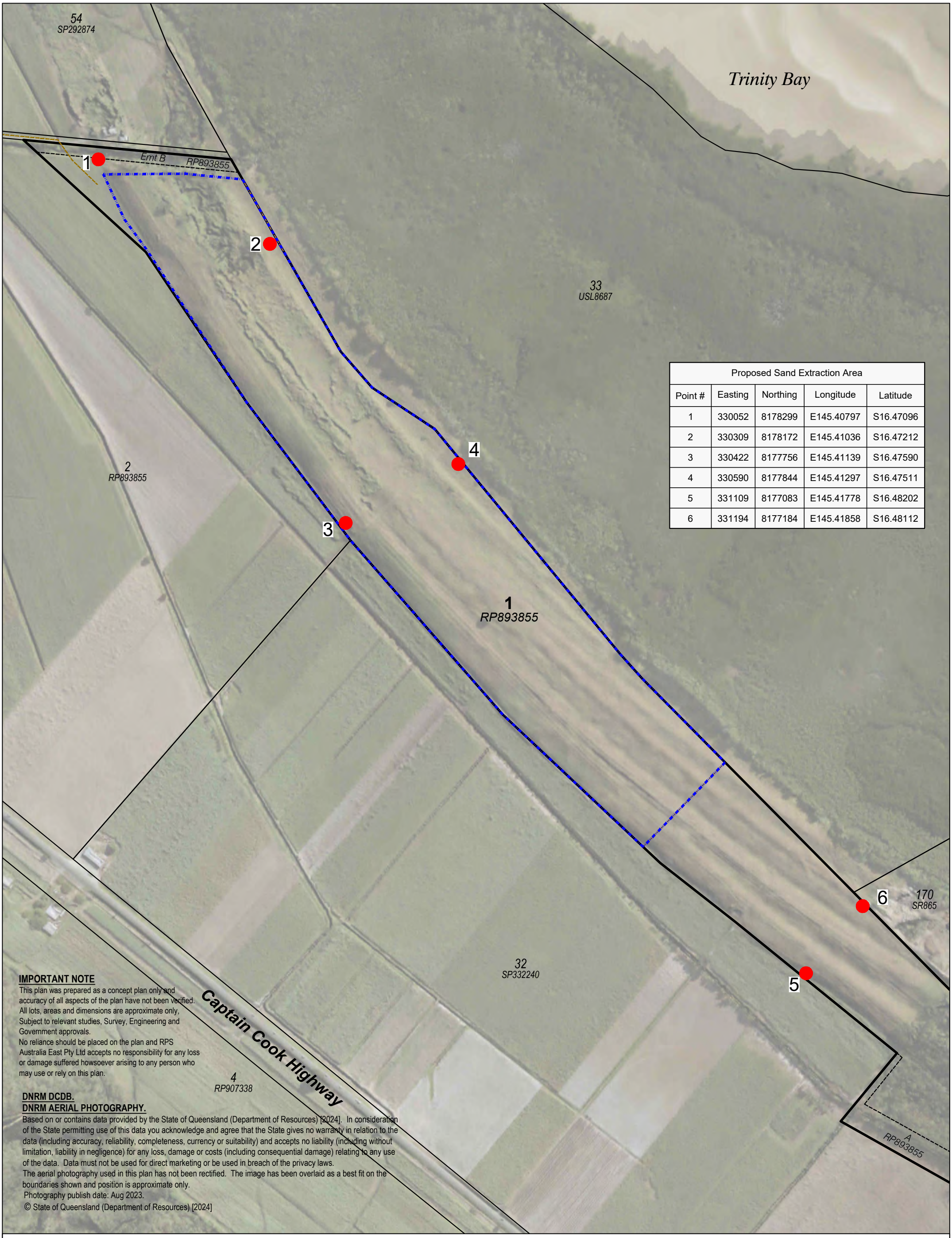
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Our ref: 04362 L83183

enc: Appendix A: Borehole Location Plan
Appendix B: SGS Analytical Report

APPENDIX A

Borehole Location Plan



Proposed Sand Extraction Area				
Point #	Easting	Northing	Longitude	Latitude
1	330052	8178299	E145.40797	S16.47096
2	330309	8178172	E145.41036	S16.47212
3	330422	8177756	E145.41139	S16.47590
4	330590	8177844	E145.41297	S16.47511
5	331109	8177083	E145.41778	S16.48202
6	331194	8177184	E145.41858	S16.48112

IMPORTANT NOTE

This plan was prepared as a concept plan only and accuracy of all aspects of the plan have not been verified. All lots, areas and dimensions are approximate only, Subject to relevant studies, Survey, Engineering and Government approvals.
No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.

DNRM DCDB.
DNRM AERIAL PHOTOGRAPHY.

Based on or contains data provided by the State of Queensland (Department of Resources) [2024]. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.
The aerial photography used in this plan has not been rectified. The image has been overlaid as a best fit on the boundaries shown and position is approximate only.
Photography publish date: Aug 2023.
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NQ Asphalt Pty Ltd
Proposed Sand Extraction
Borehole Location Plan

0 15 30 45 60 75 150

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Datum: MGA2020 Z55 | **Scale:** 1:5,000 @ A3 | **Date:** 17-2-2025 | **Drawing:** AU015874-4

APPENDIX B

SGS Analytical Report

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS		LABORATORY DETAILS	
Contact	Megan Davis	Manager	Jon Dicker
Client	RPS AAP CONSULTING PTY LTD	Laboratory	SGS Cairns Environmental
Address	PO BOX 1559 FORTITUDE VALLEY QLD 4006	Address	Unit 2, 58 Comport St Portsmith QLD 4870
Telephone	+61 7 4031 1336	Telephone	+61 07 4035 5111
Facsimile	(Not specified)	Facsimile	+61 07 4035 5122
Email	Megan.Davis1@rpsconsulting.com	Email	AU.Environmental.Cairns@sgs.com
Project	**604-OEENVCNS-15874_Koppen - Bore Holes**	SGS Reference	**CE180079 R0**
Order Number	**604-OEENVCNS-15874**	Date Received	07 Feb 2025
Samples	37	Date Reported	14 Feb 2025

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(3146)

SIGNATORIES

Jon Dicker
Manager Northern QLD

Maristela GANZAN
Quality Manager

Parameter	Units	LOR	Sample Number Sample Matrix Sample Name CE180079.001 Soil BH1 0m	CE180079.002 Soil BH1 1m	CE180079.003 Soil BH1 2m	CE180079.004 Soil BH1 3m
Moisture Content Method: AN002 Tested: 7/2/2025						
% Moisture	%w/w	0.5	**19**	**12**	**20**	**23**
TAA (Titratable Actual Acidity) Method: AN219 Tested: 14/2/2025						
pH KCl	pH Units	-	**6.4**	**6.3**	**5.9**	**5.6**
Titratable Actual Acidity	kg H2SO4/T	0.25	<0.25	<0.25	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	-	-	-	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 14/2/2025						
Chromium Reducible Sulfur (Scr)	%	0.005	<0.005	<0.005	<0.005	<0.005
Chromium Reducible Sulfur (Scr)	moles H+/T	5	<5	<5	<5	<5
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 14/2/2025						
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1	-	-	-	-
ANC as % $CaCO_3$	% CaCO3	0.1	-	-	-	-
Lime Equivalence	% CaCO3	0.1	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005	-	-	-	-
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 14/2/2025						
s-Net Acidity	%w/w S	0.005	<0.005	<0.005	<0.005	<0.005
s-Net Acidity without ANC	%w/w S	0.005	<0.005	<0.005	**0.006**	**0.008**
a-Net Acidity	moles H+/T	5	<5	<5	<5	<5
Liming Rate	kg CaCO3/T	0.1	<0.1	<0.1	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20	**0.00**	**0.00**	**0.00**	**0.00**
a-Net Acidity without ANCBT	moles H+/T	5	<5	<5	<5	<5
Liming Rate without ANCBT	kg CaCO3/T	0.1	<0.1	<0.1	<0.1	<0.1

Parameter	Units	LOR	Sample Number: CE180079.005 Sample Matrix: Soil Sample Name: BH1 4m	CE180079.006 Soil BH1 5m	CE180079.007 Soil BH2 0m	CE180079.008 Soil BH2 1m
Moisture Content Method: AN002 Tested: 7/2/2025						
% Moisture	%w/w	0.5	**22**	**27**	**14**	**20**
TAA (Titratable Actual Acidity) Method: AN219 Tested: 14/2/2025						
pH KCl	pH Units	-	**5.8**	**5.8**	**6.4**	**9.7**
Titratable Actual Acidity	kg H2SO4/T	0.25	<0.25	<0.25	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	-	-	-	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 14/2/2025						
Chromium Reducible Sulfur (Scr)	%	0.005	<0.005	<0.005	<0.005	<0.005
Chromium Reducible Sulfur (Scr)	moles H+/T	5	<5	<5	<5	<5
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 14/2/2025						
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1	-	-	-	**9.4**
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1	-	-	-	**92**
ANC as % $CaCO_3$	% CaCO3	0.1	-	-	-	**9.4**
Lime Equivalence	% CaCO3	0.1	-	-	-	**9.4**
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3	-	-	-	**1900**
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005	-	-	-	**3.0**
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 14/2/2025						
s-Net Acidity	%w/w S	0.005	<0.005	<0.005	<0.005	<0.005
s-Net Acidity without ANC	%w/w S	0.005	**0.006**	**0.006**	<0.005	<0.005
a-Net Acidity	moles H+/T	5	<5	<5	<5	<5
Liming Rate	kg CaCO3/T	0.1	<0.1	<0.1	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20	**0.00**	**0.00**	**0.00**	**-2.0**
a-Net Acidity without ANCBT	moles H+/T	5	<5	<5	<5	<5
Liming Rate without ANCBT	kg CaCO3/T	0.1	<0.1	<0.1	<0.1	<0.1

Parameter	Units	LOR	Sample Number Sample Matrix Sample Name CE180079.009 Soil BH2 2m	CE180079.010 Soil BH2 3m	CE180079.011 Soil BH2 4m	CE180079.012 Soil BH2 5m
Moisture Content Method: AN002 Tested: 7/2/2025						
% Moisture	%w/w	0.5	15	15	25	16
TAA (Titratable Actual Acidity) Method: AN219 Tested: 14/2/2025						
pH KCl	pH Units	-	9.7	9.7	9.5	9.5
Titratable Actual Acidity	kg H2SO4/T	0.25	<0.25	<0.25	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	-	-	-	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 14/2/2025						
Chromium Reducible Sulfur (Scr)	%	0.005	<0.005	<0.005	0.19	0.027
Chromium Reducible Sulfur (Scr)	moles H+/T	5	<5	<5	119	17
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 14/2/2025						
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1	7.0	4.6	8.9	2.6
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1	69	45	87	26
ANC as % $CaCO_3$	% CaCO3	0.1	7.0	4.6	8.9	2.6
Lime Equivalence	% CaCO3	0.1	7.0	4.6	8.9	2.6
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3	1400	920	1800	520
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005	2.2	1.5	2.8	0.84
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 14/2/2025						
s-Net Acidity	%w/w S	0.005	<0.005	<0.005	<0.005	<0.005
s-Net Acidity without ANC	%w/w S	0.005	<0.005	<0.005	0.19	0.027
a-Net Acidity	moles H+/T	5	<5	<5	<5	<5
Liming Rate	kg CaCO3/T	0.1	<0.1	<0.1	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20	-1.5	-0.99	-1.7	-0.53
a-Net Acidity without ANCBT	moles H+/T	5	<5	<5	120	17
Liming Rate without ANCBT	kg CaCO3/T	0.1	<0.1	<0.1	9.0	NA

Parameter	Units	LOR	Sample Number: CE180079.013 Sample Matrix: Soil Sample Name: BH3 0m	CE180079.014 Soil BH3 1m	CE180079.015 Soil BH3 2m	CE180079.016 Soil BH3 3m
Moisture Content Method: AN002 Tested: 7/2/2025						
% Moisture	%w/w	0.5	**6.5**	**17**	**14**	**28**
TAA (Titratable Actual Acidity) Method: AN219 Tested: 14/2/2025						
pH KCl	pH Units	-	**5.3**	**6.3**	**6.3**	**4.8**
Titratable Actual Acidity	kg H2SO4/T	0.25	**1.1**	<0.25	<0.25	**2.7**
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	**22**	<5	<5	**55**
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	**0.04**	<0.01	<0.01	**0.09**
Sulphur (SKCl)	%w/w	0.005	-	-	-	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 14/2/2025						
Chromium Reducible Sulfur (Scr)	%	0.005	<0.005	<0.005	<0.005	<0.005
Chromium Reducible Sulfur (Scr)	moles H+/T	5	<5	<5	<5	<5
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 14/2/2025						
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1	-	-	-	-
ANC as % $CaCO_3$	% CaCO3	0.1	-	-	-	-
Lime Equivalence	% CaCO3	0.1	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005	-	-	-	-
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 14/2/2025						
s-Net Acidity	%w/w S	0.005	**0.036**	<0.005	<0.005	**0.088**
s-Net Acidity without ANC	%w/w S	0.005	**0.036**	<0.005	<0.005	**0.088**
a-Net Acidity	moles H+/T	5	**22**	<5	<5	**55**
Liming Rate	kg CaCO3/T	0.1	**1.7**	<0.1	<0.1	**4.1**
Verification s-Net Acidity	%w/w S	-20	**0.00**	**0.00**	**0.00**	**0.00**
a-Net Acidity without ANCBT	moles H+/T	5	**22**	<5	<5	**55**
Liming Rate without ANCBT	kg CaCO3/T	0.1	**1.7**	<0.1	<0.1	**4.1**

Parameter	Units	LOR	Sample Number Sample Matrix Sample Name	CE180079.017 Soil BH3 4m	CE180079.018 Soil BH3 5m	CE180079.019 Soil BH4 0m	CE180079.020 Soil BH4 1m
Moisture Content Method: AN002 Tested: 7/2/2025							
% Moisture	%w/w	0.5		19	23	16	20
TAA (Titratable Actual Acidity) Method: AN219 Tested: 14/2/2025							
pH KCl	pH Units	-		4.7	4.6	7.8	9.8
Titratable Actual Acidity	kg H2SO4/T	0.25		0.86	1.2	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5		17	25	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01		0.03	0.04	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005		-	-	-	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 14/2/2025							
Chromium Reducible Sulfur (Scr)	%	0.005		0.26	0.12	<0.005	<0.005
Chromium Reducible Sulfur (Scr)	moles H+/T	5		164	73	<5	<5
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 14/2/2025							
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1		-	-	0.9	7.6
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1		-	-	8.6	75
ANC as % $CaCO_3$	% CaCO3	0.1		-	-	0.9	7.6
Lime Equivalence	% CaCO3	0.1		-	-	0.9	7.6
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3		-	-	170	1500
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005		-	-	0.28	2.4
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 14/2/2025							
s-Net Acidity	%w/w S	0.005		0.29	0.16	<0.005	<0.005
s-Net Acidity without ANC	%w/w S	0.005		0.29	0.16	<0.005	<0.005
a-Net Acidity	moles H+/T	5		180	98	<5	<5
Liming Rate	kg CaCO3/T	0.1		14	7.4	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20		0.26	0.12	-0.18	-1.6
a-Net Acidity without ANCBT	moles H+/T	5		180	98	<5	<5
Liming Rate without ANCBT	kg CaCO3/T	0.1		14	7.4	<0.1	<0.1

Parameter	Units	LOR	Sample Number: CE180079.021 Sample Matrix: Soil Sample Name: BH4 2m	CE180079.022 Soil BH4 3m	CE180079.023 Soil BH4 4m	CE180079.024 Soil BH4 5m
Moisture Content Method: AN002 Tested: 7/2/2025						
% Moisture	%w/w	0.5	18	16	20	20
TAA (Titratable Actual Acidity) Method: AN219 Tested: 14/2/2025						
pH KCl	pH Units	-	9.8	9.8	9.5	9.5
Titratable Actual Acidity	kg H2SO4/T	0.25	<0.25	<0.25	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	<5	<5	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	<0.01	<0.01	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	-	-	-	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 14/2/2025						
Chromium Reducible Sulfur (Scr)	%	0.005	<0.005	0.012	0.066	0.053
Chromium Reducible Sulfur (Scr)	moles H+/T	5	<5	7	41	33
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 14/2/2025						
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1	7.9	5.8	3.4	2.9
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1	77	56	33	28
ANC as % $CaCO_3$	% CaCO3	0.1	7.9	5.8	3.4	2.9
Lime Equivalence	% CaCO3	0.1	7.9	5.8	3.4	2.9
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3	1600	1100	670	570
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005	2.5	1.8	1.1	0.92
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 14/2/2025						
s-Net Acidity	%w/w S	0.005	<0.005	<0.005	<0.005	<0.005
s-Net Acidity without ANC	%w/w S	0.005	<0.005	0.012	0.066	0.053
a-Net Acidity	moles H+/T	5	<5	<5	<5	<5
Liming Rate	kg CaCO3/T	0.1	<0.1	<0.1	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20	-1.7	-1.2	-0.65	-0.56
a-Net Acidity without ANCBT	moles H+/T	5	<5	7	41	33
Liming Rate without ANCBT	kg CaCO3/T	0.1	<0.1	NA	3.1	2.5

Parameter	Units	LOR	Sample Number: CE180079.025 Sample Matrix: Soil Sample Name: BH5 0m	CE180079.026 Soil BH5 1m	CE180079.027 Soil BH5 2m	CE180079.028 Soil BH5 3m
Moisture Content Method: AN002 Tested: 7/2/2025						
% Moisture	%w/w	0.5	**4.2**	**6.0**	**16**	**17**
TAA (Titratable Actual Acidity) Method: AN219 Tested: 14/2/2025						
pH KCl	pH Units	-	**5.5**	**6.4**	**6.2**	**5.8**
Titratable Actual Acidity	kg H2SO4/T	0.25	**0.37**	<0.25	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	**7**	<5	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	**0.01**	<0.01	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	-	-	-	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 14/2/2025						
Chromium Reducible Sulfur (Scr)	%	0.005	<0.005	<0.005	<0.005	<0.005
Chromium Reducible Sulfur (Scr)	moles H+/T	5	<5	<5	<5	<5
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 14/2/2025						
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1	-	-	-	-
ANC as % $CaCO_3$	% CaCO3	0.1	-	-	-	-
Lime Equivalence	% CaCO3	0.1	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005	-	-	-	-
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 14/2/2025						
s-Net Acidity	%w/w S	0.005	**0.012**	<0.005	<0.005	<0.005
s-Net Acidity without ANC	%w/w S	0.005	**0.012**	<0.005	<0.005	**0.006**
a-Net Acidity	moles H+/T	5	**7**	<5	<5	<5
Liming Rate	kg CaCO3/T	0.1	NA	<0.1	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20	**0.00**	**0.00**	**0.00**	**0.00**
a-Net Acidity without ANCBT	moles H+/T	5	**7**	<5	<5	<5
Liming Rate without ANCBT	kg CaCO3/T	0.1	NA	<0.1	<0.1	<0.1

Parameter	Units	LOR	Sample Number: CE180079.029 Sample Matrix: Soil Sample Name: BH5 4m	CE180079.030 Soil BH5 5m	CE180079.031 Soil BH6 0m	CE180079.032 Soil BH6 1m
Moisture Content Method: AN002 Tested: 7/2/2025						
% Moisture	%w/w	0.5	**21**	**24**	**5.3**	**3.7**
TAA (Titratable Actual Acidity) Method: AN219 Tested: 14/2/2025						
pH KCl	pH Units	-	**4.7**	**4.6**	**6.4**	**6.3**
Titratable Actual Acidity	kg H2SO4/T	0.25	**1.3**	**0.86**	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	**27**	**17**	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	**0.04**	**0.03**	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	-	-	-	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 14/2/2025						
Chromium Reducible Sulfur (Scr)	%	0.005	**0.24**	**0.016**	<0.005	<0.005
Chromium Reducible Sulfur (Scr)	moles H+/T	5	**152**	**10**	<5	<5
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 14/2/2025						
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1	-	-	-	-
ANC as % $CaCO_3$	% CaCO3	0.1	-	-	-	-
Lime Equivalence	% CaCO3	0.1	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3	-	-	-	-
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005	-	-	-	-
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 14/2/2025						
s-Net Acidity	%w/w S	0.005	**0.29**	**0.044**	<0.005	<0.005
s-Net Acidity without ANC	%w/w S	0.005	**0.29**	**0.044**	<0.005	<0.005
a-Net Acidity	moles H+/T	5	**180**	**27**	<5	<5
Liming Rate	kg CaCO3/T	0.1	**13**	**2.0**	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20	**0.24**	**0.02**	**0.00**	**0.00**
a-Net Acidity without ANCBT	moles H+/T	5	**180**	**27**	<5	<5
Liming Rate without ANCBT	kg CaCO3/T	0.1	**13**	**2.0**	<0.1	<0.1

Parameter	Units	LOR	Sample Number Sample Matrix Sample Name	CE180079.033 Soil BH6 2m	CE180079.034 Soil BH6 3m	CE180079.035 Soil BH6 4m	CE180079.036 Soil BH6 5m
Moisture Content Method: AN002 Tested: 7/2/2025							
% Moisture	%w/w	0.5		**4.0**	**15**	**13**	**16**
TAA (Titratable Actual Acidity) Method: AN219 Tested: 14/2/2025							
pH KCl	pH Units	-		**6.3**	**6.1**	**6.4**	**9.4**
Titratable Actual Acidity	kg H2SO4/T	0.25		<0.25	<0.25	<0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5		<5	<5	<5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01		<0.01	<0.01	<0.01	<0.01
Sulphur (SKCl)	%w/w	0.005		-	-	-	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 14/2/2025							
Chromium Reducible Sulfur (Scr)	%	0.005		<0.005	<0.005	<0.005	**0.44**
Chromium Reducible Sulfur (Scr)	moles H+/T	5		<5	<5	<5	**277**
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 14/2/2025							
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1		-	-	-	**3.3**
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1		-	-	-	**32**
ANC as % $CaCO_3$	% CaCO3	0.1		-	-	-	**3.3**
Lime Equivalence	% CaCO3	0.1		-	-	-	**3.3**
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3		-	-	-	**650**
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005		-	-	-	**1.0**
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 14/2/2025							
s-Net Acidity	%w/w S	0.005		<0.005	<0.005	<0.005	<0.005
s-Net Acidity without ANC	%w/w S	0.005		<0.005	<0.005	<0.005	**0.44**
a-Net Acidity	moles H+/T	5		<5	<5	<5	<5
Liming Rate	kg CaCO3/T	0.1		<0.1	<0.1	<0.1	<0.1
Verification s-Net Acidity	%w/w S	-20		**0.00**	**0.00**	**0.00**	**-0.25**
a-Net Acidity without ANCBT	moles H+/T	5		<5	<5	<5	**280**
Liming Rate without ANCBT	kg CaCO3/T	0.1		<0.1	<0.1	<0.1	**21**

Parameter	Units	LOR	Sample Number CE180079.037 Sample Matrix Soil Sample Name BH6 6m
Moisture Content Method: AN002 Tested: 7/2/2025			
% Moisture	%w/w	0.5	**16**
TAA (Titratable Actual Acidity) Method: AN219 Tested: 14/2/2025			
pH KCl	pH Units	-	**9.4**
Titratable Actual Acidity	kg H2SO4/T	0.25	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01	<0.01
Sulphur (SKCl)	%w/w	0.005	-
Chromium Reducible Sulfur (CRS) Method: AN217 Tested: 14/2/2025			
Chromium Reducible Sulfur (Scr)	%	0.005	**0.027**
Chromium Reducible Sulfur (Scr)	moles H+/T	5	**17**
Acid Neutralising Capacity (ANC) Method: AN214 Tested: 14/2/2025			
Acid Neutralisation Capacity (ANCBT) as % $CaCO_3$	% CaCO3	0.1	**0.8**
Acid Neutralisation Capacity (ANCBT) as kg H_2SO_4/t	kg H2SO4/T	0.1	**7.4**
ANC as % $CaCO_3$	% CaCO3	0.1	**0.8**
Lime Equivalence	% CaCO3	0.1	**0.8**
Acid Neutralisation Capacity (ANCBT) as acidity units	moles H+/T	3	**150**
Acid Neutralisation Capacity (ANCBT) as % S	%w/w S	0.005	**0.24**
Chromium Suite Net Acidity Calculations Method: AN220 Tested: 14/2/2025			
s-Net Acidity	%w/w S	0.005	<0.005
s-Net Acidity without ANC	%w/w S	0.005	**0.027**
a-Net Acidity	moles H+/T	5	<5
Liming Rate	kg CaCO3/T	0.1	<0.1
Verification s-Net Acidity	%w/w S	-20	**-0.13**
a-Net Acidity without ANCBT	moles H+/T	5	**17**
Liming Rate without ANCBT	kg CaCO3/T	0.1	NA

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage.* Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Chromium Reducible Sulfur (CRS) **Method: ME-(AU)-[ENV]AN217**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Chromium Reducible Sulfur (Scr)	LB137356	%	0.005	<0.005	0 - 7%	109%
Chromium Reducible Sulfur (Scr)	LB137356	moles H+/T	5	<5		

TAA (Titratable Actual Acidity) **Method: ME-(AU)-[ENV]AN219**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
pH KCl	LB137357	pH Units	-	5.8	0%	101%
Titratable Actual Acidity	LB137357	kg H2SO4/T	0.25	<0.25	0%	NA
Titratable Actual Acidity (TAA) moles H+/tonne	LB137357	moles H+/T	5	<5	0%	105%
Titratable Actual Acidity (TAA) S%w/w	LB137357	%w/w S	0.01	<0.01	0%	106%

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	NATA accreditation does not cover the performance of this service.	QFH	QC result is above the upper tolerance
		QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	-	The sample was not analysed for this analyte
***	Indicates that both * and ** apply.	NVL	Not Validated

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calcuated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN214	Acid Neutralising Capacity (ANC)or Neutralising Value (NV): The crushed or as received sample is reacted with excess normal acid (HCl) and then back titrated with standard sodium hydroxide to determine the acid consumed. The result is expressed as kg H2SO4/tonne or %CaCO3. Based on AS4969-13.
AN217	Dried pulped sample is mixed with acid and chromium metal in a rapid distillation unit to produce hydrogen sulfide (H2S) which is collected and titrated with iodine (I2(aq)) to measure SCR.
AN219	Dried pulped sample is extracted for 4 hours in a 1 M KCl solution. The ratio of sample to solution is 1:40. The extract is titrated for acidity. Calcium, magnesium, and sulfur are determined by ICP-AES.
AN220	Chromium Suite: Scheme for the calculation of net acidities and liming rates using a Fineness Factor of 1.5.

Appendix B

Detailed Planning Scheme Code Responses

6.2.10 Rural zone code

6.2.10.1 Application

(1) This code applies to assessing development in the Rural zone.

(2) When using this code, reference should be made to Part 5.

6.2.10.2 Purpose

(1) The purpose of the Rural zone code is to provide for:

- (a) provide for rural uses including cropping, intensive horticulture, intensive animal industries, animal husbandry, animal keeping and other primary production activities;
- (b) provide opportunities for non-rural uses, such as ancillary tourism activities that are compatible with agriculture, the environmental features, and landscape character of the rural area where the uses do not compromise the long-term use of the land for rural purposes;
- (c) protect or manage significant natural resources and processes to maintain the capacity for primary production.

(2) The local government purpose of the code is to:

- (a) implement the policy direction set in the Strategic Framework, in particular:
  - (i). Theme 2: Environment and landscape values, Element 3.5.5 – Scenic amenity.
  - (ii). Theme 3: Natural resource management, Element 3.6.2 – Land and catchment management, Element 3.6.3 Primary production, forestry and fisheries, Element 3.6.4 – Resource extraction.
  - (iii). Theme 5: Economy, Element 3.8.2 – Economic growth and diversification, Element 3.8.4 – Primary production.
  - (iv). Theme 6: Infrastructure and transport, Element 3.9.4 – Transport.
- (b) recognise the primacy of rural production, in particular sugar cultivation, and other farming practices in rural areas;
- (c) provide protection to areas of ecological significance and scenic amenity significance where present.

(3) The purpose of the code will be achieved through the following overall outcomes:

- (a) Areas for use for primary production are conserved and fragmentation is avoided.
- (b) Development embraces sustainable land management practices and contributes to the amenity and landscape of the area.
- (c) Adverse impacts of land use, both on-site and on adjoining areas, are avoided and any unavoidable impacts are minimised through location, design, operation and management.
- (d) Areas of remnant and riparian vegetation are retained or rehabilitated.

6.2.10.3 Criteria for assessment

Table 6.2.10.3.a – Rural zone code – assessable development

Performance outcomes	Acceptable outcomes	Applicant response
For self-assessable and assessable development		
PO1 The height of buildings is compatible with the rural character of the area and must not detrimentally impact on visual landscape amenity.	**AO1.1** Dwelling houses are not more than 8.5 metres in height. Note – Height is inclusive of roof height.	**Not applicable** No dwelling houses are proposed.
	AO1.2 Rural farm sheds and other rural structures are not more than 10 metres in height.	**Not applicable** No structures are proposed in association with the Extractive Industry.
Setbacks		
PO2 Buildings and structures are setback to maintain the rural character of the area and achieve separation from buildings on adjoining properties.	**AO2** Buildings are setback not less than: (a) 40 metres from the property boundary and a State-controlled road; (b) 25 metres from the property boundary adjoining Cape Tribulation Road; (c) 20 metres from the boundary with any other road; (d) 6 metres from side and rear property boundaries.	**Not applicable** No buildings and structures are proposed as part of this application.

Performance outcomes	Acceptable outcomes	Applicant response
PO3 Buildings/structures are designed to maintain the rural character of the area.	**AO3** White and shining metallic finishes are avoided on external surfaces of buildings.	**Not applicable** No buildings and structures are proposed as part of this application
For assessable development		
PO4 The establishment of uses is consistent with the outcomes sought for the Rural zone and protects the zone from the intrusion of inconsistent uses.	**AO4** Uses identified in Table 6.2.10.3.b are not established in the Rural zone.	**Complies with AO4** Extractive Industry is not a use listed within Table 6.2.10.3.b
PO5 Uses and other development include those that: (a) promote rural activities such as agriculture, rural enterprises and small scale industries that serve rural activities; or (b) promote low impact tourist activities based on the appreciation of the rural character, landscape and rural activities; or (c) are compatible with rural activities.	**AO5** No acceptable outcomes are prescribed.	**Complies with PO5** The proposed Extractive Industry Use is considered to be compatible with rural activities. It would be small scale and consistent with element 3.6.4 – Resource extraction, of the Strategic Framework, which is identified as a purpose of the code.
PO6 Existing native vegetation along watercourses and in, or adjacent to areas of environmental value, or areas of remnant vegetation of value is protected.	**AO6** No acceptable outcomes are prescribed.	**Complies with PO6** No native vegetation along water courses or remnant vegetation would be removed to facilitate the development.

Performance outcomes	Acceptable outcomes	Applicant response
PO7 The minimum lot size is 40 hectares, unless (a) the lot reconfiguration results in no additional lots (e.g. amalgamation, boundary realignments to resolve encroachments); or (b) the reconfiguration is limited to one additional lot to accommodate: (i). Telecommunications facility; (ii). Utility installation.	**AO7** No acceptable outcomes are prescribed.	**Not applicable** The application is for a Material Change of Use only.

Table 6.2.8.3.b - Inconsistent uses within the Medium density residential zone

Inconsistent uses		
• Adult store	• Hotel	• Residential care facility
• Bar	• Indoor sport and recreation	• Resort complex
• Brothel	• Low impact industry	• Retirement facility
• Car wash	• Medium impact industry	• Rooming accommodation
• Child care centre	• Multiple dwelling	• Sales office
• Club	• Nightclub entertainment facility	• Service station
• Community care centre	• Non-resident workforce accommodation	• Shop
• Community residence	• Office	• Shopping centre
• Detention facility,	• Outdoor sales	• Short-term accommodation
• Dual occupancy	• Parking station	• Showroom

Inconsistent uses		
• Dwelling unit • Food and drink outlet • Hardware and tradesupplies • Health care services • High impact industry	• Permanent plantation • Port services • Relocatable home park • Renewable energy facility, being a wind farm	• Special industry • Theatre • Warehouse

Note –This table does not imply that all other uses not listed in the table are automatically consistent uses within the zone. Assessable development must still demonstrate consistency through the assessment process.

8.2.1 Acid sulfate soils overlay code

8.2.1.1 Application

(1) This code applies to assessing a material change of use, reconfiguring a lot, operational work or building work within the Acid sulfate soils overlay, if:

(a) self-assessable or assessable development where the code is identified as being applicable in the Assessment criteria for the Overlay Codes contained in the Levels of Assessment Tables in section 5.6;

(b) impact assessable development.

(2) Land in the Acid sulphate soils overlay is identified on the Acid sulfate soils overlay map in Schedule 2 and includes the following sub-categories:

(a) Land at or below the 5m AHD sub-category;

(b) Land above the 5m AHD and below the 20m AHD sub-category.

(3) When using this code, reference should be made to Part 5.

8.2.1.2 Purpose

(1) The purpose of the acid sulfate soils overlay code is to:

(a) implement the policy direction in the Strategic Framework, in particular:

(i) Theme 2: Environment and landscape values, Element 3.5.4 Coastal zones.

(ii) Theme 3: Natural resource management, Element 3.6.2 land and catchment management, Element 3.6.3 Primary production, forestry and fisheries.

(2) enable an assessment of whether development is suitable on land within the Acid sulfate soils overlay sub-categories.

(3) The purpose of the code will be achieved through the following overall outcomes:

(a) Development ensures that the release of any acid and associated metal contaminant is avoided by not disturbing acid sulfate soils when excavating, removing soil or extracting ground water or filling land;

(b) Development ensures that disturbed acid sulfate soils, or drainage waters, are treated and, if required, on-going management practices are adopted that minimise the potential for environmental harm from acid sulfate soil and protect corrodible assets from acid sulfate soil.

Criteria for assessment

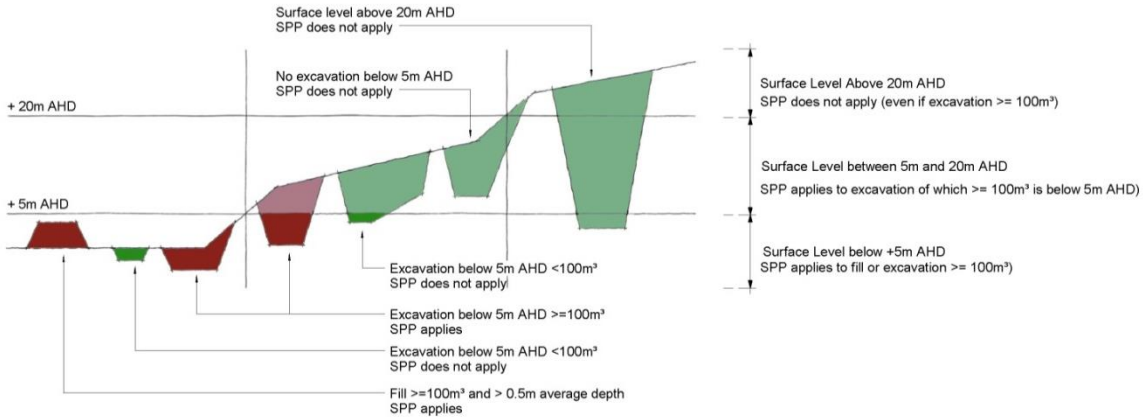
Table 8.2.1.3.a – Acid sulfate soils overlay code – assessable development

Performance outcomes	Acceptable outcomes	Applicant response
For assessable development		
PO1 The extent and location of potential or actual acid sulfate soils is accurately identified.	**AO1.1** No excavation or filling occurs on the site. or **AO1.2** An acid sulfate soils investigation is undertaken. Note - Planning scheme policy SC 6.12– Potential and actual acid sulfate soils provides guidance on preparing an acid sulfate soils investigation.	**Complies with AO1.2** The proposed sand extraction area does not contain PASS material as it is a dunal type deposit which is approximately 2,000m long and 200 – 250m wide and 2m to 5m above natural ground level.. It was historically cleared, has been farmed under cane production in the past and grassed and slashed for a number of years. An acid sulfate soils investigation has been undertaken and the development would not involve the disturbance of PASS. Refer to **Appendix A -** Response to the Department of Environment, Science and Innovation.
PO2 Development avoids disturbing potential acid sulfate soils or actual acid sulfate soils, or is managed to avoid or minimise the release of acid and metal contaminants.	**AO2.1** The disturbance of potential acid sulfate soils or actual acid sulfate soils is avoided by: (a) not excavating, or otherwise removing, soil or sediment identified as containing potential or actual acid sulfate soils; (b) not permanently or temporarily extracting groundwater that results in the aeration of previously saturated acid sulfate soils;	**Complies with AO2.1** No acid sulfate soils would be disturbed as part of the development. An acid sulfate soils investigation has been undertaken and the development would not involve the disturbance of PASS. Refer to **Appendix A -** Response to the Department of Environment, Science and Innovation.

Performance outcomes	Acceptable outcomes	Applicant response
	(c) not undertaking filling that results in: (i) actual acid sulfate soils being moved below the water table; (ii) previously saturated acid sulfate soils being aerated. Or **AO2.2** The disturbance of potential acid sulfate soils or actual acid sulfate soils is undertaken in accordance with an acid sulfate soils management plan and avoids the release of metal contaminants by: (a) neutralising existing acidity and preventing the generation of acid and metal contaminants; (b) preventing the release of surface or groundwater flows containing acid and metal contaminants into the environment; (c) preventing the in situ oxidisation of potential acid sulfate soils and actual acid sulfate soils through ground water level management; (d) appropriately treating acid sulfate soils before disposal occurs on or off site; (e) documenting strategies and reporting requirements in an acid sulfate soils environmental management plan. Note - Planning scheme policy SC 6.12 – Acid sulfate soils provides guidance on preparing an acid sulfate soils	

Performance outcomes	Acceptable outcomes	Applicant response
	management plan.	
PO3 No environmental harm is caused as a result of exposure to potential acid sulfate soils or actual acid sulfate soils.	**AO3** No acceptable outcomes are prescribed.	**Complies with PO3** No acid sulfate soils would be disturbed as part of the development. An acid sulfate soils investigation has been undertaken and the development would not involve the disturbance of PASS. Refer to Appendix A - Response to the Department of Environment, Science and Innovation.

Figure 8.2.1.3.a – Acid sulfate soils (SPP triggers)



8.2.2 Bushfire hazard overlay code

Note - Land shown on the bushfire hazard overlay map is designated as the bushfire prone area for the purposes of section 12 of the Building Regulations 2006. The bushfire hazard area (bushfire prone area) includes land covered by the high and medium hazard areas as well as the buffer area category on the overlay map.

8.2.2.1 Application

(1) This code applies to assessing a material change of use, reconfiguring a lot, operational works or building work in the Bushfire hazard overlay, if:

(a) self-assessable or assessable where the code is identified as being applicable in the Assessment criteria for the Overlay Codes contained in the Levels of Assessment Tables in section 5.6;

(b) impact assessable development.

(2) Land in the Bushfire hazard overlay is identified on the Bushfire hazard overlay map in Schedule 2 and includes the following sub-categories:

(a) Medium bushfire risk sub-category;

(b) High bushfire risk sub-category;

(c) Very high bushfire risk sub-category;

(d) Potential impact buffer sub-category.

(3) When using this code, reference should be made to Part 5.

8.2.2.2 Purpose

(1) The purpose of the Bushfire overlay code is to:

(a) implement the policy direction in the Strategic Framework, in particular:

(i) Theme 1 Settlement pattern: Element 3.4.7 Mitigation of hazards;

(ii) Theme 6 Infrastructure and transport: Element 3.9.2 Energy.

(b) enable an assessment of whether development is suitable on land within the Bushfire risk overlay sub-categories.

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) development avoids the establishment or intensification of vulnerable activities within or near areas that are subject to bushfire hazard;

(b) development is designed and located to minimise risks to people and property from bushfires;

(c) bushfire risk mitigation treatments are accommodated in a manner that avoids or minimises impacts on the natural environment and ecological processes;

(d) development involving the manufacture or storage of hazardous materials does not increase the risk to public safety or the environment in a bushfire event;

(e) development contributes to effective and efficient disaster management response and recovery capabilities.

Note - A site based assessment may ground-truth the extent of hazardous vegetation and extent and nature of the bushfire hazard area (bushfire prone area). Such assessments should be undertaken using the methodology set out in Planning scheme policy SC6.9 - Natural Hazards.

Criteria for assessment

Table 8.2.2.3.a – Bushfire hazard overlay code –assessable development

Performance outcomes	Acceptable outcomes	Applicant response
For self-assessable and assessable development		
Compatible development		
PO1 A vulnerable use is not established or materially intensified within a bushfire hazard area (bushfire prone area) unless there is an overriding need or other exceptional circumstances. Note - See the end of this code for examples of vulnerable uses.	**AO1** Vulnerable uses are not established or expanded. Note – Where, following site inspection and consultation with Council, it is clear that the mapping is in error in identifying a premises as being subject to a medium, high, very high bushfire hazard or potential impact buffer sub-category, Council may supply a letter exempting the need for a Bushfire Management Plan. Note – Where the assessment manager has not previously approved a Bushfire Management Plan (either by condition of a previous development approval), the development proponent will be expected to prepare such a plan. Note – Planning scheme policy SC6.9 - Natural hazards, provides a guide to the preparation of a Bushfire Management Plan.	**Complies with AO1** No vulnerable uses are proposed.
PO2	**AO2**	**Complies with AO2**

Performance outcomes	Acceptable outcomes	Applicant response
Emergency services and uses providing community support services are able to function effectively during and immediately after a bushfire hazard event.	Emergency Services and uses providing community support services are not located in a bushfire hazard sub-category and have direct access to low hazard evacuation routes.	No Emergency Services or Community Support Services are proposed as part of this application.
PO3 Development involving hazardous materials manufactured or stored in bulk is not located in bushfire hazard sub-category.	**AO3** The manufacture or storage of hazardous material in bulk does not occur within bushfire hazard sub-category.	**Complies with AO3** No hazardous materials would be manufactured or stored on site.
Development design and separation from bushfire hazard – reconfiguration of lots		
PO4.1 Where reconfiguration is undertaken in an urban area or is for urban purposes or smaller scale rural residential purposes, a separation distance from hazardous vegetation is provided to achieve a radiant heat flux level of 29kW/m^2 at the edge of the proposed lot(s). Note - "Urban purposes" and "urban area" are defined in the *Sustainable Planning Regulations 2009*. Reconfiguration will be taken to be for rural residential purposes where proposed lots are between 2000m^2 and 2ha in area. "Smaller scale" rural residential purposes will be taken to be where the average proposed lot size is 6000m2 or less. Note - The radiant heat levels and separation distances are to be established in accordance with method 2 set out in AS3959-2009. dimensions is provided on each lot which achieves radiant heat flux level of 29kW/m^2 at any point.	**AO4.1** No new lots are created within a bushfire hazard sub-category. or **AO4.2** Lots are separated from hazardous vegetation by a distance that: (a) achieves radiant heat flux level of 29kW/m^2 at all boundaries; and (b) is contained wholly within the development site. Note - Where a separation distance is proposed to be achieved by utilising existing cleared developed areas external to the site, certainty must be established (through tenure or other means) that the land will remain cleared of hazardous vegetation.	**Not applicable** No new lots or lot reconfiguration is proposed.

Performance outcomes	Acceptable outcomes	Applicant response
PO4.2 Where reconfiguration is undertaken for other purposes, a building envelope of reasonable	For staged developments, temporary separation distances, perimeter roads or fire trails may be absorbed as part of subsequent stages. Note - The achievement of a cleared separation distance may not be achievable where other provisions within the planning scheme require protection of certain ecological, slope, visual or character features or functions.	**Not applicable** No new lots or lot reconfiguration is proposed.
PO5 Where reconfiguration is undertaken in an urban area or is for urban purposes, a constructed perimeter road with reticulated water supply is established between the lots and the hazardous vegetation and is readily accessible at all times for urban fire fighting vehicles. The access is available for both fire fighting and maintenance/defensive works.	**AO5.1** Lot boundaries are separated from hazardous vegetation by a public road which: (a) has a two lane sealed carriageway; (b) contains a reticulated water supply; (c) is connected to other public roads at both ends and at intervals of no more than 500m; (d) accommodates geometry and turning radii in accordance with Queensland Fire and Emergency Services' Fire Hydrant and Vehicle Access Guidelines; (e) has a minimum of 4.8m vertical clearance above the road; (f) is designed to ensure hydrants and water access points are not located within parking bay allocations; and (g) incorporates roll-over kerbing.	**Not applicable** No new lots or lot reconfiguration is proposed.
	AO5.2	**Not applicable** No new lots or lot reconfiguration is proposed.

Performance outcomes	Acceptable outcomes	Applicant response
	Fire hydrants are designed and installed in accordance with AS2419.1 2005, unless otherwise specified by the relevant water entity. Note - Applicants should have regard to the relevant standards set out in the reconfiguration of a lot code and works codes in this planning scheme.	
PO6 Where reconfiguration is undertaken for smaller scale rural residential purposes, either a constructed perimeter road or a formed, all weather fire trail is established between the lots and the hazardous vegetation and is readily accessible at all times for the type of fire fighting vehicles servicing the area. The access is available for both fire fighting and maintenance/hazard reduction works.	**AO6** Lot boundaries are separated from hazardous vegetation by a public road or fire trail which has: (a) a reserve or easement width of at least 20m; (b) a minimum trafficable (cleared and formed) width of 4m capable of accommodating a 15 tonne vehicle and which is at least 6m clear of vegetation; (c) no cut or fill embankments or retaining walls adjacent to the 4m wide trafficable path; (d) a minimum of 4.8m vertical clearance; (e) turning areas for fire-fighting appliances in accordance with Queensland Fire and Emergency Services' Fire Hydrant and Vehicle Access Guidelines; (f) a maximum gradient of 12.5%; (g) a cross fall of no greater than 10 degrees; (h) drainage and erosion control devices in accordance with the standards prescribed in a planning scheme policy;	**Not applicable** No new lots or lot reconfiguration is proposed.

Performance outcomes	Acceptable outcomes	Applicant response
	(i) vehicular access at each end which is connected to the public road network at intervals of no more than 500m; (j) designated fire trail signage; (k) if used, has gates locked with a system authorised by Queensland Fire and Emergency Services; and (l) if a fire trail, has an access easement that is granted in favour of Council and Queensland Fire and Emergency Services.	
PO7 Where reconfiguration is undertaken for other purposes, a formed, all weather fire trail is provided between the hazardous vegetation and either the lot boundary or building envelope, and is readily accessible at all times for the type of fire fighting vehicles servicing the area. However, a fire trail will not be required where it would not serve a practical fire management purpose.	**AO7** Lot boundaries are separated from hazardous vegetation by a public road or fire trail which has: (a) a reserve or easement width of at least 20m; (b) a minimum trafficable (cleared and formed) width of 4m capable of accommodating a 15 tonne vehicle and which is at least 6m clear of vegetation; (c) no cut or fill embankments or retaining walls adjacent to the 4m wide trafficable path; (d) a minimum of 4.8m vertical clearance; (e) turning areas for fire-fighting appliances in accordance with Queensland Fire and	**Not applicable** No new lots or lot reconfiguration is proposed.

Performance outcomes	Acceptable outcomes	Applicant response
	Emergency Services' Fire Hydrant and Vehicle Access Guidelines; (f) a maximum gradient of 12.5%; (g) a cross fall of no greater than 10 degrees; (h) drainage and erosion control devices in accordance with the standards prescribed in a planning scheme policy; (i) vehicular access at each end which is connected to the public road network; (j) designated fire trail signage; (k) if used, has gates locked with a system authorised by Queensland Fire and Emergency Services; and (l) if a fire trail, has an access easement that is granted in favour of Council and Queensland Fire and Emergency Services.	
PO8 The development design responds to the potential threat of bushfire and establishes clear evacuation routes which demonstrate an acceptable or tolerable risk to people.	**AO8** The lot layout: (a) minimises the length of the development perimeter exposed to, or adjoining hazardous vegetation; (b) avoids the creation of potential bottle-neck points in the movement network;	**Not applicable** No new lots or lot reconfiguration is proposed.

Performance outcomes	Acceptable outcomes	Applicant response
	(c) establishes direct access to a safe assembly /evacuation area in the event of an approaching bushfire; and (d) ensures roads likely to be used in the event of a fire are designed to minimise traffic congestion. Note - For example, developments should avoid finger-like or hour-glass subdivision patterns or substantive vegetated corridors between lots. In order to demonstrate compliance with the performance outcome, a bushfire management plan prepared by a suitably qualified person may be required. The bushfire management plan should be developed in accordance with the Public Safety Business Agency (PSBA) guideline entitled "Undertaking a Bushfire Protection Plan. Advice from the Queensland Fire and Emergency Services (QFES) should be sought as appropriate	
PO9 Critical infrastructure does not increase the potential bushfire hazard.	**AO9** Critical or potentially hazardous infrastructure such as water supply, electricity, gas and telecommunications are placed underground.	**Not applicable** No new lots or lot reconfiguration is proposed.
Development design and separation from bushfire hazard – material change of use		
PO10 Development is located and designed to ensure proposed buildings or building envelopes achieve a radiant heat flux level at any point on the building or envelope respectively, of:	**AO10** Buildings or building envelopes are separated from hazardous vegetation by a distance that: (a) achieves a radiant heat flux level of at any point on the building or envelope	**Complies with AO10** The bushfire hazard area is contiguous with the wetland and wetland buffer area to the south of the site. It is not proposed to undertake any activities within this area or the area subject to the Bushfire Hazard Overlay.

Performance outcomes	Acceptable outcomes	Applicant response
(a) 10kW/m^2 where involving a vulnerable use; or (b) 29kW/m^2 otherwise. The radiant heat flux level is achieved by separation unless this is not practically achievable. Note - The radiant heat levels and separation distances are to be established in accordance with method 2 set out in AS3959-2009.	respectively, of 10kW/m^2 for a vulnerable use or 29kW/m^2 otherwise; and (b) is contained wholly within the development site. Note - Where a separation distance is proposed to be achieved by utilising existing cleared developed areas external to the site, certainty must be established (through tenure or other means) that the land will remain cleared of hazardous vegetation. For staged developments, temporary separation distances, perimeter roads or fire trails may be absorbed as part of subsequent stages. Note - The achievement of a cleared separation distance may not be achievable where other provisions within the planning scheme require protection of certain ecological, slope, visual or character features or functions.	
PO11 A formed, all weather fire trail is provided between the hazardous vegetation and the site boundary or building envelope, and is readily accessible at all times for the type of fire fighting vehicles servicing the area. However, a fire trail will not be required where it would not serve a practical fire management purpose. Note - Fire trails are unlikely to be required where a development site involves less than 2.5ha	**AO11** Development sites are separated from hazardous vegetation by a public road or fire trail which has: (a) a reserve or easement width of at least 20m; (b) a minimum trafficable (cleared and formed) width of 4m capable of accommodating a 15 tonne vehicle and which is at least 6m clear of vegetation; (c) no cut or fill embankments or retaining walls adjacent to the 4m wide trafficable path; (d) a minimum of 4.8m vertical clearance;	**Not applicable** The proposed activities on the site would be separated from the hazardous vegetation by the wetland buffer and a fire trail would serve no practical fire management purpose.

Performance outcomes	Acceptable outcomes	Applicant response
	(e) turning areas for fire-fighting appliances in accordance with Queensland Fire and Emergency Services' Fire Hydrant and Vehicle Access Guidelines; (f) a maximum gradient of 12.5%; (g) a cross fall of no greater than 10 degrees; (h) drainage and erosion control devices in accordance with the standards prescribed in a planning scheme policy; (i) vehicular access at each end which is connected to the public road network which is connected to the public road network at intervals of no more than 500m; (j) designated fire trail signage; (k) if used, has gates locked with a system authorised by Queensland Fire and Emergency Services; and (l) if a fire trail, has an access easement that is granted in favour of Council and Queensland Fire and Emergency Services.	
All development		
PO12	**AO12** Private driveways:	**Not applicable**

Performance outcomes	Acceptable outcomes	Applicant response
All premises are provided with vehicular access that enables safe evacuation for occupants and easy access by fire fighting appliances.	(a) do not exceed a length of 60m from the street to the building; (b) do not exceed a gradient of 12.5%; (c) have a minimum width of 3.5m; (d) have a minimum of 4.8m vertical clearance; (e) accommodate turning areas for fire-fighting appliances in accordance with Queensland Fire and Emergency Services' Fire Hydrant and Vehicle Access Guidelines; and (f) serve no more than 3 dwellings or buildings.	The proposed development would be located outside of and sufficiently setback from the Bushfire Hazard area on the site.
PO13 Development outside reticulated water supply areas includes a dedicated static supply that is available solely for fire fighting purposes and can be accessed by fire fighting appliances.	**AO13** A water tank is provided within 10m of each building (other than a class 10 building) which: (a) is either below ground level or of non-flammable construction; (b) has a take off connection at a level that allows the following dedicated, static water supply to be left available for access by fire fighters: (i) 10,000l for residential buildings Note – A minimum of 7,500l is required in a tank and the extra 2,500l may be in the form of accessible swimming pools or dams. (ii) 45,000l for industrial buildings; and	**Not applicable** No buildings are proposed as part of this application. All activities would occur outside of the bushfire hazard and potential impact buffer areas.

Performance outcomes	Acceptable outcomes	Applicant response
	(iii) 20,000l for other buildings; (c) includes shielding of tanks and pumps in accordance with the relevant standards; (d) includes a hardstand area allowing medium rigid vehicle (15 tonne fire appliance) access within 6m of the tank; (e) is provided with fire brigade tank fittings – 50mm ball valve and male camlock coupling and, if underground, an access hole of 200mm (minimum) to accommodate suction lines; and (f) is clearly identified by directional signage provided at the street frontage.	
PO14 Landscaping does not increase the potential bushfire risk.	**AO14** Landscaping uses species that are less likely to exacerbate a bushfire event, and does not increase fuel loads within separation areas.	**Not applicable** No landscaping is proposed.
PO15 The risk of bushfire and the need to mitigate that risk is balanced against other factors (such as but not limited to, biodiversity or scenic amenity).	**AO15** Bushfire risk mitigation treatments do not have a significant impact on the natural environment or landscape character of the locality where this has value.	**Not applicable** No bushfire risk mitigation treatments are proposed or required.

Note – 'Vulnerable activities' are those involving:

(1) the accommodation or congregation of vulnerable sectors of the community such as child care centres, community care centre, educational establishments, detention facilities, hospitals, rooming accommodation, retirement facilities or residential care facilities; or

(2) the provision of essential services including community uses, emergency services, utility installation, telecommunications facility, substations and major electricity infrastructure.

8.2.3 Coastal environment overlay code

8.2.3.1 Application

(1) This code applies to assessing a material change of use, reconfiguring a lot, operational work or building work within the Coastal environment overlay, if:

(a) self assessable or assessable development where the code is identified as being applicable in the Assessment criteria for the Overlay Codes contained in the Levels of Assessment Tables in section 5.6;

(b) impact assessable development.

(2) Land in the Coastal hazard overlay is identified on the Coastal environment overlay map in Schedule 2 and includes the following sub-categories:

(a) Coastal management district sub-category;

(b) Erosion prone area sub-category.

(3) When using this code, reference should be made to Part 5.

8.2.3.2 Purpose

(1) The purpose of the Coastal environment overlay code is to:

(a) implement the policy direction in the Strategic Framework, in particular:

(i) Theme 1 Settlement pattern: Element 3.4.7 Mitigation of hazards;

(ii) Theme 2 Environment and landscape values: Element 3.5.4 Coastal zones;

(iii) Theme 3 Natural resource management: Element 3.6.2 Land and catchment management.

(b) enable an assessment of whether development is suitable on land within the Coastal processes sub-categories.

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) facilitate the protection of both coastal processes and coastal resources;

(b) facilitating coastal dependent development on the foreshore over other development;

(c) public access to the foreshore protects public safety;

(d) maintain the erosion prone area as a development free buffer zone (other than for coastal dependent, temporary or relocatable development);

(e) require redevelopment of existing permanent buildings or structures in an erosion prone area to avoid coastal erosion risks, manage coastal erosion risks through a strategy of planned retreat or mitigate coastal erosion risks;

(f) require development to maintain or enhance natural processes and the protective function of landforms and vegetation that can mitigate risks associated with coastal erosion;

(g) locate and design community infrastructure to maintain the required level of functionality during and immediately after a coastal hazard event.

Criteria for assessment

Table 8.2.3.3.a – Coastal environment overlay code – self-assessable and assessable development

Performance outcomes	Acceptable outcomes	Applicant response
For self-assessable and assessable development		
PO1 No works other than coastal protection works extend seaward of the coastal building line.	**AO1.1** Development (including all buildings and other permanent structures such as swimming pools and retaining walls) does not extend seaward of a coastal building line. Note – Coastal building lines are declared under the Coastal Protection and Management Act 1995 and are administered by the State Department of Environment and Heritage Protection.	**Not applicable** The site is not subject to a coastal building line.
	AO1.2 Coastal protection works are only undertaken as a last resort where coastal erosion presents an immediate threat to public safety or existing buildings or structures and the property cannot be relocated or abandoned.	**Complies with AO1.2** No coastal protection works are proposed.
	AO1.3 Coastal protection works are as far landward as practicable on the lot containing the property to the maximum extent reasonable.	**Not applicable** No coastal protection works are proposed.

Performance outcomes	Acceptable outcomes	Applicant response
	AO1.4 Coastal protection work mitigates any increase in the coastal hazard.	**Not applicable** No coastal protection works are proposed.
PO2 Where a coastal building line does not exist on a lot fronting the coast or a reserve adjoining the coast, development is setback to maintain the amenity and use of the coastal resource.	**AO2** Where a coastal building line does not exist on a lot fronting the coast or a reserve adjoining the coast, development (including all buildings and structures such as swimming pools) and retaining walls are set back not less than 6 metres from the seaward boundary of the lot.	**Complies with AO2** The proposed extraction area would be setback 10 metres from the eastern boundary and no buildings or structures are proposed as part of this application.
For assessable development		
Erosion prone areas		
PO3 Development identifies erosion prone areas (coastal hazards).	**AO3** No acceptable outcomes are prescribed.	**Complies with PO3** The Erosion Prone Area is identified on the State Mapping and excludes the area of the site proposed to be subject to excavation.
PO4 Erosion prone areas are free from development to allow for natural coastal processes.	**AO4.1** Development is not located within the Erosion prone area, unless it can be demonstrated that the development is for: (a) community infrastructure where no suitable alternative location or site exists for this infrastructure; or	**Complies with AO4.1** The proposed extraction area and related development would be located outside of the Erosion Prone Area.

Performance outcomes	Acceptable outcomes	Applicant response
	(b) development that reflects the preferred development outcomes in accordance with the zoning of the site (i.e. in the Low density residential zone, a dwelling house is a preferred development outcome in accordance with the zoning of the site)	
	AO4.2 Development involving existing permanent buildings and structures within an erosion prone area does not increase in intensity of its use by: (a) adding additional buildings or structures; or (b) incorporating a land use that will result in an increase in the number of people or employees occupying the site.	**Not applicable** The site does not contain existing permanent buildings and/or structures.
Coastal management districts		
PO5 Natural processes and protective functions of landforms and vegetation are maintained.	**PO5.1** Development within the coastal management district: (a) maintains vegetation on coastal land forms where its removal or damage may: (i) destabilise the area and increase the potential for coastal erosion, or (ii) interrupt the natural sediment trapping processes or dune or land building processes;	**Not applicable** The site is not within the Coastal Management District.

Performance outcomes	Acceptable outcomes	Applicant response
	(b) maintains sediment volumes of dunes and near-shore coastal landforms, or where a reduction in sediment volumes cannot be avoided, increased risks to development from coastal erosion are mitigated by location, design and construction and operating standards; (c) minimises the need for erosion control structures or riverine hardening through location, design and construction standards; (d) maintains physical coastal processes outside the development footprint for the development, including longshore transport of sediment along the coast; (e) reduces the risk of shoreline erosion for areas adjacent to the development footprint to the maximum extent feasible in the case of erosion control structures.	
	PO5.2 Where development proposes the construction of an erosion control structure: (a) it is demonstrated that it is the only feasible option for protecting permanent structures from coastal erosion; and (b) those permanent structures cannot be abandoned or relocated in the event of coastal erosion occurring	**Not applicable** The site is not within the Coastal Management District.
	PO5.3	**Not applicable**

Performance outcomes	Acceptable outcomes	Applicant response
	Development involving reclamation: (a) does not alter, or otherwise minimises impacts on, the physical characteristics of a waterway or the seabed near the reclamation, including flow regimes, hydrodynamic forces, tidal water and riverbank stability; (b) is located outside active sediment transport area, or otherwise maintains sediment transport processes as close as possible to their natural state; (c) ensures activities associated with the operation of the development maintain the structure and condition of vegetation communities and avoid wind and water run-off erosion.	The site is not within the Coastal Management District.
PO6 Development avoids or minimises adverse impacts on coastal resources and their values to the maximum extent reasonable.	**AO6.1** Coastal protection work that is in the form of beach nourishment uses methods of placement suitable for the location that do not interfere with the long-term use of the locality, or natural values within or neighbouring the proposed placement site. and	**Not applicable** The site is not within the Coastal Management District.
	AO6.2 Marine development is located and designed to expand on or redevelop existing marine infrastructure unless it is demonstrated that it is	**Not applicable** The site is not within the Coastal Management District.

Performance outcomes	Acceptable outcomes	Applicant response
	not practicable to co-locate the development with existing marine infrastructure; and	
	AO6.3 Measures are incorporated as part of siting and design of the development to maintain or enhance water quality to achieve the environmental values and water quality objectives outlined in the Environmental Protection (Water) Policy 2009. and	**Not applicable** The site is not within the Coastal Management District.
	AO6.4 Development avoids the disturbance of acid sulfate soils, or where it is demonstrated that this is not possible, the disturbance of acid sulfate soils is carefully managed to minimise and mitigate the adverse effects of disturbance on coastal resources. and	**Not applicable** The site is not within the Coastal Management District.
	AO6.4 Design and siting of development protects and retains identified ecological values and underlying ecosystem processes within the development site to the greatest extent practicable.	**Not applicable** The site is not within the Coastal Management District.

Performance outcomes	Acceptable outcomes	Applicant response
PO7 Development is to maintain access to and along the foreshore for general public access.	**AO7.1** Development provides for regular access points for pedestrians including approved walking tracks, boardwalks and viewing platforms. and	**Not applicable** The site is not within the Coastal Management District.
	AO7.2 Development provides for regular access points for vehicles including approved roads and tracks. or **AO7.3** Development demonstrates an alternative solution to achieve an equivalent standard of performance.	**Not applicable** The site is not within the Coastal Management District.
PO8 Public access to the coast is appropriately located, designed and operated.	**AO8.1** Development maintains or enhances public access to the coast. or **AO8.2** Development is located adjacent to state coastal land or tidal water and minimises and offsets any loss of access to and along the foreshore within 500 metres. or **AO8.3**	**Not applicable** The site is not within the Coastal Management District.

Performance outcomes	Acceptable outcomes	Applicant response
	Development adjacent to state coastal land or tidal water demonstrates an alternative solution to achieve an equivalent standard and quality of access	
PO9 Development adjacent to state coastal land or tidal water is located, designed and operated to: (a) maintain existing access to and along the foreshore; (b) minimise any loss of access to and along the foreshore, or (c) offset any loss of access to and along the foreshore by providing for enhanced alternative access in the general location.	**AO9.1** Development adjacent to state coastal land or tidal water: (a) demonstrates that restrictions to public access are necessary for: (i) the safe and secure operation of development; (ii) the maintenance of coastal landforms and coastal habitat; or (b) maintains public access (including public access infrastructure that has been approved by the local government or relevant authority) through the site to the foreshore for: (i) pedestrians via access points including approved walking tracks, boardwalks and viewing platforms; (ii) vehicles via access points including approved roads or tracks.	**Not applicable** The site is not within the Coastal Management District.
	AO9.2 Development adjacent to state coastal land or tidal water:	**Not applicable** The site is not within the Coastal Management District.

Performance outcomes	Acceptable outcomes	Applicant response
	(a) is located and designed to: (i) allow safe unimpeded access to, over, under or around built infrastructure located on, over or along the foreshore, for example through the provision of esplanades or easement corridors to preserve future access; (ii) ensure emergency vehicles can access the area near the development. or (b) minimises and offsets any loss of access to and along the foreshore within 500m of existing access points and development is located and designed to: (i) allow safe unimpeded access to, over, under or around built infrastructure located on, over or along the foreshore, and (ii) ensure emergency vehicles can access the area near the development.	
AO10 Development that involves reconfiguring a lot for urban purposes adjacent to the coast is designed to ensure public access to the coast in consideration of public access demand from a whole-of-community basis and the maintenance of coastal landforms and coastal habitat.	**AO10.1** Development complies if consideration of public access demand from a whole-of-community basis and the maintenance of coastal landforms and coastal habitat is undertaken. or	**Not applicable** The site is not within the Coastal Management District.

Performance outcomes	Acceptable outcomes	Applicant response
	AO10.2 Development demonstrates an alternative solution to achieve an equivalent standard and quality of access.	
PO11 Development maintains public access to State coastal land by avoiding private marine development attaching to, or extending across, non-tidal State coastal land.	**AO11** Private marine access structures and other structures such as decks or boardwalks for private use do not attach to or extend across State coastal land that is situated above high water mark	**Not applicable** The site is not within the Coastal Management District.
PO12 Development in connection with an artificial waterway enhances public access to coastal waters.	**AO12** The artificial waterway avoids intersecting with or connection to inundated land or leased land where the passage, use or movement of vessels in water on the land could be restricted or prohibited by the registered proprietor of the inundated land or leased land.	**Not applicable** The site is not within the Coastal Management District.
Coastal landscapes, views and vistas		
PO13 Development maintains and / or enhances natural coastal landscapes, views and vistas.	**AO13** No acceptable outcomes are prescribed.	**Complies with PO13** The subject site is located behind the coastal vegetation and is approximately 500 metres from the Captain Cook Highway and 350 metres from Bonnie Doon Road. The development would not compromise any coastal landscapes, views or vistas.

Performance outcomes	Acceptable outcomes	Applicant response
PO14 Coastal settlements are consolidated through the concentration of development within the existing urban areas through infill and conserving the natural state of the coastal area outside existing urban areas.	**AO14** No acceptable outcomes are prescribed.	**Not applicable** The application is for an Extractive Industry only.
Private marine development		
PO15 Private marine development is to avoid attaching to, or extending across, non-tidal State coastal land.	**AO15** Private marine development and other structures such as decks or boardwalks for private use do not attach to, or extend across, State coastal land that is situated above high water mark. Note – For occupation permits or allocations of State land, refer to the *Land Act 1994*.	**Not applicable** No private marine development is proposed.
PO16 The location and design of private marine development does not adversely affect the safety of members of the public access to the foreshore.	**AO16** Private marine development does not involve the erection or placement of any physical barrier preventing existing access, along a public access way to the foreshores.	**Not applicable** No private marine development is proposed.
PO17 Private marine development is of a height and scale and size compatible with the character and amenity of the location.	**AO17** Private marine development has regard to: (a) the height, scale and size of the natural features of the immediate surroundings and locality;	**Not applicable** No private marine development is proposed.

Performance outcomes	Acceptable outcomes	Applicant response
	(b) the height, scale and size of existing buildings or other structures in the immediate surroundings and the locality; (c) if the relevant planning scheme states that desired height, scale or size of buildings or other structures in the immediate surroundings or locality – the stated desired height, scale or size. Note – The prescribed tidal works code in the *Coastal Protection and Management Regulation 2003* outlines design and construction requirements that must be complied with.	
PO18 Private marine development avoids adverse impacts on coastal landforms and coastal processes.	**AO18** Private marine development does not require the construction of coastal protection works, shoreline or riverbank hardening or dredging for marine access.	**Not applicable** No private marine development is proposed.
For dry land marinas and artificial waterways		
PO19 Dry land marinas and artificial waterways: (a) avoid impacts on coastal resources; (b) do not contribute to the degradation of water quality; (c) do not increase the risk of flooding; (d) do not result in the degradation or loss of MSES;	**AO19** No acceptable solutions are prescribed.	**Not applicable** No dryland marinas or artificial waterways are proposed.

Performance outcomes	Acceptable outcomes	Applicant response
(e) do not result in an adverse change to the tidal prism of the natural waterway to which development is connected. (f) does not involve reclamation of tidal land other than for the purpose of: (i) coastal dependent development, public marine development; or (i) community infrastructure, where there is no feasible alternative; or (iii) strategic ports, boat harbours or strategic airports and aviation facilities in accordance with a statutory land use plan; or (iv) coastal protection works or works necessary to protect coastal resources and processes.		

8.2.4 Flood and storm tide hazard overlay code

8.2.4.1 Application

(1) This code applies to assessing a material change of use, reconfiguring a lot, operational work or building work within the Flood and storm tide hazard overlay, if:

(a) self assessable or assessable development where the code is identified as being applicable in the Assessment criteria for the Overlay Codes contained in the Levels of Assessment Tables in section 5.6;

(b) impact assessable development.

(2) Land in the Flood and storm tide hazard overlay is identified on the Flood and storm tide hazard overlay map in Schedule 2 and includes the:

(a) Storm tide – high hazard sub-category;

(b) Storm tide – medium hazard sub-category;

(c) Flood plain assessment sub-category;

(d) 100 ARI Mossman, Port Douglas and Daintree Township Flood Studies sub-category.

(3) When using this code, reference should be made to Part 5.

Note - The Flood and storm tide hazards overlay maps contained in Schedule 2 identify areas (Flood and storm tide inundation areas) where flood and storm tide inundation modelling has been undertaken by the Council. Other areas not identified by the Flood and inundation hazards overlay maps contained in Schedule 2 may also be subject to the defined flood event or defined storm tide event.

8.2.4.2 Purpose

(1) The purpose of the Flood and storm tide hazard overlay code is to:

(a) implement the policy direction in the Strategic Framework, in particular:

(i) Theme 1 Settlement pattern: Element 3.4.7 Mitigation of hazards;

(ii) Theme 6 Infrastructure and transport: Element 3.9.2 Energy.

(b) enable an assessment of whether development is suitable on land within the Flood and storm tide hazard sub-categories.

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) development siting, layout and access responds to the risk of the natural hazard and minimises risk to personal safety;

(b) development achieves an acceptable or tolerable risk level, based on a fit for purpose risk assessment;

(c) the development is resilient to natural hazard events by ensuring siting and design accounts for the potential risks of natural hazards to property;

(d) the development supports, and does not unduly burden disaster management response or recovery capacity and capabilities;

(e) the development directly, indirectly and cumulatively avoids an unacceptable increase in severity of the natural hazards and does not significantly increase the potential for damage on site or to other properties;

(f) the development avoids the release of hazardous materials as a result of a natural hazard event;

(g) natural processes and the protective function of landforms and/or vegetation are maintained in natural hazard areas;

(h) community infrastructure is located and designed to maintain the required level of functionality during and immediately after a hazard event.

Criteria for assessment

Table 8.2.4.3.a – Flood and storm tide hazards overlay code –assessable development

Performance outcomes	Acceptable outcomes	Applicant response
For self-assessable and assessable development		
PO1 Development is located and designed to: a) ensure the safety of all persons; b) minimise damage to the development and contents of buildings; c) provide suitable amenity; d) minimise disruption to residents, recovery time, and rebuilding or restoration costs after inundation events. Note – For assessable development within the flood plain assessment sub-category, a flood study by a suitably qualified professional is required to identify compliance with the intent of the acceptable outcome.	**AO1.1** Development is sited on parts of the land that is not within the Flood and Storm tide hazards overlay maps contained in Schedule 2; or For dwelling houses, **AO1.2** Development within the Flood and Storm Tide hazards overlay maps (excluding the Flood plain assessment sub-category) is designed to provide immunity to the Defined Inundation Event as outlined within Table 8.2.4.3.b plus a freeboard of 300mm.	**Not applicable** The application is for an extractive industry only. No buildings or structures are proposed as part of this application.
	AO1.3	**Not applicable** No new buildings are proposed as part of this

Performance outcomes	Acceptable outcomes	Applicant response
	New buildings are: (a) not located within the overlay area; (b) located on the highest part of the site to minimise entrance of flood waters; (c) provided with clear and direct pedestrian and vehicle evacuation routes off the site.	application.
	AO1.4 In non urban areas, buildings and infrastructure are set back 50 metres from natural riparian corridors to maintain their natural function of reducing velocity of floodwaters.	**Not applicable** No buildings or structures are proposed as part of this application.
For assessable development		
PO2 The development is compatible with the level of risk associated with the natural hazard.	**AO2** The following uses are not located in land inundated by the Defined Flood Event (DFE) / Storm tide: (a) Retirement facility; (b) Community care facility; (c) Child care centre.	**Complies with AO2** The proposed development is for an Extractive Industry only.
PO3 Development siting and layout responds to flooding potential and maintains personal safety	For Material change of use **AO3.1** New buildings are:	**Not applicable** No buildings or structures are proposed as part of this application.

Performance outcomes	Acceptable outcomes	Applicant response
	(a) not located within the overlay area; (b) located on the highest part of the site to minimise entrance of flood waters; (c) provided with clear and direct pedestrian and vehicle evacuation routes off the site. or **AO3.2** The development incorporates an area on site that is at least 300mm above the highest known flood inundation level with sufficient space to accommodate the likely population of the development safely for a relatively short time until flash flooding subsides or people can be evacuated. or **AO3.3** Where involving an extension to an existing dwelling house that is situated below DFE /Storm tide, the maximum size of the extension does not exceed 70m^2 gross floor area. Note – If part of the site is outside the Hazard Overlay area, this is the preferred location of all buildings.	
	For Reconfiguring a lot **AO3.4** Additional lots: (a) are not located in the hazard overlay area;	**Not applicable** No reconfiguring a lot is proposed.

Performance outcomes	Acceptable outcomes	Applicant response
	or (b) are demonstrated to be above the flood level identified for the site. Note - If part of the site is outside the Hazard Overlay area, this is the preferred location for all lots (excluding park or other open space and recreation lots). Note – Buildings subsequently developed on the lots will need to comply with the relevant building assessment provisions under the *Building Act 1975*.	
	AO3.5 Road and/or pathway layout ensures residents are not physically isolated from adjacent flood free urban areas and provides a safe and clear evacuation route path: (a) by locating entry points into the reconfiguration above the flood level and avoiding culs-de-sac or other non-permeable layouts; and (b) by direct and simple routes to main carriageways.	**Not applicable** The proposed development does not involve any new roads or pathways.
	AO3.6 Signage is provided on site (regardless of whether the land is in public or private ownership) indicating the position and path of all safe evacuation routes off the site and if the site contains, or is within 100m of a floodable waterway, hazard warning signage and depth indicators are also provided at key hazard points, such as at floodway crossings or entrances to	**Complies with AO3.7** No intensification of residential uses would occur on the site.

Performance outcomes	Acceptable outcomes	Applicant response
	low-lying reserves. or **AO3.7** There is no intensification of residential uses within the flood affected areas on land situated below the DFE/Storm tide	
	For Material change of use (Residential uses) **AO3.8** The design and layout of buildings used for residential purposes minimise risk from flooding by providing: (a) parking and other low intensive, non-habitable uses at ground level; Note - The high-set 'Queenslander' style house is a resilient low-density housing solution in floodplain areas. Higher density residential development should ensure only non-habitable rooms (e.g. garages, laundries) are located on the ground floor.	**Not applicable** No residential uses are proposed.
PO4 Development is resilient to flood events by ensuring design and built form account for the potential risks of flooding.	For Material change of use (Non-residential uses) **AO4.2** Non residential buildings and structures allow for the flow through of flood waters on the ground floor. Note - Businesses should ensure that they have the necessary contingency plans in place to account for the potential need to relocate property prior to a flood event (e.g. allow enough time to transfer stock to the upstairs level of a building or off site).	**Not applicable** No buildings or structures are proposed as part of this application.

Performance outcomes	Acceptable outcomes	Applicant response
	Note - The relevant building assessment provisions under the *Building Act 1975* apply to all building work within the Hazard Area and need to take into account the flood potential within the area.	
	AO4.3 Materials are stored on-site: (a) are those that are readily able to be moved in a flood event; (b) where capable of creating a safety hazard by being shifted by flood waters, are contained in order to minimise movement in times of flood. Notes - (a) Businesses should ensure that they have the necessary contingency plans in place to account for the potential need to relocate property prior to a flood event (e.g. allow enough time to transfer stock to the upstairs level of a building or off site). (b) Queensland Government Fact Sheet 'Repairing your House after a Flood' provides information about water resilient products and building techniques.	**Complies with AO4.3** All materials stored on the site would be able to be moved in a flood event.
PO5 Development directly, indirectly and cumulatively avoids any increase in water flow velocity or flood level and does not increase the potential flood damage either on site or on other properties. Note – Berms and mounds are considered to be an	For Operational works **AO5.1** Works in urban areas associated with the proposed development do not involve: (a) any physical alteration to a watercourse or floodway including vegetation clearing; or (b) a net increase in filling (including berms and	**Not applicable** The application is not for operational works.

Performance outcomes	Acceptable outcomes	Applicant response
undesirable built form outcome and are not supported.	mounds).	
	AO5.2 Works (including buildings and earthworks) in non urban areas either: (a) do not involve a net increase in filling greater than 50m^3; or (b) do not result in any reductions of on-site flood storage capacity and contain within the subject site any changes to depth/duration/velocity of flood waters; or (c) do not change flood characteristics outside the subject site in ways that result in: (i) loss of flood storage; (ii) loss of/changes to flow paths; (iii) acceleration or retardation of flows or any reduction in flood warning times elsewhere on the flood plain.	**Complies with AO5.2** The application is for an extractive industry. No net filling would occur or any net reduction in flood storage capacity and would not change the flood characteristics outside of the subject site.
	For Material change of use **AO5.3** Where development is located in an area affected by DFE/Storm tide, a hydraulic and hydrology report, prepared by a suitably qualified professional, demonstrates that the development maintains the flood storage capacity on the	**Not applicable** The proposed area of extraction is located outside of the designated storm tide hazard area.

Performance outcomes	Acceptable outcomes	Applicant response
	subject site; and (a) does not increase the volume, velocity, concentration of flow path alignment of stormwater flow across sites upstream, downstream or in the general vicinity of the subject site; and (b) does not increase ponding on sites upstream, downstream or in the general vicinity of the subject site.	
	For Material change of use and Reconfiguring a lot **AO5.4** In non urban areas, buildings and infrastructure are set back 50 metres from natural riparian corridors to maintain their natural function of reducing velocity of floodwaters. Note – Fences and irrigation infrastructure (e.g. irrigation tape) in rural areas should be managed to minimise adverse the impacts that they may have on downstream properties in the event of a flood.	**Not applicable** No buildings or structure are proposed as part of this application.
PO6 Development avoids the release of hazardous materials into floodwaters.	For Material change of use **AO6.1** Materials manufactured or stored on site are not hazardous or noxious, or comprise materials that may cause a detrimental effect on the environment if discharged in a flood event; or	**Not applicable** No hazardous materials would be stored or manufactured on site.

Performance outcomes	Acceptable outcomes	Applicant response
	AO6.2 If a DFE level is adopted, structures used for the manufacture or storage of hazardous materials are: (a) located above the DFE level; or (b) designed to prevent the intrusion of floodwaters.	
	AO6.3 Infrastructure is designed and constructed to resist hydrostatic and hydrodynamic forces as a result of inundation by the DFE.	**Not applicable** No hazardous materials would be stored or manufactured on site.
	AO6.4 If a flood level is not adopted, hazardous materials and their manufacturing equipment are located on the highest part of the site to enhance flood immunity and designed to prevent the intrusion of floodwaters. Note – Refer to *Work Health and Safety Act 2011* and associated Regulation and Guidelines, the *Environmental Protection Act 1994* and the relevant building assessment provisions under the *Building Act 1975* for requirements related to the manufacture and storage of hazardous materials.	**Not applicable** No hazardous materials would be stored or manufactured on site.
PO7 The development supports, and does not unduly burden, disaster management response or	**AO7** Development does not:	**Complies with AO7** The proposed development does not involve a residential use and would not affect the ability

Performance outcomes	Acceptable outcomes	Applicant response
recovery capacity and capabilities.	(a) increase the number of people calculated to be at risk of flooding; (b) increase the number of people likely to need evacuation; (c) shorten flood warning times; and (d) impact on the ability of traffic to use evacuation routes, or unreasonably increase traffic volumes on evacuation routes.	for people to evacuate or increase the number of people likely to require evacuation.
PO8 Development involving community infrastructure: (a) remains functional to serve community need during and immediately after a flood event; (b) is designed, sited and operated to avoid adverse impacts on the community or environment due to impacts of flooding on infrastructure, facilities or access and egress routes; (c) retains essential site access during a flood event; (d) is able to remain functional even when other infrastructure or services may be compromised in a flood event.	**AO8.1** The following uses are not located on land inundated during a DFE/Storm tide: (a) community residence; and (b) emergency services; and (c) residential care facility; and (d) utility installations involving water and sewerage treatment plants; and (e) storage of valuable records or items of historic or cultural significance (e.g. archives, museums, galleries, libraries). or **AO8.2** The following uses are not located on land inundated during a 1% AEP flood event: (a) community and cultural facilities, including facilities where an education and care	**Complies with AO8.1** None of the identified uses are proposed.

Performance outcomes	Acceptable outcomes	Applicant response
	service under the Education and care Services National law (Queensland) is operated or child care service under the *Child Care Act 2002* is conducted, (b) community centres; (c) meeting halls; (d) galleries; (e) libraries. The following uses are not located on land inundated during a 0.5% AEP flood event. (a) emergency shelters; (b) police facilities; (c) sub stations; (d) water treatment plant The following uses are not located on land inundated during a 0.2% AEP flood event: (a) correctional facilities; (b) emergency services; (c) power stations; (d) major switch yards. and/or **AO8.3** The following uses have direct access to low hazard evacuation routes as defined in Table **8.2.4.3.c** :	

Performance outcomes	Acceptable outcomes	Applicant response
	(a) community residence; and (b) emergency services; and (c) hospitals; and (d) residential care facility; and (e) sub stations; and (f) utility installations involving water and sewerage treatment plants.	
	AO8.4 Any components of infrastructure that are likely to fail to function or may result in contamination when inundated by flood, such as electrical switch gear and motors, telecommunications connections, or water supply pipeline air valves are: (a) located above DFE/Storm tide or the highest known flood level for the site; (b) designed and constructed to exclude floodwater intrusion / infiltration.	**Not applicable** No infrastructure is proposed.
	AO8.5 Infrastructure is designed and constructed to resist hydrostatic and hydrodynamic forces as a result of inundation by a flood.	**Not applicable** No infrastructure is proposed.

Table 8.2.4.3.b - Minimum immunity (floor levels) for development

Minimum immunity to be achieved (floor levels)	Uses and elements of activities acceptable in the event
20% AEP level	• Parks and open space.
5% AEP level	• Car parking facilities (including car parking associated with use of land).
1% AEP level	• All development (where not otherwise requiring an alternative level of minimum immunity).
0.5% AEP level	• Emergency services (if for a police station); • Industry activities (if including components which store, treat or use hazardous materials); • Substation; • Utility installation.
0.2% AEP level	• Emergency services; • Hospital; • Major electricity infrastructure; • Special industry.

Table 8.2.4.3.c - Degree of flood

Criteria	Low	Medium	High	Extreme
Wading ability	If necessary children and the elderly could wade. (Generally, safe wading velocity depth product is less than 0.25)	Fit adults can wade. (Generally, safe wading velocity depth product is less than 0.4)	Fit adults would have difficulty wading. (Generally, safe wading velocity depth product is less than 0.6)	Wading is not an option.
Evacuation distances	< 200 metres	200-400 metres	400-600 metres	600 metres
Maximum flood depths	< 0.3 metre	< 0.6 metre	< 1.2 metres	1.2 metres
Maximum flood velocity	< 0.4 metres per second	< 0.8 metres per second	< 1.5 metres per second	1.5 metres per second
Typical means of egress	Sedan	Sedan early, but 4WD or trucks later	4WD or trucks only in early stages, boats or helicopters	Large trucks, boats or helicopters
Timing Note: This category cannot be implemented until evacuation times have been established in the Counter Disaster Plan (Flooding)	Ample flood forecasting. Warning and evacuation routes remain passable for twice as long as evacuation time.	Evacuation routes remain trafficable for 1.5 times as long as the evacuation.	Evacuation routes remain trafficable for only up to minimum evacuation time.	There is insufficient evacuation time.

Note: The evacuation times for various facilities or areas would (but not necessarily) be included in the Counter Disaster Plan.

Generally safe wading conditions assume even walking surfaces and no obstructions, steps, soft underfoot etc.

8.2.6 Landscape values overlay code

8.2.6.1 Application

(1) This code applies to assessing a material change of use, reconfiguring a lot, operational work or building work within the Landscape values overlay, if:

(a) self-assessable or assessable development where the code is identified as being applicable in the Assessment criteria for the Overlay Codes contained in the Levels of Assessment Tables in section 5.6;

(b) impact assessable development.

(2) Land in the Landscape values overlay is identified on the Landscape values overlay map in Schedule 2 and includes in following sub-categories:

(a) High landscape value sub-category;

(b) Medium landscape value sub-category;

(c) Scenic route buffer / view corridor area sub-category;

(d) Coastal scenery area sub-category.

(3) When using this code, reference should be made to Part 5.

8.2.6.2 Purpose

(1) The purpose of the Landscape values overlay code is to:

(a) implement the policy direction of the Strategic Framework, in particular:

(i). Theme 2: Environment and landscape values Element 3.5.5 Scenic amenity;

(ii). Theme 3: Natural resource management Element 3.6.4 – Resource extraction.

(b) enable an assessment of whether development is suitable on land within the Landscape values overlay sub-categories.

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) areas of High landscape value are protected, retained and enhanced;

(b) areas of Medium landscape value are managed to integrate and limit the visual impact of development;

(c) the landscape values of the Coastal scenery area are managed to integrate and limit thevisual impact of development;

(d) development maintains and enhances the significant landscape elements and featureswhich contribute to the distinctive character and identity of Douglas Shire;

(e) ridges and vegetated hillslopes are not developed in a way that adversely impacts onlandscape values;

(f) watercourses, forested mountains and coastal landscape character types remain predominantly natural in appearance in order to maintain the region's diverse characterand distinctive tropical image, in particular:

(i). areas in the coastal landscape character type which are predominantly natural and undeveloped in appearance retain this natural landscape character;

(ii). watercourses which are predominantly natural and undeveloped in appearance retain this natural landscape character;

(iii). the rural character of cane fields and lowlands landscape character types which are predominantly rural or natural in appearance are maintained;

(iv). landscape values are maintained when viewed from lookouts, scenic routes, gateways and public places.

(g) views towards High landscape value areas and the Coral Sea are not diminished;

(h) development is consistent with the prevailing landscape character of its setting, and is neither visually dominant nor visually intrusive;

(i) advertising devices do not detract from the landscape values, character types or amenity of an area.

Criteria for assessment

Table 8.2.1.3.a – Acid sulfate soils overlay code – assessable development

Performance outcomes	Acceptable outcomes	Applicant response
For assessable development		
PO1 Development within High landscape value areas identified on the Landscape values overlay maps contained in Schedule 2: (a) avoids detrimental impacts on the landscape values of forested skylines, visible hillslopes, ridgelines, the coastal foreshore or the shoreline of other water bodies through the	**AO1.1** Buildings and structures are not more than 8.5 metres and two storeys in height. Note - Height is inclusive of roof height.	**Not applicable** Development would not occur within a High Landscape Value Area.
	AO1.2 Buildings and structures are setback not less than 50 metres from ridgelines or peaks.	**Not applicable** Development would not occur within a High Landscape Value Area.

Performance outcomes	Acceptable outcomes	Applicant response
loss of vegetation; (b) is effectively screened from view from a road, lookout or other public place by an existing natural landform or native vegetation, or will be effectively screened by native vegetation within 3 years of construction; (c) retains existing vegetation and incorporates new landscaping to enhance existing vegetation and visually soften built form elements; (d) incorporates development of a scale, design, height, position on site, construction materials and external finishes that are compatible with the landscape values of the locality; (e) avoids detrimental impacts on landscape values and excessive changes to the natural landform as a result of the location, position on site, scale, design, extent and alignment of earthworks, roads, driveways, retaining walls and other on-ground or in-ground infrastructure; (f) avoids detrimental impacts on landscape values and views as a result of the location, position on site, scale, design and alignment of telecommunications facilities, electricity towers, poles and lines and other tall infrastructure; (g) extractive industry operations are avoided. Note - A visual impact assessment is undertaken in accordance with Planning scheme policy SC6.6 – Landscape	**AO1.3** Development is screened from view from roads or other public places by an existing natural landform or an existing native vegetation buffer.	**Not applicable** Development would not occur within a High Landscape Value Area.
	AO1.4 Where development on land steeper than 1 in 6 (16.6%) cannot be avoided: (a) development follows the natural; contours of the site; (b) buildings are split level or suspended floor construction, or a combination of the two; (c) lightweight materials are used to areas with suspended floors. Note - Examples of suitable lightweight materials include timber or fibre cement boards or sheeting for walls and factory treated metal sheeting for walls and roofs.	**Not applicable** Development would not occur within a High Landscape Value Area..
	AO1.5 The external features, walls and roofs of buildings and structures have a subdued and non-reflective palette. Note - Examples of suitable colours include shades of green, olive green, blue green, grey green, green blue, indigo, brown, blue grey, and green yellow.	**Not applicable** Development would not occur within a High Landscape Value Area.
	AO1.6 No clearing of native vegetation occurs on land	**Not applicable** Development would not occur within a High

Performance outcomes	Acceptable outcomes	Applicant response
values in order to satisfy performance outcomes.	with a slope greater than 1 in 6 (16.5%).	Landscape Value Area.
	AO1.7 Where for accommodation activities or reconfiguration of a lot in a High landscape value area, development demonstrates that the height, design, scale, positioning on-site, proposed construction materials and external finishes are compatible with the landscape values. Note - A visual impact assessment undertaken in accordance with Planning scheme policy SC6.6 – Landscape values may be required.	**Not applicable** Development would not occur within a High Landscape Value Area.
	AO1.8 Advertising devices do not occur.	**Complies with AO1.8** Development would not occur within a High Landscape Value Area.
Development within the Medium landscape value area		
PO2 Development within Medium landscape value areas identified on the Landscape values overlay maps contained in Schedule 2: (a) avoids detrimental impacts on the landscape values of forested skylines, visible hillslopes, ridgelines, the coastal foreshore or the shoreline of other water bodies through the loss of vegetation;	**AO2.1** Buildings and structures are not more than 8.5 metres and two storeys in height. Note - Height is inclusive of the roof height.	**Not applicable** There are no buildings or structures proposed as part of this application.
	AO2.2 Development is screened from view from roads or other public places by an existing natural landform or an existing native vegetation buffer.	**Complies with AO2.2** The site is separated from the Captain Cook Highway by of the order of 500metres and screened by paddocks of Sugar Cane and is screened from Bonnie Doon Road by an existing

Performance outcomes	Acceptable outcomes	Applicant response
(b) is effectively screened from view from a road, lookout or other public place by an existing natural landform or native vegetation, or will be effectively screened by native vegetation within 5 years of construction; (c) retains existing vegetation and incorporates new landscaping to enhance existing vegetation and visually soften built form elements; (d) incorporates development of a scale, design, height, position on site, construction materials and external finishes that are compatible with the landscape values of the locality; (e) avoids detrimental impacts on landscape values and excessive changes to the natural landform as a result of the location, position on site, scale, design and alignment of earthworks, roads, driveways, retaining walls and other on-ground or in-ground infrastructure; (f) avoids detrimental impacts on landscape values and views as a result of the location, position on site, scale, design and alignment of telecommunications facilities, electricity towers, poles and lines and other tall infrastructure; (g) extractive industry operations are avoided, or where they cannot be avoided, are screened from view.		vegetated buffer. Additional buffer planting is able to be secured by condition of approval if considered necessary.
	AO2.3 Where development on land steeper than 1 in 6 (16.6%) cannot be avoided: (a) development follows the natural; contours of the site; (b) buildings are split level or suspended floor construction, or a combination of the two; (c) lightweight materials are used to areas with suspended floors. Note - Examples of suitable lightweight materials include timber or fibre cement boards or sheeting for walls and factorytreated metal sheeting for walls and roofs.	**Not applicable** The site does not contain land steeper than 1 in 6.
	AO2.4 The external features, walls and roofs of buildings and structures have a subdued and non-reflective palette. Note - Examples of suitable colours include shades of green, olive green, blue green, grey green, green blue, indigo, brown, blue grey, and green yellow	**Not applicable** There are no buildings or structures proposed as part of this application.
	AO2.5 No clearing of native vegetation occurs on land with a slope greater than 1 in 6 (16.6%).	**Not applicable** The site does not contain land steeper than 1 in 6.

Performance outcomes	Acceptable outcomes	Applicant response
Note - A visual impact assessment is undertaken in accordance with Planning scheme policy SC6.6 – Landscape values in order to satisfy performance outcomes.	**AO2.6** Advertising devices do not occur.	**Complies with AO2.6** No advertising devices are proposed.
Development within a Scenic route buffer / view corridor area		
PO3 Development within a Scenic route buffer / view corridor area as identified on the Landscape values overlay maps contained in Schedule 2: (a) retains visual access to views of the surrounding landscape, the sea and other water bodies; (b) retains existing vegetation and incorporates landscaping to visually screen and soften built form elements whilst not impeding distant views or view corridors; (c) incorporates building materials and external finishes that are compatible with the visual amenity and the landscape character; (d) minimises visual impacts on the setting and views in terms of: (i). the scale, height and setback of buildings; (ii). the extent of earthworks and impacts on the landform including the location and configuration of access roads and driveways; (iii). the scale, extent and visual	**AO3.1** Where within a Scenic route buffer / view corridor area, the height of buildings and structures is not more than identified within the acceptable outcomes of the applicable zone code.	**Not applicable** The site is not within a Scenic Route Buffer / View Corridor Area.
	AO3.2 No clearing of native vegetation is undertaken within a Scenic route buffer area.	**Not applicable** The site is not within a Scenic Route Buffer / View Corridor Area.
	AO3.3 Where within a Scenic route buffer / view corridor area development is set back and screened from view from a scenic route by existing native vegetation with a width of at least 10 metres and landscaped in accordance with the requirements of the landscaping code.	**Not applicable** The site is not within a Scenic Route Buffer / View Corridor Area.
	AO3.4 Development does not result in the replacement of, or creation of new, additional, or enlarged advertising devices.	**Not applicable** The site is not within a Scenic Route Buffer / View Corridor Area.

Performance outcomes	Acceptable outcomes	Applicant response
prominence of advertising devices. Note - A visual impact assessment is undertaken in accordance with Planning scheme policy SC6.6 – Landscape values in order to satisfy performance outcomes.		
Development within the Coastal scenery area		
PO4 The landscape values of the Coastal scenery zone as identified on the Landscape values overlay maps contained in Schedule 2 are managed to integrated and limit the visual impact of development. Note - A visual impact assessment is undertaken in accordance with Planning scheme policy SC6.6 – Landscape values in order to satisfy performance outcomes.	**AO4.1** The dominance of the natural character of the coast is maintained or enhanced when viewed from the foreshore.	**Not applicable** The site is not within the Coastal Scenery Area.
	AO4.2 Where located adjacent to the foreshore buildings and structures are setback: (a) Where no adjoining development, a minimum of 50 metres from the coastal high water mark and the setback area is landscaped with a native vegetation buffer that has a minimum width of 25 metres; or (b) Where there is adjoining development, setbacks will be consistent with that of adjoining buildings and structures, but not less than 10 metres from the coastal high water mark. The setback area is landscaped in accordance with the requirements of the Landscaping code.	**Not applicable** The site is not within the Coastal Scenery Area.
	AO4.3	**Not applicable**

Performance outcomes	Acceptable outcomes	Applicant response
	Where separated from the foreshore by land contained within public ownership (e.g. unallocated State land, esplanade or other public open space), buildings and structures area setback: (a) where no adjoining development, a minimum of 6 metres from the coastward property boundary. The setback area is landscaped in accordance with the requirements of the Landscaping code; or (b) where there is adjoining development, setbacks will be consistent with that of adjoining buildings and structures. The setback area is landscaped in accordance with the requirements of the Landscaping code.	The site is not within the Coastal Scenery Area.
PO5 Development is to maximise opportunities to maintain and/or enhance natural landscape values through the maintenance and restoration of vegetated buffers between development and coastal waters, where practical. Note – A visual impact assessment is undertaken in accordance with Planning scheme policy SC6.6 – Landscape values in satisfaction of a performance outcome.	**AO5** No clearing of native vegetation is undertaken within a Coastal scenery area zone, except for exempt vegetation damage undertaken in accordance with the Vegetation management code	**Not applicable** The site is not within the Coastal Scenery Area.

8.2.7 Natural areas overlay code

8.2.7.1 Application

(1) This code applies to assessing a material change of use, reconfiguring a lot, operational work or building work within the Natural areas overlay, if:

(a) self-assessable or assessable development where the code is identified as being applicable in the Assessment criteria for the Overlay Codes contained in the Levels of Assessment Tables in section 5.6;

(b) impact assessable development.

(2) Land in the Natural areas overlay is identified on the Natural areas overlay map in Schedule 2 and includes the following sub-categories:

(a) MSES – Protected area;

(b) MSES – Marine park;

(c) MSES – Wildlife habitat;

(d) MSES – Regulated vegetation;

(e) MSES – Regulated vegetation (intersecting a Watercourse);

(f) MSES – High ecological significance wetlands;

(g) MSES – High ecological value waters (wetlands);

(h) MSES – High ecological value waters (watercourse);

(i) MSES – Legally secured off set area.

Note – MSES = Matters of State Environmental Significance.

(3) When using this code, reference should be made to Part 5.

8.2.7.2 Purpose

(1) The purpose of the Natural areas overlay code is to:

(a) implement the policy direction in the Strategic Framework, in particular:

(i) Theme 2: Environment and landscape values, Element 3.5.3 Biodiversity, Element 3.5.4 Coastal zones;

(ii) Theme 3: Natural resource management Element 3.6.2 Land and catchment management, Element 3.6.3 Primary production, forestry and fisheries.

(b) enable an assessment of whether development is suitable on land within the Biodiversity area overlay sub-categories.

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) development is avoided within:

(i) areas containing matters of state environmental significance (MSES);

(ii) other natural areas;

(iii) wetlands and wetland buffers;

(iv) waterways and waterway corridors.

(b) where development cannot be avoided, development:

(i) protects and enhances areas containing matters of state environmental significance;

(ii) provides appropriate buffers;

(iii) protects the known populations and supporting habitat of rare and threatened flora and fauna species, as listed in the relevant State and Commonwealth legislation;

(iv) ensures that adverse direct or indirect impacts on areas of environmental significance are minimised through design, siting, operation, management and mitigation measures;

(v) does not cause adverse impacts on the integrity and quality of water in upstream or downstream catchments, including the Great Barrier Reef World Heritage Area;

(vi) protects and maintains ecological and hydrological functions of wetlands, waterways and waterway corridors;

(vii) enhances connectivity across barriers for aquatic species and habitats;

(viii) rehabilitates degraded areas to provide improved habitat condition, connectivity, function and extent;

(ix) protects areas of environmental significance from weeds, pests and invasive species.

(c) strategic rehabilitation is directed to areas on or off site, where it is possible to achieve expanded habitats and increased connectivity.

Criteria for assessment

Table 8.2.7.3.a - Natural areas overlay code – assessable development

Performance outcomes	Acceptable outcomes	Applicant response
For self-assessable and assessable development		

Performance outcomes	Acceptable outcomes	Applicant response
Protection of matters of environmental significance		
PO1 Development protects matters of environmental significance.	**AO1.1** Development avoids significant impact on the relevant environmental values. or **AO1.2** A report is prepared by an appropriately qualified person demonstrating to the satisfaction of the assessment manager, that the development site does not contain any matters of state and local environmental significance. or **AO1.3** Development is located, designed and operated to mitigate significant impacts on environmental values. For example, a report certified by an appropriately qualified person demonstrating to the satisfaction of the assessment manager, how the proposed development mitigates impacts, including on water quality, hydrology and biological processes.	**Complies with AO1.1** The proposed development would be undertaken in a way to avoid areas of environmental values. No development or extraction would occur within the Wetlands trigger area to the south of the site and no regulated vegetation would be removed to facilitate the development.
Management of impacts on matters of environmental significance		
PO2 Development is located, designed and constructed to avoid significant impacts on	**AO2** The design and layout of development minimises adverse impacts on ecologically important areas	**Complies with AO2** The proposed development would be undertaken in a way to avoid areas of environmental

Performance outcomes	Acceptable outcomes	Applicant response
matters of environmental significance.	by: (a) focusing development in cleared areas to protect existing habitat; (b) utilising design to consolidate density and preserve existing habitat and native vegetation; (c) aligning new property boundaries to maintain ecologically important areas; (d) ensuring that alterations to natural landforms, hydrology and drainage patterns on the development site do not negatively affect ecologically important areas; (e) ensuring that significant fauna habitats are protected in their environmental context; and (f) incorporating measures that allow for the safe movement of fauna through the site.	significance. No development or extraction would occur within the Wetlands trigger area to the south of the site and no regulated vegetation would be removed to facilitate the development.
PO3 An adequate buffer to areas of state environmental significance is provided and maintained.	**AO3.1** A buffer for an area of state environmental significance (Wetland protection area) has a minimum width of: (a) 100 metres where the area is located outside Urban areas; or (b) 50 metres where the area is located within an Urban areas. or **AO3.2**	**Complies with AO3.1** The site contains a wetland protection area. All development would be outside of the state identified wetland trigger area or setback, which is a 500 metre buffer.

Performance outcomes	Acceptable outcomes	Applicant response
	A buffer for an area of state environmental significance is applied and maintained, the width of which is supported by an evaluation of environmental values, including the function and threats to matters of environmental significance.	
PO4 Wetland and wetland buffer areas are maintained, protected and restored. Note – Wetland buffer areas are identified in AO3.1.	**AO4.1** Native vegetation within wetlands and wetland buffer areas is retained.	**Complies with AO4.1** No vegetation removal is proposed within the wetlands or wetland buffer areas on the site.
	AO4.2 Degraded sections of wetlands and wetland buffer areas are revegetated with endemic native plants in patterns and densities which emulate the relevant regional ecosystem.	**Not applicable** The proposed extraction area would be located outside of the wetlands and wetlands buffer area.
PO5 Development avoids the introduction of non-native pest species (plant or animal), that pose a risk to ecological integrity.	**AO5.1** Development avoids the introduction of non-native pest species.	**Complies with AO5.1** No non-native species would be introduced to the site as part of this application.
	AO5.2 The threat of existing pest species is controlled by adopting pest management practices for long-term ecological integrity.	**Not applicable** No pest species have been identified on the site.
Ecological connectivity		
PO6	**AO6.1**	**Not applicable**

Performance outcomes	Acceptable outcomes	Applicant response
Development protects and enhances ecological connectivity and/or habitat extent.	Development retains native vegetation in areas large enough to maintain ecological values, functions and processes. and	No native vegetation is required to be removed to facilitate the development.
	AO6.2 Development within an ecological corridor rehabilitates native vegetation. and	**Not applicable** The site is not identified as containing an ecological corridor.
	AO6.3 Development within a conservation corridor mitigates adverse impacts on native fauna, feeding, nesting, breeding and roosting sites and native fauna movements.	**Not applicable** The site is not identified as containing a conservation corridor.
PO7 Development minimises disturbance to matters of state environmental significance (including existing ecological corridors).	**AO7.1** Development avoids shading of vegetation by setting back buildings by a distance equivalent to the height of the native vegetation. and	**Complies with AO7.1** No buildings or structure are proposed as part of this application.
	AO7.2 Development does not encroach within 10 metres of existing riparian vegetation and watercourses.	**Complies with AO7.1** There is no riparian vegetation present on site within the extraction area.
Waterways in an urban area		

Performance outcomes	Acceptable outcomes	Applicant response
PO8 Development is set back from waterways to protect and maintain: (a) water quality; (b) hydrological functions; (c) ecological processes; (d) biodiversity values; (e) riparian and in-stream habitat values and connectivity; (f) in-stream migration	**AO8.1** Where a waterway is contained within an easement or a reserve required for that purpose, development does not occur within the easement or reserve; or **AO8.2** Development does not occur on the part of the site affected by the waterway corridor. Note – Waterway corridors are identified within Table 8.2.7.3.b.	**Not applicable** The site is not in an urban area.
Waterways in a non-urban area		
PO9 Development is set back from waterways to protect and maintain: (a) water quality; (b) hydrological functions; (c) ecological processes; (d) biodiversity values; (e) riparian and in-stream habitat values and connectivity; (f) in-stream migration.	**AO9** Development does not occur on that part of the site affected by a waterway corridor. Note – Waterway corridors are identified within Table 8.2.7.3.b.	**Complies with AO(** The only water way identified on the SPP environment mapping occurs in the north of the site and no development would occur within 20 metres of that waterway.

Table 8.2.7.3.b — Widths of waterway corridors for waterways

Waterways classification	Waterway corridor width
Waterways in Urban areas	10 metres measured perpendicular from the top of the high bank.
Waterways in Other areas	For a dwelling house, 10 metres measured perpendicular from the top of the high bank. For all other development, 20 metres measured perpendicular from the top of the high bank.

8.2.9 Potential landslide hazard overlay code

8.2.9.1 Application

(1) This code applies to assessing a material change of use, reconfiguring a lot, operational work or building work within the Potential landslide hazard overlay; if

(a) self-assessable or assessable development where the code is identified as being applicable in the Assessment criteria for the Overlay Codes contained in the Levels of Assessment Tables in section 5.6;

(b) impact assessable development.

(2) Land in the Potential landslip hazard overlay is identified on the Potential landslide hazard overlay maps in Schedule 2 and includes the following sub-categories:

(a) Places of potential landslide hazard sub-category.

(3) When using this code, reference should be made to Part 5.

Note – The Potential landslide hazard overlay shows modelled areas where the factors contributing to landslip potential accumulate to provide a moderate or higher risk if certain factors are exacerbated (e.g factors include significant vegetation clearing, filling and excavation, changes to soil characteristics, changes to overland water flow, or changes to sub-surface water flow). It shows areas that the Council has identified where landslides may occur and where land may be impacted by a landslide, but does not mean that landslides will occur or that the land will be impacted by a landslide. Other areas not contained within the potential landslide hazard overlay may sustain landslides or be impacted by landslides and consideration should be given to this issue, where appropriate.

8.2.9.2 Purpose

(1) The purpose of the Potential landslide hazard overlay code is:

(a) implement the policy direction of the Strategic Framework, in particular:

(i). Theme 1: Settlement pattern Element 3.4.7 Mitigation of hazards.

(b) enable an assessment of whether development is suitable on land within the Potential landslip hazard overlay.

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) development is located, designed and constructed to not put at risk the safety of people, property and the environment;

(b) development is not at risk from and does not pose a risk to adjacent and nearby sites from landslides;

(c) ensures that community infrastructure is protected from the effects of potential landslides;

(d) ensures that vegetation clearing, stormwater management and filling and/or excavation does not create a landslide hazard and/or rectifies potential pre-existing landslide risks;

(e) development does not occur where works to provide a solution for safety of people, property or the environment involves complex engineering solutions to overcome the risk, or would result in a built form or outcome that causes an adverse visual impact on the Hillslopes or Landscape values of Douglas Shire.

Criteria for assessment

Table 8.2.9.3.a – Potential landslide hazard overlay code – assessable development

Performance outcomes	Acceptable outcomes	Applicant response
For self-assessable and assessable development		
PO1 The siting and design of development does not involve complex engineering solutions and does not create or increase the potential landslide hazard risk to the site or adjoining premises through: (a) building design; (b) increased slope; (c) removal of vegetation; (d) stability of soil; (e) earthworks; (f) alteration of existing ground water or surface water paths; (g) waste disposal areas.	**AO1.1** Development is located on that part of the site not affected by the Potential landslide hazard overlay. or **AO1.2** Development is on an existing stable, benched site and requires no further earthworks or **AO1.3** A competent person certifies that: (a) the stability of the site, including associated buildings and infrastructure, will be maintained during the course of the development and will remain stable for the life of the development; (b) development of the site will not increase the risk of landslide hazard activity on other land, including land above the site;	**Complies with AO1.1** The proposed extraction area and associated development is located outside of the Potential Landslide Hazard area located adjacent the eastern boundary.

Performance outcomes	Acceptable outcomes	Applicant response
	(c) the site is not subject to the risk of landslide activity on other land; (d) any measures identified in a site-specific geotechnical report for stabilising the site or development have been fully implemented; (e) development does not concentrate existing ground water and surface water paths; (f) development does not incorporate on-site waste water disposal. Note – Planning scheme policy SC6.9 – Natural hazards provides guidance on preparing a site specific geo-technical assessment. Note – Development may alter the conditions of ground water and surface water paths in accordance with a site-specific geotechnical report but should ensure that its final disbursement is as-per pre-developed conditions. Consideration for location, velocity, volume and quality should be given	
PO2 The siting and design of necessary retaining structures does not cause an adverse visual impact on landscape character or scenic amenity quality of the area.	**AO2** Excavation or fill: (a) is not more than 1.2 metres in height for each batter or retaining wall; (b) is setback a minimum of 2 metres from property boundaries; (c) is stepped with a minimum 2 metre wide berm to incorporate landscaping in accordance with Planning scheme policy SC6.7 – Landscaping;	**Not applicable** No development would occur on land identified within the Potential landslide hazard overlay.

Performance outcomes	Acceptable outcomes	Applicant response
	(d) does not exceed a maximum of 3 batters and 3 berms (i.e. Not greater than 3.6 metres in height) on any one lot.	
Additional requirements for Community infrastructure		
PO3 Development for community infrastructure: (a) is not at risk from the potential landslide hazard areas; (b) will function without impediment from a landslide; (c) provides access to the infrastructure without impediment from the effects of a landslide; (d) does not contribute to an elevated risk of a landslide to adjoining properties.	**AO3** Development is designed in accordance with the recommendations of a site-specific geotechnical assessment which makes reference to the community infrastructure and its needs and function. Note - A site specific geotechnical assessment will detail requirements that will address the Acceptable Outcomes of this Performance Outcome. Planning scheme policy SC6.9 – Natural hazards provides guidance on preparing a site specific geotechnical assessment.	**Not applicable** No development would occur on land identified within the Potential landslide hazard overlay.

8.2.10 Transport network overlay code

8.2.10.1 Application

(1) This code applies to assessing a material change of use, reconfiguring a lot, operational work or building work within the Transport network overlay; if:

(a) self-assessable or assessable development where the code is identified as being applicable in the Assessment criteria for the Overlay Codes contained in the Levels of Assessment Tables in section 5.6;

(b) impact assessable development.

(2) Land within the Transport network overlay is identified on the Transport network (Road Hierarchy) overlay map and the Transport network (Pedestrian and Cycle) overlay map in Schedule 2 and includes the following sub-categories:

(a) Transport network (Road Hierarchy) overlay sub-categories:

i. State controlled road sub-category;

ii. Sub-arterial road sub-category;

iii. Collector road sub-category;

iv. Access road sub-category;

v. Industrial road sub-category;

vi. Major rural road sub-category;

vii. Minor rural road sub-category;

viii. Unformed road sub-category;

ix. Major transport corridor buffer area sub-category.

(b) Transport network (Pedestrian and Cycle) overlay sub-categories:

i. Principal route;

ii. Future principal route;

iii. District route;

iv. Neighbourhood route;

v. Strategic investigation route.

(3) When using this code, reference should be made to Part 5.

8.2.10.2 Purpose

(1) The purpose of the Transport network overlay code is to:

(a) implement the policy direction of the Strategic Framework, in particular:

i. Theme 1: Settlement pattern Element 3.4.2 Urban settlement, Element 3.4.3 Activity centres;

ii. Theme 6: Infrastructure and transport Element 3.9.4 Transport;

(b) enable an assessment of whether development is suitable on land within the Transportnetwork overlay.

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) development provides for transport infrastructure (including active transport infrastructure);

(b) development contributes to a safe and efficient transport network;

(c) development supports the existing and future role and function of the transport network;

(d) development does not compromise the safety and efficiency of major transport infrastructure and facilities.

8.2.10.3 Criteria for assessment

Table 8.2.10.3.a – Transport network overlay code – assessable development

Performance outcomes	Acceptable outcome	Applicant response
For assessable development		
PO1 Development supports the road hierarchy for the region. Note -A Traffic impact assessment report prepared in accordance with Planning scheme policy SC6.10 - Parkingand access is one way to demonstrate achievement of the Performance Outcomes.	**AO1.1** Development is compatible with the intended role and function of the transport network as identified on the Transport network overlay maps contained in Schedule 2.	**Complies with AO1.1** Access to the site would be via Bonnie Doon Road and an unnamed road to the north. This is consistent with the requirements of the State Assessment and Referral Agency that has advised that this intersection has capacity to accommodate the traffic generated by the development. The unnamed road and its intersection with Bonnie Doon Road in accordance with the guidelines contained in the FNQROC Development Manual as part of a subsequent Operational Works

Performance outcomes	Acceptable outcome	Applicant response
		Application.
	AO1.2 Development does not compromise the safety and efficiency of the transport network.	**Complies with AO1.2** Upgrade works to the unnamed road and its intersection with Bonnie Doon Road, in accordance with a subsequent Operational Works Application, would ensure that the development does not compromise the transport network.
	AO1.3 Development is designed to provide access via the lowest order road, where legal and practicable access can be provided to that road	**Complies with AO1.3** Access is proposed to be via the lower order unnamed road to the north.
PO2 Transport infrastructure is provided in an integrated and timely manner. Note - A Traffic impact assessment report prepared in accordance with Planning scheme policy SC6.10 – Parking and access is one way to demonstrate achievement of the Performance Outcomes.	**AO2** Development provides infrastructure (including improvements to existing infrastructure) in accordance with: (a) the Transport network overlay maps contained in Schedule 2; (b) any relevant Local Plan. Note – The Translink Public Transport Infrastructure Manual provides guidance on the design of public transport facilities.	**Not applicable** No additional transport infrastructure is proposed.
PO3 Development involving sensitive land uses within a major transport corridor buffer area is located, designed and maintained to avoid or mitigate adverse impacts on amenity for the sensitive land use.	**AO3** No acceptable outcomes are prescribed. Note – Part 4.4 of the Queensland Development Code provides requirements for residential building design in a designated transport noise corridor.	**Not applicable** The site is not within a major transport corridor buffer area.

Performance outcomes	Acceptable outcome	Applicant response
PO4 Development does not compromise the intended role and function or safety and efficiency of major transport corridors. Note - A Traffic impact assessment report prepared in accordance with Planning scheme policy SC6.10 - Parkingand access is one way to demonstrate achievement of the Performance Outcomes.	**AO4.1** Development is compatible with the role and function (including the future role and function) of major transport corridors.	**Complies with AO4.1** Consistent with the response received from the State Assessment and Referral Agency. Access would be via Bonnnie Doon Road which has capacity to accommodate the additional traffic movements generated by the development.
	AO4.2 Direct access is not provided to a major transport corridor where legal and practical access from another road is available.	**Not applicable** The site does not directly adjoin a major transport corridor.
	AO4.3 Intersection and access points associated with major transport corridors are located in accordance with: (a) the Transport network overlay maps contained in Schedule 2; and (b) any relevant Local Plan.	**Not applicable** The site does not directly adjoin a major transport corridor.
	AO4.4 The layout of development and the design of the associated access is compatible with existing and future boundaries of the major transport corridor or major transport facility.	**Not applicable** The site does not directly adjoin a major transport corridor.
PO5 Development retains and enhances existing vegetation between a development and a major transport corridor, so as to provide screening to potential noise, dust, odour and visual impacts	**AO5** No acceptable outcomes are prescribed.	**Not applicable** The site does not directly adjoin a major transport corridor.

Performance outcomes	Acceptable outcome	Applicant response
emanating from the corridor.		
Pedestrian and cycle network		
PO6 Lot reconfiguration assists in the implementation of the pedestrian and cycle movement network to achieve safe, attractive and efficient pedestrian and cycle networks.	**AO6.1** Where a lot is subject to, or adjacent to an element of the pedestrian and cycle Movement network (identified on the Transport network overlay maps contained in Schedule 2) the specific location of this element of the pedestrian and cycle network is incorporated in the design ofthe lot layout.	**Not applicable** There is no pedestrian or cycle network in the area surrounding the site.
	AO6.2 The element of the pedestrian and cycle network is constructed in accordance with the Design Guidelines set out in Sections D4 and D5 of the Planning scheme policy SC6.5 – FNQROC Regional Development Manual.	**Not applicable** There is no pedestrian or cycle network in the area surrounding the site.

9.3.10 Extractive industry code

9.3.10.1 Application

(1) This code applies to assessing development for Extractive Industry, if:

(a) assessable development where the code is an applicable code identified in the assessment criteria column of a table of assessment; or

(b) impact assessable development.

(2) When using this code, reference should be made to Part 5.

9.3.10.2 Purpose

(1) The purpose of the Extractive industry code is to assess the suitability of development to which this code applies:

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) extractive industries are established in locations that are adequately separated from sensitive land uses and do not have significant ecological, landscape or rural value;

(b) a separation area is established to maintain a buffer between the extractive industry and existing and future sensitive land uses;

(c) external operations such as haulage routes do not adversely impact on amenity and well- being of the community;

(d) extractive industry operations are designed and managed to operate safely and avoid adverse impacts on amenity of adjacent sensitive land uses;

(e) extractive industries cause no adverse impact on scenic amenity;

(f) extractive industry sites are effectively and progressively rehabilitated including the achievement of a stable land form that is safe and suitable for other appropriate uses.

9.3.10.3 Criteria for assessment

Table 9.3.10.3.a – Extractive industry code – assessable development

Performance outcomes	Acceptable outcomes	Applicant Response
For assessable development		
PO1 An Environmental management plan is prepared	**AO1** No acceptable outcomes are prescribed.	**Complies with PO1** A site and development specific Environmental Management Plan has been prepared and has

Performance outcomes	Acceptable outcomes	Applicant Response
and implemented to ensure: (a) that the long term objectives of the use are clearly articulated; (b) potential conflicts or environmental impacts are avoided or minimised; (c) contingency planning for identified risks. Note – Planning scheme policy SC6.4 – Environmental management plans provides more detail on the requirements of an Environmental management plan for extractive industries. Thoroughly addressing this performance outcome is likely to also address all other performance outcomes and acceptable outcomes within this code.		been submitted with the application. Further information has been provided to support this Environmental Management Plan and is provided at **Appendix A -** Response to the Department of Environment, Science and Innovation.
PO2 The use is outside mapped areas of environmental significance. Note – Refer to the definition of Environmental significance in Schedule 1.2.	**AO2** No acceptable outcomes are prescribed.	**Complies with PO2** The proposed extraction areas would be located outside of mapped areas of environmental significance and would be suitably separated from areas of environmental significance.
PO3 Development ensures that the operation of the use is designed and implemented to: (a) promote the efficient extraction of the resource; (b) protect the natural environment, including ecological features, significant habitats and native vegetation; (c) not adversely affect the environmental values of ground waters and receiving surface waters.	**AO3** No acceptable outcomes are prescribed.	**Complies with AO3** The development would be undertaken in stages, with each stages remediated following the extraction. No extraction would occur within an area of environmental significance and the removal of sand would not extend to below the water table.
PO4	**AO4**	**Complies with PO4**

Performance outcomes	Acceptable outcomes	Applicant Response
Extractive industry operations are adequately separated from sensitive land uses to minimise potential for nuisance.	Extractive resource separation areas to sensitive land uses are: (a) 1,000 metres where the extractive resource involves blasting or crushing (namely rock); or (b) 200 metres for any other extractive industry resource not involving blasting or crushing (namely sand, clay, gravel and soil).	The proposal plan provides a 50 metres setback to the nearest sensitive receptor. This setback has been assessed by the Department of Environment, Tourism, Science and Innovation (DETSI) when considering the initial Environmental Assessment Report and Environmental Management Report. These reports were further supported by information provided in response to an information request from DETSI. A copy of the response to this information request is provided at **Appendix A**. The assessment included consideration of the following environmental values: • Waters; • Stormwaters • Air (dust); and, • Noise. The report and assessment concluded that the proposed development with a 50 metre setback is not anticipated to have an adverse impact on the sensitive receptor to the north.
PO5 Development must achieve an acceptable standard of visual amenity, having regard to the characteristics of the site, the resource, rehabilitation and visual screening, staging, and the desirable qualities of the surrounding area and locality.	**AO5** No acceptable outcomes are prescribed.	**Complies with PO5** The proposed extraction area would be setback 500 metres from the Captain Cook Highway and 350 metres form Bonnie Doon Road. It would be screened by cane fields to the west and south, buffer planting to the north and mangroves to the east. Extraction would occur in stages and at the conclusion of each stage the land would be

Performance outcomes	Acceptable outcomes	Applicant Response
		rehabilitated. The proposed development would not adversely affect the visual amenity of the area.
PO6 The site of an extractive industry is of suitable size and dimensions to accommodate the use and incorporates significant buffering to effectively screen adjoining and nearby land uses from extractive operations.	**AO6.1** The site is of sufficient area to provide for the following: (a) the extractive use; (b) areas of stockpiles; (c) sufficient car parking area to accommodate the level of car parking generated, including staff demand; (d) vehicle access and manoeuvring areas; (e) staff facilities.	**Complies with AO6.1** There is sufficient area on site to accommodate all requirements as shown on the site plan. Given the small scale of the operation, vehicles on site would be limited and there would be limited stockpiling.
	AO6.2 The use is designed to incorporate a densely vegetated buffer of a minimum of 10 metres to all road frontages and to all perimeter boundaries.	**Complies with AO6.2** The development would provide a 10 metre setback to the eastern side boundary and the northern and southern boundaries would be buffered by existing vegetation. The buffer to the western boundary would be provided by the existing sugar cane.
PO7 Development mitigates the potential adverse effects of noise, dust, ground vibration, lighting or air blast overpressure from operations.	**AO7** No acceptable outcomes are prescribed.	**Complies with PO7** The environmental impacts on the development have been assessed by the Department of Environment, Tourism, Science and Innovation (DETSI). This included the Environmental Assessment Report and Environmental Management Report submitted with the application. These reports were further supported

Performance outcomes	Acceptable outcomes	Applicant Response
		by information provided in response to an information request from DETSI. A copy of the response to this information request is provided at **Appendix A**. The assessment included consideration of the following environmental values: • Waters; • Stormwaters • Air (dust); and, • Noise. The report and assessment concluded that the proposed development would not have an adverse impact from dust, noise or vibration.
PO8 The operation of the extractive industry does not compromise public safety.	**AO8.1** Safety fencing and signage is provided around extractive industry stockpiles and operation to prevent unauthorised access.	**Able to comply with AO8.1** Given the small scale of the use security fencing is not considered necessary; however, should this be required a condition can be attached to any approval granted.
	AO8.2 A single 8.0 metre wide access is designed for the site and constructed to a standard capable of accommodating heavy traffic in accordance with Australian Standards including adequate sight distance.	**Able to comply with AO8.2** An 8.0 metre wide access is able to be provided and would form part of a subsequent Operational Works Application.
	AO8.3 Blasting does not result in materials escaping or being ejected from the site.	**Not applicable** No blasting is proposed.

Performance outcomes	Acceptable outcomes	Applicant Response
	AO8.4 Prior to any blasting, notices of warning which provide an alert to those working on the site and to passers-by are erected and kept clearly exhibited on the approaches to, and not less than 800 metres from the site of the blasting.	**Not applicable** No blasting is proposed.
PO9 The extractive industry provides for blasting, crushing, screening and loading to be carried out safely and in accordance with best practice management standards so that disturbance to surrounding land uses is minor and that impacts from emissions are minimised.	**AO9.1** Blasting operations are confined to the hours of 9.00am to 5.00pm, Monday to Friday. Other operations are limited to 7.00am to 6.00pm Monday to Saturday.	**Not applicable** No blasting is proposed.
	AO9.2 No operations are undertaken on Sundays or public holidays.	**Complies with AO9.2** No operations are proposed on Sundays or public holidays.
	AO9.3 The transport of materials is managed through: (a) vehicle haulage routes within the site that are surfaced with hardstand, crushed aggregate or similar treatment(s) to reduce the potential to generate raised dust; (b) the complete covering of extractive materials on haulage vehicles; (c) vehicle haulage routes outside the site are predominantly higher order roads capable of catering for the anticipated tonnage of the vehicles, and are not through established residential areas.	**Able to comply with AO9.3** The proposal is for a small scale operation and would be limited to a front end loader and tipper truck for the transport of material. The haul access would be extended for each stage of the development and would be constructed to a standard suitable to accommodate the vehicles. All vehicle loads would be covered when leaving the site and the haulage route would be in accordance with the requirements of the Department of Transport and Main Roads.

Performance outcomes	Acceptable outcomes	Applicant Response
PO10 The site is progressively rehabilitated in accordance with an approved rehabilitation plan to ensure that: (a) a re-contoured and stable landform is achieved with the reinstatement of appropriate soil profiles; (b) revegetation of areas disturbed by operations; (c) there are no adverse environmental or visual amenity impacts; (d) the landform is suitable for alternative uses.	**AO10** No acceptable outcomes are prescribed.	**Complies with PO10** Rehabilitation of the site would be undertaken in accordance with the Site Based Management Plan submitted with the application.

9.4.1 Access, parking and servicing code

9.4.1.1 Application

(1) This code applies to assessing:

(a) operational work which requires a compliance assessment as a condition of a development permit; or

(b) a material change of use or reconfiguring a lot if:

(i) self-assessable or assessable development where this code is identified in the assessment criteria column of the table of assessment;

(ii) impact assessable development, to the extent relevant.

(2) When using this code, reference should be made to Part 5.

9.4.1.2 Purpose

(1) The purpose of the Access, parking and servicing code is to assess the suitability of access, parking and associated servicing aspects of a development.

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) sufficient vehicle parking is provided on-site to cater for all types of vehicular traffic accessing and parking on-site, including staff, guests, patrons, residents and short term delivery vehicles;

(b) sufficient bicycle parking and end of trip facilities are provided on-site to cater for customer and service staff;

(c) on-site parking is provided so as to be accessible and convenient, particularly for any short term uses;

(d) development provides walking and cycle routes through the site which link the development to the external walking and cycling network;

(e) the provision of on-site parking, loading / unloading facilities and the provision of access to the site do not impact on the efficient function of street network or on the area in which the development is located;

(f) new vehicular access points are safely located and are not in conflict with the preferred ultimate streetscape character and local character and do not unduly disrupt any current or future on-street parking arrangements.

9.4.1.3 Criteria for assessment

Table 9.4.1.3.a – Access, parking and servicing code – assessable development

Performance outcomes	Acceptable outcomes	Applicant response
For self-assessable and assessable development		
PO1 Sufficient on-site car parking is provided to cater for the amount and type of vehicle traffic expected to be generated by the use or uses of the site, having particular regard to: (a) the desired character of the area; (b) the nature of the particular use and its specific characteristics and scale; (c) the number of employees and the likely number of visitors to the site; (d) the level of local accessibility; (e) the nature and frequency of any public transport serving the area; (f) whether or not the use involves the retention of an existing building and the previous requirements for car parking for the building (g) whether or not the use involves a heritage building or place of local significance; (h) whether or not the proposed use involves the retention of significant vegetation.	**AO1.1** The minimum number of on-site vehicle parking spaces is not less than the number prescribed in Table 9.4.1.3.b for that particular use or uses. Note - Where the number of spaces calculated from the table is not a whole number, the number of spaces provided is the next highest whole number.	**Complies with AO1.1** Extractive Industry uses are not provided with a minimum number of on-site spaces within Table 9.4.1.3.b. Notwithstanding this, there is adequate space on site to accommodate the vehicle parking demand.
	AO1.2 Car parking spaces are freely available for the parking of vehicles at all times and are not used for external storage purposes, the display of products or rented/sub-leased.	**Complies with AO1.2** Car parking spaces would be maintained exclusively for vehicle parking.
	AO1.3 Parking for motorcycles is substituted for ordinary vehicle parking to a maximum level of 2% of total ordinary vehicle parking.	**Not applicable** No specific motorcycle parking is proposed or required.
	AO1.4 For parking areas exceeding 50 spaces parking, is provided for recreational vehicles as a substitute for ordinary vehicle parking to a maximum of 5% of total ordinary vehicle parking rate.	**Not applicable** Less than 50 parking spaces are proposed.

Performance outcomes	Acceptable outcomes	Applicant response
PO2 Vehicle parking areas are designed and constructed in accordance with relevant standards.	**AO2** Vehicle parking areas are designed and constructed in accordance with Australian Standard: (a) AS2890.1; (b) AS2890.3; (c) AS2890.6.	**Complies with AO2** The proposed parking areas would be constructed in accordance with relevant standard.
PO3 Access points are designed and constructed: (a) to operate safely and efficiently; (b) to accommodate the anticipated type and volume of vehicles (c) to provide for shared vehicle (including cyclists) and pedestrian use, where appropriate; (d) so that they do not impede traffic or pedestrian movement on the adjacent road area; (e) so that they do not adversely impact upon existing intersections or future road or intersection improvements; (f) so that they do not adversely impact current and future on-street parking arrangements; (g) so that they do not adversely impact on existing services within the road reserve	**AO3.1** Access is limited to one access cross over per site and is an access point located, designed and constructed in accordance with: (a) Australian Standard AS2890.1; (b) Planning scheme policy SC6.5 – FNQROC Regional Development Manual - access crossovers.	**Complies with AO3.1** Access would be limited to one crossover only.
	AO3.2 Access, including driveways or access crossovers: (a) are not placed over an existing: (i) telecommunications pit; (ii) stormwater kerb inlet; (iii) sewer utility hole; (iv) water valve or hydrant.	**Complies with AO3.2** The access would not interfere with existing infrastructure.

Performance outcomes	Acceptable outcomes	Applicant response
adjacent to the site; (h) so that they do not involve ramping, cutting of the adjoining road reserve or any built structures (other than what may be necessary to cross over a stormwater channel).	(b) are designed to accommodate any adjacent footpath; (c) adhere to minimum sight distance requirements in accordance with AS2980.1.	
	AO3.3 Driveways are: (a) designed to follow as closely as possible to the existing contours, but are no steeper than the gradients outlined in Planning scheme policy SC6.5 – FNQROC Regional Development Manual; (b) constructed such that where there is a grade shift to 1 in 4 (25%), there is an area with a grade of no more than 1 in in 6 (16.6%) prior to this area, for a distance of at least 5 metres; (c) on gradients greater than 1 in 6 (16.6%) driveways are constructed to ensure the cross-fall of the driveway is one way and directed into the hill, for vehicle safety and drainage purposes; (d) constructed such that the transitional change in grade from the road to the lot is fully contained within the lot and not within the road reserve; (e) designed to include all necessary associated drainage that intercepts and directs storm water runoff to the storm water drainage system.	**Not applicable** The site and access is flat.

Performance outcomes	Acceptable outcomes	Applicant response
	AO3.4 Surface construction materials are consistent with the current or intended future streetscape or character of the area and contrast with the surface construction materials of any adjacent footpath.	**Complies with AO3.4** The surface material would be consistent with the rural environment.
PO4 Sufficient on-site wheel chair accessible car parking spaces are provided and are identified and reserved for such purposes.	**AO4** The number of on-site wheel chair accessible car parking spaces complies with the rates specified in AS2890 Parking Facilities.	**Not applicable** No wheel chair accessible spaces are required.
PO5 Access for people with disabilities is provided to the building from the parking area and from the street.	**AO5** Access for people with disabilities is provided in accordance with the relevant Australian Standard.	**Not applicable** No buildings or structures are proposed.
PO6 Sufficient on-site bicycle parking is provided to cater for the anticipated demand generated by the development	**AO6** The number of on-site bicycle parking spaces complies with the rates specified in Table 9.4.1.3.b	**Not applicable** No on-site bicycle parking is required.
PO7 Development provides secure and convenient bicycle parking which: (a) for visitors is obvious and located close to the building's main entrance; (b) for employees is conveniently located to	**AO7.1** Development provides bicycle parking spaces for employees which are co-located with end-of-trip facilities (shower cubicles and lockers);	**Not applicable** The application is not required to provide bicycle parking.
	AO7.2	**Not applicable**

Performance outcomes	Acceptable outcomes	Applicant response
provide secure and convenient access between the bicycle storage area, end-of-trip facilities and the main area of the building; (c) is easily and safely accessible from outside the site.	Development ensures that the location of visitor bicycle parking is discernible either by direct view or using signs from the street.	The application is not required to provide bicycle parking.
	AO7.3 Development provides visitor bicycle parking which does not impede pedestrian movement.	**Not applicable** The application is not required to provide bicycle parking.
PO8 Development provides walking and cycle routes through the site which: (a) link to the external network and pedestrian and cyclist destinations such as schools, shopping centres, open space, public transport stations, shops and local activity centres along the safest, most direct and convenient routes; (b) encourage walking and cycling; (c) ensure pedestrian and cyclist safety.	**AO8** Development provides walking and cycle routes which are constructed on the carriageway or through the site to: (a) create a walking or cycle route along the full frontage of the site; (b) connect to public transport and existing cycle and walking routes at the frontage or boundary of the site.	**Not required** There are no walking or cycle routes in the area of the site.
PO9 Access, internal circulation and on-site parking for service vehicles are designed and constructed: (a) in accordance with relevant standards; (b) so that they do not interfere with the amenity of the surrounding area; (c) so that they allow for the safe and convenient	**AO9.1** Access driveways, vehicle manoeuvring and onsite parking for service vehicles are designed and constructed in accordance with AS2890.1 and AS2890.2.	**Complies with AO9.1** All parking and manoeuvring areas would be designed and constructed to an appropriate standard.
	AO9.2 Service and loading areas are contained fully	**Complies with AO9.2** All loading and unloading of vehicles would be

Performance outcomes	Acceptable outcomes	Applicant response
movement of pedestrians, cyclists and other vehicles.	within the site.	completed within the site.
	AO9.3 The movement of service vehicles and service operations are designed so they: (a) do not impede access to parking spaces; (b) do not impede vehicle or pedestrian traffic movement.	**Not applicable** No service vehicles would be required to enter or leave the site.
PO10 Sufficient queuing and set down areas are provided to accommodate the demand generated by the development.	**AO10.1** Development provides adequate area on-site for vehicle queuing to accommodate the demand generated by the development where drive through facilities or drop-off/pick-up services are proposed as part of the use, including, but not limited to, the following land uses: (a) car wash; (b) child care centre; (c) educational establishment where for a school; (d) food and drink outlet, where including a drive through facility; (e) hardware and trade supplies, where including a drive-through facility; (f) hotel, where including a drive-through facility; (g) service station.	**Not applicable** No vehicle queueing is required.

Performance outcomes	Acceptable outcomes	Applicant response
	AO10.2 Queuing and set-down areas are designed and constructed in accordance with AS2890.1.	**Not applicable** No vehicle queueing is required.

9.4.3 Environmental performance code

9.4.3.1 Application

(1) This code applies to assessing:

(a) building work for outdoor lighting;

(b) a material change of use or reconfiguring a lot if:

(i) assessable development where the code is identified in the assessment criteriacolumn of a table of assessment; or

(ii) impact assessable development, to the extent relevant.

Note – Where for the purpose of lighting a tennis court in a Residential zone, a compliance statement prepared by a suitablyqualified person must be submitted to Council with the development application for building work.

(2) When using this code, reference should be made to Part 5.

9.4.3.2 Purpose

(1) The purpose of the Environmental performance code is to ensure development is designed andoperated to avoid or mitigate impacts on sensitive receiving environments.

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) activities that have potential to cause an adverse impact on amenity of adjacent andsurrounding land, or environmental harm is avoided through location, design and operation of the development;

(b) sensitive land uses are protected from amenity related impacts of lighting, odour, airborneparticles and noise, through design and operation of the development;

(c) stormwater flowing over, captured or discharged from development sites is of a qualityadequate to enter receiving waters and downstream environments;

(d) development contributes to the removal and ongoing management of weed species.

9.4.3.3 Criteria for assessment

Table 9.4.3.3.a – Environmental performance code – assessable development

Performance outcomes	Acceptable outcomes	Applicant response
Lighting		
PO1	**AO1.1**	**Not applicable**

Performance outcomes	Acceptable outcomes	Applicant response
Lighting incorporated within development doesnot cause an adverse impact on the amenity of adjacent uses and nearby sensitive land uses.	Technical parameters, design, installation, operation and maintenance of outdoor lighting comply with the requirements of Australian standard AS4282-1997 Control of the obtrusive effects of outdoor lighting.	No outdoor lighting is proposed.
	AO1.2 Development that involves flood lighting is restricted to a type that gives no upward component of light where mounted horizontally.	**Not applicable** No outdoor lighting is proposed.
	AO1.3 Access, car parking and manoeuvring areas are designed to shield nearby residential premises from impacts of vehicle headlights.	**Complies with AO1.3** The driveway access is not directly across from any residence and there would be no night time activities.
Noise		
PO2 Potential noise generated from the development is avoided through design, location and operation of the activity. Note – Planning Scheme Policy SC6.4 – Environmental management plans provides guidance on preparing a report to demonstrate compliance with the purpose and outcomes of the code.	**AO2.1** Development does not involve activities that would cause noise related environmental harm or nuisance; or **AO2.2** Development ensures noise does not emanate from the site through the use of materials, structures and architectural features to not cause an adverse noise impact on adjacent uses.	**Complies with AO2.1** The Department of Environment, Tourism, Science and Innovation (DETSI) have assessed the environmental impacts of the proposed development. The development is not anticipated to result in any environmental harm.
	AO2.3 The design and layout of development ensures car parking areas avoid noise impacting directly on adjacent sensitive land uses through one or	**Not applicable** There would be no car parking areas provided as part of the development.

Performance outcomes	Acceptable outcomes	Applicant response
	more of the following: (a) car parking is located away from adjacent sensitive land uses; (b) car parking is enclosed within a building; (c) a noise ameliorating fence or structure is established adjacent to car parking areas where the fence or structure will not have a visual amenity impact on the adjoining premises; (d) buffered with dense landscaping. Editor's note - The *Environmental Protection (Noise) Policy 2008*, Schedule 1 provides guidance on acoustic quality objectives to ensure environmental harm (including nuisance) is avoided.	
Airborne particles and other emissions		
PO3 Potential airborne particles and emissions generated from the development are avoided through design, location and operation of the activity. Note – Planning Scheme Policy SC6.4 – Environmental management plans provides guidance on preparing a report to demonstrate compliance with the purpose and outcomes of the code.	**AO3.1** Development does not involve activities that will result in airborne particles or emissions being generated; or **AO3.2** The design, layout and operation of the development activity ensures that no airborne particles or emissions cause environmental harm or nuisance. Note - examples of activities which generally cause airborne particles include spray painting, abrasive blasting, manufacturing activities and car wash facilities. Examples of emissions include exhaust ventilation from basement or enclosed parking structures, air	**Complies with AO3.1** The Department of Environment, Tourism, Science and Innovation (DETSI) have assessed the environmental impacts of the proposed development. The development is not anticipated to result in any environmental harm, including dust. The operation would continue to be monitored throughout its life to ensure that no environmental harm is caused.

Performance outcomes	Acceptable outcomes	Applicant response
	conditioning/refrigeration ventilation and exhaustion. The *Environmental Protection (Air) Policy 2008*, Schedule 1 provides guidance on air quality objectives to ensure environmental harm (including nuisance) is avoided.	
Odours		
PO4 Potential odour causing activities associated with the development are avoided through design, location and operation of the activity. Note – Planning Scheme Policy SC6.4 – Environmental management plans provides guidance on preparing a report to demonstrate compliance with the purpose and outcomes of the code.	**AO4.1** The development does not involve activities that create odorous emissions; or **AO4.2** The use does not result in odour that causes environmental harm or nuisance with respect to surrounding land uses.	**Complies with AO4.1** The development is for sand extraction only and would not generate odour emissions.
Waste and recyclable material storage		
PO5 Waste and recyclable material storage facilities are located and maintained to not cause adverse impacts on adjacent uses. Note – Planning Scheme Policy SC6.4 – Environmental management plans provides guidance on preparing a report to demonstrate compliance with the purpose and outcomes of the code.	**AO5.1** The use ensures that all putrescent waste is stored in a manner that prevents odour nuisance and is disposed of at regular intervals.	**Complies with AO5.1** The development is for sand extraction only and would not generate putrescent waste.
	AO5.2 Waste and recyclable material storage facilities are located, designed and maintained to not cause an adverse impact on users of the premises and adjacent uses through consideration of: (a) the location of the waste and recyclable material storage areas in relation to the noise and odour generated;	**Not applicable** No waste or recycle facilities are required or proposed in association with the small scale development.

Performance outcomes	Acceptable outcomes	Applicant response
	(b) the number of receptacles provided in relation to the collection, maintenance and use of the receptacles; (c) the durability of the receptacles, sheltering and potential impacts of local climatic conditions; (d) the ability to mitigate spillage, seepage or leakage from receptacles into adjacent areas and sensitive receiving waters and environments. Editor's note - the *Environmental Protection (Waste Management) Policy 2008* provides guidance on the design of waste containers (receptacles) to ensure environmental harm (including nuisance) is avoided.	
Sensitive land use activities		
PO6 Sensitive land use activities are not established in areas which will receive potentially incompatible impacts on amenity from surrounding, existing development activities and land uses.	**AO6.1** Sensitive land use activities are not established in areas that will be adversely impacted upon by existing land uses, activities and potential development possible in an area; or **AO6.2** Sensitive land activities are located in areas where potential adverse amenity impacts mitigate all potential impacts through layout, design, operation and maintenance.	**Not applicable** No sensitive land uses are proposed.
Stormwater quality		
PO7 The quality of stormwater flowing over, through or	**AO7.1** Development activities are designed to ensure	**Not applicable** No buildings or structures are proposed as part of

Performance outcomes	Acceptable outcomes	Applicant response
being discharged from development activities into watercourses and drainage lines is of adequate quality for downstream environments, with respect to: (a) the amount and type of pollutants borne from the activity; (b) maintaining natural stream flows; (c) the amount and type of site disturbance; (d) site management and control measures.	stormwater over roofed and hard stand areas is directed to a lawful point of discharge.	this application.
	AO7.2 Development ensures movement of stormwater over the site is not impeded or directed through potentially polluting activities.	**Complies with AO7.2** The Site Based Management plan submitted with the application addresses the stormwater management across the site.
	AO7.3 Soil and water control measures are incorporated into the activity's design and operation to control sediment and erosion potentially entering watercourses, drainage lines and downstream receiving waters. Note - Planning scheme policy - FNQROC Regional Development Manual provides guidance on soil and water control measures to meet the requirements of the *Environmental Protection Act 1994*. During construction phases of development, contractors and builders are to have consideration in their work methods and site preparation for their environmental duty to protect stormwater quality.	**Complies with AO7.3** The Site Based Management plan submitted with the application addresses the stormwater management across the site, including sediment and erosion control.
Pest plants (for material change of use on vacant land over 1,000m^2)		
PO8 Development activities and sites provide for the removal of all pest plants and implement ongoing measures to ensure that pest plants do not reinfest the site or nearby sites. Editor's note - This does not remove or replace all land owner's obligations or responsibilities under the *Land Protection (Pest and Stock Route Management) Act 2002*.	**AO8.1** The land is free of declared pest plants before development establishes new buildings, structures and practices; or **AO8.2** Pest plants detected on a development site are removed in accordance with a management plan prepared by an appropriately qualified person	**Complies with AO8.1** No pest plants have been identified on the site.

Performance outcomes	Acceptable outcomes	Applicant response
	prior to construction of buildings and structures or earthworks. Note - A declaration from an appropriately qualified person validates the land being free from pest plants. Declared pest plants include locally declared and State declared pest plants.	

9.4.5 Infrastructure works code

9.4.5.1 Application

(1) This code applies to assessing:

(a) operational work which requires an assessment as a condition of a development permit or is assessable development if this code is identified in the assessment criteria column of a table of assessment;

(b) a material change of use or reconfiguring a lot if:

(i) assessable development where this code is identified in the assessment criteria column of the table of assessment;

(ii) impact assessable development, to the extent relevant.

Note – The Filling and excavation code applies to operational work for filling and excavation.

(2) When using this code, reference should be made to Part 5.

9.4.5.2 Purpose

(1) The purpose of the Infrastructure works code is to ensure that development is safely and efficiently serviced by, and connected to, infrastructure.

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) the standards of water supply, waste water treatment and disposal, stormwater drainage, local electricity supply, telecommunications, footpaths and road construction meet the needs of development and are safe and efficient;

(b) development maintains high environmental standards;

(c) development is located, designed, constructed and managed to avoid or minimise impacts arising from altered stormwater quality or flow, wastewater discharge, and the creation of non-tidal artificial waterways;

(d) the integrity of existing infrastructure is maintained;

(e) development does not detract from environmental values or the desired character and amenity of an area.

9.4.5.3 Criteria for assessment

Table 9.4.5.3.a – Infrastructure works code –assessable development

Performance outcomes	Acceptable outcomes	Applicant Response
For self-assessable and assessable development		

Performance outcomes	Acceptable outcomes	Applicant Response
Works on a local government road		
PO1 Works on a local government road do not adversely impact on footpaths or existing infrastructure within the road verge and maintain the flow, safety and efficiency of pedestrians, cyclists and vehicles.	**AO1.1** Footpaths/pathways are located in the road verge and are provided for the hierarchy of the road and located and designed and constructed in accordance with Planning scheme policy SC5 – FNQROC Regional Development Manual.	**Able to comply with AO1.1** Any works required to upgrade the unnamed road to the north would be undertaken in accordance with an operational woks application.
	AO1.2 Kerb ramp crossovers are constructed in accordance with Planning scheme policy SC 5 – FNQROC Regional Development Manual.	**Not applicable** No kerb ramp crossovers are required.
	AO1.3 New pipes, cables, conduits or other similar infrastructure required to cross existing footpaths: (a) are installed via trenchless methods; or (b) where footpath infrastructure is removed to install infrastructure, the new section of footpath is installed to the standard detailed in the Planning scheme policy SC5 – FNQROC Regional Development Manual, and is not less than a 1.2 metre section.	**Able to comply with AO1.3** Any works required to upgrade the unnamed road to the north would be undertaken in accordance with an operational woks application
	AO1.4 Where existing footpaths are damaged as a result of development, footpaths are reinstated ensuring:	**Not applicable** There are no footpaths in the area around the site.

Performance outcomes	Acceptable outcomes	Applicant Response
	(a) similar surface finishes are used; (b) there is no change in level at joins of new and existing sections; (c) new sections are matched to existing in terms of dimension and reinforcement. Note – Figure 9.4.5.3.a provides guidance on meeting the outcomes.	
	AO1.5 Decks, verandahs, stairs, posts and other structures located in the road reserve do not restrict or impede pedestrian movement on footpaths or change the level of the road verges.	**Not applicable** No structures are proposed as part of this application.
Accessibility structures		
PO2 Development is designed to ensure it is accessible for people of all abilities and accessibility features do not impact on the efficient and safe use of footpaths. Note – Accessibility features are those features required to ensure access to premises is provided for people of all abilities and include ramps and lifts.	**AO2.1** Accessibility structures are not located within the road reserve.	**Not applicable** No structures are proposed as part of this application.
	AO2.2 Accessibility structures are designed in accordance with AS1428.3.	**Not applicable** No structures are proposed as part of this application.
	AO2.3 When retrofitting accessibility features in existing buildings, all structures and changes in grade are contained within the boundaries of the lot and not within the road reserve.	**Not applicable** No structures are proposed as part of this application.

Performance outcomes	Acceptable outcomes	Applicant Response
Water supply		
PO3 An adequate, safe and reliable supply of potable, fire fighting and general use water is provided.	**AO3.1** The premises is connected to Council's reticulated water supply system in accordance with the Design Guidelines set out in Section D6 of the Planning scheme policy SC5 – FNQROC Regional Development Manual; or **AO3.2** Where a reticulated water supply system is not available to the premises, on site water storage tank/s with a minimum capacity of 10,000 litres of stored water, with a minimum 7,500 litre tank, with the balance from other sources (e.g. accessible swimming pool, dam etc.) and access to the tank/s for fire trucks is provided for each new house or other development. Tank/s are to be fitted with a 50mm ball valve with a camlock fitting and installed and connected prior to occupation of the house and sited to be visually unobtrusive.	**Not applicable** No buildings or structures are proposed as part of this application.
Treatment and disposal of effluent		
PO4 Provision is made for the treatment and disposal of effluent to ensure that there are no adverse impacts on water quality and no adverse ecological impacts as a result of the system or as a result of increasing the cumulative effect of	**AO4.1** The site is connected to Council's sewerage system and the extension of or connection to the sewerage system is designed and constructed in accordance with the Design Guidelines set out in Section D7 of the Planning scheme policy SC5 –	**Not applicable** No buildings or structures are proposed as part of this application.

Performance outcomes	Acceptable outcomes	Applicant Response
systems in the locality.	FNQROC Regional Development Manual; or **AO4.2** Where not in a sewerage scheme area, the proposed disposal system meets the requirements of Section 33 of the *Environmental Protection Policy (Water) 1997* and the proposed on site effluent disposal system is designed in accordance with the *Plumbing and Drainage Act (2002).*	
Stormwater quality		
PO5 Development is planned, designed, constructed and operated to avoid or minimise adverse impacts on stormwater quality in natural and developed catchments by: (a) achieving stormwater quality objectives; (b) protecting water environmental values; (c) maintaining waterway hydrology.	**AO5.1** A connection is provided from the premises to Council's drainage system; or **AO5.2** An underground drainage system is constructed to convey stormwater from the premises to Council's drainage system in accordance with the Design Guidelines set out in Sections D4 and D5 of the Planning scheme policy SC5 – FNQROC Regional Development Manual.	**Complies with PO5** Stormwater drainage is to be managed in accordance with the principles set out in the Environmental Assessment Report and the Site Based Management Plan. These have been assessed by DETSI as part of the Environmental Assessment and the development is not anticipated to have an adverse impact on water quality.
	AO5.3 A stormwater quality management plan is prepared, and provides for achievable stormwater quality treatment measures meeting design objectives listed in Table 9.4.5.3.b and Table	**Complies with AO5.3** Stormwater Management is identified in the Site Based Management Plan submitted with the application.

Performance outcomes	Acceptable outcomes	Applicant Response
	9.4.5.3.c , reflecting land use constraints, such as: (a) erosive, dispersive and/or saline soil types; (b) landscape features (including landform); (c) acid sulfate soil and management of nutrients of concern; (d) rainfall erosivity.	
	AO5.4 Erosion and sediment control practices are designed, installed, constructed, monitored, maintained, and carried out in accordance with an erosion and sediment control plan.	**Complies with AO5.4** Erosion and sediment control practices would be installed and managed throughout the life of the project.
	AO5.5 Development incorporates stormwater flow control measures to achieve the design objectives set out in **Error! Reference source not found.** and **Error! Reference source not found.**, including management of frequent flows, peak flows, and construction phase hydrological impacts. Note – Planning scheme policy SC5 – FNQROC Regional Development Manual provides guidance on soil and water control measures to meet the requirements of the *Environmental Protection Act 1994.* Note – During construction phases of development, contractors and builders are to have consideration in their work methods and site preparation for their environmental duty to protect stormwater quality.	**Complies with AO5.5** Stormwater Management is identified in the Site Based Management Plan submitted with the application.
Non-tidal artificial waterways		

Performance outcomes	Acceptable outcomes	Applicant Response
PO6 Development involving non-tidal artificial waterways is planned, designed, constructed and operated to: (a) protect water environmental values; (b) be compatible with the land use constraints for the site for protecting water environmental values; (c) be compatible with existing tidal and non-tidal waterways; (d) perform a function in addition to stormwater management; (e) achieve water quality objectives.	**AO6.1** Development involving non-tidal artificial waterways ensures: (a) environmental values in downstream waterways are protected; (b) any ground water recharge areas are not affected; (c) the location of the waterway incorporates low lying areas of the catchment connected to an existing waterway; (d) existing areas of ponded water are included.	**Not applicable** No non-tidal artificial waterways are proposed.
	AO6.2 Non-tidal artificial waterways are located: (a) outside natural wetlands and any associated buffer areas; (b) to minimise disturbing soils or sediments; (c) to avoid altering the natural hydrologic regime in acid sulfate soil and nutrient hazardous areas.	**Not applicable** No non-tidal artificial waterways are proposed.
	AO6.3 Non-tidal artificial waterways located adjacent to, or connected to a tidal waterway by means of a weir, lock, pumping system or similar ensures: (a) there is sufficient flushing or a tidal range of >0.3 m; or (b) any tidal flow alteration does not adversely	**Not applicable** No non-tidal artificial waterways are proposed.

Performance outcomes	Acceptable outcomes	Applicant Response
	impact on the tidal waterway; or (c) there is no introduction of salt water into freshwater environments.	
	AO6.4 Non-tidal artificial waterways are designed and managed for any of the following end-use purposes: (a) amenity (including aesthetics), landscaping or recreation; or (b) flood management, in accordance with a drainage catchment management plan; or (c) stormwater harvesting plan as part of an integrated water cycle management plan; or (d) aquatic habitat.	**Not applicable** No non-tidal artificial waterways are proposed.
	AO6.5 The end-use purpose of the non-tidal artificial waterway is designed and operated in a way that protects water environmental values.	**Not applicable** No non-tidal artificial waterways are proposed.
	AO6.6 Monitoring and maintenance programs adaptively manage water quality to achieve relevant water quality objectives downstream of the waterway**.**	**Not applicable** No non-tidal artificial waterways are proposed.
	AO6.7 Aquatic weeds are managed to achieve a low percentage of coverage of the water surface area,	**Not applicable** No non-tidal artificial waterways are proposed.

Performance outcomes	Acceptable outcomes	Applicant Response
	and pests and vectors are managed through design and maintenance.	
Wastewater discharge		
PO7 Discharge of wastewater to waterways, or off site: (a) meets best practice environmental management; (b) is treated to: (i) meet water quality objectives for its receiving waters; (ii) avoid adverse impact on ecosystem health or waterway health; (iii) maintain ecological processes, riparian vegetation and waterway integrity; (iv) offset impacts on high ecological value waters**.**	**AO7.1** A wastewater management plan is prepared and addresses: (a) wastewater type; (b) climatic conditions; (c) water quality objectives; (d) best practice environmental management**.**	**Not applicable** No waste water would be discharged from the site.
	AO7.2 The waste water management plan is managed in accordance with a waste management hierarchy that: (a) avoids wastewater discharge to waterways; or (b) if wastewater discharge cannot practicably be avoided, minimises wastewater discharge to waterways by re-use, recycling, recovery and treatment for disposal to sewer, surface water and ground water.	**Not applicable** No waste water would be discharged from the site.
	AO7.3 Wastewater discharge is managed to avoid or minimise the release of nutrients of concern so as to minimise the occurrence, frequency and	**Not applicable** No waste water would be discharged from the site.

Performance outcomes	Acceptable outcomes	Applicant Response
	intensity of algal blooms.	
	AO7.4 Development in coastal catchments avoids or minimises and appropriately manages soil disturbance or altering natural hydrology and: (a) avoids lowering ground water levels where potential or actual acid sulfate soils are present; (b) manages wastewater so that: (i) the pH of any wastewater discharges is maintained between 6.5 and 8.5 to avoid mobilisation of acid, iron, aluminium and other metals; (ii) holding times of neutralised wastewater ensures the flocculation and removal of any dissolved iron prior to release; (iii) visible iron floc is not present in any discharge; (iv) precipitated iron floc is contained and disposed of; (v) wastewater and precipitates that cannot be contained and treated for discharge on site are removed and disposed of through trade waste or another lawful method.	**Not applicable** No waste water would be discharged from the site.
Electricity supply		
PO8	**AO8.1**	**Abel to comply with AO8.1**

Performance outcomes	Acceptable outcomes	Applicant Response
Development is provided with a source of power that will meet its energy needs.	A connection is provided from the premises to the electricity distribution network; or **AO8.2** The premises is connected to the electricity distribution network in accordance with the Design Guidelines set out in Section D8 of the Planning scheme policy SC5 – FNQROC Regional Development Manual. Note - Areas north of the Daintree River have a different standard.	When electricity is required an application is able to be mad directly to ergon for the provision of an electricity connection.
	AO9.1 Pad-mount electricity infrastructure is: (a) not located in land for open space or sport and recreation purposes; (b) screened from view by landscaping or fencing; (c) accessible for maintenance.	**Not applicable** No pad-mount electricity infrastructure is proposed or required.
PO9 Development incorporating pad-mount electricity infrastructure does not cause an adverse impact on amenity.	**AO9.2** Pad-mount electricity infrastructure within a building, in a Town Centre is designed and located to enable an active street frontage. Note – Pad-mounts in buildings in activity centres should not be located on the street frontage.	**Not applicable** No pad-mount electricity infrastructure is proposed or required.
Telecommunications		

Performance outcomes	Acceptable outcomes	Applicant Response
PO10 Development is connected to a telecommunications service approved by the relevant telecommunication regulatory authority.	**AO10** The development is connected to telecommunications infrastructure in accordance with the standards of the relevant regulatory authority.	**Not applicable** A connection to Telecommunications services is not considered to be required for this development.
PO11 Provision is made for future telecommunications services (e.g. fibre optic cable).	**AO11** Conduits are provided in accordance with Planning scheme policy SC5 – FNQROC Regional Development Manual.	**Not applicable** A connection to Telecommunications services is not considered to be required for this development.
Road construction		
PO12 The road to the frontage of the premises is constructed to provide for the safe and efficient movement of: (a) pedestrians and cyclists to and from the site; (b) pedestrians and cyclists adjacent to the site; (c) vehicles on the road adjacent to the site; (d) vehicles to and from the site; (e) emergency vehicles.	**AO12.1** The road to the frontage of the site is constructed in accordance with the Design Guidelines set out in Sections D1 and D3 of the Planning scheme policy SC5 – FNQROC Regional Development Manual, for the particular class of road, as identified in the road hierarchy.	**Not applicable** No new roads are proposed.
	AO12.2 There is existing road, kerb and channel for the full road frontage of the site**.**	**Not applicable** No new roads are proposed.
	AO12.3 Road access minimum clearances of 3.5 metres wide and 4.8 metres high are provided for the safe passage of emergency vehicles.	**Not applicable** No new roads are proposed.

Performance outcomes	Acceptable outcomes	Applicant Response
Alterations and repairs to public utility services		
PO13 Infrastructure is integrated with, and efficiently extends, existing networks.	**AO13** Development is designed to allow for efficient connection to existing infrastructure networks.	**Not applicable** No alterations to public utility services is required to facilitate the development.
PO14 Development and works do not affect the efficient functioning of public utility mains, services or installations.	**AO14.1** Public utility mains, services and installations are not required to be altered or repaired as a result of the development; or **AO14.2** Public utility mains, services and installations are altered or repaired in association with the works so that they continue to function and satisfy the relevant Design Guidelines set out in Section D8 of the Planning scheme policy SC5 – FNQROC Regional Development Manual.	**Not applicable** No alterations to public utility services is required to facilitate the development.
Construction management		
PO15 Work is undertaken in a manner which minimises adverse impacts on vegetation that is to be retained**.**	**AO15** Works include, at a minimum: (a) installation of protective fencing around retained vegetation during construction; (b) erection of advisory signage; (c) no disturbance, due to earthworks or storage of plant, materials and equipment, of ground	**Not applicable** No construction activities are proposed.

Performance outcomes	Acceptable outcomes	Applicant Response
	level and soils below the canopy of any retained vegetation; (d) removal from the site of all declared noxious weeds.	
PO16 Existing infrastructure is not damaged by construction activities**.**	**AO16** Construction, alterations and any repairs to infrastructure is undertaken in accordance with the Planning scheme policy SC5 – FNQROC Regional Development Manual. Note - Construction, alterations and any repairs to State-controlled roads and rail corridors are undertaken in accordance with the Transport Infrastructure Act 1994.	**Not applicable** No construction activities are proposed.
For assessable development		
High speed telecommunication infrastructure		
PO17 Development provides infrastructure to facilitate the roll out of high speed telecommunications infrastructure.	**AO17** No acceptable outcomes are prescribed.	**Not applicable** A connection to Telecommunications services is not considered to be required for this development.
Trade waste		
PO18 Where relevant, the development is capable of providing for the storage, collection treatment and disposal of trade waste such that:	**AO18** No acceptable outcomes are prescribed.	**Not applicable** The development would not generate any trade waste.

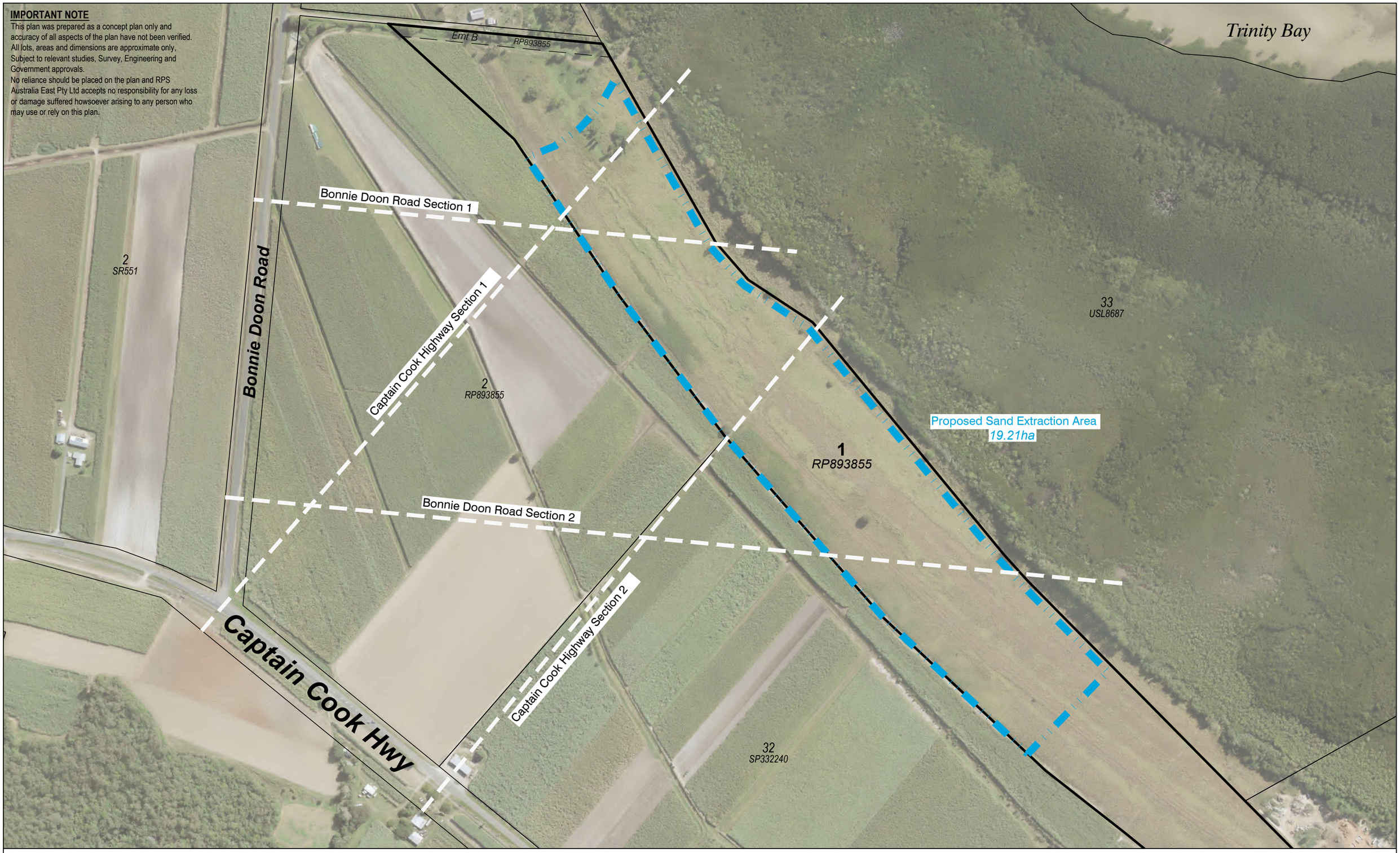
Performance outcomes	Acceptable outcomes	Applicant Response
(a) off-site releases of contaminants do not occur; (b) the health and safety of people and the environment are protected; (c) the performance of the wastewater system is not put at risk.		
Fire services in developments accessed by common private title		
PO19 Hydrants are located in positions that will enable fire services to access water safely, effectively and efficiently.	**AO19.1** Residential streets and common access ways within a common private title places hydrants at intervals of no more than 120 metres and at each intersection. Hydrants may have a single outlet and be situated above or below ground**.**	**Not applicable** No common private title is proposed.
	AO19.2 Commercial and industrial streets and access ways within a common private title serving commercial properties such as factories and warehouses and offices are provided with above or below ground fire hydrants located at not more than 90 metre intervals and at each intersection. Above ground fire hydrants have dual-valved outlets.	**Not applicable** No common private title is proposed.
PO20 Hydrants are suitable identified so that fire services can locate them at all hours. Note – Hydrants are identified as specified in the Department of Transport and Main Roads Technical Note: 'Identification of street hydrants for fire fighting purposes' available under 'Publications'.	**AO20** No acceptable outcomes are prescribed.	**Not applicable** No common private title is proposed.

Appendix C

Proposed Sand Extraction – Visual Site Assessment

IMPORTANT NOTE

This plan was prepared as a concept plan only and accuracy of all aspects of the plan have not been verified. All lots, areas and dimensions are approximate only, Subject to relevant studies, Survey, Engineering and Government approvals.
No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.



NQ Asphalt Pty Ltd

Proposed Sand Extraction

Visual Site Plan - Cross Section Locations

0 50 100 150 200 250 500

PRELIMINARY - FOR DISCUSSION PURPOSES ONLY

RPS AAP Consulting Pty Ltd
ACN 117 883 173
135 Abbott St
PO Box 1949
CAIRNS QLD 4870
T +61 7 4031 1336
F +61 7 4031 2942
W rpsgroup.com

A TETRA TECH COMPANY

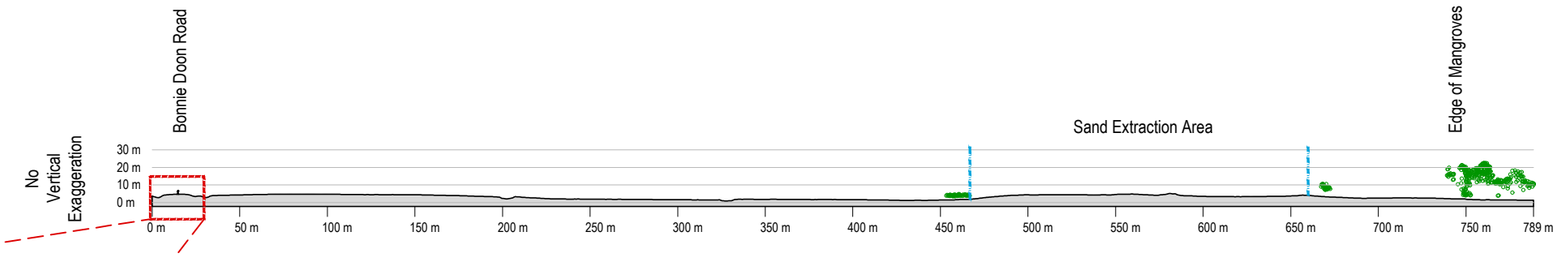
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IMPORTANT NOTE

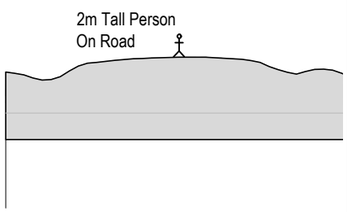
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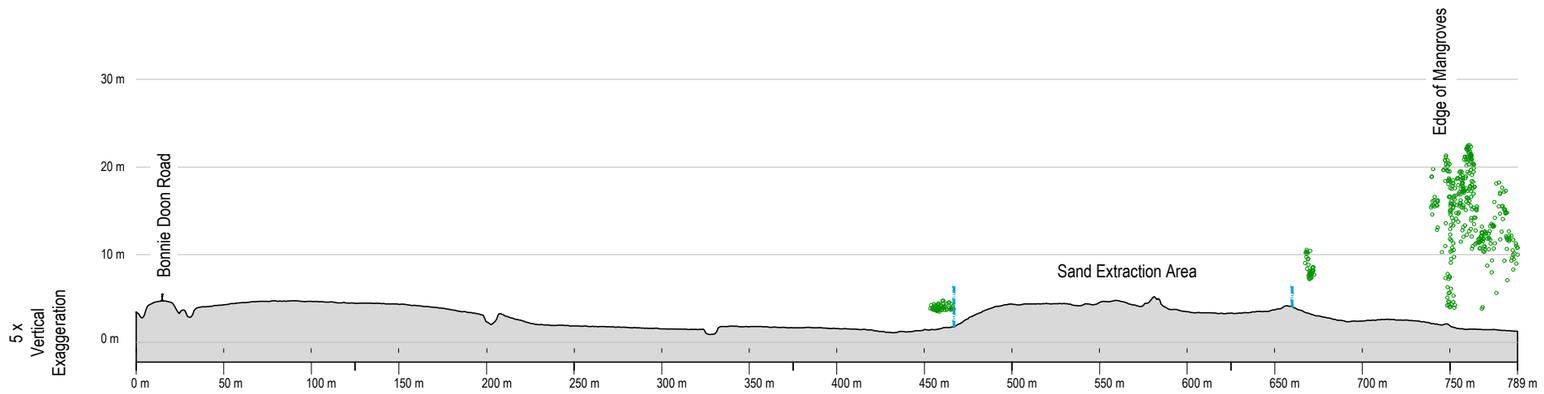
Legend

- Sand Extraction Area
- LIDAR Point - Vegetation
- LIDAR Point - Building
- Existing Terrain



Inset





NQ Asphalt Pty Ltd

Proposed Sand Extraction

Visual Site Plan - Bonnie Doon Road 1

0 35 70 105 140 175 350

PRELIMINARY - FOR DISCUSSION PURPOSES ONLY

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Datum: MGA2020 Z55 | **Scale:** 1:3,500 @ A3 | **Date:** 22-5-2025 | **Drawing:** AU015874-7

Appendix D

Amended Proposal Plans

Proposed Sand Extraction Area				
Point #	Easting	Northing	Longitude	Latitude
1	330141	8178134	E145.40879	S16.47246
2	330182	8178151	E145.40917	S16.47231
3	330217	8178176	E145.40951	S16.47208
4	330269	8178247	E145.40999	S16.47145
5	330406	8178006	E145.41126	S16.47364
6	330455	8177950	E145.41171	S16.47414
7	330548	8177889	E145.41258	S16.47470
8	330824	8177554	E145.41514	S16.47775
9	330857	8177517	E145.41545	S16.47809
10	330981	8177391	E145.41660	S16.47923
11	330866	8177272	E145.41551	S16.48030
12	330656	8177470	E145.41356	S16.47850
13	330429	8177730	E145.41145	S16.47613
14	330274	8177935	E145.41002	S16.47426

Elevation Legend

6.0 m
5.0 m
4.0 m
3.0 m
2.0 m
1.0 m
-0.2 m

Trinity Bay

54
SP292874

Proposed bridge access across farm drain/waterway

Minimum 50m offset off existing buildings

Emt B
RP893855

200m offset off nearest sensitive receptor

Haul access road to be ugpraded in accordance with Plan 102-008-SK11

Extraction Area 10m off eastern lot boundary

33
USL8687

Bonnie Doon Road

2
RP893855

Proposed Sand Extraction Area
19.21ha

Staged Extraction areas
Approximately 2ha/100m wide

1
RP893855

Wetland Protection Area Trigger Area (500m buffer)

32
SP332240

Wetland of high ecological significance

170
SR865

A
RP893855

Emt A
SP332240

131
SR853

Captain Cook Highway

Killaloe Dump Road

31
SP332240

4
SP183012

4
RP907338

155
NR78

IMPORTANT NOTE
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No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.

DNRM DCDB.
DNRM AERIAL PHOTOGRAPHY.
Based on or contains data provided by the State of Queensland (Department of Resources) [2024]. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.
The aerial photography used in this plan has not been rectified. The image has been overlaid as a best fit on the boundaries shown and position is approximate only.
Photography publish date: Aug 2023.
© State of Queensland (Department of Resources) [2024]

NQ Asphalt Pty Ltd
Lot 1 on RP893855
Site Plan - Proposed Sand Extraction

0 80 160 240 320 400 800

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Datum: MGA2020 Z55 | **Scale:** 1:8,000 @ A3 | **Date:** 5-9-2025 | **Drawing:** AU015874-2f

Appendix E

Engineering Report Prepared by Civil Walker Consulting

Appendix F

Cultural Heritage Database and Register Search Report

Cultural Heritage Database and Register Search Report

Search report reference number: 167043

The Aboriginal and Torres Strait Islander Cultural Heritage Database (cultural heritage database) and Aboriginal and Torres Strait Islander Cultural Heritage Register (cultural heritage register) have been searched in accordance with the location description provided, and the results are set out in this report.

The cultural heritage database is intended to be a research and planning tool to help Aboriginal and Torres Strait Islander parties, researchers, and other persons in their consideration of the cultural heritage values of particular areas.

The cultural heritage register is intended to be a depository for information for consideration for land use and land use planning, and a research and planning tool to help people in their consideration of the Aboriginal cultural heritage values of particular objects and areas.

Aboriginal or Torres Strait Islander cultural heritage which may exist within the search area is protected under the *Aboriginal Cultural Heritage Act 2003* and the *Torres Strait Islander Cultural Heritage Act 2003* (the Cultural Heritage Acts), even if the Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships (the Department) has no records relating to it.

The placing of information on the database is not intended to be conclusive about whether the information is up-to-date, comprehensive or otherwise accurate.

Under the Cultural Heritage Acts, a person carrying out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal or Torres Strait Islander cultural heritage. This applies whether or not such places are recorded in an official register and whether or not they are located on private land.

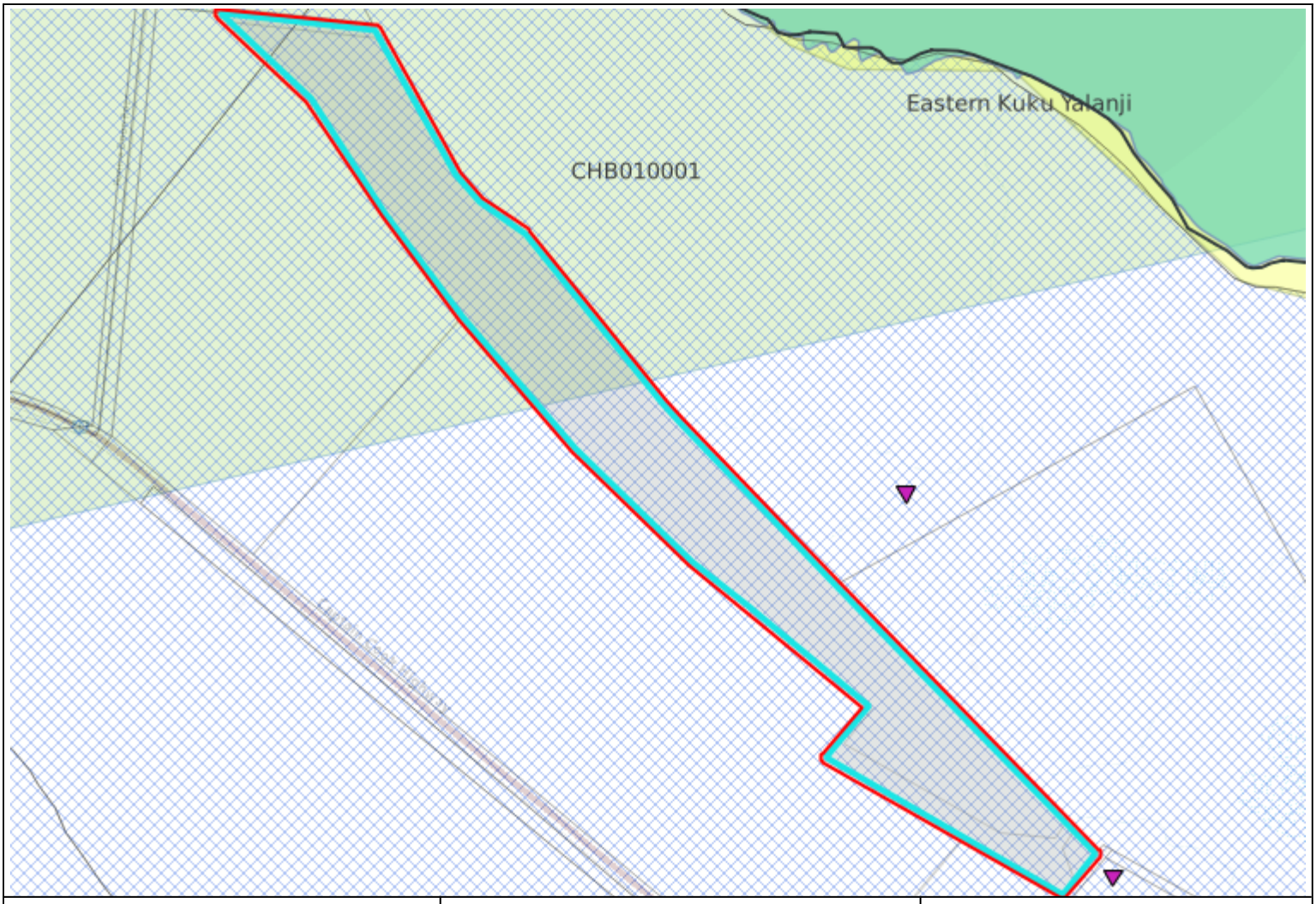
Please refer to the Department website https://www.qld.gov.au/firstnations/environment-land-use-native-title/cultural-heritage/cultural-heritage-duty-of-care to obtain a copy of the gazetted Cultural Heritage Duty of Care Guidelines, which set out reasonable and practicable measure for meeting the cultural heritage duty of care.

In order to meet your duty of care, any land-use activity within the vicinity of recorded cultural heritage should not proceed without the agreement of the Aboriginal or Torres Strait Islander Party for the area, or by developing a Cultural Heritage Management Plan under Part 7 of the Cultural Heritage Acts.

The extent to which the person has complied with Cultural Heritage Duty of Care Guidelines and the extent the person consulted Aboriginal or Torres Strait Islander Parties about carrying out the activity – and the results of the consultation – are factors a court may consider when determining if a land user has complied with the cultural heritage duty of care.

Should you have any further queries, please do not hesitate to contact the department via email: cultural.heritage@dsdsatsip.qld.gov.au or telephone: 1300 378 401.

Cultural Heritage Database and Register Search Report



LEGEND

- CH Parties
- CH Bodies
- CHMPs
- Study Areas
- DLAs

Reference Number: 167043
Search Type: Lot/Plan
Lot: 1
Plan: RP893855
Shire: Douglas Shire

Buffer Distance: 10m

Cultural Heritage Sites

- Pre-2015 Point Site
- Post-2015 Point Site
- Mitigated Point Site
- Pre-2015 Area Site
- Post-2015 Area Site
- Mitigated Area Site

Map Projection: Geographic Latitude & Longitude (GDA2020).

The Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships (DSDSATSIP) is the custodian of spatial data provided by various third parties for inclusion in the Aboriginal and Torres Strait Islander cultural heritage online portal. This includes spatial data provided by the National Native Title Tribunal and Aboriginal and Torres Strait Islander parties.

Features shown on this map have been obtained from available sources. It is possible that errors and omissions may exist. The DSDSATSIP disclaims any liability for any errors or omissions that appear in this document.

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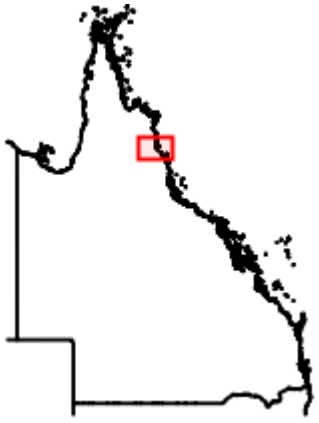
Map produced by the Cultural Heritage Unit, DSDSATSIP, Brisbane, Queensland, Australia on 20 August 2024.

Queensland Government

1:13,488

Metres 200 400 600

LOCALITY



Search report generated on Aug 20, 2024, 2:30 PM

There are no Aboriginal or Torres Strait Islander cultural heritage site points recorded in your specific search area.

There are no Aboriginal or Torres Strait Islander cultural heritage site polygons recorded in your specific search area.

Cultural Heritage Party/ies for the area:

Reference No.	Federal Court No.	Name	Contact Details
QC2015/004	QUD337/2015	Yirrganydji (Irukandji) People #2	Yirrganydji (Irukandji) People #2 Atherton Tablelands Law PO Box 101 ATHERTON QLD 4883 Phone: (07) 4091 5388 Email: atherton@tablelandslaw.com.au
QC2022/007	QUD356/2022	Eastern Kuku Yalanji People #2	North Queensland Land Council Native Title Representative Body Aboriginal Corporation 61 Anderson St CAIRNS QLD 4870 Phone: 07 4042 7000

Cultural Heritage Body/ies for the area:

Departmental Reference No.	Name	Contact Details	Registration Date
CHB010001	Jabalbina Yalanji Aboriginal Corporation RNTBC	Jabalbina Yalanji Aboriginal Corporation RNTBC PO Box 463 MOSSMAN QLD 4873 Phone: (07) 4098 3552 Email: admin@jabalbina.com.au	11/07/2011

There are no Cultural Heritage Management Plans recorded in your specific search area.

There are no Designated Landscape Areas (DLA) recorded in your specific search area.

There are no Registered Cultural Heritage Study Areas recorded in your specific search area.

There are no National Heritage Areas (Indigenous values) recorded in your specific search area.

Glossary

Cultural Heritage Body: An entity registered under Part 4 of the Cultural Heritage Acts as an Aboriginal or Torres Strait Islander cultural heritage body for an area. The purpose of a cultural heritage body is to:

- identify the Aboriginal or Torres Strait Islander parties for an area
- serve as the first point of contact for cultural heritage matters.

Cultural Heritage Management Plan (CHMP): An agreement between a land user (sponsor) and Traditional Owners (endorsed party) developed under Part 7 of the Cultural Heritage Acts. The CHMP explains how land use activities can be managed to avoid or minimise harm to Aboriginal or Torres Strait Islander cultural heritage.

Cultural Heritage Party: Refers to a native title party for an area. A native title party is defined as:

- Registered native title holders (where native title has been recognised by the Federal Court of Australia).
- Registered native title claimants (whose native title claims are currently before the Federal Court of Australia).
- Previously registered native title claimants (the 'last claim standing') are native title claims that are no longer active and have been removed from the Register of Native Title Claims administered by the National Native Title Tribunal. Previously registered native title claimants will continue to be the native title party for that area providing:
    - there is no other registered native title claimant for the area; and
    - there is not, and never has been, a registered native title holder for the area.

The native title party maintains this status within the external boundaries of the claim even if native title has been extinguished.

Cultural heritage site points (pre 2015): Aboriginal and Torres Strait Islander cultural heritage sites and places recorded in the database as point data **before** 1 July 2015.

Cultural heritage site points (post 2015): Aboriginal and Torres Strait Islander cultural heritage sites and places recorded in the database as point data **after** 1 July 2015.

Cultural heritage site points (post 2015 mitigated): Aboriginal and Torres Strait Islander cultural heritage sites and places recorded in the database as point data after 1 July 2015 where the recorder has advised the department that the site has been mitigated.

Cultural heritage site polygons: Aboriginal and Torres Strait Islander cultural heritage sites and places recorded in the database as a polygon.

Designated Landscape Areas (DLA): Under the repealed *Cultural Record (Landscapes Queensland and Queensland Estate) Act 1987*, an area was declared a 'designated landscape area' (DLA) if it was deemed necessary or desirable for it to be preserved or to regulate access.

Indigenous Protected Areas (IPA): Areas of land and sea managed by Indigenous groups as protected areas for biodiversity conservation through voluntary agreements with the Australian Government. For further information about IPAs visit https://www.environment.gov.au/land/indigenous-protected-areas

National Heritage areas: Places listed on the National Heritage List for their outstanding heritage significance to Australia and are protected under the *Environment Protection and Biodiversity Conservation Act 1999*. For further information about the National Heritage List visit https://www.environment.gov.au/heritage/about/national

National Heritage Areas (Indigenous values): Places listed on the National Heritage list (Indigenous values) are recognised for their outstanding Indigenous cultural heritage significance to Australia and are protected under the *Environment Protection and Biodiversity Conservation Act 1999.* These areas are now included in the cultural heritage

register.

Registered Cultural Heritage Study Areas: Comprehensive studies of Aboriginal and or Torres Strait Islander cultural heritage in an area conducted under Part 6 of the Cultural Heritage Acts for the purpose of recording the findings of the study on the register.

Traditional Use of Marine Resources Agreement (TUMRA): Areas subject to agreement between Great Barrier Reef Traditional Owners and the Australian and Queensland governments on the management of traditional use activities on their sea country. For further information about TUMRAs visit https://www.gbrmpa.gov.au/our-partners/traditional-owners/traditional-use-of-marine-resources-agreements

World Heritage Areas: Places inscribed on the World Heritage List pursuant to the World Heritage Convention adopted by the United Nations Education, Scientific and Cultural Organisation (UNESCO) and are protected under the *Environment Protection and Biodiversity Conservation Act 1999*. For further information about World Heritage places in Queensland visit https://parks.des.qld.gov.au/management/managed-areas/world-heritage-areas

Disclaimer: *The Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships is the custodian of spatial data and information provided by various third parties for inclusion in the Aboriginal and Torres Strait Islander cultural heritage online portal. This includes spatial data provided by the National Native Title Tribunal and Aboriginal and Torres Strait Islander parties. Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships is not responsible for the accuracy of information provided by third parties or any errors in this search report arising from such information.*

Appendix G

SARA Pre-Application Response and Formal Referral Response

Queensland Government

SARA reference: 2402-39080 SPL
Applicant reference: AU012859

11 April 2024

Koppen Construction
C/- RPS Cairns
135 Abbott Street
CAIRNS QLD 4870
owen.caddick-king@rpsgroup.com.au

Attention: Owen Caddick-King

Dear Sir/Madam

SARA Pre-lodgement advice – Extractive Industry at Captain Cook Highway, Killaloe (Lot 1 on RP893855)

I refer to the pre-lodgement meeting held on 28 February 2024 in which you sought advice from the State Assessment and Referral Agency (SARA) regarding the proposed development at the above address. This notice provides advice on aspects of the proposal that are of relevance to SARA.

SARA's understanding of the project

The applicant is seeking to purchase the subject site for the purposes of carrying out sand extraction and screening of 20,000t – 30,000t per year.

The haulage of the extracted sand is proposed either via Killaloe Dump Road (via Douglas Shire Council's Killaloe Dump site) and / or Bonnie Doon Road via the Captain Cook Highway.

The site is mapped as adjacent and containing Great Barrier Reef World Heritage area, matters of State environmental significance (MSES), and matters of national environmental significance (MNES).

Supporting information

The advice in this letter is based on the following documentation that was submitted with the pre-lodgement request or tabled at the pre-lodgement meeting.

Drawing/report title	Prepared by	Date
Koppen Construction – Pre-Lodgement Submission for Proposed Sand Extraction on Lot 1 RP893855, Bonnie Doon Road, Killaloe	RPS Group	8 Feb 2024

Far North Queensland regional office
Ground Floor, Cnr Grafton and Hartley Street, Cairns
PO Box 2358, Cairns QLD 4870

Pre-lodgement meeting record

Meeting date	28 February 2024
Meeting location	Microsoft Teams
Meeting chair	Anthony Westbury
Meeting attendees	Refer to **Attachment 1**

Meeting discussion/outcomes

- The applicant outlined the proposed development and advised:
  - Sand extraction is proposed to the natural ground level on either side of the sand ridge, or if lower then to be backfilled to the natural ground level.
  - Discussions have been held with Douglas Shire Council re access through the Killaloe dump site.
  - Five haul vehicles per day expected with most sand transported to Cairns.
  - Removing the sand ridge is not expected to increase erosion from storm tides.
  - The sand ridge represents a significant resource for construction.
- The Department of Agriculture and Fisheries (DAF) advised the waterway to the north may be tidal. A bridge would be an ideal solution to avoid impacts to fish passage.
- The Department of Transport and Main Roads advised that access via the Killaloe Dump Road would require a traffic assessment of the Killaloe Dump Road / Captain Cook Highway intersection. The existing Boonie Doon Road / Captain Cook Highway intersection is considered adequate to accommodate the proposed haulage movements.
- The Department of Resources (Resources) advised that the sand ridge is a natural feature and represents historical storm tide extent. There could be acid sulphate issues. Removal of the dune could cause salinity to adjacent farmland. A bund to protect adjacent farmland was also discussed. Not referrable for native vegetation clearing. Resources also advised that owner's consent from the State will be required to use the Killaloe dump site for access.
- The Department of Science, Environment and Innovation (DESI), Coastal, acknowledged the dune as a natural feature which protects adjacent farmland. DESI had concerns regarding impacts to surrounding coastal environmental values.
- DESI, Environment and Extractive Resources, had significant concerns regarding the removal of a significant natural landform and the potential impacts on MSES and the receiving environment.
- SARA to provide written pre-lodgement advice, detailing DAF, DTMR, DESI and Resources requirements, following the meeting.

Pre-lodgement advice

The following advice outlines the aspects of the proposal that are of relevance to SARA.

Key issue – Environmentally Relevant Activity (ERA) and Environmental Authority (EA)	
1.	SARA advises that the proposed development does not trigger referral agency assessment under Schedule 10, Part 5, Division 4, Table 2, Item 1 – Non-devolved environmentally relevant activities, of the Planning Regulation 2017, as extracting and screening between 20,000t and 30,000t in a year is not a concurrence ERA. While referral to SARA is not triggered, the proposed development will require an EA. An application for an EA will need to be submitted directly to the Department of Environment, Science and Innovation (DESI).

	Please see **Attachment 2** for detailed advice provided by DESI. **Please note that having considered the environmental sensitivity of the area and the proposed activity, DESI is not supportive of the proposal.**
SARA's jurisdiction and fees	
2.	The application **will** require referral to SARA under the following provisions of the Planning Regulation 2017: • Schedule 10, Part 9, Division 4, Subdivision 1, Table 1, Item 1 – Material change of use of premises impacting on state transport infrastructure (exceeding extractive industry threshold of 10,000t per year). This requires a fee of **$7,721.00** (Item 8(b)(i)) to be paid. • Schedule 10, Part 20, Division 4, Table 3, Item 1 – Material change of use of premises in wetland protection area. This requires a fee of **$3,636.00** (Item 8) to be paid. The application **may** require referral to SARA under the following provisions of the Planning Regulation 2017: • Schedule 10, Part 6, Division 3, Subdivision 3, Table 1, Item 1 – Operational work involving removal, destruction or damage to marine plants. This requires a fee of **$3,636.00 - $14,538.00** (Item 5(a) - (c)) to be paid, depending on the area of marine plant disturbance. • Schedule 10, Part 6, Division 3, Table 2, Item 1 – Operational work for waterway barrier works. This requires a fee of up to **$14,538.00** (Item 5) to be paid. • Schedule 10, Part 17, Division 3, Table 1, Item 1 – Operational work that is tidal works. This requires a fee of **$3,636.00** (Item 8(e)) to be paid. It is recommended you check Schedule 10 of the Planning Regulation 2017 or contact SARA prior to referral of your application, to confirm the assessment fees applicable at the time.
State transport networks	
3.	As detailed in Item 2, the proposed development will trigger referral agency assessment as the development exceeds the extractive industry threshold of 10,000t per year, thus impacting on state transport infrastructure. ***Assessment benchmarks*** The development application will be assessed against the current State Development Assessment Provisions (SDAP), State code 6: Protection of State transport networks. The haulage of the extracted sand is proposed either via Killaloe Dump Road (via Council's Killaloe Dump site) and / or Bonnie Doon Road via the Captain Cook Highway, a state-controlled road. A review and desk top analysis of both intersections confirms that the Captain Cook Highway / Bonnie Doon Road T-intersection is the preferred option to be utilised, as this intersection has been widened and improved by a channelized right lane (CHR) including road lighting. If Killaloe Dump Road is to be utilised for the haulage of extracted sand via the Captain Cook Highway / Killaloe Dump Road T-intersection, a Traffic Impact Assessment (TIA) will be required to demonstrate compliance with State code 6. The TIA must be prepared by a suitably qualified professional and the TIA assessment should undertake the following: • Provide and confirm traffic generation rates for the proposed development including background traffic. • Traffic generation rates for the fully operational development should include, projected visitor numbers, the number, type and size of all vehicles including largest vehicle that will access the proposed development site via the Captain Cook Highway / Killaloe Dump

	Road T-intersection including background traffic on a daily and weekly basis. • Provide an assessment of the Captain Cook Highway / Killaloe Dump Road T-intersection utilising *Figure 3.25 'warrants for turn treatments on major roads at unsignalized intersections' of section 3.3.6 of the Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management 2020* based on background traffic and the calculated traffic generation rates for the fully operational sand extraction development. • Based on the 'warrants for turn treatments on major roads at unsignalized intersections' assessment, confirm and demonstrate traffic generation from the fully operational sand extraction development including background traffic will not result in a worsening of the state-controlled road network at the Captain Cook Highway / Killaloe Dump Road T-intersection. • Provide appropriate mitigation measures to demonstrate that increased traffic generation from the fully operational sand extraction development including background traffic does not compromise the performance outcomes of PO1 – PO3 of State code 6: Protection of state transport networks. For further guidance please refer to DTMR's Guide to Traffic Impact Assessment.
Great Barrier Reef wetland protection area	
4.	As detailed in Item 2, the proposed development will trigger referral agency assessment for wetland protection area as the development involves operational work that is high impact earthworks. ***Assessment benchmarks*** The development application will be assessed against the current SDAP, State code 9: Great Barrier Reef wetland protection area. The following PO's will require particular consideration: • **PO1**: Development maintains or improves wetland environmental values and native vegetation within the wetland and the buffer. **AO1.1** The buffer surrounding a wetland has a minimum width of: **1.** 200 metres, where the wetland is located outside a prescribed urban area; or **2.** 50 metres, where the wetland is located within a prescribed urban area • **PO3**: Development maintains or improves the existing surface and groundwater hydrology in a wetland protection area. • **PO4**: Development does not unacceptably impact the water quality of the wetland in the wetland protection area and in the wetland buffer. • **PO6**: Development is located and designed to protect the wetland protection area from land degradation. • **PO10**: Matters of State environmental significance. The Department of Environment, Science and Innovation (DESI) has prepared guidance material assist applicants in responding to State code 9. The following will also be required to demonstrate compliance with State code 9 if development is occurring in a wetland protection area: • A site-based management plan which can contain all of the following: o hydrological assessment (including surface and groundwater impacts) o stormwater management plan o construction phase erosion and sediment control plan o pest management action plan o management plan addressing hydrology, vegetation, pest and fauna

	disturbances and risk management (e.g. including details of water sensitive urban design measures). • If proposing a reduced buffer or wetland area, provide an ecological values assessment informed by material at the wetlandInfo website and demonstrating compliance with Queensland Wetland Buffer Planning Guidelines.
Marine plants	
5.	The proposed extraction activities may involve the removal, destruction or damage of marine plants, and may trigger referral agency assessment for marine plants as detailed in Item 2. You should engage a suitably qualified professional to conduct a marine plant survey to determine the extent of any removal, damage or destruction of marine plants. Marine plants include: • any plant (a tidal plant, including marine algae) that usually grows on or adjacent to tidal lands whether it is living, dead, standing or fallen; or • any plant material on tidal land (up to the level of Highest Astronomical Tide (HAT)). • plants such as mangroves, mangrove fern, saltcouch or samphire species are considered marine plants regardless of whether or not they are above or below the level of HAT. Marine plants do not include: • a plant that is prohibited matter or restricted matter under the Biosecurity Act 2014; or • a plant that is controlled biosecurity matter or regulated biosecurity matter under the Biosecurity Act 2014. Marine plant protection applies irrespective of the tenure (e.g. unallocated state land and all state tenured lands, including private freehold and leasehold lands) of the land on which the plant occurs, the time the plant has been growing at the location, or the degree of or purpose of the disturbance. ***Assessment benchmarks*** A development application involving marine plants will be assessed against the current SDAP, State code 11: Removal, destruction, or damage of marine plants. There may be impacts on marine plants resulting from new haul access routes. It may be possible to demonstrate that these impacts comply with State code 11. Impacts to marine plants that result from extraction, stockpiling or disposal of extracted sand would be unlikely to meet relevant assessment benchmarks of State code 11. Avoiding marine plant disturbance would remove the need for an approval and potential fees for this component of the works. The Department of Agriculture and Fisheries (DAF) has prepared guidance material to assist applicants in responding to State code 11.
Waterway barrier works	
6.	A haulage route using Bonnie Doon Road will require access over a mapped waterway and may trigger referral agency assessment for waterway barrier works as detailed in Item 2. The mapped waterway (amber) may be tidal given the proximity to tidal wetlands and the level of highest astronomical tide (see **Item 7**). Refer to DAF's website for more information on waterway barrier works including examples of waterway barrier works and works not considered waterway barrier works. ***Assessment benchmarks***

	A development application that includes waterway barrier works will be assessed against the current SDAP, State code 18: Constructing or raising waterway barrier works in fish habitats. DAF has prepared guidance material to assist applicants in responding to State code 18.
Tidal works	
7.	Drains located at the northern end of the subject lot may be tidal waters. Works undertaken in this area (e.g. construction of access tracks/bridges, stockpiles, etc.) may trigger referral agency assessment for tidal works as detailed in Item 2. ***Assessment benchmarks*** A development application that includes tidal works will be assessed against the current SDAP, State code 8: Coastal development and tidal works. The development application will need to ensure that the performance outcomes (PO) of the State code are addressed in their entirety, identifying how the proposed development complies. The following PO's will require particular consideration: • **PO1 – PO5**: Development in the erosion prone area. • **PO13**: Water quality • **PO17**: Matters of State environmental significance. The Department of Environment, Science and Innovation (DESI) has prepared guidance material to assist applicants in responding to State code 8. The guideline provides background information and key concepts relevant for coastal processes and resources, and coastal protection and management applicable to complying with the code.
Request further pre-lodgement advice or meeting	
8.	For further pre-lodgement advice please use the 'related actions' tab in the 2402-39080 SPL MyDAS2 record and select 'Request more pre-lodgement advice from SARA'. You will be given an option to select either a meeting or written advice.
Advice on other matters not regulated under the *Planning Act 2016*	
Land tenure and Owner's consent	
9.	No tenure under the land act is required to haul sand from the subject site via Douglas Shire Council's Killaloe Dump site (Lot 170 on SR865) to Killaloe Dump Road and on to the Captain Cook Highway. An application for owner's consent for material change of use on premises below high-water mark and outside a canal on Lot 170 on Crown Plan SR865 will need to be made to the Department of Resources to lodge a "properly made" development application under the *Planning Act 2016*. You should consult with the trustee Douglas Shire Council of reserve R1245 for Local Government purposes, sub-purpose Refuse Disposal, described as Lot 170 on Crown Plan SR865, and seek advice regarding the route or track proposed to gain access to the subject site, before contacting the Land and Surveying Services Team at lasslsteam1enq@resources.qld.gov.au to discuss owners consent requirements under the *Land Act 1994*.
Quarry material	
10.	As the land subject to this development proposal is not State coastal land in the coastal management district, the quarry material is not regulated under the *Coastal Protection and Management Act 1995.*

	However, other acts may determine that the quarry material on freehold land is owned by the State. Please see DAF's quarry material factsheet for further information.

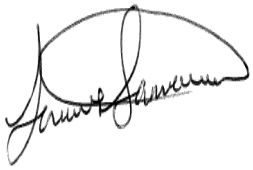
This advice outlines aspects of the proposed development that are relevant to SARA's jurisdiction. This advice is provided in good faith and is:

- based on the material and information provided to SARA
- current at the time of issue
- not applicable if the proposal is changed from that which formed the basis of this advice.

The advice in this letter does not constitute an approval or an endorsement that SARA supports the development proposal. Additional information may be required to allow SARA to properly assess the development proposal after a formal application has been lodged.

For further information please contact Anthony Westbury, Planning Officer, on 40373215 or via email CairnsSARA@dsdilgp.qld.gov.au who will be pleased to assist.

Yours sincerely



Javier Samanes
A/Manager (Planning)

enc Attachment 1 – Pre-lodgement meeting attendance record
Attachment 2 – Advice from DESI

Development details	
Proposal:	Material change of use for Extractive Industry
Street address:	Captain Cook Highway, Killaloe
Real property description:	Lot 1 on RP893855
SARA role:	Referral agency
Assessment Manager:	Douglas Shire Council
Assessment criteria:	State Development Assessment Provisions (SDAP): • State code 6: Protection of State transport networks • State code 8: Coastal development and tidal works • State code 9: Great Barrier Reef protection areas • State code 11: Removal, destruction, or damage of marine plants • State code 18: Constructing or raising waterway barrier works in fish habitats
Existing use:	Vacant
Relevant site history:	Site contains a relic sand dune

Attachment 1— Pre-lodgement meeting attendance record

Meeting attendees:

Name	Position	Organisation
Anthony Westbury	Planning Officer	State Assessment and Referral Agency (SARA)
Kimberley Morgan	Planning Officer	Department of Resources (Resources)
David Morrison	Senior Land Resources Officer	Resources
Dylan Johnston	Senior Natural Resource Management Officer	Resources
Van Chu	Natural Resource Management Officer	Resources
Rohan Wallace	Principal Environmental Officer	Department of Environment, Science and Innovation (DESI)
Marie Courteville	Principal Environmental Officer	DESI
James Giugni	Senior Fisheries Biologist	Department of Agriculture and Fisheries (DAF)
Steven Zelenika	Senior Town Planner	Department of Transport and Main Roads (DTMR)
Liliya Yates	Principal Engineer (Civil)	DTMR
Owen Caddick-King	Principal - Planning	RPS Group
Megan Davis	General Manager	RPS Group
Callum Koppen	General Manager	Koppens Development

Attachment 2— Advice from DESI

The following advice is provided by the Department of Environment, Science and Innovation.

Proposal

Koppen Construction propose to extract the sand resource of a natural sand dune, located North of Port Douglas, on 1RP893855. The sand extraction proposal is intended to be of approximately 20,000t - 30,000t per year and in addition to the sand extraction, it is expected that the sand will be screened or processed on site.

The dune rises from the coastal plain from around 1.2 m AHD to multiple crests between 4.0m and 5.0 m AHD. The effect of this proposal would be to remove, in its entirety, a large relic sand dune.

Application materials indicate that extraction would remove the entire dune to surrounding ground surface level. It was not clear from application materials whether this is the ground surface on the coastal and or landward side or if any level had been set. At the pre-lodgement meeting 28-02-2024, the applicant's representative also noted the possibility of extracting 2m below ground surface level and using the area to store fill, though the nature of this fill materials was not divulged.

Numerous protected matters are mapped within the site boundary, including World Heritage Area site (see more below). The landward side of the site (immediately adjacent to the boundary) presents sugar cane fields.

Protected matters

Numerous protected matters are mapped in and in close vicinity of the proposal:

- Matters of State Environmental Significance (MSES) regulated vegetation [100m from a wetland] – found in lot/plan
- MSES regulated vegetation [essential habitat] found in lot/plan
- MSES regulated vegetation [category B - endangered or of concern] - found in lot/plan
- MSES wildlife habitat [endangered or vulnerable] - found in lot/plan
- MSES high ecological significance wetlands - found in lot/plan
- Great Barrier Reef Coast Marine Park and World Heritage Site boundary located within proposed lot/plan and extending 140m- 250m seaward from the site boundary.

The below protected matters are also found within 300m downstream/seaward from the site boundary:

- MSES regulated vegetation [defined watercourse]
- MSES marine park [highly protected] - Great Barrier Reef Coast Marine Park
- Protected plants trigger map (high risk)

A search in the federal Protected Matters Search Tool for Matters of National Environmental Significance (MNES) database for lot 1RP893855 returned the below 'Known' presence within the site boundaries for the below threatened species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC):

Scientific Name	Common Name	Class	Simple Presence	Presence Text	Threatened Category
Numenius madagascariensis	Eastern Curlew, Far Eastern Curlew	Bird	Known	Species or species habitat known to occur within area	Critically Endangered
Calidris ferruginea	Curlew Sandpiper	Bird	Known	Species or species habitat known to occur within area	Critically Endangered
Casuarius casuarius	Southern Cassowary,	Bird	Known	Species or species	Endangered

johnsonii	Australian Cassowary, Double-wattled Cassowary			habitat known to occur within area	
Toechima pterocarpum	null	Plant	Known	Species or species habitat known to occur within area	Endangered
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)	Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)	Mammal	Known	Species or species habitat known to occur within area	Endangered
Limosa lapponica baueri	Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit	Bird	Known	Species or species habitat known to occur within area	Endangered
Eretmochelys imbricata	Hawksbill Turtle	Reptile	Known	Species or species habitat known to occur within area	Vulnerable
Chelonia mydas	Green Turtle	Reptile	Known	Breeding known to occur within area	Vulnerable
Natator depressus	Flatback Turtle	Reptile	Known	Foraging, feeding or related behaviour known to occur within area	Vulnerable
Hirundapus caudacutus	White-throated Needletail	Bird	Known	Species or species habitat known to occur within area	Vulnerable
Gallinago hardwickii	Latham's Snipe, Japanese Snipe	Bird	Known	Species or species habitat known to occur within area	Vulnerable
Canarium acutifolium	null	Plant	Known	Species or species habitat known to occur within area	Vulnerable
Calidris acuminata	Sharp-tailed Sandpiper	Bird	Known	Species or species habitat known to occur within area	Vulnerable
Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover	Bird	Known	Species or species habitat known to occur within area	Vulnerable
Calidris canutus	Red Knot, Knot	Bird	Known	Species or species habitat known to occur within area	Vulnerable
Saccolaimus saccolaimus nudicluniatus	Bare-rumped Sheath-tailed Bat, Bare-rumped Sheathtail Bat	Mammal	Known	Species or species habitat known to occur within area	Vulnerable

Similarly, the search returned the below ‘Likely’ presence within the site boundaries for the below threatened species under the EPBC:

Scientific Name	**Common Name**	**Class**	**Simple Presence**	**Presence Text**	**Threatened Category**
Sphyrna lewini	Scalloped Hammerhead	Shark	Likely	Species or species habitat likely to occur within area	Conservation Dependent
Bruguiera x hainesii	Haines's Orange Mangrove	Plant	Likely	Species or species habitat likely to occur within area	Critically Endangered
Lepidochelys olivacea	Olive Ridley Turtle, Pacific Ridley Turtle	Reptile	Likely	Breeding likely to occur within area	Endangered
Caretta caretta	Loggerhead Turtle	Reptile	Likely	Breeding likely to occur within area	Endangered

Dermochelys coriacea	Leatherback Turtle, Leathery Turtle, Luth	Reptile	Likely	Breeding likely to occur within area	Endangered
Tringa nebularia	Common Greenshank, Greenshank	Bird	Likely	Species or species habitat likely to occur within area	Endangered
Dasyurus maculatus gracilis	Spotted-tailed Quoll (North Queensland), Yarri	Mammal	Likely	Species or species habitat likely to occur within area	Endangered
Pteropus conspicillatus	Spectacled Flying-fox	Mammal	Likely	Species or species habitat likely to occur within area	Endangered
Dasyurus hallucatus	Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu]	Mammal	Likely	Species or species habitat likely to occur within area	Endangered
Erythrotriorchis radiatus	Red Goshawk	Bird	Likely	Species or species habitat likely to occur within area	Endangered
Rostratula australis	Australian Painted Snipe	Bird	Likely	Species or species habitat likely to occur within area	Endangered
Phalaenopsis rosenstromii	Native Moth Orchid	Plant	Likely	Species or species habitat likely to occur within area	Endangered (listed as Phalaenopsis amabilis subsp. rosenstromii)
Phaius pictus	null	Plant	Likely	Species or species habitat likely to occur within area	Vulnerable
Xeromys myoides	Water Mouse, False Water Rat, Yirrkoo	Mammal	Likely	Species or species habitat likely to occur within area	Vulnerable
Rhinolophus robertsi	Large-eared Horseshoe Bat, Greater Large-eared Horseshoe Bat	Mammal	Likely	Species or species habitat likely to occur within area	Vulnerable
Falco hypoleucos	Grey Falcon	Bird	Likely	Species or species habitat likely to occur within area	Vulnerable
Myrmecodia beccarii	Ant Plant	Plant	Likely	Species or species habitat likely to occur within area	Vulnerable
Tyto novaehollandiae kimberli	Masked Owl (northern)	Bird	Likely	Species or species habitat likely to occur within area	Vulnerable
Fregetta grallaria grallaria	White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian)	Bird	Likely	Species or species habitat likely to occur within area	Vulnerable
Macroderma gigas	Ghost Bat	Mammal	Likely	Species or species habitat likely to occur within area	Vulnerable
Litoria dayi	Australian Lace-lid, Lace-eyed Tree Frog, Day's Big-eyed Treefrog	Frog	Likely	Species or species habitat likely to occur within area	Vulnerable
Pristis zijsron	Green Sawfish, Dindagubba, Narrowsnout Sawfish	Shark	Likely	Breeding likely to occur within area	Vulnerable

Acriopsis emarginata	Pale Chandelier Orchid	Plant	Likely	Species or species habitat likely to occur within area	Vulnerable

Should the applicant decide to proceed with the proposal, the application is likely to require referral to the federal Department of Climate Change, Energy, the Environment and Water.

Concerns

The proposal presents numerous concerning aspects, particularly in relation to offsite impacts.

1. **Offsite effects**

Whilst the dune is technically a relic, adjacent presence marine plants indicates that larger high tides are already lapping at the base of this dune. According to NOAA, average sea level rise for Cairns is presently 1.74 =/-0.4 mm/yr or 17.4 cm over 100 years. However, under increasingly hot temperatures, the rate of sea level rise will accelerate due to ice melt and thermal expansion. Under business-as-usual scenario the HadGEM2-ES climate model indicates that Cairns will experience approximately 65 cm of sea level rise by 2090. In response, Cairns Regional Council is including an allowance of up to 80 cm of sea level rise by 2100.

Removal of the dune to ground level or excavation below ground level would likely expose the site to inundation by salt water or expose plant roots to salinity. This would likely result in permanent alienation of the land for cropping.
Whilst the local tidal hydrology in the area is not well understood (e.g. effect of the dune on delaying tidal ingress and tidal gates on drains) the shape and orientation of the dune is expected to be offering some protection to sugarcane growers on the landward side. Protection is expected to be in the form of excluding or delaying ingress of seawater during large high tides, storm surges and acting as a wind barrier during cyclones. The effect of removing this dune in its entirety would likely exacerbate coastal salinity within cane fields on the landward side of the dune causing impacts which could range from yield decline to permanent, irreversible salinisation, particularly in the lowest lying areas, adjacent existing drains.

More concerningly, the removal of the dune is expected to adversely affect the local hydrology and stormwater runoff to the protected mangrove plants, HES wetlands, with erosion and silt deposition likely negatively impacting the numerous protected matters mapped seaward of the site boundary.

It is unlikely that the off-site impacts from the proposed activities would be able to be managed.

2. **Acid sulfate soils**

Acid Sulfate Soils are likely to be present below the sand dune which is located immediately adjacent to low energy marine environment to the northeast. Whilst it is likely that there is significant depth of non-ASS sand resource within upper and middle parts of the dune, lower parts of the dune and particularly the soils and sediments underlying the dune are increasingly likely to contain ASS.
Coastal acid sulfate soils (ASS) are coastal and near-coastal soils, sediments or other materials containing iron sulfides. They are environmentally benign when left undisturbed in an aqueous, anoxic environment, but when exposed to oxygen the iron sulfides oxidise, releasing sulfuric acid and soluble iron. Both substances have considerable ability to degrade the natural and built environment, and the acid may additionally mobilise chemical species (e.g. aluminium and/or heavy metals) which can be toxic or poisonous at low concentrations. Other hazards have also been recognised including the deoxygenation of surface waters, contaminant metal and metalloid releases, malodours and nutrient releases.

Poor management of acid sulfate soils from the activity would likely negatively impact surface waters (feeding into HES wetlands and Great Barrier Reef Marine Park/World Heritage Area), groundwaters

(whether through interception of groundwater ingress) and the numerous protected matters mapped in and in the vicinity of the site.

3. **Others impacts**

The risk of dust and noise nuisance originating from the activity and potential impacts on the protected matters located nearby is high.

Releases to surfaces waters are likely to generate sediment-laden waters to Great Barrier Reef World Heritage Area, HES wetlands and mangroves (among others).

Conclusion

Considering the sensitivity of the area and the proposed activity, the Department of Environment, Science and Innovation is not supportive of the proposal.

Queensland Government

SARA reference: 2410-43198 SRA
Council reference: MCUI 2024_5682/1
Applicant reference: AU015874

12 December 2024

Chief Executive Officer
Douglas Shire Council
PO Box 723
MOSSMAN QLD 4873
enquiries@douglas.qld.gov.au

Attention: Jenny Elphinstone

Dear Sir/Madam

SARA referral agency response— Sand Extraction at Captain Cook Highway, Killaloe (Lot 1 on RP893855)

(Referral agency response given under section 56 of the *Planning Act 2016*)

The development application described below was confirmed as properly referred by the State Assessment and Referral Agency (SARA) on 13 November 2024.

Response

Outcome:	Referral agency response – with conditions
Date of response:	12 December 2024
Conditions:	The conditions in **Attachment 1** must be attached to any development approval
Advice:	Advice to the applicant is in **Attachment 2**
Reasons:	The reasons for the referral agency response are in **Attachment 3**

Development details

Description:	Development permit	Material change of use for an extractive industry for the extraction of approximately 30,000 tonne of sand per year.
SARA role:	Referral agency	
SARA trigger:	Schedule 10, Part 9, Division 4, Subdivision 1, Table 1 (Planning	

Far North Queensland regional office
Ground Floor, Cnr Grafton and Hartley Street, Cairns
PO Box 2358, Cairns QLD 4870

	Regulation 2017) - Material change of use impacting on state transport infrastructure (extractive industry using machinery having an annual throughput of product of over 10,000t)
SARA reference:	2410-43198 SRA
Assessment manager:	Douglas Shire Council
Street address:	Captain Cook Highway, Killaloe
Real property description:	Lot 1 on RP893855
Applicant name:	NQ Asphalt Pty Ltd
Applicant contact details:	C/- RPS AAP Consulting Pty Ltd 135 Abbott Street Cairns QLD 4870 owen.caddick-king@rpsgroup.com.au
Human Rights Act 2019 considerations:	A consideration of the 23 fundamental human rights protected under the *Human Rights Act 2019* has been undertaken as part of this decision. It has been determined that this decision does not limit human rights.

Representations

An applicant may make representations to a concurrence agency, at any time before the application is decided, about changing a matter in the referral agency response (s.30 Development Assessment Rules). Copies of the relevant provisions are in **Attachment 4**.

A copy of this response has been sent to the applicant for their information.

For further information please contact Anthony Westbury, A/Senior Planning Officer, on 4037 3215 or via email CairnsSARA@dsdilgp.qld.gov.au who will be pleased to assist.

Yours sincerely



Carl Porter
A/ Manager Planning

cc NQ Asphalt Pty Ltd c/- RPS AAP Consulting Pty Ltd, owen.caddick-king@rpsgroup.com.au

enc Attachment 1 - Referral agency conditions
Attachment 2 - Advice to the applicant
Attachment 3 - Reasons for referral agency response
Attachment 4 - Representations about a referral agency response
Attachment 5 - Documents referenced in conditions

Attachment 1—Referral agency conditions

(Under section 56(1)(b)(i) of the *Planning Act 2016* the following conditions must be attached to any development approval relating to this application) (Copies of the documents referenced below are found at **Attachment 5**)

No.	Conditions	Condition timing
Schedule 10, Part 9, Division 4, Subdivision 1, Table 4, Item 1 – Material change of use impacting on state transport infrastructure—The chief executive administering the *Planning Act 2016* nominates the Director-General of the Department of Transport and Main Roads to be the enforcement authority for the development to which this development approval relates for the administration and enforcement of any matter relating to the following condition(s):		
1.	The haul route must be undertaken via the Captain Cook Highway / Bonnie Doon Road intersection generally in accordance with NQ Asphalt Pty Ltd Lot 1 on RP893855 Site Plan – Proposed Sand Extraction, prepared by RPS, dated 26-08-2024, drawing AU015874-2.	At all times.

Attachment 2—Advice to the applicant

General advice	
1.	Terms and phrases used in this document are defined in the *Planning Act 2016* its regulation or the State Development Assessment Provisions (SDAP) v3.1. If a word remains undefined it has its ordinary meaning.

Attachment 3—Reasons for referral agency response

(Given under section 56(7) of the *Planning Act 2016*)

The reasons for the SARA decision are:

The proposed development, with conditions, complies with the relevant provisions of State code 6: Protection of state transport networks, of the SDAP, in that:

- The proposed development is unlikely to compromise the safety, function, and efficiency of the state-controlled road network.
- The proposed development is appropriately separated from the Captain Cook Highway to avoid adverse impacts from increased stormwater and drainage flow.
- The Captain Cook Highway / Bonnie Doon Road intersection is improved by a channelised right turn lane and can adequately accommodate the haul vehicle traffic from the proposed development.

Material used in the assessment of the application:

- the development application material and submitted plans
- *Planning Act 2016*
- Planning Regulation 2017
- the State Development Assessment Provisions (version 3.1)
- the Development Assessment Rules
- SARA DA Mapping system
- *Human Rights Act 2019*

Attachment 4—Representations about a referral agency response

(page left intentionally blank – attached separately)

Attachment 5—Documents referenced in conditions

(page left intentionally blank – attached separately)

PLANS AND DOCUMENTS
referred to in the REFERRAL
AGENCY RESPONSE

Queensland Government

SARA ref: 2410-43198 SRA

Date: 12 December 2024

Elevation Legend

6.0 m
5.0 m
4.0 m
3.0 m
2.0 m
1.0 m
-0.2 m

54
SP292874

Proposed bridge access across farm drain/waterway

Emt B
RP893855

10m offset off drain easement

Haul access (6m wide)

Bonnie Doon Road

2
RP893855

33
USL8687

Proposed Sand Extraction Area
22.29ha

1
RP893855

Wetland Protection Area Trigger Area

32
SP332240

Wetland of high ecological significance

170
SR865

A
RP893855

Emt A
SP332240

131
SR853

Captain Cook Highway

4
RP907338

31
SP332240

Killaloe Dump Road

155
NR78

4
SP183012

IMPORTANT NOTE
This plan was prepared as a concept plan only and accuracy of all aspects of the plan have not been verified. All lots, areas and dimensions are approximate only, Subject to relevant studies, Survey, Engineering and Government approvals.
No reliance should be placed on the plan and RPS Australia East Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person who may use or rely on this plan.

DNRM DCDB.
DNRM AERIAL PHOTOGRAPHY.
Based on or contains data provided by the State of Queensland (Department of Resources) [2024]. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.
The aerial photography used in this plan has not been rectified. The image has been overlaid as a best fit on the boundaries shown and position is approximate only.
Photography publish date: Aug 2023.
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NQ Asphalt Pty Ltd
Lot 1 on RP893855
Site Plan - Proposed Sand Extraction

RPS AAP Consulting Pty Ltd
ACN 117 883 173
135 Abbott St
PO Box 1949
CAIRNS QLD 4870
T +61 7 4031 1336
F +61 7 4031 2942
W rpsgroup.com

A TETRA TECH COMPANY

0 80 160 240 320 400 800

Datum: MGA2020 Z55 | **Scale:** 1:8,000 @ A3 | **Date:** 26-08-2024 | **Drawing:** AU015874-2

Appendix G

Cultural Heritage Database and Register Search Report

Cultural Heritage Database and Register Search Report

Search report reference number: 167043

The Aboriginal and Torres Strait Islander Cultural Heritage Database (cultural heritage database) and Aboriginal and Torres Strait Islander Cultural Heritage Register (cultural heritage register) have been searched in accordance with the location description provided, and the results are set out in this report.

The cultural heritage database is intended to be a research and planning tool to help Aboriginal and Torres Strait Islander parties, researchers, and other persons in their consideration of the cultural heritage values of particular areas.

The cultural heritage register is intended to be a depository for information for consideration for land use and land use planning, and a research and planning tool to help people in their consideration of the Aboriginal cultural heritage values of particular objects and areas.

Aboriginal or Torres Strait Islander cultural heritage which may exist within the search area is protected under the *Aboriginal Cultural Heritage Act 2003* and the *Torres Strait Islander Cultural Heritage Act 2003* (the Cultural Heritage Acts), even if the Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships (the Department) has no records relating to it.

The placing of information on the database is not intended to be conclusive about whether the information is up-to-date, comprehensive or otherwise accurate.

Under the Cultural Heritage Acts, a person carrying out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal or Torres Strait Islander cultural heritage. This applies whether or not such places are recorded in an official register and whether or not they are located on private land.

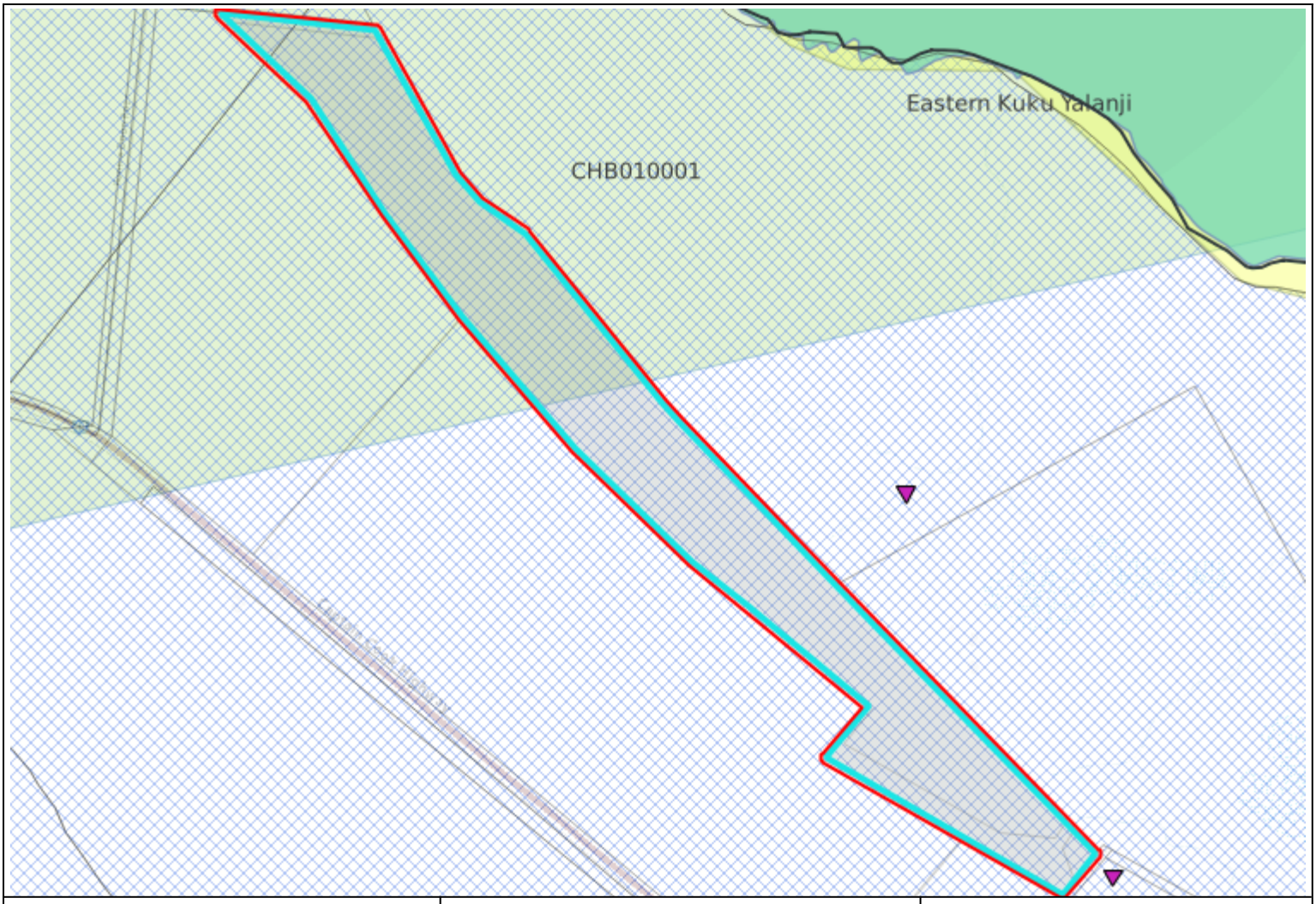
Please refer to the Department website https://www.qld.gov.au/firstnations/environment-land-use-native-title/cultural-heritage/cultural-heritage-duty-of-care to obtain a copy of the gazetted Cultural Heritage Duty of Care Guidelines, which set out reasonable and practicable measure for meeting the cultural heritage duty of care.

In order to meet your duty of care, any land-use activity within the vicinity of recorded cultural heritage should not proceed without the agreement of the Aboriginal or Torres Strait Islander Party for the area, or by developing a Cultural Heritage Management Plan under Part 7 of the Cultural Heritage Acts.

The extent to which the person has complied with Cultural Heritage Duty of Care Guidelines and the extent the person consulted Aboriginal or Torres Strait Islander Parties about carrying out the activity – and the results of the consultation – are factors a court may consider when determining if a land user has complied with the cultural heritage duty of care.

Should you have any further queries, please do not hesitate to contact the department via email: cultural.heritage@dsdsatsip.qld.gov.au or telephone: 1300 378 401.

Cultural Heritage Database and Register Search Report



LEGEND

- CH Parties
- CH Bodies
- CHMPs
- Study Areas
- DLAs

Reference Number: 167043
Search Type: Lot/Plan
Lot: 1
Plan: RP893855
Shire: Douglas Shire

Buffer Distance: 10m

Cultural Heritage Sites

- Pre-2015 Point Site
- Post-2015 Point Site
- Mitigated Point Site
- Pre-2015 Area Site
- Post-2015 Area Site
- Mitigated Area Site

Map Projection: Geographic Latitude & Longitude (GDA2020).

The Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships (DSDSATSIP) is the custodian of spatial data provided by various third parties for inclusion in the Aboriginal and Torres Strait Islander cultural heritage online portal. This includes spatial data provided by the National Native Title Tribunal and Aboriginal and Torres Strait Islander parties.

Features shown on this map have been obtained from available sources. It is possible that errors and omissions may exist. The DSDSATSIP disclaims any liability for any errors or omissions that appear in this document.

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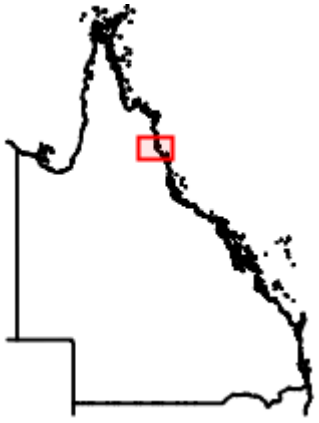
Map produced by the Cultural Heritage Unit, DSDSATSIP, Brisbane, Queensland, Australia on 20 August 2024.

Queensland Government

1:13,488

Metres 200 400 600

LOCALITY



Search report generated on Aug 20, 2024, 2:30 PM

There are no Aboriginal or Torres Strait Islander cultural heritage site points recorded in your specific search area.

There are no Aboriginal or Torres Strait Islander cultural heritage site polygons recorded in your specific search area.

Cultural Heritage Party/ies for the area:

Reference No.	Federal Court No.	Name	Contact Details
QC2015/004	QUD337/2015	Yirrganydji (Irukandji) People #2	Yirrganydji (Irukandji) People #2 Atherton Tablelands Law PO Box 101 ATHERTON QLD 4883 Phone: (07) 4091 5388 Email: atherton@tablelandslaw.com.au
QC2022/007	QUD356/2022	Eastern Kuku Yalanji People #2	North Queensland Land Council Native Title Representative Body Aboriginal Corporation 61 Anderson St CAIRNS QLD 4870 Phone: 07 4042 7000

Cultural Heritage Body/ies for the area:

Departmental Reference No.	Name	Contact Details	Registration Date
CHB010001	Jabalbina Yalanji Aboriginal Corporation RNTBC	Jabalbina Yalanji Aboriginal Corporation RNTBC PO Box 463 MOSSMAN QLD 4873 Phone: (07) 4098 3552 Email: admin@jabalbina.com.au	11/07/2011

There are no Cultural Heritage Management Plans recorded in your specific search area.

There are no Designated Landscape Areas (DLA) recorded in your specific search area.

There are no Registered Cultural Heritage Study Areas recorded in your specific search area.

There are no National Heritage Areas (Indigenous values) recorded in your specific search area.

Glossary

Cultural Heritage Body: An entity registered under Part 4 of the Cultural Heritage Acts as an Aboriginal or Torres Strait Islander cultural heritage body for an area. The purpose of a cultural heritage body is to:

- identify the Aboriginal or Torres Strait Islander parties for an area
- serve as the first point of contact for cultural heritage matters.

Cultural Heritage Management Plan (CHMP): An agreement between a land user (sponsor) and Traditional Owners (endorsed party) developed under Part 7 of the Cultural Heritage Acts. The CHMP explains how land use activities can be managed to avoid or minimise harm to Aboriginal or Torres Strait Islander cultural heritage.

Cultural Heritage Party: Refers to a native title party for an area. A native title party is defined as:

- Registered native title holders (where native title has been recognised by the Federal Court of Australia).
- Registered native title claimants (whose native title claims are currently before the Federal Court of Australia).
- Previously registered native title claimants (the 'last claim standing') are native title claims that are no longer active and have been removed from the Register of Native Title Claims administered by the National Native Title Tribunal. Previously registered native title claimants will continue to be the native title party for that area providing:
    - there is no other registered native title claimant for the area; and
    - there is not, and never has been, a registered native title holder for the area.

The native title party maintains this status within the external boundaries of the claim even if native title has been extinguished.

Cultural heritage site points (pre 2015): Aboriginal and Torres Strait Islander cultural heritage sites and places recorded in the database as point data **before** 1 July 2015.

Cultural heritage site points (post 2015): Aboriginal and Torres Strait Islander cultural heritage sites and places recorded in the database as point data **after** 1 July 2015.

Cultural heritage site points (post 2015 mitigated): Aboriginal and Torres Strait Islander cultural heritage sites and places recorded in the database as point data after 1 July 2015 where the recorder has advised the department that the site has been mitigated.

Cultural heritage site polygons: Aboriginal and Torres Strait Islander cultural heritage sites and places recorded in the database as a polygon.

Designated Landscape Areas (DLA): Under the repealed *Cultural Record (Landscapes Queensland and Queensland Estate) Act 1987*, an area was declared a 'designated landscape area' (DLA) if it was deemed necessary or desirable for it to be preserved or to regulate access.

Indigenous Protected Areas (IPA): Areas of land and sea managed by Indigenous groups as protected areas for biodiversity conservation through voluntary agreements with the Australian Government. For further information about IPAs visit https://www.environment.gov.au/land/indigenous-protected-areas

National Heritage areas: Places listed on the National Heritage List for their outstanding heritage significance to Australia and are protected under the *Environment Protection and Biodiversity Conservation Act 1999*. For further information about the National Heritage List visit https://www.environment.gov.au/heritage/about/national

National Heritage Areas (Indigenous values): Places listed on the National Heritage list (Indigenous values) are recognised for their outstanding Indigenous cultural heritage significance to Australia and are protected under the *Environment Protection and Biodiversity Conservation Act 1999.* These areas are now included in the cultural heritage

register.

Registered Cultural Heritage Study Areas: Comprehensive studies of Aboriginal and or Torres Strait Islander cultural heritage in an area conducted under Part 6 of the Cultural Heritage Acts for the purpose of recording the findings of the study on the register.

Traditional Use of Marine Resources Agreement (TUMRA): Areas subject to agreement between Great Barrier Reef Traditional Owners and the Australian and Queensland governments on the management of traditional use activities on their sea country. For further information about TUMRAs visit https://www.gbrmpa.gov.au/our-partners/traditional-owners/traditional-use-of-marine-resources-agreements

World Heritage Areas: Places inscribed on the World Heritage List pursuant to the World Heritage Convention adopted by the United Nations Education, Scientific and Cultural Organisation (UNESCO) and are protected under the *Environment Protection and Biodiversity Conservation Act 1999*. For further information about World Heritage places in Queensland visit https://parks.des.qld.gov.au/management/managed-areas/world-heritage-areas

Disclaimer: *The Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships is the custodian of spatial data and information provided by various third parties for inclusion in the Aboriginal and Torres Strait Islander cultural heritage online portal. This includes spatial data provided by the National Native Title Tribunal and Aboriginal and Torres Strait Islander parties. Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships is not responsible for the accuracy of information provided by third parties or any errors in this search report arising from such information.*

Appendix H

SARA Pre-Application Response and Formal Referral Response

Queensland Government

SARA reference: 2402-39080 SPL
Applicant reference: AU012859

11 April 2024

Koppen Construction
C/- RPS Cairns
135 Abbott Street
CAIRNS QLD 4870
owen.caddick-king@rpsgroup.com.au

Attention: Owen Caddick-King

Dear Sir/Madam

SARA Pre-lodgement advice – Extractive Industry at Captain Cook Highway, Killaloe (Lot 1 on RP893855)

I refer to the pre-lodgement meeting held on 28 February 2024 in which you sought advice from the State Assessment and Referral Agency (SARA) regarding the proposed development at the above address. This notice provides advice on aspects of the proposal that are of relevance to SARA.

SARA's understanding of the project

The applicant is seeking to purchase the subject site for the purposes of carrying out sand extraction and screening of 20,000t – 30,000t per year.

The haulage of the extracted sand is proposed either via Killaloe Dump Road (via Douglas Shire Council's Killaloe Dump site) and / or Bonnie Doon Road via the Captain Cook Highway.

The site is mapped as adjacent and containing Great Barrier Reef World Heritage area, matters of State environmental significance (MSES), and matters of national environmental significance (MNES).

Supporting information

The advice in this letter is based on the following documentation that was submitted with the pre-lodgement request or tabled at the pre-lodgement meeting.

Drawing/report title	Prepared by	Date
Koppen Construction – Pre-Lodgement Submission for Proposed Sand Extraction on Lot 1 RP893855, Bonnie Doon Road, Killaloe	RPS Group	8 Feb 2024

Far North Queensland regional office
Ground Floor, Cnr Grafton and Hartley Street, Cairns
PO Box 2358, Cairns QLD 4870

Pre-lodgement meeting record

Meeting date	28 February 2024
Meeting location	Microsoft Teams
Meeting chair	Anthony Westbury
Meeting attendees	Refer to **Attachment 1**

Meeting discussion/outcomes

- The applicant outlined the proposed development and advised:
  - Sand extraction is proposed to the natural ground level on either side of the sand ridge, or if lower then to be backfilled to the natural ground level.
  - Discussions have been held with Douglas Shire Council re access through the Killaloe dump site.
  - Five haul vehicles per day expected with most sand transported to Cairns.
  - Removing the sand ridge is not expected to increase erosion from storm tides.
  - The sand ridge represents a significant resource for construction.
- The Department of Agriculture and Fisheries (DAF) advised the waterway to the north may be tidal. A bridge would be an ideal solution to avoid impacts to fish passage.
- The Department of Transport and Main Roads advised that access via the Killaloe Dump Road would require a traffic assessment of the Killaloe Dump Road / Captain Cook Highway intersection. The existing Boonie Doon Road / Captain Cook Highway intersection is considered adequate to accommodate the proposed haulage movements.
- The Department of Resources (Resources) advised that the sand ridge is a natural feature and represents historical storm tide extent. There could be acid sulphate issues. Removal of the dune could cause salinity to adjacent farmland. A bund to protect adjacent farmland was also discussed. Not referrable for native vegetation clearing. Resources also advised that owner's consent from the State will be required to use the Killaloe dump site for access.
- The Department of Science, Environment and Innovation (DESI), Coastal, acknowledged the dune as a natural feature which protects adjacent farmland. DESI had concerns regarding impacts to surrounding coastal environmental values.
- DESI, Environment and Extractive Resources, had significant concerns regarding the removal of a significant natural landform and the potential impacts on MSES and the receiving environment.
- SARA to provide written pre-lodgement advice, detailing DAF, DTMR, DESI and Resources requirements, following the meeting.

Pre-lodgement advice

The following advice outlines the aspects of the proposal that are of relevance to SARA.

Key issue – Environmentally Relevant Activity (ERA) and Environmental Authority (EA)	
1.	SARA advises that the proposed development does not trigger referral agency assessment under Schedule 10, Part 5, Division 4, Table 2, Item 1 – Non-devolved environmentally relevant activities, of the Planning Regulation 2017, as extracting and screening between 20,000t and 30,000t in a year is not a concurrence ERA. While referral to SARA is not triggered, the proposed development will require an EA. An application for an EA will need to be submitted directly to the Department of Environment, Science and Innovation (DESI).

	Please see **Attachment 2** for detailed advice provided by DESI. **Please note that having considered the environmental sensitivity of the area and the proposed activity, DESI is not supportive of the proposal.**
SARA's jurisdiction and fees	
2.	The application **will** require referral to SARA under the following provisions of the Planning Regulation 2017: • Schedule 10, Part 9, Division 4, Subdivision 1, Table 1, Item 1 – Material change of use of premises impacting on state transport infrastructure (exceeding extractive industry threshold of 10,000t per year). This requires a fee of **$7,721.00** (Item 8(b)(i)) to be paid. • Schedule 10, Part 20, Division 4, Table 3, Item 1 – Material change of use of premises in wetland protection area. This requires a fee of **$3,636.00** (Item 8) to be paid. The application **may** require referral to SARA under the following provisions of the Planning Regulation 2017: • Schedule 10, Part 6, Division 3, Subdivision 3, Table 1, Item 1 – Operational work involving removal, destruction or damage to marine plants. This requires a fee of **$3,636.00 - $14,538.00** (Item 5(a) - (c)) to be paid, depending on the area of marine plant disturbance. • Schedule 10, Part 6, Division 3, Table 2, Item 1 – Operational work for waterway barrier works. This requires a fee of up to **$14,538.00** (Item 5) to be paid. • Schedule 10, Part 17, Division 3, Table 1, Item 1 – Operational work that is tidal works. This requires a fee of **$3,636.00** (Item 8(e)) to be paid. It is recommended you check Schedule 10 of the Planning Regulation 2017 or contact SARA prior to referral of your application, to confirm the assessment fees applicable at the time.
State transport networks	
3.	As detailed in Item 2, the proposed development will trigger referral agency assessment as the development exceeds the extractive industry threshold of 10,000t per year, thus impacting on state transport infrastructure. ***Assessment benchmarks*** The development application will be assessed against the current State Development Assessment Provisions (SDAP), State code 6: Protection of State transport networks. The haulage of the extracted sand is proposed either via Killaloe Dump Road (via Council's Killaloe Dump site) and / or Bonnie Doon Road via the Captain Cook Highway, a state-controlled road. A review and desk top analysis of both intersections confirms that the Captain Cook Highway / Bonnie Doon Road T-intersection is the preferred option to be utilised, as this intersection has been widened and improved by a channelized right lane (CHR) including road lighting. If Killaloe Dump Road is to be utilised for the haulage of extracted sand via the Captain Cook Highway / Killaloe Dump Road T-intersection, a Traffic Impact Assessment (TIA) will be required to demonstrate compliance with State code 6. The TIA must be prepared by a suitably qualified professional and the TIA assessment should undertake the following: • Provide and confirm traffic generation rates for the proposed development including background traffic. • Traffic generation rates for the fully operational development should include, projected visitor numbers, the number, type and size of all vehicles including largest vehicle that will access the proposed development site via the Captain Cook Highway / Killaloe Dump

	Road T-intersection including background traffic on a daily and weekly basis. • Provide an assessment of the Captain Cook Highway / Killaloe Dump Road T-intersection utilising *Figure 3.25 'warrants for turn treatments on major roads at unsignalized intersections' of section 3.3.6 of the Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management 2020* based on background traffic and the calculated traffic generation rates for the fully operational sand extraction development. • Based on the 'warrants for turn treatments on major roads at unsignalized intersections' assessment, confirm and demonstrate traffic generation from the fully operational sand extraction development including background traffic will not result in a worsening of the state-controlled road network at the Captain Cook Highway / Killaloe Dump Road T-intersection. • Provide appropriate mitigation measures to demonstrate that increased traffic generation from the fully operational sand extraction development including background traffic does not compromise the performance outcomes of PO1 – PO3 of State code 6: Protection of state transport networks. For further guidance please refer to DTMR's Guide to Traffic Impact Assessment.
Great Barrier Reef wetland protection area	
4.	As detailed in Item 2, the proposed development will trigger referral agency assessment for wetland protection area as the development involves operational work that is high impact earthworks. ***Assessment benchmarks*** The development application will be assessed against the current SDAP, State code 9: Great Barrier Reef wetland protection area. The following PO's will require particular consideration: • **PO1**: Development maintains or improves wetland environmental values and native vegetation within the wetland and the buffer. **AO1.1** The buffer surrounding a wetland has a minimum width of: **1.** 200 metres, where the wetland is located outside a prescribed urban area; or **2.** 50 metres, where the wetland is located within a prescribed urban area • **PO3**: Development maintains or improves the existing surface and groundwater hydrology in a wetland protection area. • **PO4**: Development does not unacceptably impact the water quality of the wetland in the wetland protection area and in the wetland buffer. • **PO6**: Development is located and designed to protect the wetland protection area from land degradation. • **PO10**: Matters of State environmental significance. The Department of Environment, Science and Innovation (DESI) has prepared guidance material assist applicants in responding to State code 9. The following will also be required to demonstrate compliance with State code 9 if development is occurring in a wetland protection area: • A site-based management plan which can contain all of the following: o hydrological assessment (including surface and groundwater impacts) o stormwater management plan o construction phase erosion and sediment control plan o pest management action plan o management plan addressing hydrology, vegetation, pest and fauna

	disturbances and risk management (e.g. including details of water sensitive urban design measures). • If proposing a reduced buffer or wetland area, provide an ecological values assessment informed by material at the wetlandInfo website and demonstrating compliance with Queensland Wetland Buffer Planning Guidelines.
Marine plants	
5.	The proposed extraction activities may involve the removal, destruction or damage of marine plants, and may trigger referral agency assessment for marine plants as detailed in Item 2. You should engage a suitably qualified professional to conduct a marine plant survey to determine the extent of any removal, damage or destruction of marine plants. Marine plants include: • any plant (a tidal plant, including marine algae) that usually grows on or adjacent to tidal lands whether it is living, dead, standing or fallen; or • any plant material on tidal land (up to the level of Highest Astronomical Tide (HAT)). • plants such as mangroves, mangrove fern, saltcouch or samphire species are considered marine plants regardless of whether or not they are above or below the level of HAT. Marine plants do not include: • a plant that is prohibited matter or restricted matter under the Biosecurity Act 2014; or • a plant that is controlled biosecurity matter or regulated biosecurity matter under the Biosecurity Act 2014. Marine plant protection applies irrespective of the tenure (e.g. unallocated state land and all state tenured lands, including private freehold and leasehold lands) of the land on which the plant occurs, the time the plant has been growing at the location, or the degree of or purpose of the disturbance. ***Assessment benchmarks*** A development application involving marine plants will be assessed against the current SDAP, State code 11: Removal, destruction, or damage of marine plants. There may be impacts on marine plants resulting from new haul access routes. It may be possible to demonstrate that these impacts comply with State code 11. Impacts to marine plants that result from extraction, stockpiling or disposal of extracted sand would be unlikely to meet relevant assessment benchmarks of State code 11. Avoiding marine plant disturbance would remove the need for an approval and potential fees for this component of the works. The Department of Agriculture and Fisheries (DAF) has prepared guidance material to assist applicants in responding to State code 11.
Waterway barrier works	
6.	A haulage route using Bonnie Doon Road will require access over a mapped waterway and may trigger referral agency assessment for waterway barrier works as detailed in Item 2. The mapped waterway (amber) may be tidal given the proximity to tidal wetlands and the level of highest astronomical tide (see **Item 7**). Refer to DAF's website for more information on waterway barrier works including examples of waterway barrier works and works not considered waterway barrier works. ***Assessment benchmarks***

	A development application that includes waterway barrier works will be assessed against the current SDAP, State code 18: Constructing or raising waterway barrier works in fish habitats. DAF has prepared guidance material to assist applicants in responding to State code 18.
Tidal works	
7.	Drains located at the northern end of the subject lot may be tidal waters. Works undertaken in this area (e.g. construction of access tracks/bridges, stockpiles, etc.) may trigger referral agency assessment for tidal works as detailed in Item 2. ***Assessment benchmarks*** A development application that includes tidal works will be assessed against the current SDAP, State code 8: Coastal development and tidal works. The development application will need to ensure that the performance outcomes (PO) of the State code are addressed in their entirety, identifying how the proposed development complies. The following PO's will require particular consideration: • **PO1 – PO5**: Development in the erosion prone area. • **PO13**: Water quality • **PO17**: Matters of State environmental significance. The Department of Environment, Science and Innovation (DESI) has prepared guidance material to assist applicants in responding to State code 8. The guideline provides background information and key concepts relevant for coastal processes and resources, and coastal protection and management applicable to complying with the code.
Request further pre-lodgement advice or meeting	
8.	For further pre-lodgement advice please use the 'related actions' tab in the 2402-39080 SPL MyDAS2 record and select 'Request more pre-lodgement advice from SARA'. You will be given an option to select either a meeting or written advice.
Advice on other matters not regulated under the *Planning Act 2016*	
Land tenure and Owner's consent	
9.	No tenure under the land act is required to haul sand from the subject site via Douglas Shire Council's Killaloe Dump site (Lot 170 on SR865) to Killaloe Dump Road and on to the Captain Cook Highway. An application for owner's consent for material change of use on premises below high-water mark and outside a canal on Lot 170 on Crown Plan SR865 will need to be made to the Department of Resources to lodge a "properly made" development application under the *Planning Act 2016*. You should consult with the trustee Douglas Shire Council of reserve R1245 for Local Government purposes, sub-purpose Refuse Disposal, described as Lot 170 on Crown Plan SR865, and seek advice regarding the route or track proposed to gain access to the subject site, before contacting the Land and Surveying Services Team at lasslsteam1enq@resources.qld.gov.au to discuss owners consent requirements under the *Land Act 1994*.
Quarry material	
10.	As the land subject to this development proposal is not State coastal land in the coastal management district, the quarry material is not regulated under the *Coastal Protection and Management Act 1995.*

	However, other acts may determine that the quarry material on freehold land is owned by the State. Please see DAF's quarry material factsheet for further information.

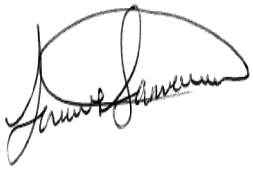
This advice outlines aspects of the proposed development that are relevant to SARA's jurisdiction. This advice is provided in good faith and is:

- based on the material and information provided to SARA
- current at the time of issue
- not applicable if the proposal is changed from that which formed the basis of this advice.

The advice in this letter does not constitute an approval or an endorsement that SARA supports the development proposal. Additional information may be required to allow SARA to properly assess the development proposal after a formal application has been lodged.

For further information please contact Anthony Westbury, Planning Officer, on 40373215 or via email CairnsSARA@dsdilgp.qld.gov.au who will be pleased to assist.

Yours sincerely



Javier Samanes
A/Manager (Planning)

enc Attachment 1 – Pre-lodgement meeting attendance record
Attachment 2 – Advice from DESI

Development details	
Proposal:	Material change of use for Extractive Industry
Street address:	Captain Cook Highway, Killaloe
Real property description:	Lot 1 on RP893855
SARA role:	Referral agency
Assessment Manager:	Douglas Shire Council
Assessment criteria:	State Development Assessment Provisions (SDAP): • State code 6: Protection of State transport networks • State code 8: Coastal development and tidal works • State code 9: Great Barrier Reef protection areas • State code 11: Removal, destruction, or damage of marine plants • State code 18: Constructing or raising waterway barrier works in fish habitats
Existing use:	Vacant
Relevant site history:	Site contains a relic sand dune

Attachment 1— Pre-lodgement meeting attendance record

Meeting attendees:

Name	Position	Organisation
Anthony Westbury	Planning Officer	State Assessment and Referral Agency (SARA)
Kimberley Morgan	Planning Officer	Department of Resources (Resources)
David Morrison	Senior Land Resources Officer	Resources
Dylan Johnston	Senior Natural Resource Management Officer	Resources
Van Chu	Natural Resource Management Officer	Resources
Rohan Wallace	Principal Environmental Officer	Department of Environment, Science and Innovation (DESI)
Marie Courteville	Principal Environmental Officer	DESI
James Giugni	Senior Fisheries Biologist	Department of Agriculture and Fisheries (DAF)
Steven Zelenika	Senior Town Planner	Department of Transport and Main Roads (DTMR)
Liliya Yates	Principal Engineer (Civil)	DTMR
Owen Caddick-King	Principal - Planning	RPS Group
Megan Davis	General Manager	RPS Group
Callum Koppen	General Manager	Koppens Development

Attachment 2— Advice from DESI

The following advice is provided by the Department of Environment, Science and Innovation.

Proposal

Koppen Construction propose to extract the sand resource of a natural sand dune, located North of Port Douglas, on 1RP893855. The sand extraction proposal is intended to be of approximately 20,000t - 30,000t per year and in addition to the sand extraction, it is expected that the sand will be screened or processed on site.

The dune rises from the coastal plain from around 1.2 m AHD to multiple crests between 4.0m and 5.0 m AHD. The effect of this proposal would be to remove, in its entirety, a large relic sand dune.

Application materials indicate that extraction would remove the entire dune to surrounding ground surface level. It was not clear from application materials whether this is the ground surface on the coastal and or landward side or if any level had been set. At the pre-lodgement meeting 28-02-2024, the applicant's representative also noted the possibility of extracting 2m below ground surface level and using the area to store fill, though the nature of this fill materials was not divulged.

Numerous protected matters are mapped within the site boundary, including World Heritage Area site (see more below). The landward side of the site (immediately adjacent to the boundary) presents sugar cane fields.

Protected matters

Numerous protected matters are mapped in and in close vicinity of the proposal:

- Matters of State Environmental Significance (MSES) regulated vegetation [100m from a wetland] – found in lot/plan
- MSES regulated vegetation [essential habitat] found in lot/plan
- MSES regulated vegetation [category B - endangered or of concern] - found in lot/plan
- MSES wildlife habitat [endangered or vulnerable] - found in lot/plan
- MSES high ecological significance wetlands - found in lot/plan
- Great Barrier Reef Coast Marine Park and World Heritage Site boundary located within proposed lot/plan and extending 140m- 250m seaward from the site boundary.

The below protected matters are also found within 300m downstream/seaward from the site boundary:

- MSES regulated vegetation [defined watercourse]
- MSES marine park [highly protected] - Great Barrier Reef Coast Marine Park
- Protected plants trigger map (high risk)

A search in the federal Protected Matters Search Tool for Matters of National Environmental Significance (MNES) database for lot 1RP893855 returned the below 'Known' presence within the site boundaries for the below threatened species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC):

Scientific Name	Common Name	Class	Simple Presence	Presence Text	Threatened Category
Numenius madagascariensis	Eastern Curlew, Far Eastern Curlew	Bird	Known	Species or species habitat known to occur within area	Critically Endangered
Calidris ferruginea	Curlew Sandpiper	Bird	Known	Species or species habitat known to occur within area	Critically Endangered
Casuarius casuarius	Southern Cassowary,	Bird	Known	Species or species	Endangered

johnsonii	Australian Cassowary, Double-wattled Cassowary			habitat known to occur within area	
Toechima pterocarpum	null	Plant	Known	Species or species habitat known to occur within area	Endangered
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)	Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)	Mammal	Known	Species or species habitat known to occur within area	Endangered
Limosa lapponica baueri	Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit	Bird	Known	Species or species habitat known to occur within area	Endangered
Eretmochelys imbricata	Hawksbill Turtle	Reptile	Known	Species or species habitat known to occur within area	Vulnerable
Chelonia mydas	Green Turtle	Reptile	Known	Breeding known to occur within area	Vulnerable
Natator depressus	Flatback Turtle	Reptile	Known	Foraging, feeding or related behaviour known to occur within area	Vulnerable
Hirundapus caudacutus	White-throated Needletail	Bird	Known	Species or species habitat known to occur within area	Vulnerable
Gallinago hardwickii	Latham's Snipe, Japanese Snipe	Bird	Known	Species or species habitat known to occur within area	Vulnerable
Canarium acutifolium	null	Plant	Known	Species or species habitat known to occur within area	Vulnerable
Calidris acuminata	Sharp-tailed Sandpiper	Bird	Known	Species or species habitat known to occur within area	Vulnerable
Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover	Bird	Known	Species or species habitat known to occur within area	Vulnerable
Calidris canutus	Red Knot, Knot	Bird	Known	Species or species habitat known to occur within area	Vulnerable
Saccolaimus saccolaimus nudicluniatus	Bare-rumped Sheath-tailed Bat, Bare-rumped Sheathtail Bat	Mammal	Known	Species or species habitat known to occur within area	Vulnerable

Similarly, the search returned the below ‘Likely’ presence within the site boundaries for the below threatened species under the EPBC:

Scientific Name	**Common Name**	**Class**	**Simple Presence**	**Presence Text**	**Threatened Category**
Sphyrna lewini	Scalloped Hammerhead	Shark	Likely	Species or species habitat likely to occur within area	Conservation Dependent
Bruguiera x hainesii	Haines's Orange Mangrove	Plant	Likely	Species or species habitat likely to occur within area	Critically Endangered
Lepidochelys olivacea	Olive Ridley Turtle, Pacific Ridley Turtle	Reptile	Likely	Breeding likely to occur within area	Endangered
Caretta caretta	Loggerhead Turtle	Reptile	Likely	Breeding likely to occur within area	Endangered

Dermochelys coriacea	Leatherback Turtle, Leathery Turtle, Luth	Reptile	Likely	Breeding likely to occur within area	Endangered
Tringa nebularia	Common Greenshank, Greenshank	Bird	Likely	Species or species habitat likely to occur within area	Endangered
Dasyurus maculatus gracilis	Spotted-tailed Quoll (North Queensland), Yarri	Mammal	Likely	Species or species habitat likely to occur within area	Endangered
Pteropus conspicillatus	Spectacled Flying-fox	Mammal	Likely	Species or species habitat likely to occur within area	Endangered
Dasyurus hallucatus	Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu]	Mammal	Likely	Species or species habitat likely to occur within area	Endangered
Erythrotriorchis radiatus	Red Goshawk	Bird	Likely	Species or species habitat likely to occur within area	Endangered
Rostratula australis	Australian Painted Snipe	Bird	Likely	Species or species habitat likely to occur within area	Endangered
Phalaenopsis rosenstromii	Native Moth Orchid	Plant	Likely	Species or species habitat likely to occur within area	Endangered (listed as Phalaenopsis amabilis subsp. rosenstromii)
Phaius pictus	null	Plant	Likely	Species or species habitat likely to occur within area	Vulnerable
Xeromys myoides	Water Mouse, False Water Rat, Yirrkoo	Mammal	Likely	Species or species habitat likely to occur within area	Vulnerable
Rhinolophus robertsi	Large-eared Horseshoe Bat, Greater Large-eared Horseshoe Bat	Mammal	Likely	Species or species habitat likely to occur within area	Vulnerable
Falco hypoleucos	Grey Falcon	Bird	Likely	Species or species habitat likely to occur within area	Vulnerable
Myrmecodia beccarii	Ant Plant	Plant	Likely	Species or species habitat likely to occur within area	Vulnerable
Tyto novaehollandiae kimberli	Masked Owl (northern)	Bird	Likely	Species or species habitat likely to occur within area	Vulnerable
Fregetta grallaria grallaria	White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian)	Bird	Likely	Species or species habitat likely to occur within area	Vulnerable
Macroderma gigas	Ghost Bat	Mammal	Likely	Species or species habitat likely to occur within area	Vulnerable
Litoria dayi	Australian Lace-lid, Lace-eyed Tree Frog, Day's Big-eyed Treefrog	Frog	Likely	Species or species habitat likely to occur within area	Vulnerable
Pristis zijsron	Green Sawfish, Dindagubba, Narrowsnout Sawfish	Shark	Likely	Breeding likely to occur within area	Vulnerable

Acriopsis emarginata	Pale Chandelier Orchid	Plant	Likely	Species or species habitat likely to occur within area	Vulnerable

Should the applicant decide to proceed with the proposal, the application is likely to require referral to the federal Department of Climate Change, Energy, the Environment and Water.

Concerns

The proposal presents numerous concerning aspects, particularly in relation to offsite impacts.

1. **Offsite effects**

Whilst the dune is technically a relic, adjacent presence marine plants indicates that larger high tides are already lapping at the base of this dune. According to NOAA, average sea level rise for Cairns is presently 1.74 =/-0.4 mm/yr or 17.4 cm over 100 years. However, under increasingly hot temperatures, the rate of sea level rise will accelerate due to ice melt and thermal expansion. Under business-as-usual scenario the HadGEM2-ES climate model indicates that Cairns will experience approximately 65 cm of sea level rise by 2090. In response, Cairns Regional Council is including an allowance of up to 80 cm of sea level rise by 2100.

Removal of the dune to ground level or excavation below ground level would likely expose the site to inundation by salt water or expose plant roots to salinity. This would likely result in permanent alienation of the land for cropping.
Whilst the local tidal hydrology in the area is not well understood (e.g. effect of the dune on delaying tidal ingress and tidal gates on drains) the shape and orientation of the dune is expected to be offering some protection to sugarcane growers on the landward side. Protection is expected to be in the form of excluding or delaying ingress of seawater during large high tides, storm surges and acting as a wind barrier during cyclones. The effect of removing this dune in its entirety would likely exacerbate coastal salinity within cane fields on the landward side of the dune causing impacts which could range from yield decline to permanent, irreversible salinisation, particularly in the lowest lying areas, adjacent existing drains.

More concerningly, the removal of the dune is expected to adversely affect the local hydrology and stormwater runoff to the protected mangrove plants, HES wetlands, with erosion and silt deposition likely negatively impacting the numerous protected matters mapped seaward of the site boundary.

It is unlikely that the off-site impacts from the proposed activities would be able to be managed.

2. **Acid sulfate soils**

Acid Sulfate Soils are likely to be present below the sand dune which is located immediately adjacent to low energy marine environment to the northeast. Whilst it is likely that there is significant depth of non-ASS sand resource within upper and middle parts of the dune, lower parts of the dune and particularly the soils and sediments underlying the dune are increasingly likely to contain ASS.
Coastal acid sulfate soils (ASS) are coastal and near-coastal soils, sediments or other materials containing iron sulfides. They are environmentally benign when left undisturbed in an aqueous, anoxic environment, but when exposed to oxygen the iron sulfides oxidise, releasing sulfuric acid and soluble iron. Both substances have considerable ability to degrade the natural and built environment, and the acid may additionally mobilise chemical species (e.g. aluminium and/or heavy metals) which can be toxic or poisonous at low concentrations. Other hazards have also been recognised including the deoxygenation of surface waters, contaminant metal and metalloid releases, malodours and nutrient releases.

Poor management of acid sulfate soils from the activity would likely negatively impact surface waters (feeding into HES wetlands and Great Barrier Reef Marine Park/World Heritage Area), groundwaters

(whether through interception of groundwater ingress) and the numerous protected matters mapped in and in the vicinity of the site.

3. **Others impacts**

The risk of dust and noise nuisance originating from the activity and potential impacts on the protected matters located nearby is high.

Releases to surfaces waters are likely to generate sediment-laden waters to Great Barrier Reef World Heritage Area, HES wetlands and mangroves (among others).

Conclusion

Considering the sensitivity of the area and the proposed activity, the Department of Environment, Science and Innovation is not supportive of the proposal.

Queensland Government

SARA reference: 2410-43198 SRA
Council reference: MCUI 2024_5682/1
Applicant reference: AU015874

12 December 2024

Chief Executive Officer
Douglas Shire Council
PO Box 723
MOSSMAN QLD 4873
enquiries@douglas.qld.gov.au

Attention: Jenny Elphinstone

Dear Sir/Madam

SARA referral agency response— Sand Extraction at Captain Cook Highway, Killaloe (Lot 1 on RP893855)

(Referral agency response given under section 56 of the *Planning Act 2016*)

The development application described below was confirmed as properly referred by the State Assessment and Referral Agency (SARA) on 13 November 2024.

Response

Outcome:	Referral agency response – with conditions
Date of response:	12 December 2024
Conditions:	The conditions in **Attachment 1** must be attached to any development approval
Advice:	Advice to the applicant is in **Attachment 2**
Reasons:	The reasons for the referral agency response are in **Attachment 3**

Development details

Description:	Development permit	Material change of use for an extractive industry for the extraction of approximately 30,000 tonne of sand per year.
SARA role:	Referral agency	
SARA trigger:	Schedule 10, Part 9, Division 4, Subdivision 1, Table 1 (Planning	

Far North Queensland regional office
Ground Floor, Cnr Grafton and Hartley Street, Cairns
PO Box 2358, Cairns QLD 4870

	Regulation 2017) - Material change of use impacting on state transport infrastructure (extractive industry using machinery having an annual throughput of product of over 10,000t)
SARA reference:	2410-43198 SRA
Assessment manager:	Douglas Shire Council
Street address:	Captain Cook Highway, Killaloe
Real property description:	Lot 1 on RP893855
Applicant name:	NQ Asphalt Pty Ltd
Applicant contact details:	C/- RPS AAP Consulting Pty Ltd 135 Abbott Street Cairns QLD 4870 owen.caddick-king@rpsgroup.com.au
Human Rights Act 2019 considerations:	A consideration of the 23 fundamental human rights protected under the *Human Rights Act 2019* has been undertaken as part of this decision. It has been determined that this decision does not limit human rights.

Representations

An applicant may make representations to a concurrence agency, at any time before the application is decided, about changing a matter in the referral agency response (s.30 Development Assessment Rules). Copies of the relevant provisions are in **Attachment 4**.

A copy of this response has been sent to the applicant for their information.

For further information please contact Anthony Westbury, A/Senior Planning Officer, on 4037 3215 or via email CairnsSARA@dsdilgp.qld.gov.au who will be pleased to assist.

Yours sincerely



Carl Porter
A/ Manager Planning

cc NQ Asphalt Pty Ltd c/- RPS AAP Consulting Pty Ltd, owen.caddick-king@rpsgroup.com.au

enc Attachment 1 - Referral agency conditions
Attachment 2 - Advice to the applicant
Attachment 3 - Reasons for referral agency response
Attachment 4 - Representations about a referral agency response
Attachment 5 - Documents referenced in conditions

Attachment 1—Referral agency conditions

(Under section 56(1)(b)(i) of the *Planning Act 2016* the following conditions must be attached to any development approval relating to this application) (Copies of the documents referenced below are found at **Attachment 5**)

No.	Conditions	Condition timing
Schedule 10, Part 9, Division 4, Subdivision 1, Table 4, Item 1 – Material change of use impacting on state transport infrastructure—The chief executive administering the *Planning Act 2016* nominates the Director-General of the Department of Transport and Main Roads to be the enforcement authority for the development to which this development approval relates for the administration and enforcement of any matter relating to the following condition(s):		
1.	The haul route must be undertaken via the Captain Cook Highway / Bonnie Doon Road intersection generally in accordance with NQ Asphalt Pty Ltd Lot 1 on RP893855 Site Plan – Proposed Sand Extraction, prepared by RPS, dated 26-08-2024, drawing AU015874-2.	At all times.

Attachment 2—Advice to the applicant

General advice	
1.	Terms and phrases used in this document are defined in the *Planning Act 2016* its regulation or the State Development Assessment Provisions (SDAP) v3.1. If a word remains undefined it has its ordinary meaning.

Attachment 3—Reasons for referral agency response

(Given under section 56(7) of the *Planning Act 2016*)

The reasons for the SARA decision are:

The proposed development, with conditions, complies with the relevant provisions of State code 6: Protection of state transport networks, of the SDAP, in that:

- The proposed development is unlikely to compromise the safety, function, and efficiency of the state-controlled road network.
- The proposed development is appropriately separated from the Captain Cook Highway to avoid adverse impacts from increased stormwater and drainage flow.
- The Captain Cook Highway / Bonnie Doon Road intersection is improved by a channelised right turn lane and can adequately accommodate the haul vehicle traffic from the proposed development.

Material used in the assessment of the application:

- the development application material and submitted plans
- *Planning Act 2016*
- Planning Regulation 2017
- the State Development Assessment Provisions (version 3.1)
- the Development Assessment Rules
- SARA DA Mapping system
- *Human Rights Act 2019*

Attachment 4—Representations about a referral agency response

(page left intentionally blank – attached separately)

Attachment 5—Documents referenced in conditions

(page left intentionally blank – attached separately)