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Haul Road associated with filling works at Turnock St, Kingscliff

STATEMENT OF ENVIRONMENTAL EFFECTS

Development application for a Haul Route

Address:	Tweed Coast Road and Crescent Street, Kingscliff
Lot & DP	Lot 4 DP727425 and Lot 26C DP10715
Description:	Road Reserve Tweed Coast Road and Crescent Street
Local Government:	Tweed Shire Council
MUS Reference:	27306ALL
Prepared for:	Gales Kingscliff Pty Ltd

DATE: 27 OCTOBER 2020

CIVIL ENGINEERING TOWN PLANNING PROJECT COORDINATION

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Prepared for:
Gales Kingscliff Pty Ltd

Property Address:
Tweed Coast Road Kingscliff
NSW

Real Property Descriptions:
Lot 4 on DP727425
Lot 26C on DP10715

DOCUMENT CONTROL

Report Summary	
Document Details	
Project Reference:	27306ALL
Document Title:	Statement of Environmental Effects | Development application for a haul route

Distribution

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Appendix 11	**Traffic Impact Assessment** Turnock Street Haul Road and Crescent Street Turnaround Facility Report Reference P4681.002L Prepared by Bitzios Consulting Dated 8 September 2020
Appendix 12	**Construction Management Plan** Turnock Street Kingscliff Prepared by Mortons Urban Solutions Dated October 2020

Proposal Summary	
Property Details	
Address:	Tweed Coast Road Kingscliff
Real Property Description:	Lot 4 on DP727425, Lot 26C DP10715, Road Reserve Tweed Coast Road and Crescent Street
Area:	23.58ha
Land Owner & Applicant Details	
Land Owner:	Gales Holdings Pty Ltd
Applicant:	Gales Kingscliff Pty Ltd
Contact:	Gavin Johnson - Mortons Urban Solutions 0427704774
Applicant Address:	Gales Kingscliff Pty Ltd c/- Mortons Urban Solutions PO Box 2484 Southport QLD 4215
Proposal Details	
Application Type:	Development Application for a haul route for the delivery of fill material to the Turnock St fill area
Staged Development:	No
Local Government Area:	Tweed Shire Council
Integrated Development:	Yes – Water Management Act Controlled Activity
Other Approvals or Licences	
Water Management Act 2000	Yes
Heritage Act 1977	No
Roads Act 1993	Yes
Water Management Act 1912	No

1.0 INTRODUCTION

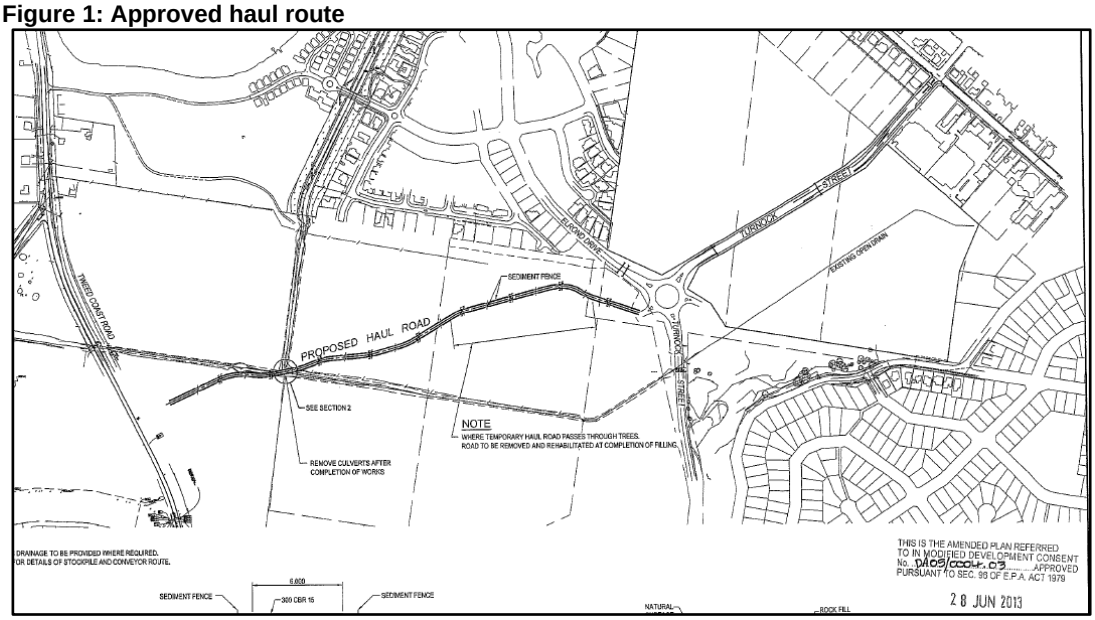
1.1 Background

This Statement of Environmental Effects has been prepared on behalf of **Gales Kingscliff Pty Ltd (Gales)** and is supporting information to the development application seeking approval for works associated with the construction of a haul route and the use of the proposed haul route to transport fill associated with approved filling works at Turnock Street Kingscliff from currently unknown locations.

The following provides a summary of relevant history to this application:

- Gales has an approval (DA05/0004.03) that allows for the filling of land north and south of Turnock Street on lots 11, 12 and 13 DP871753 and lots 1 to 9 DP781714. The quantity of approved fill is 580,000m^3.
- The approved source of fill is the Gales sand extraction quarry to the west of Crescent Street. The approval allows for extracted sand to be moved:
  - hydraulically to a stockpile at the western side of Tweed Coast Road
  - via a conveyor belt over Tweed Coast Road to a stockpile point
  - by truck to the approved fill areas
- The approved haul route for the truck movements is shown in figure 1. The route was adopted because it aligned with the expected future permanent road and avoided trees as much as possible.

Figure 1: Approved haul route

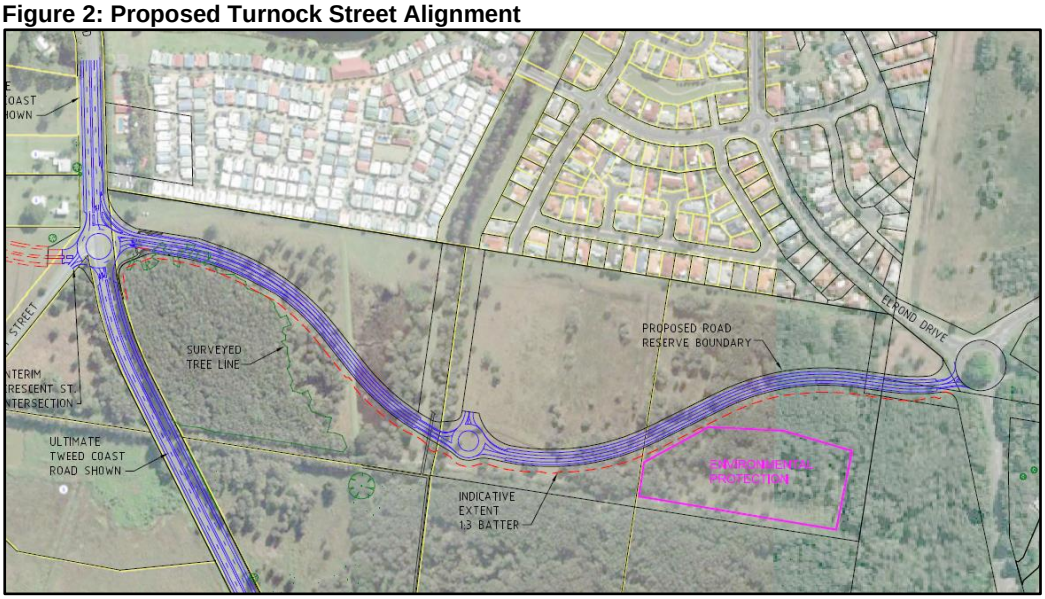


Source: Knobel Consulting

- Gales has become aware that the quality of the sand resource being extracted from the approved quarry is very high and valued by the construction industry. As such, its best use is not considered to be fill for future urban development.
- Gales has identified other potential sources of material that could be used to fill the Turnock Street area.

- Gales have been in discussion with Council over a number of years with respect to the most suitable alignment for the new east west connector road being the extension of Turnock Street from the Elrond Drive / Turnock Street roundabout to Tweed Coast Road. In principle agreement for the permanent connector was provided by Council via email on 25 May 2020 to the alignment shown in figure 2.

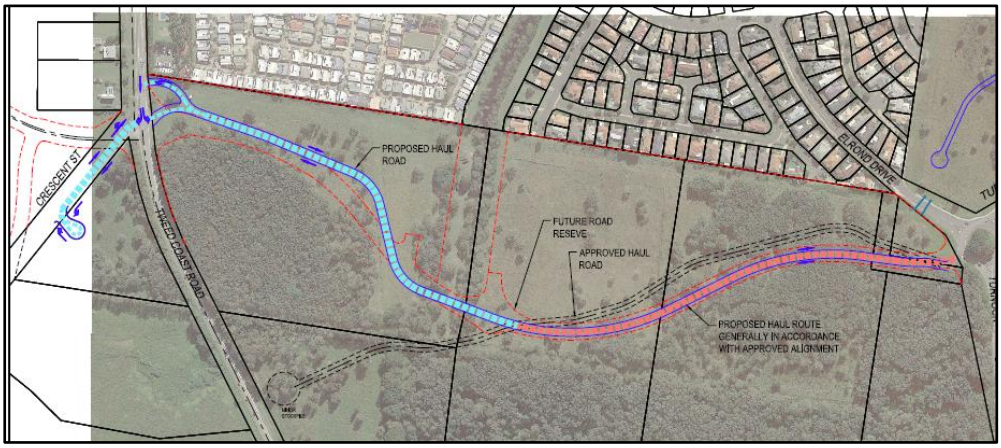
Figure 2: Proposed Turnock Street Alignment



Source: Mortons Urban Solutions

- Gales lodged an application with the State for the Secretaries Environmental Assessment Requirements (SEAR's) on 25 May 2020 associated with a designated DA for the Turnock Street extension.
- It was intended that the approved Turnock Street extension be used as the haul route for the Turnock Street fill area however it has become apparent that the complexities of the designated DA will likely lead to an extended assessment timeframe. Gales are hoping to commence filling in the short term to take advantage of the material from the motorway construction in Queensland so have investigated alternate routes for delivery of fill to the site.
- It is intended that the proposed haul route link to the approved haul route (DA05/0004.03) located within Lot 26C DP10715 will allow the movement of fill via Turnock Street to the fill areas located to the north and south of Turnock Street as shown in figure 3. The alternate route using public roads is limited by the construction of the Tweed Valley Hospital and limits of the Cudgen Road Tweed Coast Road intersection.

Figure 3: Link between proposed haul route and approved haul route

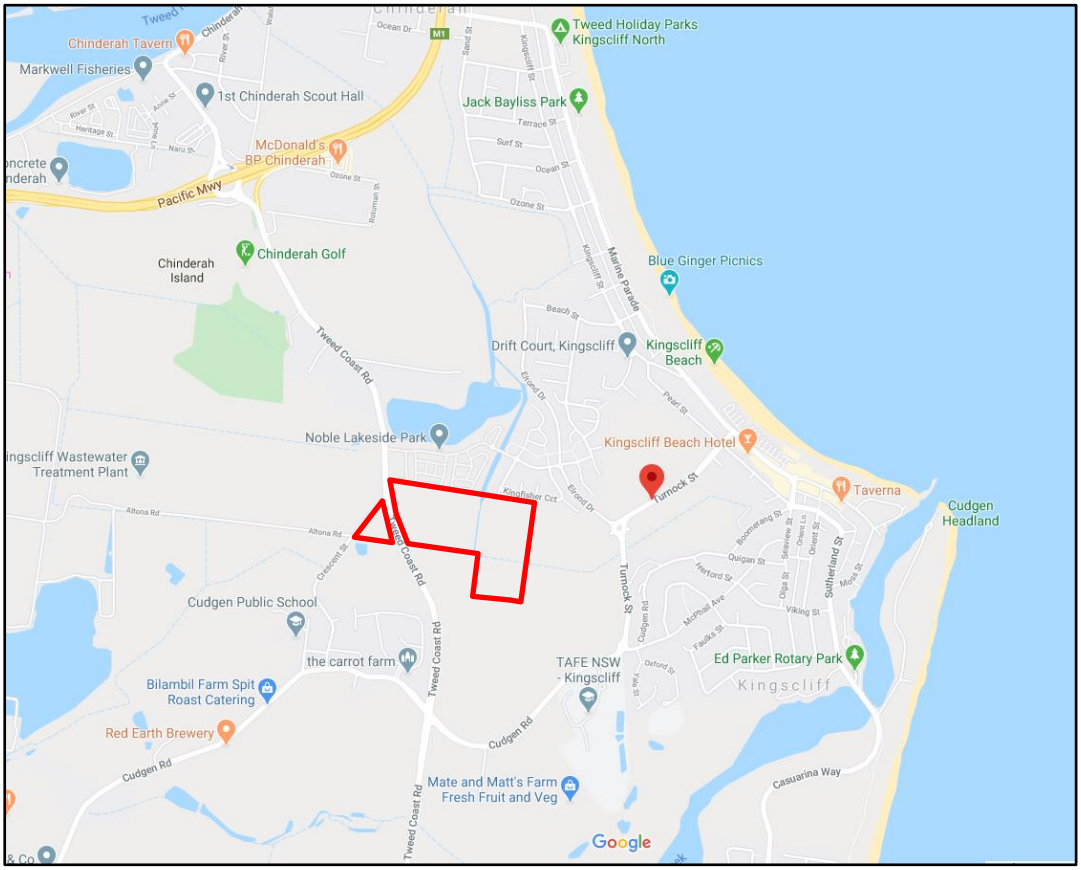


Source: Mortons Urban Solutions

1.2 Site Details and Context

The subject land is described as Lot 4 DP727425 and Lot 26C DP10715 and involves works within the road reserve of Tweed Coast Road and Crescent Street. The approximate location of the subject land is illustrated in Figure 4. The land has an area of 23.58ha, and forms part of the larger Gales Holdings Pty Ltd / Gales – Kingscliff Pty Ltd land holding. The land does not have a legal access to Tweed Coast Road.

Figure 4: Subject Site



Source: Google maps

The site is generally flat and located below the 1 in 100 year flood level. Two major drains are located on the land, with the north south drain required to be crossed by the proposed haul road. The land is vegetated in some areas, although the proposed haul road is located to avoid trees as far as possible refer to figure 3). The site adjoins Noble Lakeside Park and residential development neighbourhoods to the north. The Kings Coast development is located to the south between Crescent Street and Tweed Coast Road. To the west, Gales have an approved quarry for the extraction of sand resource. Land to the east and south is undeveloped with areas of dense vegetation, particularly to the south of the drain.

2.0 THE PROPOSAL

This proposal is directly related to the existing Development Consent (DA05/0004.03) which allows for the filling of land to the north and south of Turnock Street. This existing approval involves sourcing fill from Gales sand extraction quarry located to the west of Crescent Street. The approval allows for extracted sand to be moved:

- hydraulically to a stockpile at the western side of Tweed Coast Road
- via a conveyor belt over Tweed Coast Road to a stockpile point
- by truck to the approved fill areas via a haul route shown on the approved plans

This application will propose alternative sources of fill, an alternative delivery method and a different haul route.

Specifically, the application involves the following components:

2.1 Source of fill material

It is proposed to source fill from areas external to land owned by Gales. The specific source is unable to be identified at this stage but is likely to originate from major infrastructure projects like the M1 upgrade in South East Queensland. This application seeks flexibility to obtain fill from potentially a number of sources over an unspecified period of time, although the preferred source is the Queensland motorway with this fill available if the approvals from Council achieved within the statutory timeframes.

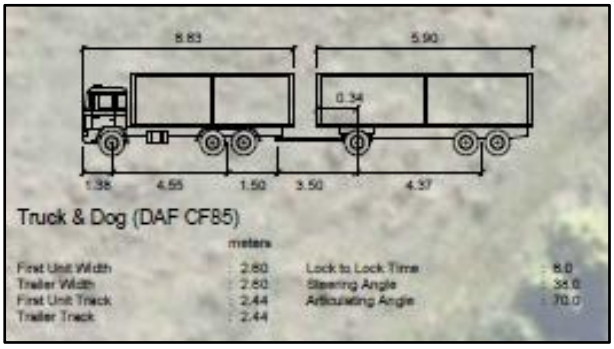
Fill delivered to the site will be VENM or ENM that is free of contaminants and achieves standards required for future urban development.

The quantity of fill required remains unaltered from the current filling consent at 580,000m^3.

2.2 Fill delivery method

Fill material is proposed to be delivered to the Turnock Street fill areas by truck and dog (refer to figure 5). It is estimated that this will require 348 truck movements per day over a minimum period of 44 weeks. Considering typical operating hours of 7am to 6pm this will be the equivalent to 32 heavy vehicle movements per hour (16 ingress / 16 egress).

Figure 5: Truck and Dog



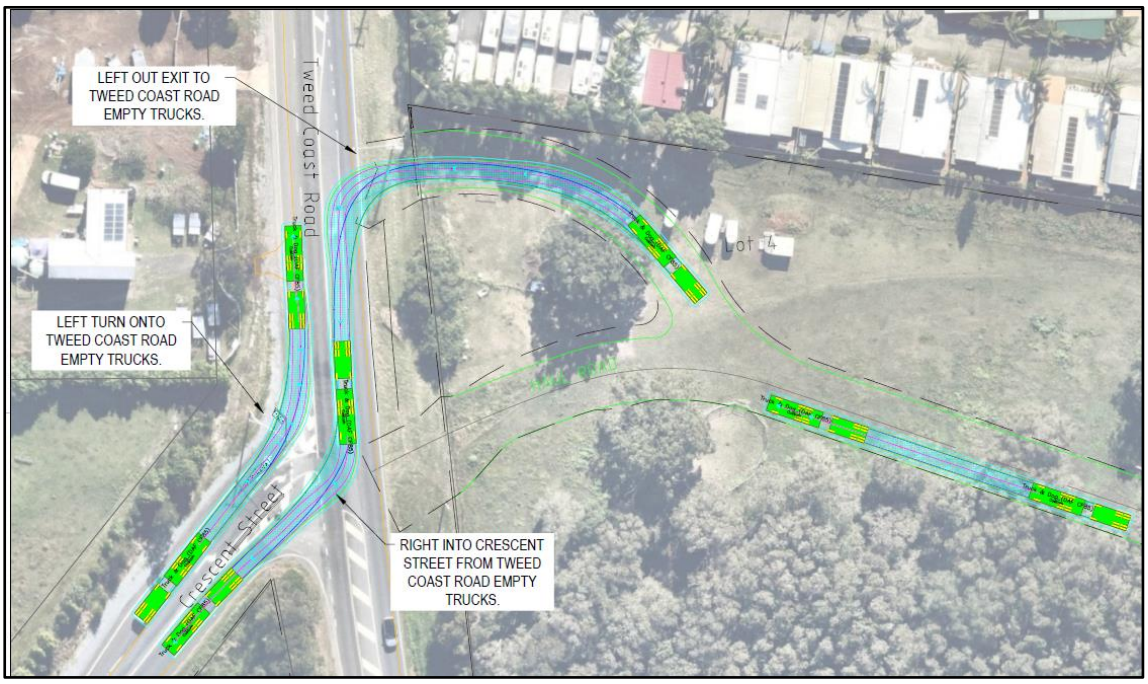
Source: Bitzios Consulting

2.3 Haul route alignment and construction

External to Kingscliff, trucks will utilise the public road network. It is likely that this will predominantly involve vehicle movements on the Pacific Motorway and Tweed Coast Road. As right turn movements are best avoided from Tweed Coast Road into Lot 4 DP727425, trucks delivering fill will travel in a south bound direction on Tweed Coast Road. To turn right and proceed north, empty trucks will utilise a right turn refuge and turnaround in Crescent Street as described below.

The following figures 6a and 6b illustrate movements to and from Lot 4.

Figure 6a: Entry and exit at Tweed Coast Road



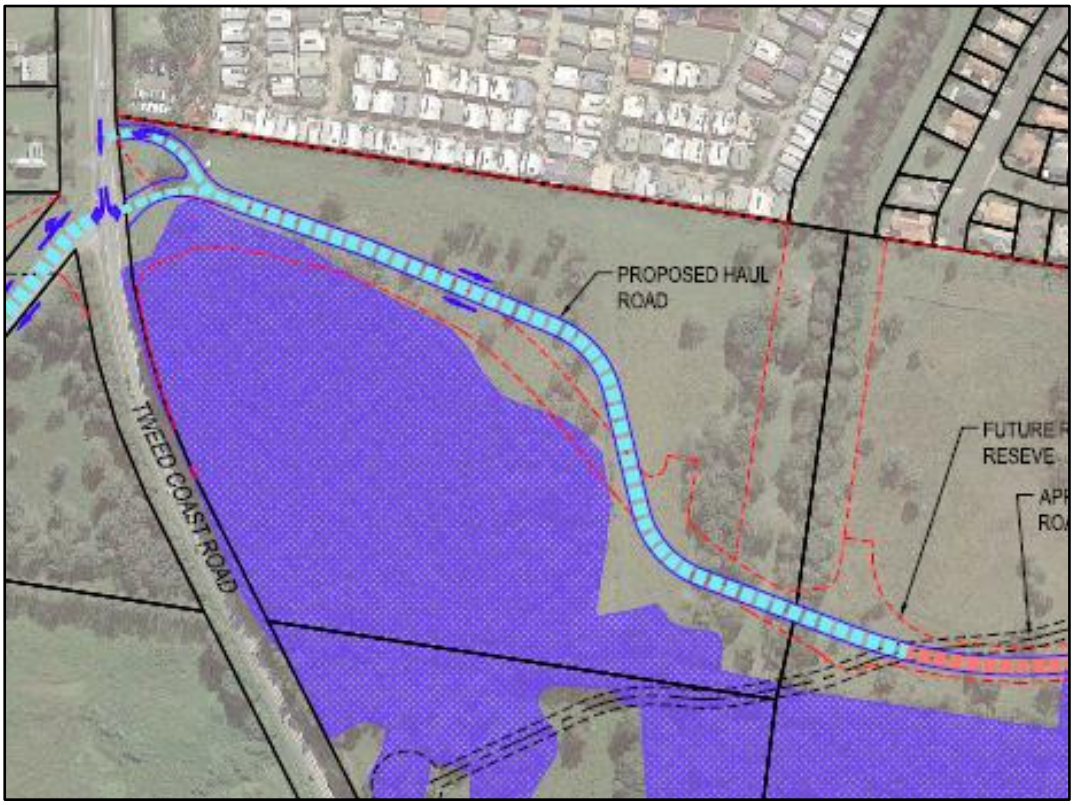
Source: Bitzios Consulting

Figure 6b: Truck turnaround at Crescent Street

Source: Bitzios Consulting

Upon entering Gales land at Lot 4 the trucks delivering fill will follow a route that aligns approximately with the proposed future Turnock Street extension but avoids as many trees as possible. The route will be located north of the heavily vegetated parts of Lot 4 and avoid any areas mapped as Coastal Wetland under the SEPP (Coastal Management) 2018 (refer to figure 7).

Figure 7: SEPP Coastal Management Wetland Mapping (shown as a purple hatch)

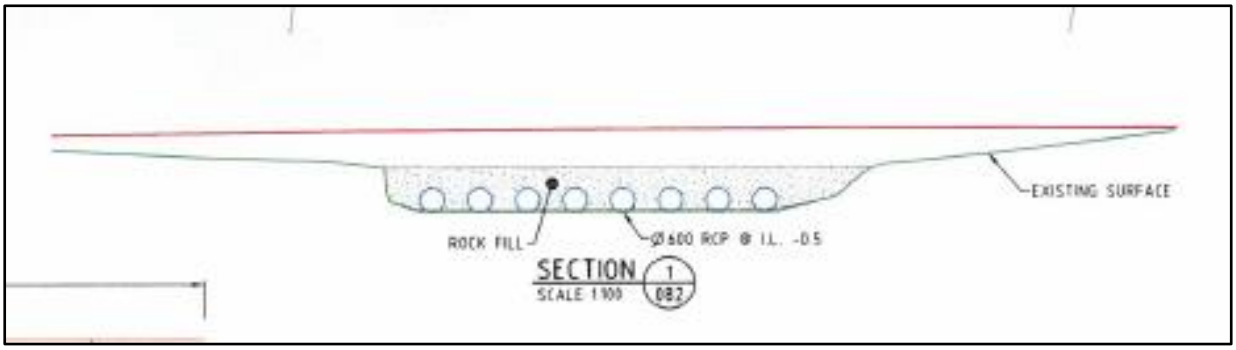


Source: MUS and NSW Department of Planning and Environment online mapping

The proposed haul route will cross the north south drain at the approximate point it enters Lot 26C DP 10715. This will require the use of pipes to maintain water flow. The intended works in this area are illustrated in the attached engineering drawings and shown conceptually in figure 8.

Figure 8: Works within north south drain

ESG WORKS



Source: Mortons Urban Solutions Engineering Plans

ESG WORKS - pegging out

At a point approximately 80m into lot 26C DP10715 the proposed haul route will join the haul route approved in consent DA05/0004.03.

ESG - traffic management

After delivering the fill to the Turnock Street fill area the empty trucks will follow the same path back towards Tweed Coast Road. To enable trucks to utilise the existing right turn refuge on Tweed Coast Road to Crescent Street, they will however be required to leave lot 4 at a point north of the entry point. Taking account of swept path requirements, this section of the haul route has been moved as far as possible from the boundary with Noble Lakeside Park.

Upon entering Tweed Coast Road, the trucks will turn right onto Crescent Street. A short distance along Crescent Street a vehicle turnaround has been proposed, refer to figure 6. This will allow for the trucks to travel north on Crescent Street and make a left turn onto Tweed Coast Road.

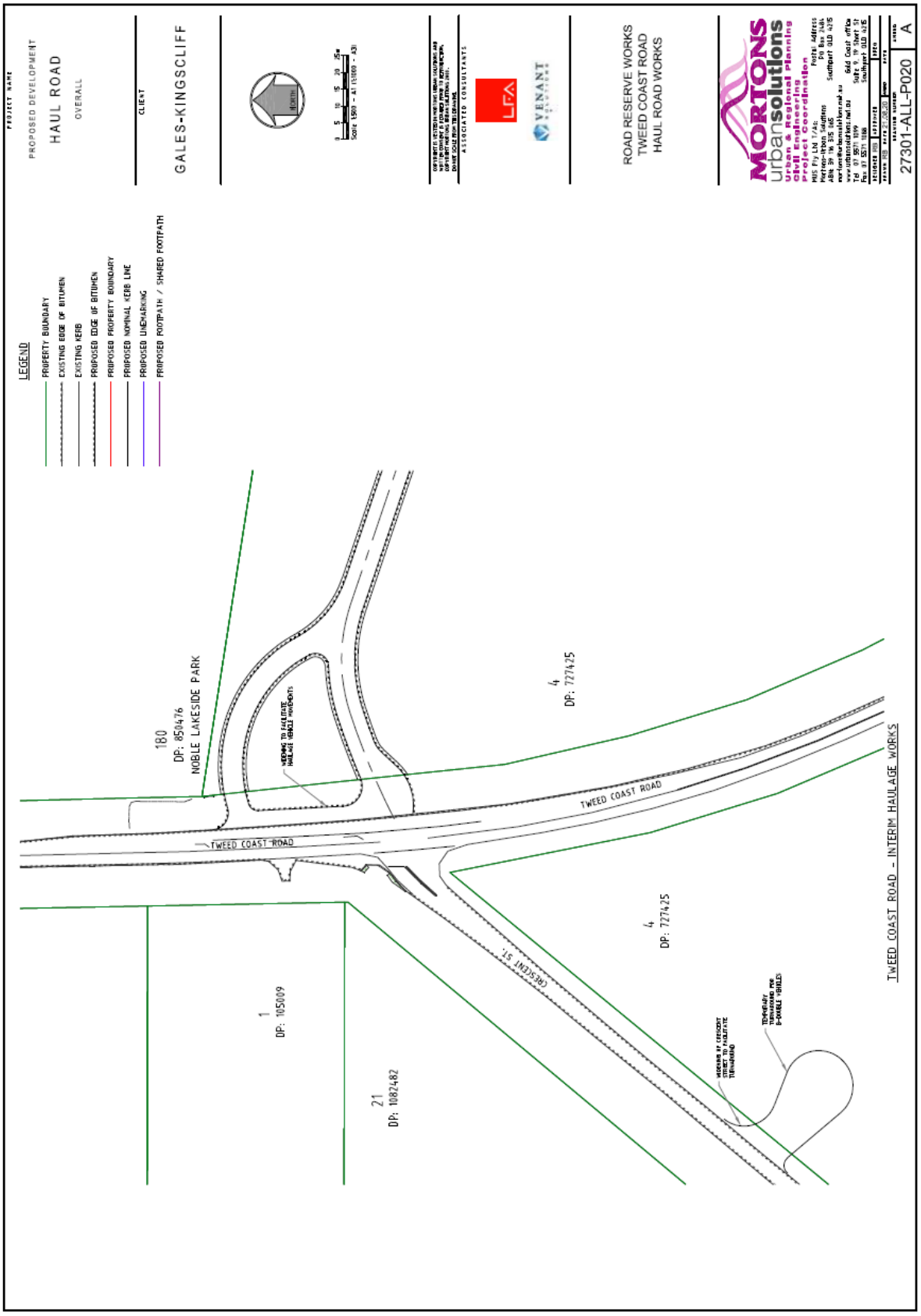
ESG works

The haul route works will involve the construction of a temporary gravel track approximately 10m wide. The works are shown on the Haul Road Development Application Plan in Appendix 1 and the Engineering plans included in Appendix 2 and will involve:

- Vegetation removal and stripping of topsoil
- Placing approximately 904m^3 of material to raise the haul road above the natural ground level by approximately 300mm to allow wet weather access
- Installation of sediment fencing and erosion control works
- Installation of pipes to allow for water to move north and south of the track
- Allocation of a dedicated area for treatment of potential acid sulfate material
- Installation of vehicle washdown facilities and a compound

Works will also involve connecting the haul road to existing public roads where it joins to Tweed Coast Road and Crescent Street. Such works will be subject to a construction certificate application but are shown conceptually in figure 9.

Figure 9: Proposed works where the haul road intersects with public roads



Source: Mortons Urban Solutions

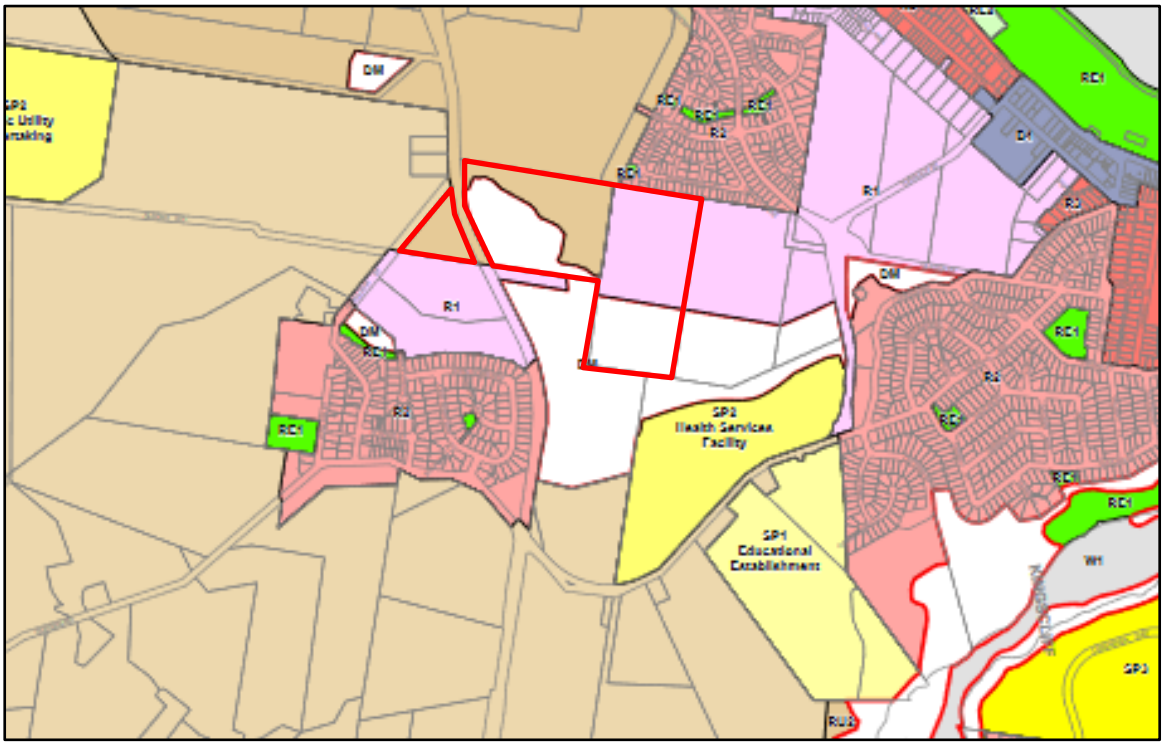
3.0 STATEMENT OF ENVIRONMENTAL EFFECTS

The following includes an assessment of environmental effects of the proposed development as described previously within this report. This assessment includes matters that are relevant to the proposal against relevant Planning Controls.

3.1 Tweed Local Environmental Plan 2014

The land is shown as part R1 General Residential, part RU2 Rural Landscape and part Deferred Matter on the LEP zoning map. Refer to Figure 10.

Figure 10: Zoning Map LEP 2014



Source: Tweed Shire Council LEP 2014 Mapping

The objectives of the General Residential (R1) zone are stated as:

- To provide for the housing needs of the community.
- To provide for a variety of housing types and densities.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To encourage the provision of tourist accommodation and related facilities and services in association with residential development where it is unlikely to significantly impact on amenity or place demands on services beyond the level reasonably required for residential use.

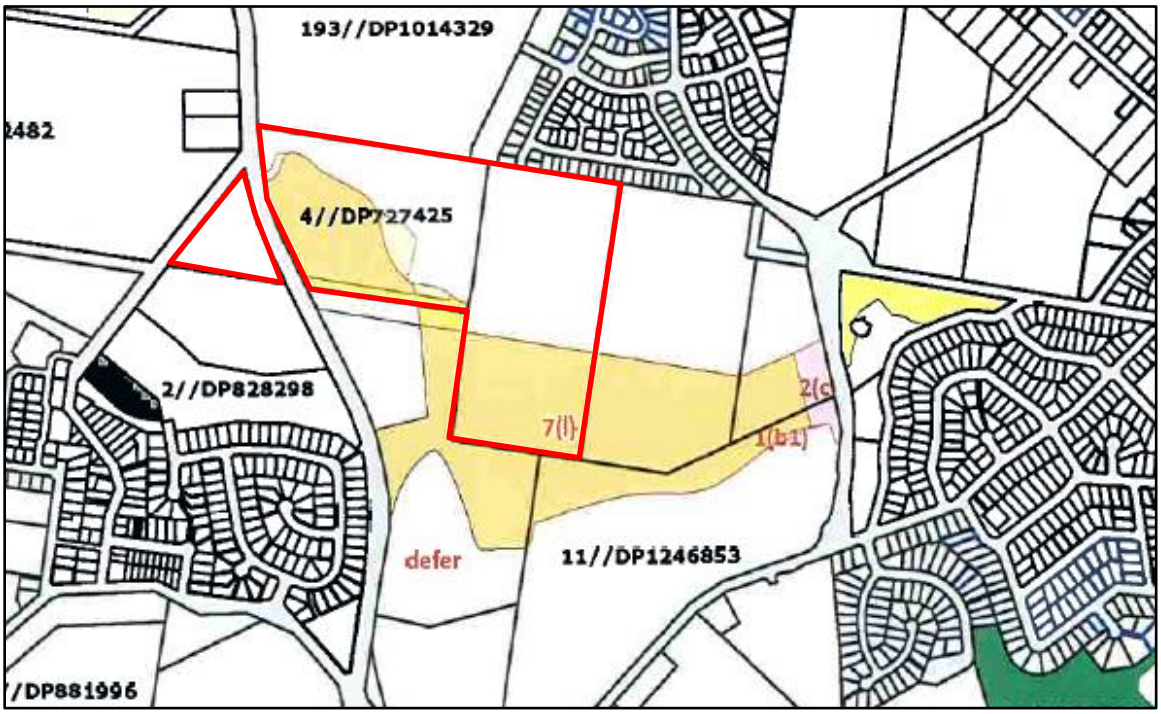
The objectives of the Rural Landscape (RU2) zone are stated as:

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To maintain the rural landscape character of the land.

- To provide for a range of compatible land uses, including extensive agriculture.
- To provide for a range of tourist and visitor accommodation-based land uses, including agri-tourism, eco-tourism and any other like tourism that is linked to an environmental, agricultural or rural industry use of the land.

Zoning under the Tweed LEP 2000 is relevant in this instance as part of the land is identified as a deferred matter. As shown in figure 11 the deferred areas in LEP 2014 were zoned 7(l) Environmental Protection (Coastal Lands), 1(a) Rural, 5(a) Special Uses and Deferred in LEP 2000. The proposed haul route is not located in the deferred matter designated land so it is considered unnecessary to consider compatibility of the proposal with the objectives of these former zones. It is noted that the approved haul route (that the proposed route replaces) passes over the deferred matter land.

Figure 11: Zoning Map LEP 2000



Source: Tweed Shire Council LEP 2000 Mapping

The proposed filling works to create the haul road are required to raise the level of the land to provide an all weather access for vehicles. The works are associated with the approved filling of the Turnock Street area and would enable urban development to occur in the approved Turnock Street fill area, in accordance with the zone objectives. In this respect the proposal is not in conflict with the objectives of the R1 zone.

With respect to the objectives of the RU2 zone, the proposed works are temporary and after filling work has been completed in the approved Turnock St fill area the affected land can be returned to rural uses.

The filling and drainage works proposed by this application are defined in the Tweed LEP 2014 as:

- Earthworks – *means excavation or filling*
- Drainage - *means any activity that intentionally alters the hydrological regime of any locality by facilitating the removal of surface or ground water. It may include the construction, deepening, extending, opening, installation or laying of any canal, drain or pipe, either on the land or in such a manner as to encourage drainage of adjoining land.*

In accordance with clause 7.2 Earthworks of the Tweed LEP 2014, consent for the earthworks is required.

The following clauses of the Tweed LEP 2014 are relevant to the Subject Site or proposed development:

3.1.1 1.2 Aims of Plan

The aims of the Tweed LEP 2014 are stated as:

(1) This Plan aims to make local environmental planning provisions for land in Tweed in accordance with the relevant standard environmental planning instrument under section 33A of the Act.

(2) The particular aims of this Plan are as follows:

- *(a) to give effect to the desired outcomes, strategic principles, policies and actions contained in the Council's adopted strategic planning documents, including, but not limited to, consistency with local indigenous cultural values, and the national and international significance of the Tweed Caldera,*
- *(b) to encourage a sustainable local economy and small business, employment, agriculture, affordable housing, recreational, arts, social, cultural, tourism and sustainable industry opportunities appropriate to Tweed,*
- *(c) to promote the responsible sustainable management and conservation of Tweed's natural and environmentally sensitive areas and waterways, visual amenity and scenic routes, built environment, and cultural heritage,*
- *(d) to promote development that is consistent with the principles of ecologically sustainable development and to implement appropriate action on climate change,*
- *(e) to promote building design which considers food security, water conservation, energy efficiency and waste reduction,*
- *(f) to promote the sustainable use of natural resources and facilitate the transition from fossil fuels to renewable energy,*
- *(g) to conserve or enhance the biological diversity, scenic quality and geological and ecological integrity of Tweed,*
- *(h) to promote the management and appropriate use of land that is contiguous to or interdependent on land declared a World Heritage site under the Convention Concerning the Protection of World Cultural and Natural Heritage, and to protect or enhance the environmental significance of that land,*
- *(i) to conserve or enhance areas of defined high ecological value,*
- *(j) to provide special protection and suitable habitat for the recovery of the Tweed coastal Koala.*

In considering development within the Tweed Shire it is required to consider the matters stated in clause 1.2(2). These matters are considered below:

Requirement	Response
Clause 1.2(2)	
(a) to give effect to the desired outcomes, strategic principles, policies and actions contained in the Council's adopted strategic planning documents, including, but not limited to, consistency with local indigenous cultural values, and the national and international significance of the Tweed Caldera,	This development application has considered the numerous *"…strategic principles, policies and actions contained in the Council's adopted strategic planning documents…"* as applicable to the proposal. The SEE and accompanying appended reports/assessments have acknowledged the significance of the environment in which the proposed development is located. Issues which have been appropriately considered and addressed include: • Flooding/stormwater/drainage • Acid sulfate soils • Ecological significance (flora and fauna) • Noise/acoustics • Geotechnical/soil conditions • Contamination • Environmental management • Indigenous and cultural values The DA is consistent with the Tweed LEP 2014 and Tweed DCP 2008. The proposal does not generate any significant impacts and seeks to preserve the integrity of the sites ecological values. The proposed route has reduced impacts compared to the approved route.
(b) to encourage a sustainable local economy and small business, employment, agriculture, affordable housing, recreational, arts, social, cultural, tourism and sustainable industry opportunities appropriate to Tweed,	This development application will allow for future urban development on land zoned R1 to the north and south of Turnock Street. The proposal represents a significant investment in the local economy and will generate employment.
(c) to promote the responsible sustainable management and conservation of Tweed's natural and environmentally sensitive areas and waterways, visual amenity and scenic routes, built environment, and cultural heritage,	Section 4.3 of the SEE and the appended Ecoplanning Flora and Fauna Assessment (**appendix 3**) provides a detailed assessment of the site and the wider localities ecological values. This assessment concludes the proposed development will have negligible impact on flora and fauna values of the Subject Site and the wider Tweed Coast area. The alignment of the haul road has been determined to minimise tree removal. In parts it also aligns with the intended location of the future extension of Turnock Street to Tweed Coast Road, thereby reducing future required vegetation clearing compared with the approved route.

(d) to promote development that is consistent with the principles of ecologically sustainable development and to implement appropriate action on climate change,	Works are restricted to areas of low ecological value while avoiding adjacent areas of high ecological value. The DA is consistent with the principles of ecologically sustainable development and has considered all potential environmental impacts and assessed them accordingly. The ecological significance of the Subject Site has been assessed and demonstrated that no significant impacts arise.
(e) to promote building design which considers food security, water conservation, energy efficiency and waste reduction,	This clause not applicable to this application.
(f) to promote the sustainable use of natural resources and facilitate the transition from fossil fuels to renewable energy,	The proposal will enable the use of fill material likely sourced from major infrastructure projects. In doing so it will sustainably utilise a resource that may otherwise end up in landfill. Further the use of such fill as an alternative to extracted sand will enable the use of the sand for higher value and beneficial for commercial purposes. It is essential for filling and developing the Turnock Street Precinct Area in the short term, which will beneficially concentrate development, utilise existing infrastructure, reduce travel and fossil fuel use.
(g) to conserve or enhance the biological diversity, scenic quality and geological and ecological integrity of Tweed,	The following assessments/reports appended to the SEE document how the proposed development will "…*conserve or enhance the biological diversity, scenic quality and geological and ecological integrity of Tweed."* • Appendix 3 Flora and Fauna Assessment • Appendix 4 Environmental Management Plan • Appendix 5 Acid Sulfate Soils Management Plan • Appendix 6 Flood Impact Assessment Report The ecological significance of the Subject Site has been assessed and it is demonstrated that no significant impacts arise.
(h) to promote the management and appropriate use of land that is contiguous to or interdependent on land declared a World Heritage site under the Convention Concerning the Protection of World Cultural and Natural Heritage, and to protect or enhance the environmental significance of that land,	This clause not applicable to this application as the Subject Site is not a declared World Heritage site.

(i) to conserve or enhance areas of defined high ecological value	The following assessments / reports appended to the SEE document how the proposed development will "…*conserve or enhance the biological diversity, scenic quality and geological and ecological integrity of Tweed."* • Appendix 3 Flora and Fauna Assessment • Appendix 4 Environmental Management Plan • Appendix 5 Acid Sulfate Soils Management Plan • Appendix 6 Flood Impact Assessment Report The alignment of the haul road has been determined to minimise tree removal and avoid an area mapped as coastal wetland under the Coastal Management SEPP. It generally aligns with the intended location of the future extension of Turnock Street to Tweed Coast Road, thereby reducing future required vegetation clearing.
(j) to provide special protection and suitable habitat for the recovery of the Tweed coastal Koala.	The Tweed Coast Comprehensive Koala Plan of Management mapping indicates that the land affected by the proposed haul road is outside of preferred koala habitat.

3.1.2 *7.1 Acid Sulfate Soils (ASS)*

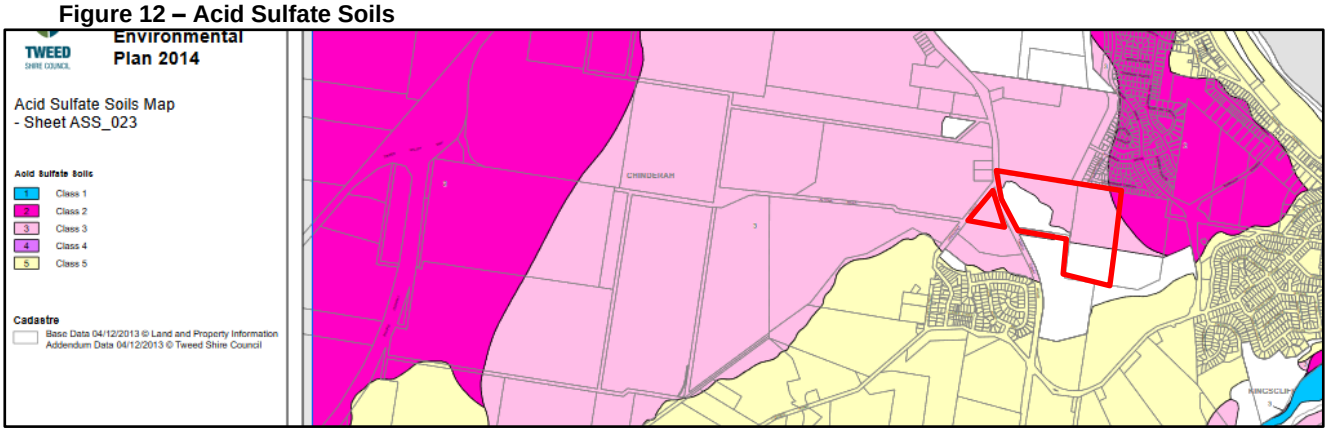
The Subject Site is nominated as Class 2 and Class 3 ASS on the Tweed LEP 2014 Acid Sulfate Soils Map (refer to **Figure 12**). Works associated with the proposed haul road are confined to the Class 3 designation. Within the Class 3 ASS designation, development consent is required where works are proposed below the natural ground surface. This application proposes minor excavation works below natural ground level, limited to scraping the existing topsoil to provide a suitable surface for haulage vehicles.

In support of the application an Acid Sulfate Soil Management Plan (ASSMP) has been prepared by HMC Environmental Consulting Pty Ltd (refer to **Appendix 5**).

ESG - managing ASS

The ASSMP recommends that all material excavated below the ground surface and materials extracted for the drain crossing be managed to minimise and ameliorate existing and potential acidity. Appendix 1 of the ASSMP includes a number of management strategies that would ensure that the excavation works do not cause environmental damage in accordance with the objective of Clause 7.1. The ASS management strategies are also carried over into the Environmental Management Plan (refer to **Appendix 4**).

Figure 12 – Acid Sulfate Soils



Source: Tweed LEP 2014

3.1.3 7.2 Earthworks

The objective of this clause is to ensure that earthworks for which development consent is required will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land.

In considering development involving earthworks the Council is required to consider the matters stated in clause 7.2(3). These matters are considered below:

Requirement	Response
Clause 7.2(3)	
(a) the likely disruption of, or any detrimental effect on, drainage patterns and soil stability in the locality of the development,	In support of the development application a flood impact assessment was undertaken by Venant Solutions (refer to **Appendix 6**). The analysis conducted by Venant Solutions concludes that hydraulic impacts generated by the proposed works would be within limits acceptable to Council. An Environmental Management Plan prepared by HMC Environmental Consulting Pty Ltd (refer to **Appendix 4**) and a stormwater management Plan prepared by Biome Consulting (**Appendix 9**) details management strategies that would minimise erosion on site and the movement of sediment from the site.
(b) the effect of the development on the likely future use or redevelopment of the land,	The proposed works are intended to raise the ground level of the haul road to enable it to be used for haulage in minor rainfall events. Once filling works have been completed and the haul route is no longer required the land can be returned to natural levels.
(c) the quality of the fill or the soil to be excavated, or both,	Fill to be imported to the site would likely be ENM and VENM. Appropriate testing to confirm its compatibility for its intended use would be carried out prior to delivery.

ESG - erosion and sediment control plans

	Stripping and stockpiling of vegetation and topsoil with high levels of organic matter would occur prior to filling works. Where suitable the stripped material would be reused on site. Excess or unsuitable material would be removed to a facility approved to accept material. Gales-Kingscliff sand extraction processing area is approved to accept VENM.
(d) the effect of the development on the existing and likely amenity of adjoining properties,	Cardno have prepared a Construction Noise and Vibration Assessment (refer to **Appendix 7**). The report includes a range of management recommendations intended to minimise impacts to nearby noise sensitive uses. Key components of the proposed management strategies will be at source noise reduction (mufflers and temporary noise barriers) and limiting the hours with which construction works occur. Air quality is considered by HMC Environmental Consulting Pty Ltd in the Environmental Management Plan (refer to **Appendix 4**). A range of dust control strategies are recommended as well as monitoring and corrective actions. Compliance with the recommendations of these reports is likely to ensure that the development does not unreasonably affect the amenity of existing development in the locality.
(e) the source of any fill material and the destination of any excavated material,	Refer to the response to item (c) in this table. The source of material is likely to be motorway works if approval of this DA is not delayed.
(f) the likelihood of disturbing relics,	An Aboriginal Cultural Heritage Assessment was conducted on this site by Everick Heritage (Appendix 8). This assessment indicates that it is unlikely that matters of aboriginal cultural heritage significance will be present due to past activities and disturbance on the site. A strategy for the management of any items of cultural heritage significance encountered during construction activities has been proposed and incorporated into the Environmental Management Plan (refer to **Appendix** 4)
(g) the proximity to, and potential for adverse impacts on, any waterway, drinking water catchment or environmentally sensitive area,	Refer to the response to item (a) in this table. Assessment of matters relevant to the Water Management Act with respect to potential impacts on waterways are considered in section 3.5 of this SEE. Further, sediment and erosion control is proposed in accordance with the recommendations of the Environmental Management Plan included in **Appendix 4** and the Stormwater Management Plan included in **Appendix 9**. Ecoplanning have prepared a Flora and Fauna Assessment that considers potential impacts on environmentally sensitive areas (refer to **Appendix 3**). This report concludes that works are predominantly impacting on areas identified as exotic pasture. The proposal is considered to not significantly impact threatened species populations or ecological communities.
(h) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development,	A range of management measures have been recommended by the consultants working on this project. The majority of the measures intended to avoid, minimise or mitigate the impacts of the development are included

	within the Environmental Management Plan (refer to **Appendix 4**). The proposed haul route avoids the greater impact of the approved route it replaces.
(i) the proximity to, and potential for adverse impacts on, any heritage item, archaeological site, or heritage conservation area	Refer to the response to item (f) in this table.

3.1.4 7.3 Flood Planning

The objectives of this clause are as follows:

a) to minimise the flood risk to life and property associated with the use of land,
b) to allow development on land that is compatible with the land's flood hazard, taking into account projected changes as a result of climate change,
c) to avoid significant adverse impacts on flood behaviour and the environment.

In considering development at or below the flood level the Council is required to be satisfied with respect to matters stated in clause 7.3(3). These matters are considered below:

Requirement	Response
Clause 7.3(3)	
(a) is compatible with the flood hazard of the land, and	The land is proposed to be filled to a level that will provide access for haulage vehicles in some rainfall events. A Flood Impact Assessment prepared by Venant Solutions (refer to **Appendix 6**) has found that the proposal is compatible with Tweed Shire Councils flood planning for this area.
(b) will not significantly adversely affect flood behaviour resulting in detrimental increases in the potential flood affectation of other development or properties, and	Modelling carried out by Venant Solutions (refer to **Appendix 6**) and described in their Flood Impact Assessment shows all regional flood events meet the Council criteria. Local catchment modelling shows that the development would not increased flood levels across the flood plain. Minor impacts to the Tweed Coast Road road reserve are observed but these do not impact the carriageway. Venant Solutions have also considered the proposed pipes required for haulage vehicles to cross the north south drain and determined that they do not cause significant hydraulic impacts.
(c) incorporates appropriate measures to manage risk to life from flood, and	The proposal does not present potential risk to life. The haul road would not be operational during flood events and does not interfere with flood flows during flood events.
(d) will not significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses, and	Ecological matters have been considered by Ecoplanning in their Flora and Fauna (refer to **Appendix 3**). Other potential environmental impacts have been considered in the Environmental Management Plan prepared by HMC

	Environmental Consulting Pty Ltd (refer to **Appendix 4**). A stormwater management plans incorporating erosion and sediment control measures has been included in the Biome report included in **Appendix 9**. Implementing the management measures proposed by these technical reports will ensure that environmental impacts are not significant.
(e) is not likely to result in unsustainable social and economic costs to the community as a consequence of flooding.	The potential impacts on flooding have been assessed by Venant Solutions (refer to **Appendix 6**) and no potential impacts that would give rise to social or economic costs have been identified.

3.1.5 7.6 Stormwater Management

The objective of this clause is to minimise the impacts of urban stormwater on land in residential, business and industrial zones and on adjoining properties, native bushland and receiving waters.

The Council is required to be satisfied with respect to matters stated in clause 7.6(3). These matters are considered below:

Requirement	Response
Clause 7.6(3)	
(a) is designed to maximise the use of water permeable surfaces on the land having regard to the soil characteristics affecting on-site infiltration of water, and	N/A No permeable surfaces are proposed by this application.
(b) includes, if practicable, on-site stormwater retention for use as an alternative supply to mains water, groundwater or river water, and	N/A
(c) avoids any significant adverse impacts of stormwater runoff on adjoining properties, native bushland and receiving waters, or if that impact cannot be reasonably avoided, minimises and mitigates the impact.	As no permeable surfaces are required there will be no additional run off generated from the site. A Flood Impact Assessment prepared by Venant Solutions (refer to **Appendix 6**) has not identified any adverse hydraulic impacts from the proposed works. Erosion and sediment control measures will be implemented to avoid and minimise the potential impact to receiving waters from runoff – refer to the Biome Stormwater Management Plan included in **Appendix 9**.

3.1.6 7.10 Essential Services

The proposed works do not generate the need for essential services.

3.2 State Environmental Planning Policies (SEPP)

The proposal is assessed against the following SEPP's.

3.2.1 SEPP 55 – Remediation of Land

This policy requires an assessment of the likelihood of the land being contaminated as a result of past or present activities or uses. To satisfy the provisions of SEPP 55 Remediation of Land a Preliminary Site Investigation was prepared by HMC Environmental Consulting (refer to **Appendix 10**).

Evidence and records have been reviewed and indicate that the Subject Site has been vacant and used for grazing. A review of available information including historical aerial photography and a detailed site inspection has shown there is no evidence of structures and/or land uses or change in vegetation that would raise concerns of potentially contaminating activities having occurred on the Subject Site.

Material required for the haul roads will be obtained from a suitably approved source – likely associated with the upgrade of the M1 in South East Queensland. Refer to section 4.9 of the SEE for a more detailed discussion on the source of fill.

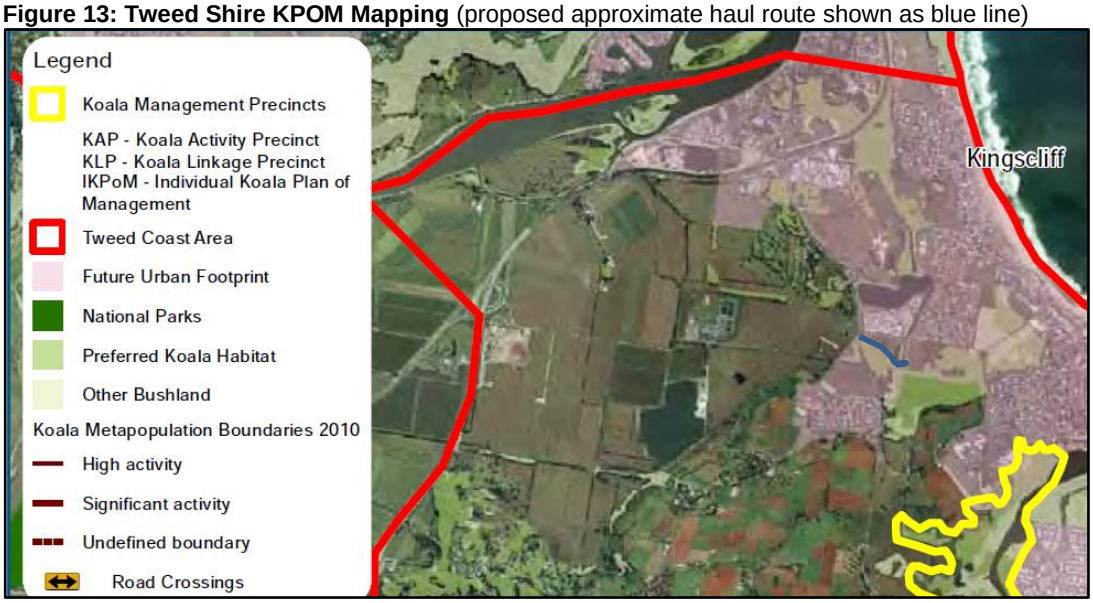
On this evidence, the risk of contamination is considered very low and no further investigations are warranted.

3.2.2 SEPP (Koala Habitat Protection) 2019

This Policy aims to encourage the conservation and management of areas of natural vegetation that provide habitat for koalas to support a permanent free-living population over their present range and reverse the current trend of koala population decline.

In accordance with the SEPP, the Tweed Shire has prepared a Comprehensive Koala Plan of Management (KPOM) for the Tweed Coast Area which includes the subject land. The site of the proposed haul route is not included in a Koala Management Precinct as shown in figure 13.

Figure 13: Tweed Shire KPOM Mapping (proposed approximate haul route shown as blue line)



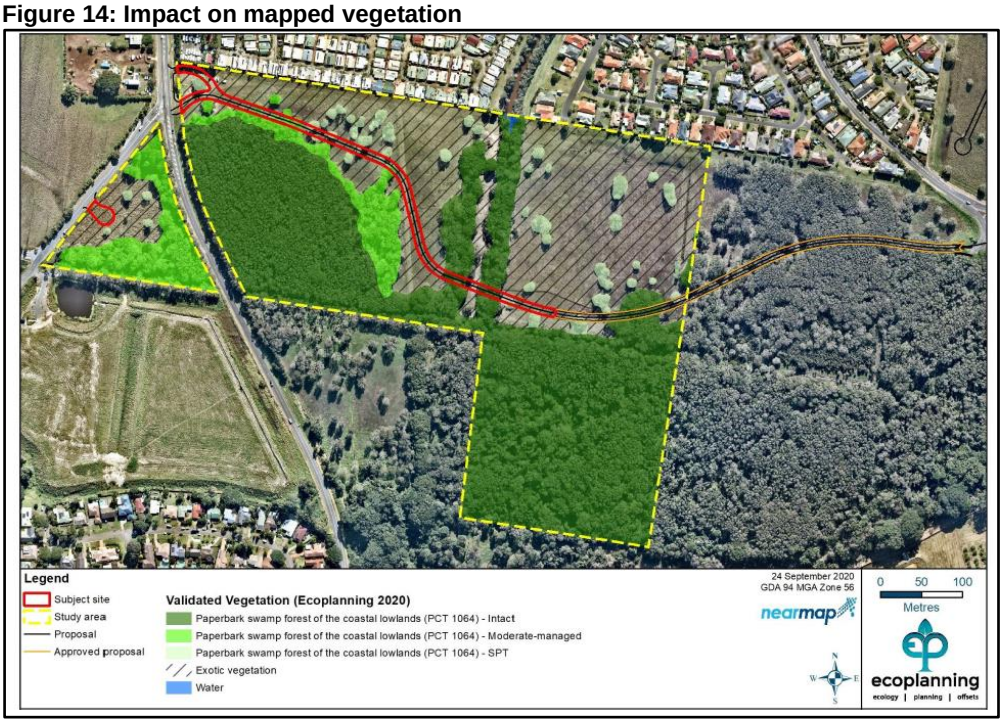
Source: Tweed Shire KPOM

Potential impact on fauna is considered by Ecoplanning in the attached Flora and Fauna Assessment (refer to **Appendix 3**).

This report confirms that koalas are not present in the vicinity of proposed works. The application does not trigger the need for any specific management measures with respect to koalas or generate the need for koala offset arrangements. In general the proposal is considered likely to have a negligible impact on fauna.

Figure 14 is extracted from the Flora and Fauna Assessment and demonstrates that the haul road has been located to avoid existing swamp paperbark forest as far as possible. The Flora and Fauna Assessment is included in **Appendix 3**.

Figure 14: Impact on mapped vegetation



Source: Ecoplanning Flora and Fauna Assessment

3.2.3 SEPP (Coastal Management) 2018

This Policy applies to land the whole or any part of which is within the coastal zone. As such it applies to the subject site.

Figure 15: SEPP Coastal Management Wetland Mapping (Coastal Wetland shown as a purple and blue hatch)

Source: MUS and NSW Department of Planning and Environment online mapping

As illustrated in Figure 15 the proposed haul route does not impact on land mapped as Coastal Wetland but does impact on land mapped as Proximity Area for Coastal Wetlands.

Clause 11 of the SEPP states:

Development consent must not be granted to development on land identified as "proximity area for coastal wetlands" or "proximity area for littoral rainforest" on the Coastal Wetlands and Littoral Rainforests Area Map unless the consent authority is satisfied that the proposed development will not significantly impact on—

a) the biophysical, hydrological or ecological integrity of the adjacent coastal wetland or littoral rainforest, or
b) the quantity and quality of surface and ground water flows to and from the adjacent coastal wetland or littoral rainforest.

In support of this application the following reports have been prepared that investigate potential impacts on the proximity area for coastal wetlands:

- Flood Impact Assessment prepared by Venant Solutions dated October 2020 – **Appendix 6**
- Stormwater Management Plan prepared by Biome dated October 2020 – **Appendix 9**
- Flora and Fauna Assessment prepared by Ecoplanning Pty Ltd dated 16 October 2020 – **Appendix 3**
- Acid Sulfate Management Plan prepared by HMC Environmental dated October 2020 – **Appendix 5**

Each of these assessments consider potential impacts and where relevant recommend management measures to mitigate any adverse impacts.

In relation to the potential impact of the haul route on the wetland hydrology, Venant Solutions has advised that this is influenced by a number of sources including:

- Surface water runoff from local catchment storm events;
- Surface water flooding;
- Tweed River flooding;
- Ground water flows.

Changes to cumulative seasonal inflow volumes through to annual scale inflow volumes can be more important for wetland health rather than rare storm/flood (local and regional) events. In these frequent rainfall events the inflows to the wetland will be primarily from rainfall falling directly on the wetland as well as runoff from the surrounding land referred to as the wetland catchment. The inclusion of a pipe connection between the area north of the haul route and the wetland is considered adequate to mitigate any potential reduction in water runoff caused by the raised haul route.

A specific ground water assessment has not been carried out because the proposal only reduces permeability for the route surface. Any runoff is captured and infiltrated and is therefore unlikely to adversely impact the level or movement of groundwater.

In order to ensure that any potential impacts to the surface water quality flowing to the adjacent coastal wetland communities is minimised, a stormwater management plan and erosion and sediment control plan has been prepared for the haul route (refer to **Appendix 9**). The management plan has been prepared in accordance with the following documents and guidelines:

- *Tweed Shire Council (2020), Development Design Specification – D7, Annexure A;*
- *Landcom (2004), Managing Urban Stormwater, Soils and Construction (4th Edition); and*
- *IECA (2008) Best-Practice Erosion and Sediment Control (BPESC) guideline*

To minimise the impact of construction phase activities, a set of site-specific best practice management procedures have been specified. These measures have been designed to control the severity and extent of soil erosion and pollutant transport from construction areas into the adjacent environment. Measures have been included to control drainage, minimise soil exposure and erosion and limit suspended solid concentration within discharge.

3.2.4 North Coast Regional Plan 2036

The NSW Government has recently released the North Coast Regional Plan 2036 (the Plan). The document is a high level strategy that focuses on 4 main goals for the region that relate to preserving its stunning environment, facilitating a thriving interconnected community, facilitating vibrant and engaged communities, and offering great housing choice and lifestyle options.

Figure 5 of the Plan includes a map that identifies the key features of the "Tweed Regional City". On this plan the proposed haul route is shown mostly within a non-urban area and partly within an urban renewal area.

The purpose of the application is to enable the delivery of fill to an approved development area north and south of Turnock Street which is shown on the North Coast Regional Plan as Urban Renewal.

It is considered that the proposed development is consistent with the goals and principles of the document in that it:

- Involves activities that will facilitate growth in an area identified for urban renewal that is adjacent to an established urban area.
- Is able to demonstrate minimal environmental impact
- Has appropriately responded to the flooding natural hazards affecting the site

3.3 Tweed Development Control Plan 2008

The Tweed Development Control Plan 2008 (DCP) contains detailed guidelines that apply to particular types of development or to particular areas. The DCP supplements the Tweed LEP 2014 and is made in accordance with the *Environmental Planning and Assessment Act 1979*. Applicable sections of the DCP are considered below.

3.3.1 Section A3 – Development of Flood Liable Land

The Subject Site is flood liable per the following maps:

- Design Flood Level Map - Sheet 028 identifies the Subject Site as having a design flood level of 3.0m to 3.5m.

- Climate Change Map – Sheet 028 identifies the Subject Site as having a design flood level of 3.5m to 4.0m AHD (including climate change).

The proposed haul route will involve the import of approximately 904m^3 of fill material to raise the level of the proposed road above the existing surface level by approximately 300mm. Works will also involve the installation of 8 x 600mm pipes at the crossing of the north south drain. Refer to engineering plans included in **Appendix 2**.

A Flood Impact Assessment prepared by Venant Solutions (refer to **Appendix 6**) states that increases in flood level were assessed against the criteria set by Council and found to meet the criteria in all regional flood events. The assessment also determined that the proposed haul road will not significantly impact on the hydrological integrity or the surface and ground water flows to and from adjacent SEPP wetlands.

3.3.2 Section B4 – West Kingscliff

The Subject Site is located within the boundary of B4-Map 1 and the DCP therefore applies. Refer to **Figure** 16.

Figure 16 - B4 Map 1 DCP Boundary

Source: Tweed Shire Council

DCP provisions considered applicable to the proposed development include:

B4.3.3 Filling of land

- *Applications for development which involves filling of land will include information to demonstrate that fill will have no adverse effects on flooding or drainage characteristics of nearby land.*

  A hydraulic assessment has investigated the potential impacts the haul road fill and drain crossing will have on the locality's drainage and flooding characteristics. Modelling carried out by Venant Solutions (refer to **Appendix 6**) and described in their Flood Impact Assessment shows no significant flooding impacts caused by the proposed filling.

- *Applications for development involving any excavation to obtain fill will include information to demonstrate that excavation will have no adverse effects on the water table of nearby land. Such an application will also demonstrate compliance with Council's "Land Use Guidelines for Acid Sulphate Soils."*

  The proposal does not involve excavation on site to obtain fill. Works to construct the haul road will involve stripping of the top soil which will have the potential to activate acid sulphate soil and may require management.

  A management plan for the treatment of the acid sulphate soils has been prepared and is included within an Acid Sulfate Soils Management Plan and Environmental Management Plan (refer to **Appendix 5 and 4** respectively).

B4.3.4 Vegetation

- *To ensure the recognition and protection of significant natural features, primarily those relating to vegetation.*

  The proposed haul road has been aligned to avoid the majority of existing vegetation on site. In particular areas mapped as wetland under the Coastal Management SEPP have been avoided and the proposed route has less impact than the approved route that it replaces.

  A Flora and Fauna Assessment prepared by Ecoplanning Pty Ltd confirmed that the majority of the area proposed to be cleared for the haul road is exotic pasture/wasteland and is mostly clear of native vegetation. Ecoplanning conclude that the proposed works will not significantly affect threatened species, populations or ecological communities.

B4.3.5 Drainage and Water Quality Management

A Flood Impact Assessment has investigated the potential impacts the fill and drain crossing will have on the locality's drainage and flooding characteristics. Modelling carried out by Venant Solutions (refer to **Appendix 6**) and described in their Flood Impact Assessment Report shows that the degree of impact is within the criteria set by Council. Venant have also confirmed that the development will not give rise to hydrological impacts on the adjacent wetlands.

Sediment and erosion control measures will be implemented during the construction stage in accordance with the Biome Stormwater Management Plan (refer to **Appendix 9**).

In accordance with the Tweed Urban Stormwater Quality Management Plan, the Environmental Management Plan (refer to **Appendix 4**) nominates discharge criteria for all surface water discharging the ASS treatment area during the construction and operational phase of the development.

3.3.3 Section B9 – Tweed Coast Strategy

The proposed haul route partly aligns with the "potential road link" shown on Map 2 Structure Plan and discussed in part B9.5.3 of the DCP. The haul route will be used to transport fill to approved fill areas shown on the Structure Plan as Future Urban Development Area. The proposal therefore presents no conflict with the broad land use patterns and road connectivity objectives proposed by the DCP.

The alignment of the haul road has been located to avoid significant vegetation communities in accordance with the planning strategies stated in sections B9.5.3 and B9.7.7 of the DCP.

3.3.4 Section B26 - Kingscliff

The objectives of the DCP are stated as:

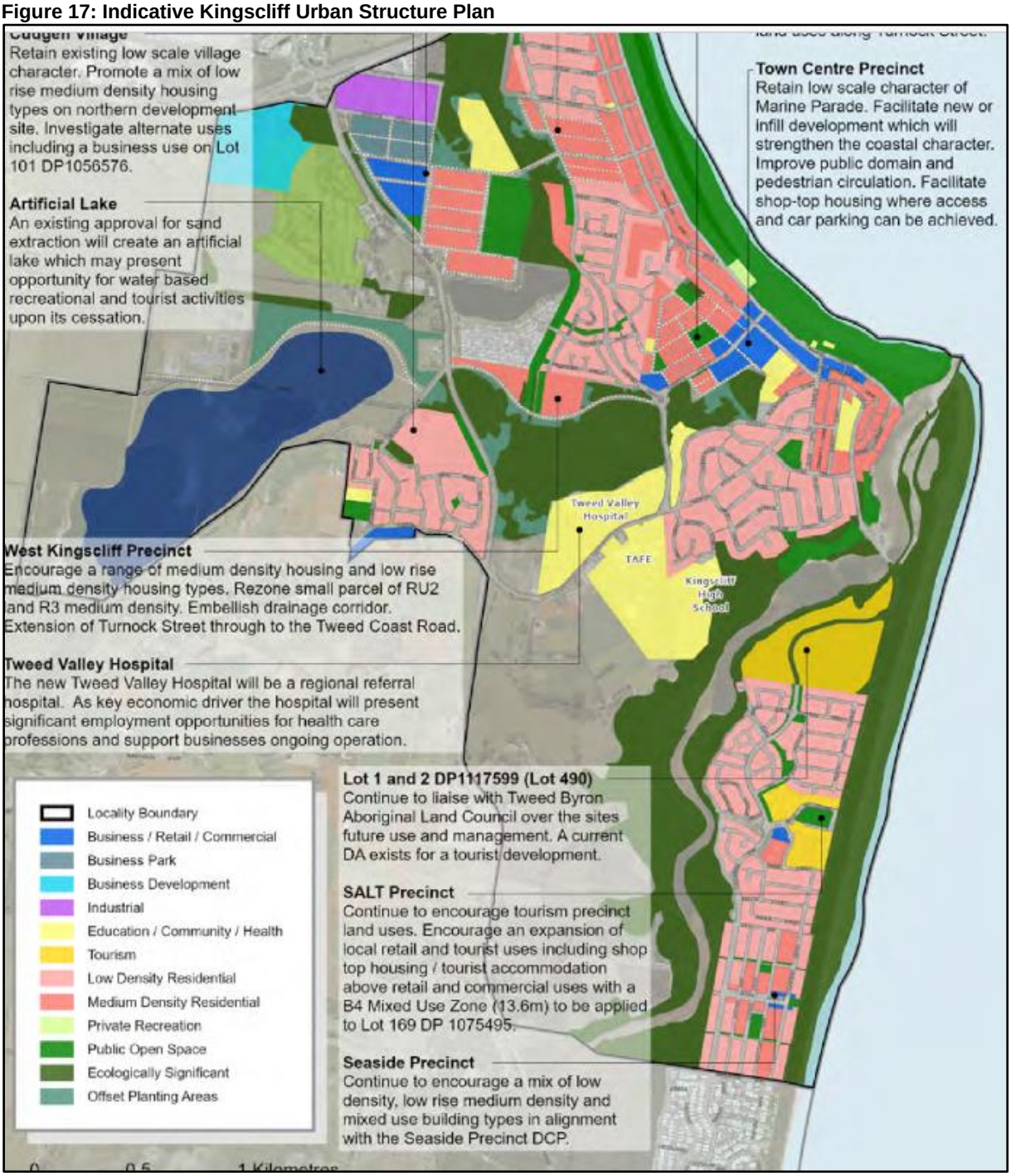
1. *Provide a strategic planning and development control framework for the Kingscliff locality that details land use strategies, development and design principles and development controls relating to existing precincts as well as greenfield development sites.*
2. *Ensure protection, enhancement and ongoing management of natural bushland areas, waterways and land of high ecological value.*
3. *Facilitate increased opportunity for employment generating land uses.*
4. *Facilitate increased opportunity for housing diversity to meet Kingscliff's demographic and socio-economic profile including an increase of density around centres.*
5. *Provide quality open space and public domain areas that meet the needs of the local and regional community.*
6. *Co-ordinate and facilitate infrastructure provision including community and service infrastructure to ensure efficient use of the land and efficient infrastructure supply and provision.*

The DCP includes a series of plans and maps that illustrate the range of constraints affecting the area. The Indicative Kingscliff Urban Structure Plan shown in figure 17 illustrates a potential development pattern that responds to these constraints.

The proposed haul road will provide a route for trucks transporting fill to approved fill areas north and south of Turnock Street. The fill area is illustrated on the Indicative Kingscliff Urban Structure Plan as being suitable for a range of urban uses including residential, business, park and community use purposes. This application will enable fill to be delivered to the site to raise the level of the land above the flood level and enable urban development to proceed in accordance with the DCP and its objectives.

As discussed, there are significant constraints to using the existing roads (Cudgen Road and Tweed Coast Road south) and the fill is better delivered via the haul route which does not have these constraints.

Figure 17: Indicative Kingscliff Urban Structure Plan

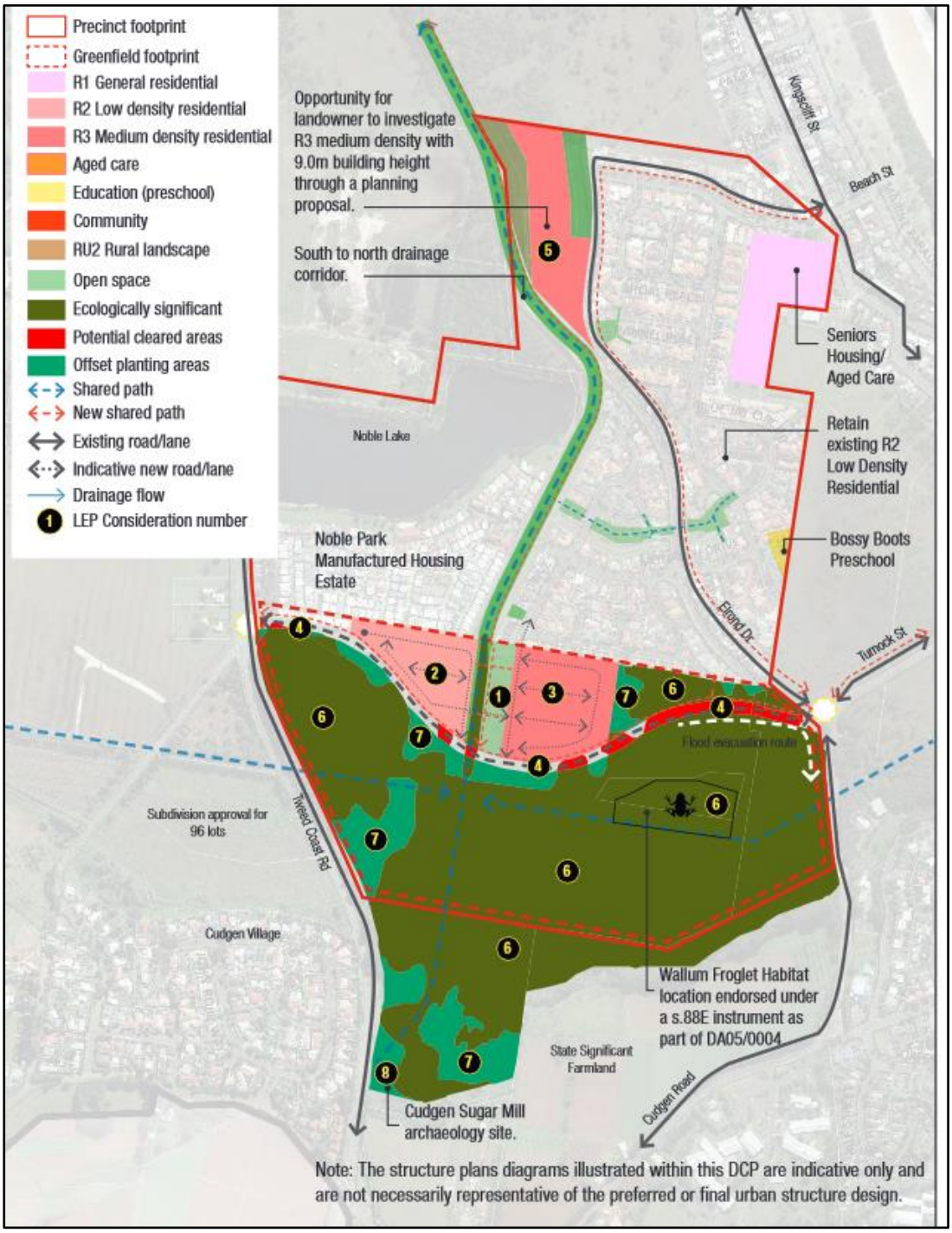


Source: Tweed Shire Council DCP 26

The DCP divides Kingscliff into precincts with the subject site being located within the Key Greenfield Site – West Kingscliff Precinct. Refer to figure 18 for the Indicative Structure Plan for the precinct. A range of planning and design principles are

provided for the precinct which mostly concern future urban development. Significantly, the proposed haul route generally aligns with the intended alignment of the future Turnock Street extension and does not impact on areas intended to be conserved for environmental purposes. In this respect the proposal reinforces a number of key planning and design principles of the DCP by confirming a delineation between development land and conservation land.

Figure 18: West Kingscliff Precinct Indicative Structure Plan



Source: Tweed Shire Council DCP 26

This SEE and the reports appended to this application demonstrate that the construction and use of the haul route will be carried out to minimise tree removal, will not cause any adverse flooding impacts, will manage stormwater and potential erosion and in general avoids significant environmental impact. The impacts of the permanent road are more significant and will be assessed as part of a future DA.

It is considered that the proposal does not present any conflict with DCP26 – Kingscliff.

3.4 Environmental Planning and Assessment Act 1979 (the Act)

In determining an application, the consent authority is to take into consideration the following matters listed in 4.15:

- *The provisions of any environmental planning instrument, public consultation, development control plan, any planning agreement, the regulations.*
  Refer to part 3 of this SEE for an assessment against relevant environmental planning instruments and development control plans.
  No planning agreements have been entered into with respect to this development or the subject land.
- *The likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality*
  Refer to Part 3 and 4 of this SEE for discussion in relation to environmental impacts.
  No social impacts are expected to arise from the proposed development.
  The proposed development will involve positive economic impacts as it will create jobs directly associated with transport and filling works. More significantly it will enable the filling of an area designated for urban development to proceed. This will facilitate significant investment and job creation in the construction industry as well as provide housing and mixed use development opportunities.
- *The suitability of the site for development*
  The land proposed to be used for a haul road is generally shown in the location of the planned extension of Turnock Street from the Elrond Drive / Turnock Street roundabout to Tweed Coast Road. The land has therefore been identified as a long term transport link which would be consistent with its interim use as a haul route.
- *Any submissions made in accordance with the Act or Regulations*
  The application will be notified in accordance with Council's policy. Council will consider any submissions in the assessment of the application.
- *The public interest*
  The proposed development will facilitate filling in accordance with existing development approvals. The filling will enable urban development to proceed in areas that are currently and have been zoned historically for residential purposes. The Council has recently undertaken a locality planning process for the area involving considerable community consultation. The resulting Kingscliff Locality Plan and Kingscliff Development Control Plan confirmed an

appropriate alignment for the Turnock Street extension and future urban development at the approved fill site. With respect to this context it is considered that the development is in the public's interest.

3.5 Integrated Development

The proposal involves the carrying out of work on land defined by the Water Management Act as "waterfront land". Waterfront land includes a river where it is mapped as a watercourse. The north south drain (Chinderah Drain) that is proposed to be crossed by the haul road is shown on government mapping as a hydroline - refer to Figure 19.

Figure 19: Watercourse mapping

Source: Water Management (General) Regulation 2018 Hydroline Spatial Data 1.0

The proposal to include the installation of pipes for the purpose of a water crossing for haulage vehicles and the removal of vegetation along the alignment of the haul road generates the need for a controlled activity approval.

The Water Management Act defines a Controlled Activity as:

a) the erection of a building or the carrying out of a work (within the meaning of the Environmental Planning and Assessment Act 1979), or
b) the removal of material (whether or not extractive material) or vegetation from land, whether by way of excavation or otherwise, or
c) the deposition of material (whether or not extractive material) on land, whether by way of landfill operations or otherwise, or
d) the carrying out of any other activity that affects the quantity or flow of water in a water source.

The Department of Primary Industries Office of Water has prepared "Guidelines for watercourse crossings on waterfront land". This includes a list of design considerations for the proposed crossing. These are addressed as follows:

Design Considerations	Response
Identify the width of the riparian corridor in accordance with the NSW Office of Water guidelines for riparian corridors.	The existing drain would be defined as 2nd Stream Order and therefore have a 20m vegetated riparian zone each side of the high bank.
Consider the full width of the riparian corridor and its functions in the design and construction of crossings. Where possible, the design should accommodate fully structured native vegetation.	It is not possible to construct the crossing without disturbing existing vegetation located on the banks of the drain. A crossing position has been selected in conjunction with Councils Senior Policy Officer – Biodiversity Natural Resource Management that minimises the number of trees to be cleared. It is noted that a crossing point has previously been approved by the Courts in DA05/0004 at a point at the junction of the east west and north sought drains (refer to figure 1). The relocated crossing location presents a better hydraulic and ecological outcome for the development.
Minimise the design and construction footprint and extent of proposed disturbances within the watercourse and riparian corridor.	The extent of works for the haul road has been limited to a width of 10m which is the minimum considered necessary for truck movement. At the drain crossing point the works widen to approximately 25m to accommodate the proposed pipes and supporting rock headwall.
Maintain existing or natural hydraulic, hydrologic, geomorphic and ecological functions of the watercourse.	A Flood Impact Assessment and Flora and Fauna Assessment has been undertaken in support of the proposed works (refer to **appendices 6 and 3**). These reports have not identified significant adverse impacts resulting from the works. An environmental management plan has been submitted with the application that seeks to manage and mitigate impacts arising from the construction and use of the haul road. Refer to **appendix 4**. Whilst it is noted that the need for the haul road is temporary the crossing point corresponds with the alignment of the planned extension of Turnock Street to Tweed Coast Road. The alignment has been agreed in principle with the Council and is the subject of a designated development application for which an EIS is currently being prepared. In this context, whilst the pipes at the crossing point will be removed the area impacted by other works will not be rehabilitated. Instead they will be stabilised as required pending the road construction.
Demonstrate that where a raised structure or increase in the height of the bed is proposed	Eight x 600mm diameter pipes are proposed to be temporarily installed to allow for the

ESG works - width of haul road
10m
25m at drain

there will be no detrimental impacts on the natural hydraulic, hydrologic, geomorphic and ecological functions.	movement of water within the drain (refer to the engineering plans in **appendix 2**). These are to be located at the base of the existing drain. These are considered to be sufficient to allow for existing natural hydraulic movement. A Flood Impact Assessment and Flora and Fauna Assessment has been undertaken in support of the proposed works. These reports have not identified significant adverse impacts resulting from the works (refer to **appendices 6 and 3**).
Maintain natural geomorphic processes. o Accommodate natural watercourse functions. o Maintain the natural bed and bank profile. o Ensure the movement of sediment and woody debris is not inhibited. o Do not increase scour and erosion of the bed or banks in any storm events. o Avoid locating structures on bends in the channel. o Where bed degradation has occurred, address bed degradation to protect the structure and restore channel and bed stability.	Works impacting the waterway are temporary and have been minimised. Eight x 600mm diameter pipes are proposed to accommodate the existing natural movement of water within the drain (refer to the engineering plans in **appendix 2**). The level of the crossing at 1.9m AHD is well below the Q100 flood level (approximately 3.2m AHD) so will allow for the movement of debris in a larger flood event. Rock has been appropriately located to reduce the potential for scour and erosion of the bed of the drain. It is noted that the topography of the area is very flat and therefore velocity of flow in the channel is minimal and unlikely to lead to erosion and scouring. The proposed crossing has previously been approved at the junction of the north south and east west drains. The proposed crossing location results in significantly less engineering infrastructure, a decreased impact area and less impact on existing vegetation when compared to the approved crossing location.
Maintain natural hydrological regimes. o Accommodate site hydrological conditions. o Do not alter natural bank full or floodplain flows or increase water levels upstream. o Do not change the gradient of the bed except where necessary to address existing bed and bank degradation. o Do not increase velocities by constricting flows, for example filled embankments on approaches.	A Flood Impact Assessment and Flora and Fauna Assessment has been undertaken in support of the proposed works. These reports have not identified significant adverse impacts resulting from the works (refer to **appendices 6 and 3**). The minor and temporary nature of the works are not expected to result in any significant hydrological impacts.
Protect against scour. o Provide any necessary scour protection, such as rock rip-rap and vegetation. o Ensure scour protection of the bed and banks downstream of the structure is extended for a distance of either twice the channel width or 20 metres whichever is the lesser.	The engineering plans included in **appendix 2** illustrate a proposal to utilise rip rap either side of the pipe outlets to provide for scour protection. In this situation where flow velocities are very low it is not considered necessary to extend the scour protection for 20m.

o If cutting into banks, protect cuttings against scour.	
Stabilise and rehabilitate all disturbed areas including topsoiling, revegetation, mulching, weed control and maintenance in order to adequately restore the integrity of the riparian corridor.	Whilst it is noted that the need for the haul road is temporary, the crossing point corresponds with the alignment of the planned extension of Turnock Street to Tweed Coast Road. The alignment has been agreed in principle with the Council and is the subject of a designated development application for which an EIS is currently being prepared. In this context, whilst the pipes at the crossing point will be removed and this area reinstated, the area impacted by other works will not be rehabilitated. Instead they are proposed to be stabilised as required pending the road construction.
Box culverts are preferred to pipes	As the proposed drain crossing is temporary a more cost-effective construction using 600mm diameter pipes is proposed. This is considered reasonable in these circumstances.
Align culverts with downstream channel	The engineering plans provided in **Appendix 2** comply with this requirement.
Incorporate elevated dry cells and recessed wet cells with the invert at or below the stable bed level	As the proposed drain crossing is temporary, a more cost-effective construction using 600mm diameter pipes is proposed. This is considered reasonably in these circumstances.
The culvert design must be certified by a suitably qualified engineer.	The engineering plans provided in **Appendix 2** have been certified by an RPEQ.

4 DEVELOPMENT ISSUES

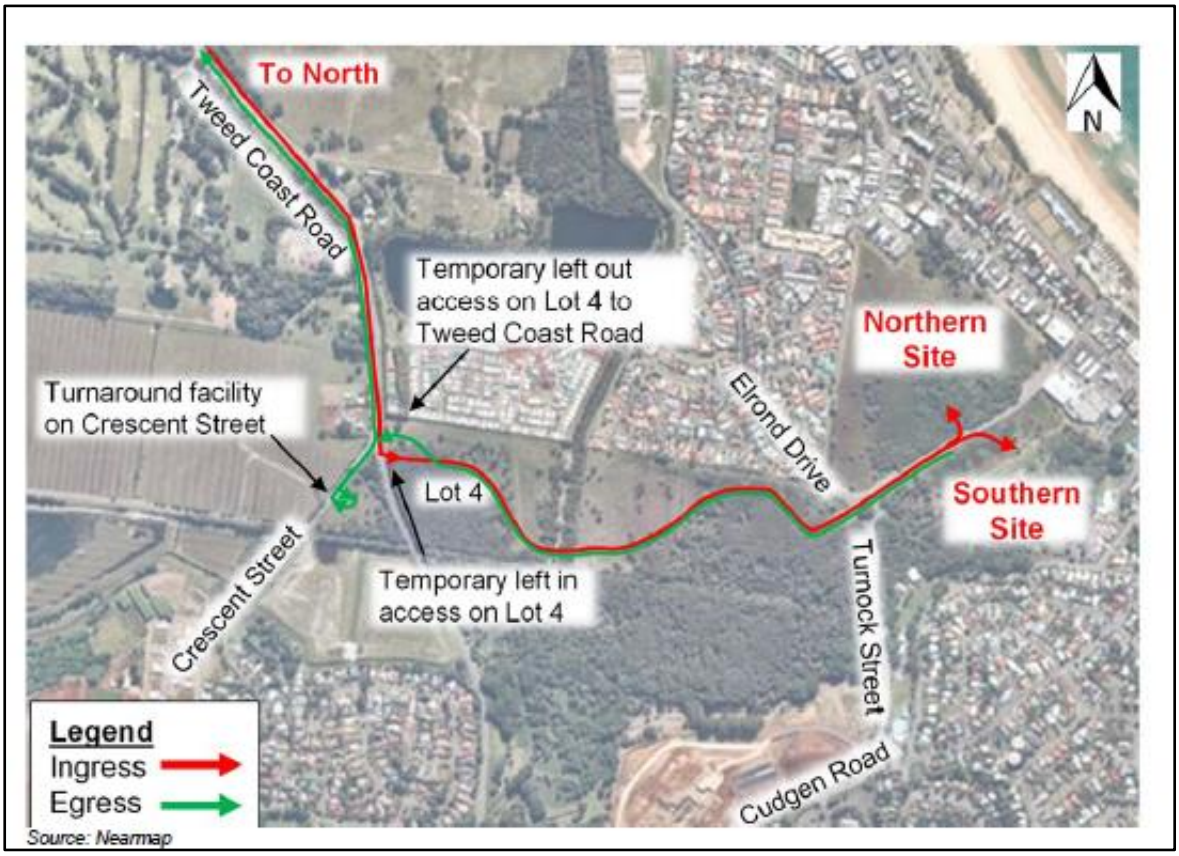
4.1 Traffic

Traffic matters have been considered in detail by Bitzios Consulting in their Turnock Street Haul Road and Crescent Street Turnaround Facility Traffic Impact Assessment dated 8 September 2020. Refer to **Appendix 11**.

As part of this assessment, Bitzios initially investigated an alternative means of transporting fill to the approved Turnock fill area via Cudgen Road. The investigation considered the heavy vehicle traffic associated with the construction of the Tweed Valley Hospital development, planned road upgrades including the intersection of Tweed Coast Road and Cudgen Road and existing traffic conditions, in particular the peak traffic conditions associated with Kingscliff High School. These investigations confirmed that for the next 2-3 years it would be undesirable from a traffic safety and operations perspective to use Cudgen Road as part of the haul route.

The preferred haul route assessed by Bitzios Consulting is shown in figure 20.

Figure 20: Haul Route



Source: Nearmap / Bitzios Consulting

In identifying the preferred haul route Bitzios Consulting have considered existing background traffic conditions, including heavy vehicle trips generated by the Hansen Quarry west of the site and existing road formations. Utilising a maximum number of haulage trips of 348 movements per day, a SIDRA analysis was conducted for the recently upgraded intersection of Tweed Coast

Road and Crescent Street. The results of the analysis confirmed that the intersections will operate within acceptable performance thresholds for a priority-controlled intersection. Sight distances were also assessed and were considered acceptable for the access and egress.

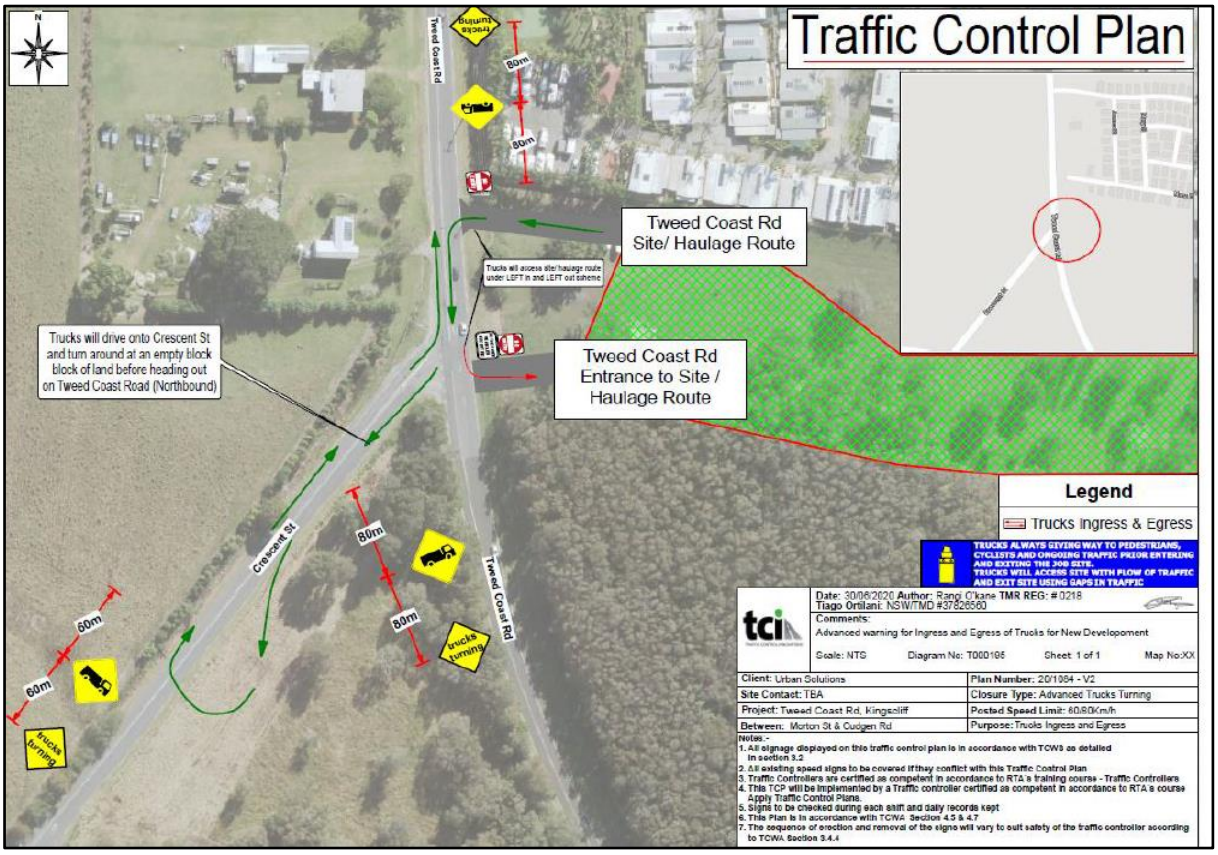
Swept path diagrams were undertaken on the haul route alignment to confirm that trucks could adequately manoeuvre into and out of the site.

Minor road works were considered necessary at the access and egress points and for the Crescent Street turnaround. These included construction of a 3.3m shoulder for vehicles accessing Lot 4, enabling them to move out of the traffic lane whilst making the turn into Lot 4 and temporary rural standard crossovers to link the public roads to the proposed haul route and turnaround.

Bitzios Consulting have recommended the preparation of a traffic management plan for the future construction certificate. This has been prepared by Traffic Control Innovations. An extract from the traffic management plan that illustrates the key management requirements in the vicinity of the proposal is included in figure 21.

Figure 21: Traffic Management Plan

ESG to operate trucks as stated in the Traffic Management Plan



Source: TCI Traffic Management Plan lodged with Construction Certificate

The traffic assessment concludes that there would be no significant traffic and transport impacts associated with the proposal.

4.2 Noise and Vibration

A detailed assessment of the potential noise and vibration impacts arising for the proposal was conducted by Cardno. Their report is included in **Appendix 7**. It is noted that this report was prepared to support the construction certificate application for the filling of the approved Turnock Street fill areas. Only matters relevant to the subject part of the haul route are discussed below.

To assess the potential noise impacts, loggers to measure background noise were located to simulate separation distances to existing dwellings from the haul route. Noise modelling was then undertaken to assess the impacts of constructing the haul route and using the haul route. It was determined that the inclusion of temporary 2m high acoustic barriers would be required for the construction phase to reduce impacts on the closest residents to the north. The use of the haul route was within acceptable noise limits so no mitigation recommended.

General recommendations for mitigating noise impacts are proposed in addition to the acoustic barrier. These include the use of mufflers on vehicles, maintaining plant and equipment, preferred use of electrically powered plant, placing plant as far as possible from noise sensitive locations, limiting hours of work, consultation with potentially affected residents and monitoring (refer to **Appendix 7** part 7.1 for a full list of recommendations).

ESG to use correct equipment to ensure no increased vibration over that predicted/ approved

With respect to vibration impacts the Cardno report suggests that construction of the haul route could be undertaken within 10m of dwellings based on the equipment intended to be used for construction. It is only structures located near the very western end of the haul route that may be within the 10m separation distance. It has been recommended that vibration be considered in the construction management plan, which would include pre-construction dilapidation reports for the nearest dwellings.

The assessment of noise and vibration has not identified any significant impacts that cannot be managed. Appropriate management measures are included in section 7 of **Appendix 7**.

4.3 Flora and Fauna

Ecoplanning Pty Ltd have prepared a detailed flora and fauna assessment for the proposed development. The report is included in **Appendix 3**.

The flora and fauna assessment outlines the results of a review of relevant data and literature as well and a field survey conducted on 4 September 2020. It also considers field survey information provided by GHD following visits to the site on 5-8 March 2018, 24-25 September 2019 and 5-7 September 2019.

Investigations have identified the following:

- There are no permanent creeks on the subject site with the exception of the constructed Chinderah Drain which would be considered a first order stream. Works near the crossing of the Chinderah Drain would affect a relatively intact vegetated riparian zone.
- Development within 40m of the waterway would trigger a controlled activity under the Water Management Act 2000.

- Vegetation within the study area has been mapped under the Biodiversity Values Map as Coastal Management Act – Wetlands, however this vegetation is not within the works area associated with the subject part of the haul route.
- A search of the relevant databases and literature identified 67 threatened or migratory species within 5 km of the study area, including 16 threatened flora species and 51 threatened or migratory fauna species. Of the 51 threatened fauna species, 33 are birds, two are amphibians, one is a gastropod, one is an insect and 14 are mammals (nine microbats, one megabat and four arboreal/semi-arboreal mammals).
- The proposed development will include direct impacts to 0.15 ha of Plant Community Types (PCT) 1064 Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion. This comprises 0.05 ha in an 'intact' condition, 0.06 ha in a 'moderate-managed' condition and 0.04 ha in a Scattered pasture Trees (SPT) condition. The remaining vegetation zones that require complete clearing under the current proposal include 0.53 ha of cleared land 'exotic vegetation'.

In their assessment of potential environmental impacts, Ecoplanning have concluded that:

- Impacts to native vegetation and fauna habitat have been avoided and minimised through the planning stage. The originally approved haul road was located south of the current proposal, situated within land mapped on the Coastal Wetlands and Littoral Rainforests Area Map and Biodiversity Values Map. Efforts have been made to prevent impacts to this area of mapped land, and the temporary haul road has been placed north of the intact vegetation identified as "Coastal Wetlands".
- Given the small amount of native vegetation to be removed, the removal of mostly disturbed areas vegetation, and the remaining habitat attributes in the southern portion of the study area, the proposed development is unlikely to have more than a negligible impact on local fauna.
- Impact assessment in accordance with Part 7.3 of the BC Act (i.e. the 'Test of Significance') and the associated guidelines (OEH 2017) have been undertaken. These assessments found that the proposal is unlikely to have a significant impact on any threatened species or communities given:
    - the very small area to be impacted for the temporary haul road,
    - the presence of mainly cleared pasture in the subject site and the area to its north
    - the presence of large areas of intact vegetation south of the subject site, and
    - the proposal will not result in any fragmentation of currently connected areas.
- Given the location of the subject site adjacent to a large, intact patch of native vegetation, it is considered that the proposal may have inadvertent impacts which would reduce the viability of any adjacent native vegetation or habitat due to edge effects, barriers to connectivity, noise, dust or light spill.
- Avoidance and mitigation measures are recommended including:
    - areas of native vegetation outside of the subject site will be "No Go-Zones" for people and machinery related to the haul route and will be clearly delineated.
    - any exotic biomass cleared within the subject site will be removed from the study area and disposed of at an approved facility.
    - erosion and sediment control measures will be established before work begins and maintained in effective working order throughout the duration of the works, and until the study area has been stabilised to prevent off-site transport of eroded sediments.
    - should fencing be required, it will need to allow safe passage of native wildlife

- landscaping works are to be outside areas of bushland and do not include environmental weeds.
- removal of environmental weeds from the subject site and their ongoing control.

Ecoplanning have concluded that the proposed haul route, with the implementation of mitigation measures will not significantly impact threatened species, populations or ecological communities.

4.4 Hazards

4.4.1 Flooding/Stormwater

A Flood Impact assessment has investigated the potential impacts the fill and drain crossing will have on the locality's drainage and flooding characteristics. Regional catchment modelling carried out by Venant Solutions (refer to **Appendix 6**) and described in their Flood Impact Assessment shows that the degree of impact is within the criteria set by Council for all scale flooding events.

Local catchment modelling shows that the haul road does not increase flood levels across the flood plain. Localised increases and decreases in flood level do occur at each end of the haul road with the western end affecting the road reserve of Tweed Coast Road. The flooding does not however extend onto the road carriageway.

In relation to the potential impact of the haul route on the wetland hydrology, Venant Solutions has advised that this is influenced by a number of sources including:

- Surface water runoff from local catchment storm events;
- Surface water flooding Tweed River flooding;
- Ground water flows.

Changes to cumulative seasonal inflow volumes through to annual scale inflow volumes can be more important for wetland health rather than rare storm/flood (local and regional) events. In these frequent rainfall events the inflows to the wetland will be primarily from rainfall falling directly on the wetland as well as runoff from the surrounding land referred to as the wetland catchment. The inclusion of a pipe connection between the area north of the haul Route and the wetland is considered adequate to mitigate any potential reduction in water runoff caused by the raised haul route.

4.4.2 Acid Sulphate Soil

The works area within the Subject Site is identified as Class 2 on the NSW Department of Land and Water Conservation 1:25 000 *Acid Sulfate Soil Planning Maps – Tweed Heads* as well as the Tweed LEP 2014 Acid Sulfate Soils Map. As this application proposes excavation works below natural ground level it has the potential to disturb soils containing acidity.

In support of the application an Acid Sulfate Soil Management Plan has been prepared by HMC Environmental Consulting Pty Ltd (refer to **Appendix 5**). It concludes that containment, treatment and management measures are required for soils and water containing acidity or acid products, with the objective of ensuring no discharge occurs

off site which does not meet adopted water quality criteria. The management and monitoring protocols proposed will provide for satisfactory management of acid sulphate soil impacts and form part of the Environmental Management Plan (refer to **Appendix 4**) for the development.

4.4.3 Contamination

A Preliminary Site Investigation has been prepared by HMC Environmental Consulting Pty Ltd (refer to **Appendix 10**). This has assessed current and former land use on and around the Subject Site for potentially contaminating activities and, based on this information, has assessed the suitability of the site for development.

A review of available information relating to past and present land use as well as a detailed site inspection did not identify any potentially contaminating activities. The report concludes that the Subject Site is considered suitable for the proposed works.

No further investigation or remediation is required.

4.5 Soil and Water Management

The risk of significant sediment mobilisation and erosion would be low given the flatness of the terrain and the minimal amount of work proposed.

A Stormwater Management Plan has been prepared by Biome and an Environmental Management Plan has been prepared by HMC Environmental Consulting Pty Ltd (refer to **Appendices 9 and 4**). These include a range of overarching principles and strategies in respect to sediment and erosion control to minimise the impact of construction activity on surface water quality. Proposed strategies include:

- Provision of a stabilised site access with vehicle shake down and wheel wash
- Clean water diversions
- Topsoil stripping and management for reuse
- Staging of the project to minimise disturbed areas

Discharge criteria for surface water from ASS treatment area

Monitoring of surface water

In accordance with the Tweed Urban Stormwater Quality Management Plan, the Environmental Management Plan nominates discharge criteria for all surface water discharging the ASS treatment area during the earthworks phase of the development. A monitoring program for surface water has also been nominated.

EMP most important

The Environmental Management Plan (EMP) brings together all the recommendations from the various consultants reports to formulate a strategy to mitigate identified environmental impacts relevant to soil and water and other matters (refer to **Appendix 4**).

ESG to comply with EMP

The EMP addresses the following matters:

- Waste
- Air Quality
- Noise Control
- Soil and Water
- Acid Sulphate Soil
- Flora and Fauna
- Protection of Cultural Heritage

4.6 Air Quality

The Environmental Management Plan (refer to **Appendix 4**) and Construction Management Plan (refer to **Appendix 12**) includes a range of additional measures to maintain air quality including:

ESG responsibility

- Regular site watering with a water truck being on site and available at all times
- The ceasing of dust creating activities during strong wind events
- The stabilisation of disturbed areas and fill material stockpiles as soon as practicable
- The covering of agricultural lime stockpiles

ESG responsibility

It is also a recommendation of the acoustic assessment and the Environmental Management Plan that all machinery on site be regularly maintained to ensure efficient operation, which would assist with the quantity and quality of exhaust emissions.

4.7 Cultural Heritage

An Aboriginal Cultural Heritage Desktop Assessment was conducted by Everick Heritage. A copy of their report is included in **Appendix 8**. As a result of these investigations Everick Heritage were able to make the following conclusions:

- No Indigenous cultural heritage sites or objects were identified within the Project Area through desktop research.
- The Project Area has been subject to a high level of ground disturbance associated with post- European agriculture and urban development. The Project Area has been historically cleared of original vegetation, drained and subsequently cultivated for sugar cane production. As such it has been determined that it is highly likely that approximately the top 500 mm of topsoil in the Project Area has been completely disturbed and unlikely to contain significant Aboriginal objects.
- Everick Heritage has previously conducted Aboriginal cultural heritage assessments (2001, 2005, 2019) over the Project Area as part of the Gales Landholdings rezoning project. No Aboriginal sites or objects were found and no further Aboriginal cultural heritage investigations were recommended. The sugarcane fields of the Kingscliff, Chinderah and Cudgen localities, were generally identified to have a low potential for harm to Aboriginal cultural heritage.

Recommendations with respect to actions to be undertaken in the event of finding an object of significance or Aboriginal human remains have been provided and are to be included in a construction management plan.

4.8 Impact on Fill Approval DA05/0004.03

This proposal is directly related to the existing Development Consent (DA05/0004.03) which allows for the filling of land to the north and south of Turnock Street. This existing approval involves sourcing fill from Gales sand extraction quarry located to the west of Crescent Street. The approval allows for extracted sand to be moved:

- hydraulically to a stockpile at the western side of Tweed Coast Road
- via a conveyor belt over Tweed Coast Road to a stockpile point
- by truck to the approved fill areas via a haul route shown on the approved plans

As discussed in part 2 of this SEE, this application proposes alternative sources of fill, an alternative delivery method and a different haul route.

Consequently, the application presents inconsistencies or conflict with the following conditions of DA05/0004.03:

- Condition 1.1a, 1.1b and 1.1d – these conditions refer to plans submitted with the application that illustrate the haul route, stockpiles and conveyor system proposed over Tweed Coast Road.
- Condition 2a and 2b – these conditions refer to modification of DA96/518 with respect to additional filling sites that extracted sand can be delivered to.
- Condition 3.1 – this condition refers to compliance with an approved environmental management plan (EMP). An updated EMP is provided with respect to the proposed haul route.
- Condition 4.1 – This condition refers to an approved acid sulfate management plan (ASSMP). An updated ASSMP is provided with respect to the proposed haul road.
- Condition 10.2 – this condition refers to the rehabilitation of haul route. This application proposes to only rehabilitate parts of the haul route that fall outside of the agreed future alignment of the Turnock Street extension.
- Condition 13.1 – this condition requires that all imported fill is sourced from the approved sand extraction.
- Condition 24 – this condition refers to the need for separate consent under s138 of the Roads Act 1993 for the erection of a conveyor over Tweed Coast Road and requires the submission of construction details.
- Condition 38 – this condition refers to the submission of a construction certificate for the construction of the conveyor over Tweed Coast Road and makes reference to associated stockpiles.
- Condition 50.1 – this condition refers to the extracted material being transported on the approved haul route and from the source nominated in the development application (sand extraction).
- Condition 72.1 – this condition refers to compliance with a specific ASSMP and groundwater management plan. Updated management plans have been provided for the subject haul route.
- Condition 80.1 – this condition refers to the rehabilitation of haul route. This application proposes to only rehabilitate parts of the haul route that fall outside of the agreed future alignment of the Turnock Street extension.

It is proposed that the terms of the consent arising from this development application will supersede the conditions of DA05/0004.03 where there is inconsistency or conflict.

4.9 Source of Fill

The source of fill was unable to be confirmed at the time of preparing this report. It is intended that material associated with the construction of the M1 in South East Queensland be used but this is subject to a future tendering process with confirmation of material availability expected in early 2021.

It is proposed to use Virgin Natural Excavated Material (VENM) or Excavated Natural Material (ENM) for filling purposes.

ESG - VENM and ENM

VENM is natural material (such as clay, gravel, sand, soil or rock fines) that has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues as a result of industrial, commercial, mining or agricultural activities, and does not contain any sulfidic ores or soils or any other waste. Generators of VENM will be required to complete the NSW EPA VENM Certificate and provide to receivers.

ENM that cannot be classified as VENM, may be eligible for reuse under the excavated natural material order and exemption.

By virtue of complying with the definition of VENM and/or the testing and documentation requirements for ENM under the Resources Recovery Order and Exemption, it will be confirmed that contaminated materials will not be received at the fill site and that the fill will be suitable for future urban purposes. It would be expected that Council condition approval of this development application to specify that only materials that meet the definition of VENM or other material that is approved to be applied to land by a Resource Recovery Order and Exemption can be transported to the approved fill area.

The intended source of fill is located outside of the Interstate Plant Quarantine Zone (Red Imported Fire Ant) South East Queensland (mapping dated 2/10/2020 refer to www.daf.qld.gov.au/fireants). Accordingly, with respect to fire ant contamination, there would be no restriction on the movement of material from the area of the M1 being upgraded into NSW. If this mapping were to change then management plans would need to be put into place to ensure that the contaminant is not imported to the site. If alternative sources of fill are identified, the potential for fire ant contamination would be a consideration prior to the material being accepted on the fill site.

5 CONCLUSION

A detailed assessment of the planning issues relevant to the proposed development has been undertaken and presented in this Statement of Environmental Effects. The assessment has been supported by a range of specialist reports that have considered the potential environmental impacts associated with the proposed works.

In summary, it has been determined that:

- The proposal is consistent with planning objectives in the locality because it allows the transport of fill to an area approved for filling and included in the R1 Residential zone. Ultimately this fill will raise the land above the flood level and enable future urban development to occur.
- Proposed works are limited to parts of the site where vegetation is predominantly exotic pasture with some scattered vegetation. The haul route has avoided vegetation mapped as Wetland under the Coastal Management SEPP.
- The majority of the area affected by proposed works coincide with the future alignment of the Turnock Street extension. At the conclusion of filling works these would be stabilised pending the future road construction. The parts of the work area not intended for road construction would be subject to restoration at the conclusion of filling works.
- The proposal has less impact on vegetation and waterways than the approved haul route.
- The proposal does not have the limitations that would be expected if it were proposed to utilise the existing road network.
- The proposal does not present any conflict with State planning instruments including the EPA Act, Coastal Management SEPP, SEPP (Koala Habitat Protection) 2019 and SEPP 55.
- The proposal is consistent with Tweed Shire statutory planning instruments including the provisions of the Tweed LEP 2014 and the Tweed DCP 2008.
- Development issues have been addressed in the context of impacts associated with:
  - Traffic
  - Noise
  - Flora and Fauna
  - Hazards – Flooding/Stormwater, Acid Sulphate Soil, Contamination, Soil and Water Management and Air Quality
  - Cultural Heritage

  Analysis of these issues indicates that potential impacts are not significant or can be satisfactorily managed.

In light of the above assessment, the application is considered appropriate for conditional approval.