Review of Environmental Factors

BSC Drainage Upgrades – Byron Town Centre

Prepared for Byron Shire Council

By Planit Consulting Pty Ltd

V5 - October 2025

Job No: J7987

Company Details

Name	Planit Consulting Pty Ltd
ABN	20 099 261 711
Address	Suite 9A, 80-84 Ballina Street, Lennox Head NSW 2478
Mailing Address	PO Box 161, Lennox Head NSW 2478
Telephone	(02) 6687 4666
Email	administration@planitconsulting.com.au
Website	www.planitconsulting.com.au

Document Control

Document	Review of Environmental Factors (REF)
Project Name	BSC Drainage Upgrades – Byron Town Centre
Client	Byron Shire Council
Planit Reference	J7987
Revision Number	V5

Revision History1

Version	Date	Prepared By	Reviewed By	Approved By
V1 - Draft	12/12/2024	SC	RVI	SC
V2 - Draft	14/04/2025	SC	BSC - SH	SC
V3	22/08/2025	SC	BSC - SH	SC
V4	26/09/2025	SC	BSC - SH	SC
V5	8/10/2025	SC	BSC - SH	SC

Approval Details

Approved By	Sean Cochran
Email	sean@planitconsulting.com.au
Signature	

Disclaimer

Contents

List of Tables

List of Figures

Executive Summary

This Review of Environmental Factors (REF) has been prepared to consider potential environmental effects for the proposed drainage upgrades within the Byron Bay town centre to be undertaken by Byron Shire Council (BSC). The works form part of a suite of drainage upgrades within Byron Bay to address flooding issues affecting the town centre.

The proposed drainage upgrades are located within the BSC Local Government Area.

The Belongil Creek Floodplain Risk Management Study and Plan (FRMSP) (BMT, 2015) was adopted by Council as the third phase of the floodplain management process. It has been developed based on a comprehensive assessment of the existing flood risk in the catchment. This included consideration of the flood hazard across the catchment; impacts on existing residential, commercial and industrial properties; road flooding; and emergency response during a flood event.

The FRMSP includes an investigation of options for the management of flood risk in the study area. The preferred option for reducing flooding in the low-lying areas of Byron Bay was developed and adopted as the Preferred Byron Bay Drainage Strategy, which includes construction of levees, gravity drainage upgrades, installation of flood pumping systems and construction of a detention basin (Sandhills Wetland).

The Preferred Byron Bay Drainage Strategy has been designed to address the flooding identified under the current catchments:

- **Belongil Creek Catchment**;
    - Shirley Street and Byron Street adjacent to the Butler Street Drain.
    - Jonson Street and Byron Street in the town centre, which reports to the Butler Street Drain.
- **Clarke's Beach Outfall Catchment**
    - Middleton Street.
    - Cowper Street.

The proposed drainage upgrades the subject of this REF specifically relate to works within Jonson Street, Fletcher Street, Lawson Street, Lateen Lane and Byron Street, connecting into the boundary of the rail corridor, within Lot 2 DP 1289363 (owned by TfNSW) and part of the BSC Lawson Street South Carpark (Lot 3 DP 827049), and includes.

- New underground stormwater drainage within Jonson Street, Fletcher Street, Lawson Street, Lateen Lane and Byron Street.
- Road works involving releveling and revised landscaping within the streetscape to improve drainage flow for the town centre.
- Construction of new water sensitive urban design (WSUD) devices, rain gardens and other design treatments to improve stormwater quality entering the Belongil Creek catchment.

These works will improve gravity drainage flows from the town centre catchment to the Butler Street drain west of the rail corridor.

These works will link into drainage works to be undertaken within the rail corridor, which include a new underground 3 cell system and storage basin that will alleviate the existing pinch point in the drainage network and enable more efficient gravity flow of stormwater west across the rail corridor to Belongil Creek.

The drainage works in the rail corridor are subject to a separate REF and do not form part of the scope of works to be approved under this REF.

The proposed drainage upgrades the subject of this REF are a component of works forming part of Stage 1 of the Preferred Byron Bay Drainage Strategy that includes:

- An increase in capacity and flow improvements within the town centre gravity drainage system, through construction of new underground stormwater drainage within Jonson Street, Fletcher Street, Lawson Street, Lateen Lane and Byron Street.
- Road levelling and drainage improvements including new water sensitive urban design (WSUD) devices, rain gardens and other design treatments to improve stormwater quality entering the Belongil Creek catchment.

The Activity area includes:

- New underground drainage systems within Jonson Street, Fletcher Street, Lawson Street, Lateen Lane and Byron Street.
- Adjustment of road levels, streetscape design and WSUD within Jonson Street, Fletcher Street, Lawson Street, Lateen Lane and Byron Street.
- An area located within the southern extent of the BSC Lawson Street South Carpark (Lot 3 DP 827049) for drainage works and ancillary construction parking, site office and material laydown areas.

The works will utilise part of the former South Byron Sewer Treatment Plant (Lot 2/-/DP573835) for temporary stockpiling, testing, treatment and classification of spoil generated from the Activity. The temporary use of the site is required due to constrained works corridors; being located in the centre of the Byron CBD. Site specific safeguards have been developed for the temporary use of Lot 2/-/DP573835.

The main objective of the Activity is to undertake the drainage upgrades and implement the Preferred Byron Bay Drainage Strategy to address flooding impacts within these most affected areas of Byron Bay.

The secondary objective of the Activity is to:

- Ensure construction is staged and undertaken to minimise impacts on local business operations during construction.
- Implement an effective community strategy during construction.
- Minimise all other environmental impacts associated with the construction and operation of the Activity.

This environmental assessment has been prepared in accordance with Clause 171 of the *Environmental Planning and Assessment Regulation 2021* (the Regulations) and the Guidelines for Division 5.1 Assessments (Department of Planning and Environment, June 2022).

Development consent is not required for the Activity in accordance with the following provisions *State Environmental Planning Policy (Transport and Infrastructure) 2021* (T&I SEPP):

- Division 20 Stormwater Management Systems, Clause 2.137(1) of T&I SEPP in relation to the proposed new underground drainage, roadside drainage and WSUD; and
- Division 17 Roads and Traffic, Clause 2.109(1) of T&I SEPP in relation to the proposed adjustment of road and footpath levels

The Proposal becomes an 'Activity' for the purposes of Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

During the construction phase impacts will occur affecting local amenity, traffic, pedestrian access and the local noise/air environment. These temporary construction impacts are expected to result in a temporary moderate impact on local businesses adjoining the works areas.

The appointed contractor and BSC will be required to develop a construction staging plan that minimises impacts on local business and avoids construction activities within peak business periods of December and January.

The appointed contractor and BSC will develop a communications strategy to provide clear, accessible and timely information about the construction process to the community, local businesses and affected stakeholder groups.

The works are located within Class 3 and 5 acid sulfate soil, and an Acid Sulfate Soil Management Plan will be prepared for the Activity.

The works will require removal of vegetation within landscaped areas within the street. New landscaping is proposed within the affected sections of public road to account for vegetation loss as a result of the works.

Per- and Polyfluorinated Alkyl Substances (PFAS) has been confirmed in the Activity area within sampling undertaken at the corner of Fletcher Street and Byron Street, likely the result of historic operations of a former Fire Station at the location. The samples undertaken indicated PFAS levels in the underlying soil and groundwater above human health and biological screening levels. It is likely that construction spoil and dewatering will contain PFAS.

Construction dewatering will occur, requiring a project-specific Dewatering Management Plan, which includes measures that address the presence of PFAS within groundwater during construction dewatering.

Due to the presence of PFAS in the groundwater, the dewatering process has been developed with input from the EPA. The final Dewatering Management Plan has been reviewed and supported by the EPA. Testing and reporting recommendations of the EPA have also been incorporated into the Activity.

Heavy mineral sands residues (HMSRs) may be present in materials excavated in the works areas. A HMSR Assessment has identified surface gamma radiation survey (nGy/h) above the screening level of 150 (nGy/h) within the sections of Lawson Street and Fletcher Street. This is well below the average exposure level of 2,000 (nGy/h) for Open space/recreational land uses prescribed under the National Environment Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM).

A project specific HMSR Management Plan will be prepared and will include a description of the contamination and the activities to be conducted to further define the HMSRs as part of the works, management options proposed regarding stockpiling, testing, reuse and/or disposal of HMSR material to be conducted, along with relevant waste tracking and disposal options.

Excess spoil requiring disposal will require testing and classification in accordance with the EPA (2014) Waste Classification Guidelines, Part 1: Classifying Waste.

Stormwater quality will improve as a result of WSUD treatments proposed within road and drainage works within Jonson Street, Fletcher Street, Lawson Street, Lateen Lane and Byron Street.

Whilst the gravity drainage works will improve the stormwater flow exiting the town centre and reduce flooding impacts on properties and buildings within the town, the gravity drainage works will result in flood afflux at private property in Kendall Street, Shirely Lane and in the rail corridor owned by TfNSW. These afflux issues are addressed in later stages of the Preferred Byron Bay Drainage Strategy through construction of flood levees and flood pumps (not part of this REF scope) subject to further funding arrangements.

The proposed road design will result in loss of two car parking spaces within the town centre and otherwise the road designs proposed result in minor changes to the road formation with no change in road alignment or centreline proposed.

Several buildings listed under the Byron LEP 2014 as heritage items are located adjacent to the works and the State Heritage register lists Byron Bay Railway Station and yard group (Listing No 01107), located directly west of the Activity area.

The Activity is located within the cultural heritage land boundary of Tweed Byron Local Aboriginal Land Council and Arakwal. More broadly, the Activity is located within the Bundjalung Nation boundary whose people are the original custodians of northern coastal areas of New South Wales, stretching from Grafton on the Clarence River in the south to the Logan River in the north and inland as far as the Great Dividing Range at Tenterfield and Warwick.

Search of the AHIMS database identified no Aboriginal sites/objects recorded within the alignment of the Activity.

The works areas are consistent with disturbed land as defined under the NSW Government's 'Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales' and Part 5 of the *National Parks and Wildlife Regulation 2019*.

State Emergency Services (SES) have been consulted in accordance with Clause 2.13 of T&I SEPP, due to the Activity involving stormwater management systems and road works proposed on flood prone land.

The following consultation and notification are proposed for the Activity:

- Notification of any receivers within 100 m of the works (letterbox drop or equivalent) is recommended, including the anticipated duration of such works at least two weeks prior to undertaking the works. All notified receivers will be provided with a contact telephone number for any complaints/ updates associated with the proposed works.
- Adjacent receivers with potential to experience impacts associated with dust and other airborne particles due to works are to be notified of any potential air quality impacts prior to undertaking the works.
- Any traffic delay notifications will be issued by Council at least two weeks prior to commencement of works. Notification will be made via Council website and potable variable messages sign (VMS) located along the affected public road.
- Notification to affected property owners regarding flood afflux at private property in Kendall Street, Shirley Lane and in the Rail Corridor owned by TfNSW.

A Construction Environmental Management Plan (CEMP) is to be prepared prior to any construction works commencing. The CEMP is to include the mitigation measures listed with this REF including preparation of the following supporting plans:

- Acid Sulfate Soils Management Plan;
- A Dewatering Management Plan;
- HMSR Management Plan
- Traffic Control Plan
- Traffic, Access and Public Safety Management Plan
- Construction Noise and Vibration Management Plan
- Construction Air Quality Management Plan

The following ancillary approvals may be required for the proposed Activity:

- Approval under Part 3 of the WM Act is required to construct and use a water supply works including approval for construction dewatering to construct and use a work which takes water from a construction site, including water entering the site from an aquifer (groundwater source) and surface water flowing into the site. Examples of water supply works for construction dewatering include water pumps, water bores, drainage channels and pipes.

As capital investment value of the Activity is estimated to be more than $5 million, BSC is required to publish the REF on the determining authority's website or the NSW planning portal in accordance with s171 of the *Environmental Planning and Assessment Regulation 2021*.

The REF must be published under subsection (4):

(a) before the activity commences, or

(b) if publishing the review before the activity commences is not practicable—as soon as practicable, and no later than 1 month, after the activity commences.

Overall, no significant environmental impacts are likely to occur, and a variety of safeguards have been developed to avoid and/ or minimise potential negative impacts. Together with the mitigation methods identified in this report, these safeguards will ensure appropriate environmental outcomes are achieved when undertaking the proposed Activity.

1 Introduction

This REF has been prepared by Planit Consulting Pty Ltd on behalf of BSC to consider potential environmental effects of the proposed drainage upgrades and road works within the Byron Bay town centre within sections of Byron Street, Lawson Street, Lateen Lane, Fletcher Street and Jonson Street.

The proposed works the subject of this REF specifically relate to works within Jonson Street, Fletcher Street, Lawson Street, Lateen Lane and Byron Street connecting into the boundary of the rail corridor, within Lot 2 DP 1289363 (owned by TfNSW) and part of the BSC Lawson Street South Carpark (Lot 3 DP 827049) and include:

- New underground stormwater drainage within Jonson Street, Fletcher Street, Lawson Street, Lateen Lane and Byron Street.
- Road works involving releveling and revised landscaping within the streetscape to improve drainage flow for the town centre.
- Construction of new water sensitive urban design (WSUD) devices, rain gardens and other design treatments to improve stormwater quality entering the Belongil Creek catchment.

The works form part of a suite of drainage and road upgrades within Byron Bay to address flooding issues affecting the town centre.

The proposed works the subject of this REF are a component of works forming part of Stage 1 of the Preferred Byron Bay Drainage Strategy that includes:

- An increase in capacity and flow improvements of the town centre gravity drainage system through construction of new underground stormwater drainage within Jonson Street, Fletcher Street, Lawson Street, Lateen Lane and Byron Street.
- Road levelling and drainage improvements including new water sensitive urban design (WSUD) devices, rain gardens and other design treatments to improve stormwater quality entering the Belongil Creek catchment.

The proposed underground 3 cell system and storage basin in the rail corridor do not form part of the works scope under this REF. Those works are being approved under a separate REF.

The Activity area includes:

- New underground drainage systems within Jonson Street, Fletcher Street, Lawson Street, Lateen Lane and Byron Street.
- Adjustment of road levels, streetscape design and WSUD within Jonson Street, Fletcher Street, Lawson Street, Lateen Lane and Byron Street.
- An area located within the southern extent of the BSC Lawson Street South Carpark (Lot 3 DP 827049) for drainage works and ancillary construction parking, site office and material laydown areas.
- Part of the former South Byron Sewer Treatment Plant (Lot 2/-/DP573835) for temporary stockpiling, testing, treatment and classification of spoil generated from the Activity.

The environmental assessment and determination of the proposal has been undertaken in accordance with Part 5 of the EP&A Act. For this proposal, BSC is both a public authority proponent (EP&A Act s5.3) and the determining authority (EP&A Act s. 5.1). The REF has been prepared in accordance with Clause 171 of the Regulations and the *Guidelines for Division 5.1 Assessments* (Department of Planning and Environment, June 2022).

As capital investment value of the Activity is estimated to be more than $5 million, BSC is required to publish the REF on the determining authority's website or the NSW planning portal in accordance with s171 of the *Environmental Planning and Assessment Regulation 2021*.

The REF must be published under subsection (4):

(a) before the activity commences, or

(b) if publishing the review before the activity commences is not practicable—as soon as practicable, and no later than 1 month, after the activity commences.

Documentation supporting this REF includes:

- Appendix A - Concept Design
- Appendix B – Flood and Drainage Assessments
- Appendix C – Heavy Mineral Sands Residues Assessment
- Appendix D – Environmental Sampling Records.
- Appendix E – Environmental Searches
- Appendix F – Byron Shire Council's Unexpected Finds and Stop Work Protocols
- Appendix G – NSW EPA Letter

1.1 Project Location and Context

The Activity is located in the town of Byron Bay, situated within the BSC Local Government Area on the Far North Coast of NSW.

The proposed works will occur within sections of Byron Street, Lawson Street, Lateen Lane, Fletcher Street, Jonson Street and the southern extent of the BSC Lawson Street South Carpark (Lot 3 DP 827049), in the Byron Bay town centre.

Local businesses, tourist accommodation and public parking front the affected sections of road where the drainage upgrade and road works will occur.

Based on the location of the Activity and review of online environmental and planning databases, we note that:

- The Activity is located across land mapped as Tyagarah soil landscape, consisting of sediment of mixed estuarine and aeolian origin. The limitations of the soil type are very strongly acid, permeable, often waterlogged soils of low fertility and low water holding capacity with localised salinity, permanently high water tables and moderate wind erosion hazard.
- The Activity area is mapped as containing acid sulfate soils (ASS) class 3 and 5.
- The Activity area includes sections of street landscaping featuring garden beds and street trees. The Activity area does not constitute a native vegetation community or any threatened flora.
- The Activity area is not mapped biodiversity values land (BVL) under the *Biodiversity Conservation Act 2016* or littoral rainforest/coastal wetland under *State Environmental Planning Policy (Resilience and Hazards) 2021* (R&H SEPP).
- The site is not mapped key fish habitat under the provisions of the *Fisheries Management Act 1994* and there are no mapped drained lines or waterways within the site.
- The Activity is located within the cultural heritage land boundary of Tweed Byron Local Aboriginal Land Council and Arakwal. More broadly, the Activity is located within the Bundjalung Nation boundary whose people are the original custodians of northern coastal areas of New South Wales, stretching from Grafton on the Clarence River in the south to the Logan River in the north and inland as far as the Great Dividing Range at Tenterfield and Warwick.
- Search of the AHIMS database identified no Aboriginal sites/objects recorded within the alignment of the Activity.
- The works areas are consistent with disturbed land as defined under the NSW Government's 'Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales' and Part 5 of the *National Parks and Wildlife Regulation 2019*.

- In regard to Native Title matters, the Activity area does not include Crown Land or land covered under Native Title claim determination area or Indigenous Land Use Agreement (ILUA).
- The Activity area is not listed as a heritage item or heritage conservation area under NSW or Commonwealth legislation.
- The Activity area is mapped as flood prone land.
- Byron Bay has old underground drainage infrastructure, which discharges west into Belongil Creek via the Byron Bay town drain (Butler Street). Roadside drainage and underground public drainage networks tail out to the Butler Street drainage channel that drains to Belongil Creek.
- Contour mapping under BSC mapping system identifies the Activity area sits generally at 2.0m AHD.
- The corner of Fletcher Street and Byron Street was the site of a former Fire Station and samples taken at the location identify PFAS levels in the underlying soil and groundwater above human health and biological screening levels.
- The are 'sensitive receivers' within proximity of the works area (i.e. businesses, accommodation and local residents who could be disturbed by construction noise).
- Site access to the Activity area is gained directly from the affected sections of road reserves.

The works will also utilise part of the former South Byron Sewer Treatment Plant (Lot 2/-/DP573835) for temporary stockpiling, testing, treatment and classification of spoil generated from the Activity. The temporary use of the site is required due to constrained works corridors; being located in the centre of the Byron CBD. This site has been remediated in regard to historic land uses at the site including the former sewer treatment plan, waste disposal and night soil uses at the site. Temporary uses are proposed in the cleared section of the site, adjoining the holiday park. The site is accessed off an existing access handle connecting to Broken Head Road. The access handle also serves and a shared pedestrian access lining into the northern extent of Suffolk Park Residential area. It is noted that traffic congestion generally occurs on Broken Head Road Mon to Fri between 8am and 9am. The site is consistent with the definition of disturbed land. The NSW Government's 'Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales' defines disturbed land as 'land is disturbed if it has been the subject of human Activity that has changed the land's surface, being changes that remain clear and observable'. The site is heavily disturbed from previous land use and remediation activities.

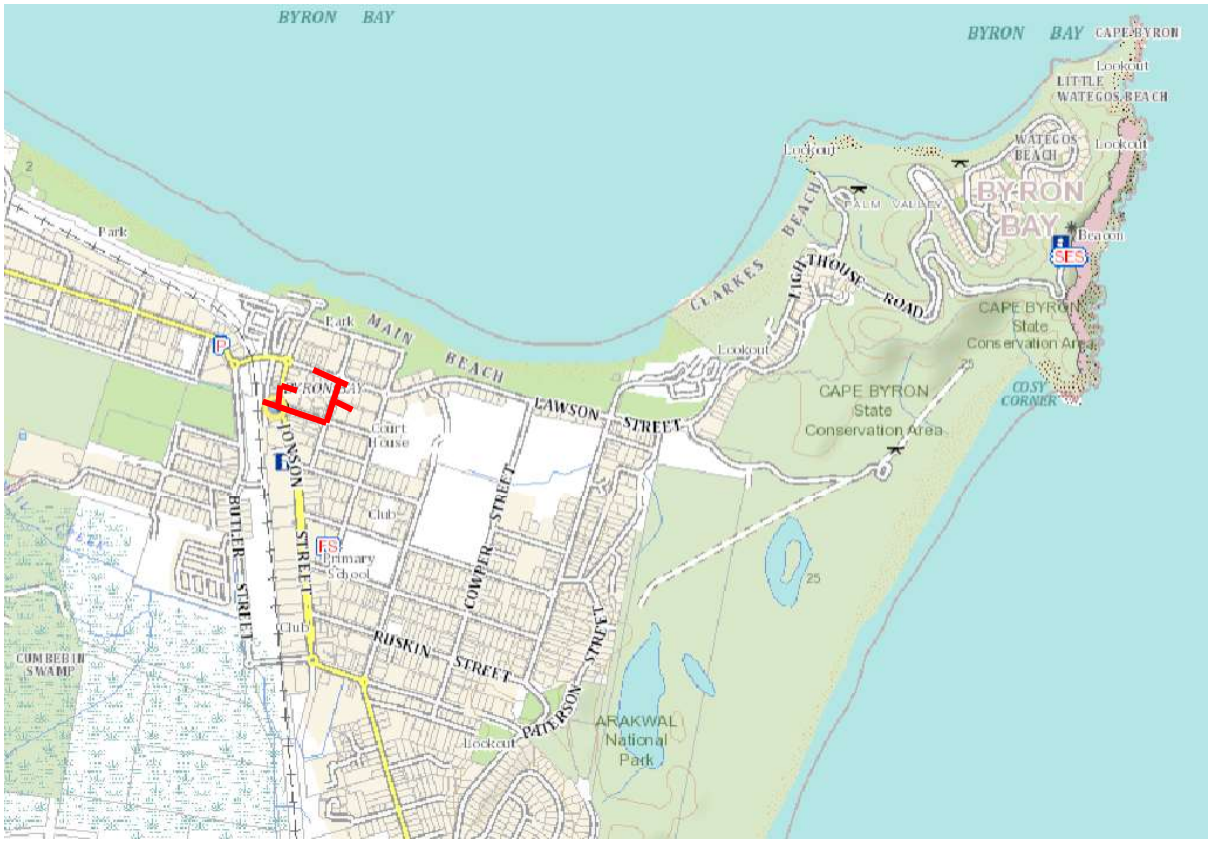

Figure 1-1 | Locality plan (approx. Activity area red)

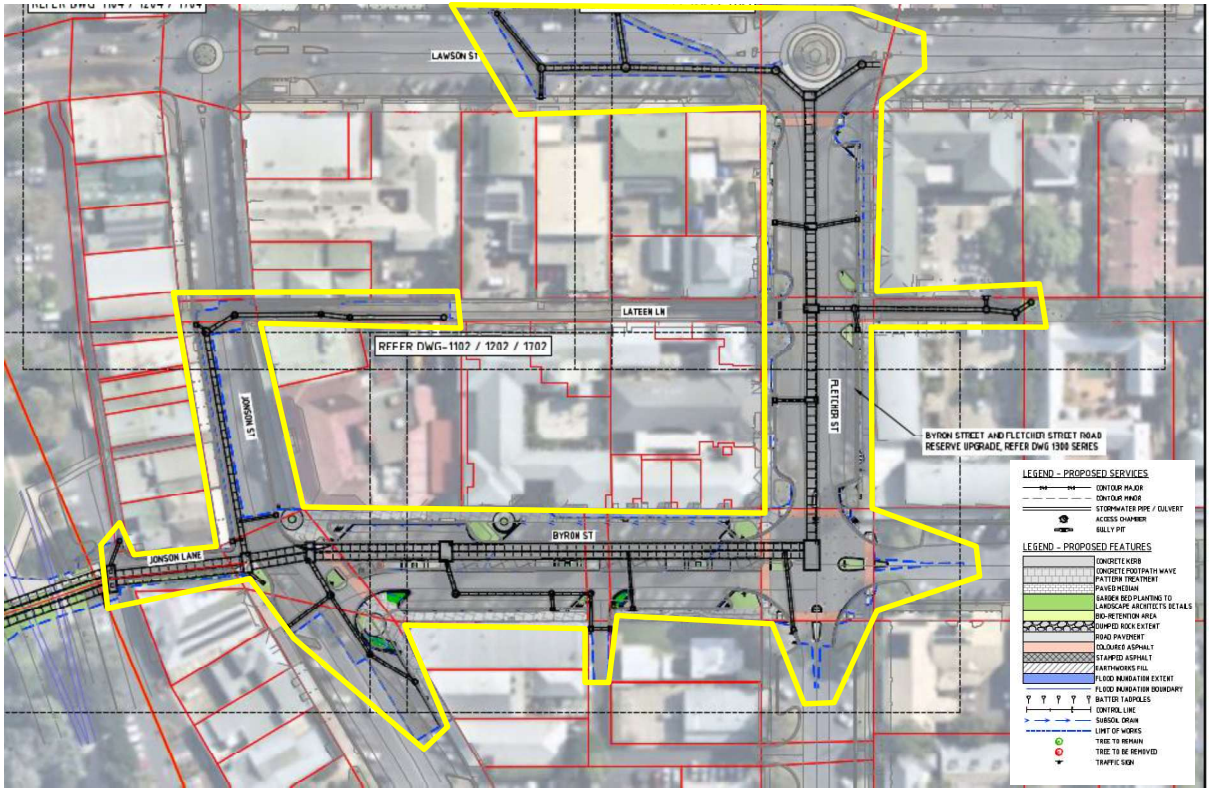

Figure 1-2 | Concept design assessed under this REF bordered yellow

Source: Engeny – Stage 1 Town Centre (Nov 2024)

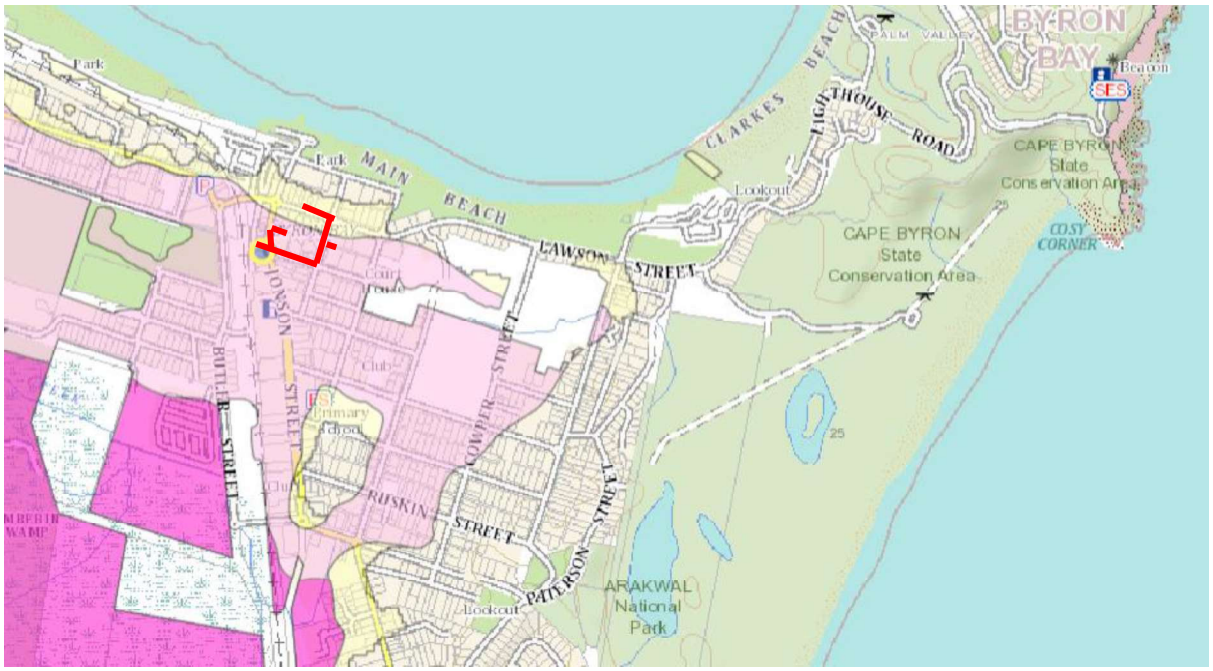

Figure 1-3 | ASS mapping (approx. Activity area red)

Source ePlanning Spatial Viewer

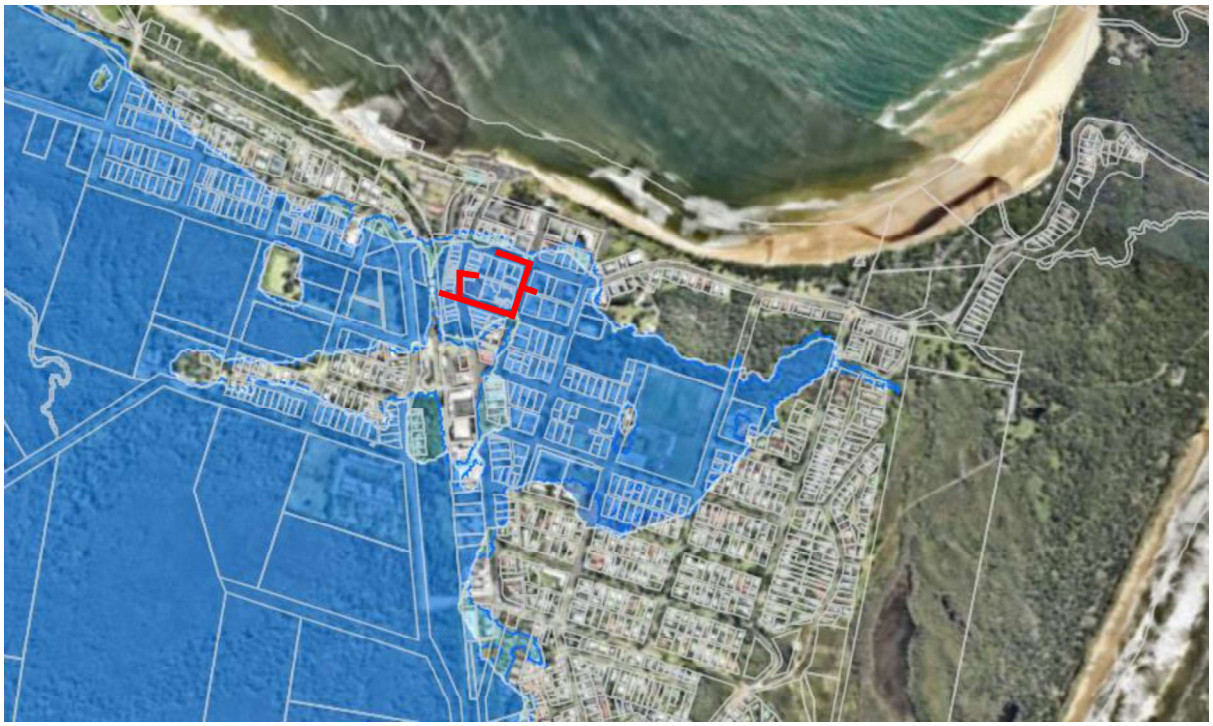

Figure 1-4 | Flood mapping (approx. Activity area red)

Source: BSC Online Mapping

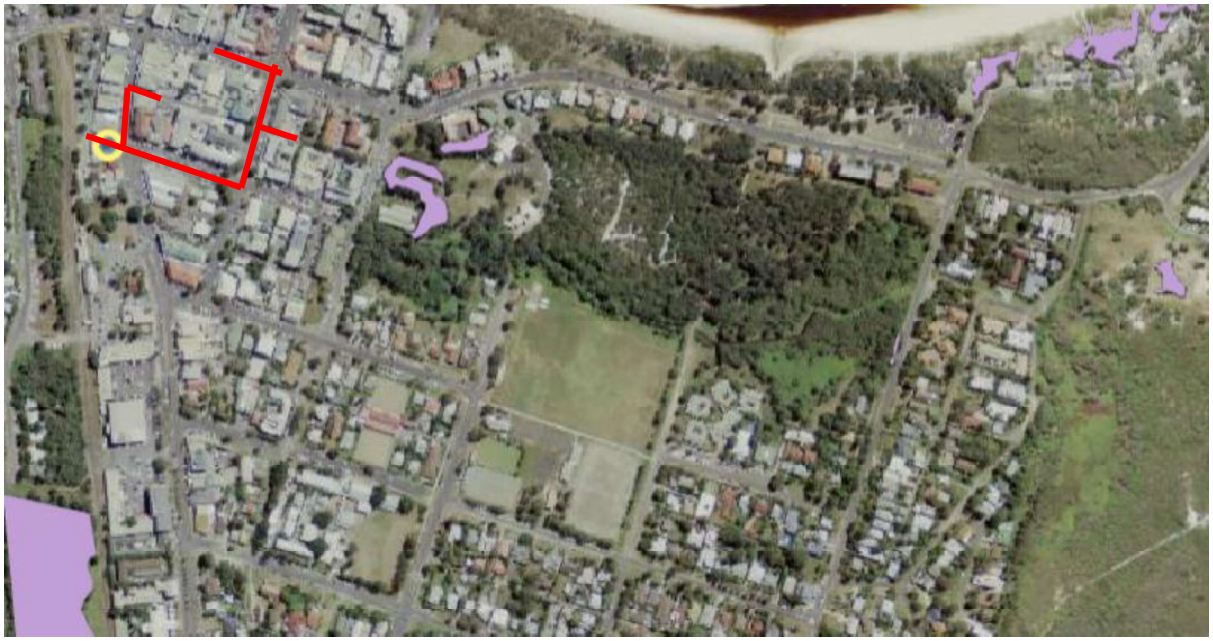

Figure 1-5 | BVL mapping (approx. Activity area red)

Source ePlanning Spatial Viewer

Figure 1-6 | PCT Vegetation mapping (approx. Activity area red)

Source: NSW SEED Mapping

Figure 1-7 | Temporary Ancillary Facility (Lot 2/-/DP573835)

Source: BSC mapping

1.2 Project Need, Objectives and Options

The purpose of the Activity is to undertake road and drainage upgrades within the Byron Bay town centre to improve gravity drainage flows from the town centre and support implementation of the Belongil Creek Floodplain Risk Management Plan and Preferred Byron Bay Drainage Strategy.

The broader Preferred Byron Bay Drainage Strategy is being progressed to address flooding issues associated with:

- Regional flooding;
- Tidal inundation;
- Overland flow;
- Road drainage capacity;
- Flood storage availability, and
- Low lying areas.

To address these key flooding issues the following broad scope of drainage works are being considered under the Preferred Byron Bay Drainage Strategy:

- Butler Street Drain realignment;
- Butler Street to Kendall Street levee;
- Upgraded road drainage networks;
- Stormwater pump stations;
- Middleton street overland flow path and additional Sandhills flood basin /wetland;
- Clarkes Beach outlet; and
- Backflow prevention devices.

Council has investigated various design options and pump station configurations to achieve the Preferred Byron Bay Drainage Strategy outcomes. It is likely that further detailed design may occur to some components of the strategy to improve drainage designs and reduce costs, however the

broad scope of design outlined above are necessary to achieve the Preferred Byron Bay Drainage Strategy.

Byron Bay has old underground drainage infrastructure, which discharges west into Belongil Creek via the Byron Bay town drain (Butler Street). Roadside drainage and underground public drainage networks within the town centre tail out to the Butler Street drainage channel that drains to Belongil Creek. Rainfall runoff within the township of Byron Bay, east of the North Coast Railway line, does not have direct overland escape and water levels can be independent of the flooding from Belongil Creek, due to the constrained stormwater drainage system. High creek levels due to either Belongil Creek catchment flooding, creek mouth closure or high ocean levels can also significantly impact stormwater discharge from the town.

The main objective of the Activity is therefore to undertake drainage and road upgrades within the town centre to improve drainage flow to Belongil Creek and reduce flooding in the town centre.

The secondary objective of the Activity is to:

- Ensure construction is staged and undertaken to minimise impacts on local business operations during construction.
- Implement an effective community strategy during construction.
- Minimise all other environmental impacts associated with the construction and operation of the Activity.

The option of not implementing the Preferred Byron Bay Drainage Strategy means the flooding within Byron Bay will worsen as climate change influences, including increased storm intensity and sea level rise, progressively exacerbate flooding issues in the township.

1.3 Design Refinements

Minor design refinements are likely to occur during detailed design of the Activity. Any required design refinements may proceed without further REF approvals providing:

- The design changes are generally within the same alignment of the Activity or adjoin the Activity area alignment.
- The design refinements relate to the development form generally outlined in section 2 of this REF.
- The design refinements do not result in any additional environmental impacts beyond those generally outlined under this REF.

During construction phase, there is also potential for tree trimming and additional minor tree removal to occur as a result of detailed design or to facilitate construction.

The following works may be undertaken to facilitate construction of the Activity without revision of the REF:

- Minor tree pruning undertaken with supervision of a qualified arborist ensuring the tree health is maintained;
- Minor tree removal providing that prior to removal:
    - A qualified ecologist has assessed the impact of the tree removal within a biodiversity assessment to confirm the significance of the impact on biodiversity in accordance with a test of significance under the *Biodiversity Conservation Act 2016* and the provisions of the *Environment Protection and Biodiversity Conservation Act 1999*.
    - The biodiversity assessment has confirmed that there will not be a significant impact on biodiversity under the *Biodiversity Conservation Act 2016* and the provisions of the *Environment Protection and Biodiversity Conservation Act 1999* in regard to the additional tree loss and with consideration of the biodiversity impacts outlined within this REF.
    - Tree loss is offset generally in accordance with the Byron Shire Development Control Plan 2014 Chapter B1 Biodiversity.

- The biodiversity assessment is signed off by BSC and appended to the REF forming part of the planning approval for the Activity.

Additional Temporary Ancillary Facility sites will be assessed against the following criteria and included into the project area as an amendment to this REF:

- No additional tree/native vegetation clearing occurs.
- Tree protection measures are implemented in accordance with Australian Standard AS 4970-2009 'Protection of Trees on Development Sites'.
- Any ancillary licences, permits, owners consent are obtained (as required)
- Has ready access to a road.
- Be located a minimum 20m from a residence
- If located within flood prone land has prepared a flood contingency plan to manage flooding issues during construction
- All commercial/residential occupiers of land within 100m have been notified and provided details of the temporary use and contact number for updates/complaints.

Due to the presence of PFAS in the groundwater and spoil, the dewatering process and handling/disposal of PFAS materials has been developed with input from the EPA. Adjustments of the dewatering activities may be required during construction to meet water quality targets. The EPA are required to be involved in decisions regarding any variation in dewatering activities outlined in the Dewatering Management Plan.

2 Proposed Activity

2.1 Scope of Works

The extent of the Activity includes the following scope of works reflecting concept plans provided at Appendix A:

- Underground drainage:
  - 1 x cell drainage (2400 x 600) from the roundabout at Fletcher Street/Lawson Street through to the intersection of Byron Street including:
    - connecting single cell drainage and pits tying into the street kerb system on each side of the road opposite Lot B DP 372589.
    - connecting single cell drainage and pits running east along Lateen Lane tying into the street kerb system on each side of the road.
    - connecting single cell drainage and pits tying into the street kerb system to the west opposite Lot 1 DP 1134142
  - 2 x cell drainage (1800 x 900) from the intersection of Byron Street/Fletcher through to the intersection of Byron Street, through to the boundary of the Byron Bay Rail Corridor including:
    - single drainage and pit running from the intersection of Byron Street/Fletcher connecting to the street kerb system to the south opposite Lot 6 DP 758207;
    - single drainage and pits running north and south connecting to the street kerb system opposite the Great Northern Hotel.
    - single drainage and pits running east connecting to the street kerb system linking to Williams Lane.
    - single pipe and pits running north along Jonson Street and then east into Lateen Lane, connecting into to the street kerb system.
    - single pipe and pits running south along Jonson Street and then east to connect to the kerb system opposite the Corner Store.
    - 2 x single drainage linking into the existing kerb systems at the boundary of the rail corridor.
    - tie-in works for existing stormwater network connections, including replacement of damaged existing drainage infrastructure (as required).
    - relocation of services due to utility conflicts.
  - All drainage to be installed via trenching. Where services conflicts or other factors impact the ability to complete trenching works, the contractor may elect to apply underboring construction methods.
- Streetscape works within the alignment of Fletcher Street and Byron Street including:
  - Lifting of street and pathway levels and improvement of grade and fall to support surface drainage flow and pedestrian access.
  - Variation in landscaping treatments within Byron Street and Fletcher Street including the following existing street tree loss:
    - Loss of existing plantings including 6 x Lilli Pilli trees in the medium strip along Byron Street.
    - Loss of 1 x Alexander Palm on the northern corner of Lateen St/ Fletcher Street

    - Loss of 1 x Tuckeroo tree growing in the footpath of the western side of Fletcher Street
  - Installation of WSUD devices, rain gardens and other WSUD design treatments.
  - Loss of 1 car parking space within Byron Street and 1 car parking space within Fletcher Street
  - Relocation of the existing clock tower in Byron Street slightly west,
  - No variation of road centreline alignments.
- Ancillary utility adjustment to enable the above scope of works to proceed, including installation of utility conduits required to enable construction of future communications services.
- Construction dewatering in accordance with a construction specific Dewatering Management Plan endorsed by the EPA and any variation in dewatering activities will be confirmed with the EPA due to the potential for PFAS to be present with the groundwater.
- Management of potential ASS materials in accordance with an ASS Management Plan.
- Management of HMSR in accordance with a project specific HMSR Management Plan.
- Management of noise and vibration impacts in accordance with a Construction Noise and Vibration Management Plan
- Management of air quality in accordance with a Construction Air Quality Management Plan
- Management of traffic and public safety in accordance with a Traffic Control Plan and Traffic, Access and Public Safety Management Plan.
- Establishing a temporary ancillary facility within the Lawson Street South Carpark (Lot 3 DP 827049) and any other BSC approved sites including:
  - Site office.
  - Material laydown area.
  - Waste closet.
  - Spoil stockpiling and waste classification.
  - Temporary access tracks and parking.
  - Pumps and treatment zones
- Establishing a temporary ancillary facility part of the former South Byron Sewer Treatment Plant (Lot 2/-/DP573835) for temporary stockpiling, testing, treatment and classification of spoil generated from the Activity. The temporary use of the site is required due to constrained works corridors; being located in the centre of the Byron CBD. Site specific safeguards have been developed for the temporary use of Lot 2/-/DP573835.
- Transportation of classified waste to a licensed waste facility.

An overview of the scope of works required for the Activity is presented at Table 2.1**.**

Table 2.1 | Scope of Works

Stage	Details / Requirements
Preconstruction	• Completion of Detailed Construction Plans • Preparation of Construction Environmental Management Plan (CEMP), incorporating recommendations from this REF • Survey works alignments and mark out construction area • Mark out vegetation/landscaping removal areas

Stage	Details / Requirements
	• Install traffic management controls along affected section of the public road • Install sediment and erosion controls • Establish temporary fencing and exclusions zone fencing • Establishment of ancillary site compounds and stockpile areas • Consultation with adjoining and affected landowners and businesses • Consultation will all utility providers prior to undertaking utility adjustments • Gain ancillary approvals.
Construction	• Construction staff toolbox training regarding works scope and environmental constraints • Updating affected adjoining landholders on the status of the works and potential impacts • Demolition works and tree/garden removal • Services assessment and adjustments • Maintain access to adjoining properties during construction • Construction of underground drainage networks. • Construction of aboveground drainage and streetscape works • Classify waste materials and disposal of waste materials at licensed waste facility • ASS and HMSR management and dewatering (including PFAS) • Use of temporary ancillary facility and transportation of materials to/from site
Disestablishment, Clean up and Offset Planting	• Remove traffic management controls • Remove erosion controls • Site clean-up • Maintain vegetation/landscaping until established

2.2 Work Methodology

2.2.1 CEMP

Construction activities will be guided by a Construction Environmental Management Plan (CEMP) to ensure work is carried out to specifications within the Activity area. Detailed work methodologies will be identified by the construction contractor.

2.2.2 Construction Period and Working hours

The construction period for the Activity is expected to take approximately 12 to 18 months pending weather conditions.

The works will be staged to enable a lateral shift of the works zone such that works would not remain in one location for the anticipated 12 to 18 months construction period.

Construction working hours will be limited to the following:

- 7 am to 6 pm Monday to Friday;

- 8 am to 1 pm Saturdays; and
- No works will be undertaken on Sundays or Public Holidays.

Works may be undertaken outside these hours where:

- The delivery of materials is required outside these hours;
- It is required in an emergency to avoid the loss of life, damage to property and/or to prevent environmental harm;
- Variation is approved in advance in writing by Council; and
- Receivers likely to be affected by the works are notified in writing of the timing and duration of these works at least 24 hours prior to the commencement of works (except for emergency work).

2.2.3 Machinery and Equipment

Works will be undertaken using machinery and equipment such as:

- Tip Trucks
- Sheet Piling Equipment
- Pumps and dewatering equipment
- Excavators
- Graders and Rollers
- Profilers
- Vibratory rollers
- Water carts
- Hydraulic hammers and concrete saws
- Concrete trucks and concrete pumps
- Track loader/Bobcat
- Backhoe
- Compaction equipment
- Small cranes
- Traffic control equipment (automated and manned), incl. signage, barriers, bollards)

2.2.4 Staging

The construction will be sequenced to complete construction within the minimum possible timeframe.

The works will be staged to enable a lateral shift of the works zone with bollards to facilitate traffic flow where possible throughout the works period. This implies that works would not continue in one location for the anticipated 12 to 18 months construction period.

The works will also be fenced with signage established and works zones delineated to ensure safe pedestrian and traffic flow for the public.

The appointed contractor will work together with BSC to develop a construction staging plan that minimises impacts on local business and avoids construction activities within the peak business periods of December and January.

2.3 Ancillary Facilities

2.3.1 Town Centre

The proposed Activity will require temporary ancillary facilities to enable construction of the proposed works including:

- Establishing a temporary ancillary facility within the Lawson Street South Carpark (Lot 3 DP 827049) including.
  - Site office
  - Material laydown area
  - Waste closet
  - Spoil stockpiling and waste classification
  - Temporary access tracks and parking
- An area for temporary stockpiling of spoil material and equipment directly adjacent to the works area within the boundary of the Byron Bay Rail corridor, within Lot 2 DP 1289363 (owned by TfNSW)

The works areas and ancillary facilities will be fenced with signage established and works zones delineated to ensure safe pedestrian and traffic flow for the public.

Figure 2-1 | Ancillary Facility Area Boundary (red) - Lawson Street South Carpark (Lot 3 DP 827049) and Lot 2 DP 1289363 (owned by TfNSW)

It is noted that additional area within the Lawson Street South Carpark (Lot 3 DP 827049) and Lot 2 DP 1289363 (owned by TfNSW) to that identified within Figure 2-1 may be required to support construction activities.

2.3.2 Former South Byron Sewer Treatment Plant (Lot 2/-/DP573835)

The Activity will utilise part of the former South Byron Sewer Treatment Plant (Lot 2/-/DP573835) for temporary stockpiling, testing, treatment and classification of spoil generated from the Activity. The temporary use of the site is required due to constrained works corridors; being located in the centre of the Byron CBD. This site has been remediated in regard to historic land uses at the site including the former sewer treatment plan, waste disposal and night soil uses at the site. Temporary uses are proposed in the cleared section of the site, adjoining the holiday park. The site is accessed off an existing access handle connecting to Broken Head Road. The access handle also serves and a shared pedestrian access lining into the northern extent of Suffolk Park Residential area. It is noted that traffic congestion generally occurs on Broken Head Road Mon to Fri between 8am and 9am.

It is understood that the site will be used for treatment of potential acid sulfate soil spoil materials generated from the drainage works in the town centre.

To ensure the temporary ancillary use of the site does not result in any significant environmental impacts the following safeguards are proposed:

- A Traffic Control Plan (TCP) shall be prepared by a qualified person and implemented for the site use in accordance with the requirements of SafeWork NSW. Licensed traffic controllers will assist with traffic control. This is required to ensure safe vehicle movements at the site entry off Broken Head Road. The plan will also need to address safe movement of pedestrians using the adjoining shared path and interacting with trucks and vehicles accessing the site.
- Where practical, trucks and vehicles entering the site shall be minimised between 7.30am 9.30am.
- Continued safe public access for pedestrians using the adjoining shared path shall be maintained during site use.
- The project Acid Sulfate Soils Management Plan shall include use of the site for treatment of acid sulfate soil.
- The project Construction Air Quality Management Plan shall address potential impacts associated with air quality on the adjoining holiday park.
- The project HMSR Management Plan shall include use of the site for temporary stockpiling prior to final testing and offsite disposal.
- Site management will incorporate best management erosion and sediment control practices such as those found in the Landcom 2004 Blue Book on erosion and sediment control and Safe Work Australia 'Excavation Code of Practice (2018).
- No additional tree/native vegetation clearing is permitted.
- Tree protection measures shall be implemented in accordance with Australian Standard AS 4970-2009 'Protection of Trees on Development Sites'
- WIRES are to be contacted on 1300 094 737 in the unlikely event that fauna become harmed during works.
- The adjoining holiday park shall be notified and provided details of the temporary use and contact number for updates/complaints.

2.3.3 Additional Temporary Ancillary Facility Uses

Any additional Temporary Ancillary Facility uses within existing managed areas may occur subject to BSC approval and where the proposed ancillary facility site meets the following minimum criteria:

- No additional tree/native vegetation clearing occurs.
- Tree protection measures are implemented in accordance with Australian Standard AS 4970-2009 'Protection of Trees on Development Sites'.
- Any ancillary licences, permits, owners consent is obtained (as required)
- Has ready access to a road.
- Be located a minimum 20m from a residence
- If located within flood prone land has prepared a flood contingency plan to manage flooding issues during construction.
- All commercial/residential occupiers of land within 100m have been notified and provided details of the temporary use and contact number for updates/complaints.

Any additional Temporary Ancillary Facility will be assessed for consistency against the above criteria and included into the project area as an amendment to this REF.

2.4 Traffic Management

The construction of the Activity will require works within the road reserve requiring traffic control to be implemented. Where works occur next to live traffic, a Traffic Control Plan (TCP) shall be prepared by a qualified person and implemented for the works in accordance with the requirements of SafeWork NSW. Licensed traffic controllers will assist with traffic control during the works.

As addressed in Section 2.4.2, traffic control is also required for use of the former South Byron Sewer Treatment Plant (Lot 2/-/DP573835); to address vehicle accessing the site from Broken Head Road and to ensure continued access and safety of pedestrians using the adjoining sharded path network.

Due to the complexity of undertaking works within an active town centre and within roads subject to high traffic volumes and congestion; careful construction planning is required to minimise impacts on traffic, parking and pedestrian access.

The final staging and methodology for undertaking the works will ultimately be developed by the appointed contractor with BSC. It is therefore critical that the contractor develops a traffic, access and public safety management plan within the CEMP to minimise any impacts on traffic, parking and pedestrian access.

Potential traffic delays, road closures and detours will be notified prior to the works commencing via Council website, media notification and potable variable messages sign (VMS) located along the affected sections of road leading up to the works period.

It is also recommended that bus operators and local schools likely to be impacted by traffic delays are notified during the works period.

2.5 Tree Protection

Retained mature street trees proximate to works, which are not subject for removal, are to be clearly fenced and managed during construction activities in accordance with the Australian Standard 'AS 4970 Protection of Trees on Development Sites'.

2.6 Utility adjustments

There is a significant number of public utilities located within the works alignment. Utility adjustments will be required to support construction of the new drainage systems and road works. Detailed utility adjustment plans will be developed to enable utility providers to approve and adjust any utility conflicts resulting from the works.

2.7 Contamination Management

Spoil material will be generated from the works and this material is likely to contain HMSRs and PFAS. Spoil generated from the works will be tested and managed accordingly in regard to potentially elevated gamma radiation levels and PFAS.

This will require the preparation of a project specific HMSR Management Plan to include a description of the HMSR and the activities to be conducted to further define the HMSRs as part of the works, management options proposed regarding stockpiling, testing, reuse and/or disposal of HMSR material to be conducted, along with relevant waste tracking and disposal options.

Given the presence of PFAS in soils and underground groundwater, and the potential for unknown fill material in the underlying subsoils across the alignment, construction safeguards will need to include an Unexpected Findings Protocol (UFP) to address potential discovery of hazardous materials excavated during the works.

Due to the presence of PFAS in the groundwater and spoil, the dewatering process and handling/disposal of PFAS materials has been developed with input from the EPA.

2.8 Construction Dewatering

Groundwater bore investigations in the vicinity of the Activity area, confirms that groundwater is encountered at shallow depths (less than 1 m below ground surface), and it is highly likely that excavations for the drainage works will encounter groundwater. Groundwater in adjoining areas has been confirmed to contain PFAS (refer to Appendix E).

BSC engaged ENV Solutions to prepare an options assessment for the Activity regarding construction dewatering with potential to encounter PFAS.

The analysis of dewatering disposal options considered vertical reinjection, horizontal reinjection, turkey nest infiltration, and surface water disposal, highlights their suitability based on specific site conditions and project requirements.

A brief overview of these options is presented at Table 2.2.

Table 2.2 Dewatering Disposal Options

Dewatering Option	Summary
Vertical reinjection	Vertical reinjection is ideal for deep aquifer recharge and situations where land availability is limited. However, it involves higher upfront costs, requires detailed hydrogeological assessments, and is better suited for localised water management
Horizontal infiltration trench	A horizontal infiltration trench is a practical solution for managing water infiltration in areas with permeable soils and adequate land availability. While its simplicity and cost-effectiveness make it appealing, its reliance on soil permeability and susceptibility to clogging highlight the need for careful site selection, regular maintenance, and integration with pre-treatment systems where necessary. Detailed hydrogeological assessments may also be required prior to implementation.
Turkey nest infiltration	Turkey nest infiltration offers a simplistic and scalable approach for groundwater recharge, relying on unlined storage to facilitate infiltration. This option is cost-effective where land is available, and water quality permits allow infiltration. Similar to the options above, detailed hydrogeological assessments may be required prior to implementation.
Water Treatment and Surface Discharge	Water Treatment and Surface Discharge remains the most adaptable option for contaminated waters or when subsurface conditions prevent reinjection. While effective, it carries higher operational costs

The above dewatering disposal options were considered through engagement with the EPA; to confirm the preferred option and acceptable options for water quality criteria for PFAS when discharging to surface water.

The preferred dewatering option was also influenced by availability of space for the dewatering option and any ancillary approvals and environmental impacts that may be triggered by the dewatering option.

The final Dewatering Management Plan has been endorsed in writing by the EPA and the EPA has confirmed that the project is not a Scheduled Activity and does not require an Environmental Protection License (EPL) under the *Protection of the Environment Operations Act 1997*.

The EPA has requested that during any dewatering activities Council provides weekly reports, which include the following information:

- Daily flow/volume data.
- All daily water testing results and the weekly PFAS sample results.

- The report must highlight any results received that do not comply with the water quality objectives identified in the DMP (Table 7: On-Site Groundwater Discharge Objectives and Criteria).
- Confirmation of what actions were taken in response to any non compliances.
- If there are any non compliances with the water quality objectives (DMP Table 7), any issues with the collection of this data or with laboratory turnaround times please advise the EPA as soon as Council becomes aware.

A copy of the letter issued by the EPA is provided at Appendix G.

2.9 ASS Management

The works are located in areas mapped acid sulfate soils (Class 3 and 5). Excavations required for the Activity have potential to occur at a depth of 1.4 m below surface level.

Nearby acid sulfate soils sampling indicates that acid sulfate soil is present within underlying soils in the Activity area (refer to Appendix D). Sampling will be undertaken during the works to confirm any presence of ASS.

It is therefore likely that excavations will encounter ASS materials.

An Acid Sulfate Soils Management Plan will be prepared to support construction activities in accordance with the Acid Sulfate Soils Manual. The plan will include the temporary use of the former South Byron Sewer Treatment Plant (Lot 2/-/DP573835) for stockpiling and treatment of potential acid sulfate material generated from the works.

2.10 Waste

Soil tests and site investigation undertaken indicate that the excess spoil requiring disposal will likely contain PFAS, HMSR and Acid Sulfate Soils.

The Activity will utilise part of the former South Byron Sewer Treatment Plant (Lot 2/-/DP573835) for temporary stockpiling, testing, treatment and classification of spoil generated from the Activity. The temporary use of the site is required due to constrained works corridors; being located in the centre of the Byron CBD.

Additional construction sampling of spoil and waste materials will need to be undertaken to in accordance with the EPA (2014) Waste Classification Guidelines, Part 1: Classifying Waste.

All waste testing, transportation and disposal will be undertaken in accordance with the applicable Waste legislation.

The contractor will provide waste disposal certificates to BSC regarding all waste generated from the Activity.

2.11 Construction Noise and Vibration Management

The proposed works will be undertaken in close proximity (<10m) to existing commercial properties and it is likely that the Activity will result in a highly noise-affected level of LAeq 75 dB(A) at these locations. Safeguards necessary to manage noise impacts including the provision of respite periods to address highly noise-affected receivers (>/LAeq 75 dB(A)).

Use of excavators, graders and compaction machines and construction shoring has potential to cause vibration within the local environment.

At this stage, a contractor has not been appointed to confirm the works methodologies and therefore a Construction Noise and Vibration Management Plan is required for the construction phase of the Activity to confirm all potential noise and vibration impacts based on confirmed construction methodologies presented by the appointed contractor including all feasible mitigation strategies to ensure no significant noise or vibration impacts will occur during construction.

Building dilapidation reports shall be prepared for any buildings or structures within 30m of the works alignments.

2.12 Construction Air Quality Management

Given the works will require pavement cutting/breaking and excavations within 10m of active shop fronts measures such as dust screening are recommended to minimise impacts on local businesses.

Construction works will require transportation of spoil from the construction areas to Lot 2/-/DP573835 for stockpiling, testing, treatment and classification prior to offsite disposal.

Mitigation measures such as covering truck loads and wetting down dust generating activities as necessary are to be employed.

A Construction Air Quality Management Plan shall be prepared for the works and detailed under the Contractor's CEMP.

2.13 Communications Strategy

The appointed contractor and BSC will develop a communications strategy for the Activity

The aim of the communications strategy is to provide clear, accessible and timely information about the construction process to the community, local businesses and affected stakeholder groups.

The appointed contractor and BSC will be jointly responsible for the implementation of the communications strategy.

The communications strategy shall include the following as a minimum:

- Project overview.
- Confirm the project staging plan and timeframes.
- Identification of all potentially affected businesses, schools, bus companies and other relevant stakeholders.
- Activities to provide information and project notifications
- Activities to provide opportunities for stakeholder input.
- Complaints management system.
- Key roles, responsibilities and contact personnel.
- Process for amending and updating the strategy.

3 Existing Environment and Impact Assessment

3.1 Landform, Geology and Soils

3.1.1 Existing Environment

Review of eSPADE online mapping identifies that the soil landscape of the Activity area is Tyagarah soil landscape, consisting of sediment of mixed estuarine and aeolian origin. The limitations of the soil type are very strongly acid, permeable, often waterlogged soils of low fertility and low water holding capacity with localised salinity, permanently high-water tables and moderate wind erosion hazard.

Contour mapping under BSC mapping system identifies the Activity area sits generally at 2.0m AHD.

3.1.2 Impact Assessment

Excavations associated with the Activity will result in temporary areas of exposed soils and some temporary stockpiling of soil prior to backfilling. These works will be occurring adjacent to and connecting into areas of roadside public drainage systems.

Temporary stockpiling of spoil material is proposed to enable the material to be tested and classified to determine whether the materials have reuse opportunities in other BSC projects or need to be disposed of at a licensed waste facility. Construction works will require transportation of spoil from the construction areas to Lot 2/-/DP573835 for stockpiling, testing, treatment and classification prior to offsite disposal. The spoil material will be transported to Lot 2/-/DP573835 to minimise the works impacts on the public open space area.

Due to the presence of radioactive heavy mineral sands residues (HMSRs) in the Activity area alignment, any stockpiling of HMSRs will need to be in accordance with a project specific HMSR Management Plan (refer to REF section 3.2 below).

The scale of work proposed can be managed with site specific and best practice erosion / sediment controls to ensure excavated materials do not enter the public drainage system.

At the completion of the works the site will be stabilised through sealing and landscaping of all exposed soil areas as required.

The works do not present a significant variation to the topography of the land.

The following safeguards are recommended to prevent, minimise and mitigate the potential impacts of the Activity on Landform, Geology and Soils.

Does the Activity involve the disturbance of large areas (e.g. >2ha) for earthworks?	Yes	☐	No	☒
Does the site have constraints for erosion and sedimentation controls such as steep gradients or narrow corridors?	Yes	☒	No	☐
Is the Activity footprint in or nearby a highly sloping landform?	Yes	☐	No	☒
Are there any sensitive receiving environments that are in or nearby the likely Activity footprint or that will likely receive stormwater discharge from the Activity?	Yes	☒	No	☐

Landform, Geology and Soils - Recommended Safeguards:

- *Site management will incorporate best management erosion and sediment control practices such as those found in the Landcom 2004 Blue Book on erosion and sediment control and Safe Work Australia 'Excavation Code of Practice (2018).*

- *Overburden and stockpiles will be placed in the form of a bund, a minimum of 10 m away from drainage lines and waterways where necessary to reduce surface water entering stockpiles.*
- *All erosion control devices will be visually inspected weekly and before forecast rain events to ensure effectiveness as well as after each rainfall event.*
- *Excavated areas will be stabilised as soon as practically possible.*

3.2 Contaminated Land and Acid Sulfate Soils

3.2.1 Existing Environment

Review of the NSW EPA contaminated lands register (Appendix E) identifies no registered contamination sites within the Activity area.

The corner of Fletcher Street and Byron Street was the site of a former Fire Station and samples taken at the location identify PFAS levels in the underlying soil above human health and biological screening levels.

Due to past mining and processing of mineral sands within the town of Byron Bay and the immediate surrounds, a potential exists for radioactive heavy mineral sands residues (HMSRs) to exist within the alignment of the proposed works.

A HMSR Assessment has been completed for the Activity (refer to Appendix C). The default external background radiation level and screening reference level are determined under the *Queensland Health (2020) Land contaminated by radioactive material – A guide to assessment, management and remediation*. It should be noted that where the screening reference level of 150 nGy/h is identified further investigation and action is recommended.

The assessment has identified through surface gamma radiation survey that dose rates (nGy/h) along the alignment do, in some sections, exceed the default external background radiation dose rate as 80 nGy/h (terrestrial and cosmic) and screening reference level of 150 nGy/h, including 3 areas including:

- One area on the eastern extent of Lawson Street (150-250 nGy/h); and
- Two areas on the eastern side of Fletcher Street (150-250 nGy/h).

An overview of the surface gamma radiation survey is presented at Figure 3-1

Figure 3-1 | Surface Gamma Radiation Survey results

Preliminary contaminated land due diligence assessment has been completed below.

Consideration	Comment
1. Please specify all land uses to which the site has been put, including the current use.	Roadway and footpath
2. Is the proponent aware of uses to which properties adjoining the site have been put? If so, please specify.	Adjoining land includes existing urban development.
3. Do any of the uses correlate with the potentially contaminating activities set out in table 1 in Schedule 1 of this policy?	No.
4. If the answer to 3 is yes - has there been any testing or assessment of the site and, if so, what were the results?	No
5. Is the proponent aware of any contamination on the site?	Surface gamma radiation survey identified that dose rates (nGy/h) along the alignment do, in some sections, exceed the default external background radiation dose rate as 80 nGy/h (terrestrial and cosmic) and screening reference level of 150 nGy/h, including: • One area on the eastern extent of Lawson Street (150-250 nGy/h); and • Two areas on the eastern side of Fletcher Street (150-250 nGy/h.

Consideration	Comment
	The corner of Fletcher Street and Byron Street was the site of a former Fire Station and samples taken at the location identify PFAS levels in the underlying soil above human health and biological screening levels.
6. What remediation work, if any (carried out voluntarily or ordered by a government agency), has been taken in respect to contamination which is or may have been present on the site?	None

The site is mapped within an ASS overlay under the Byron Local Environmental Plan 2014. Preliminary ASS risk assessment has been completed below.

Consideration	Comment
1. Is the Activity located within a known mapped ASS constraint area? If yes, please specify. If no, further assessment for ASS is NOT required.	Yes. The site is mapped Class 3 and 5 under the Byron LEP 2014. Topography of the Activity area is relatively flat with surface levels siting at approximately 2.0m AHD.
2. Will the works maximum depth of excavation impact the identified ASS class?	The Activity area is mapped as containing acid sulfate soils (ASS) class 3 and 5; indicating that excavations below 1m of surface levels have potential to encounter ASS. 1.0 m to 2.5 m deep excavations are required for the drainage works; potentially encountering ASS.
3. Has soil sampling and analysis been carried out to determine if an ASSMP is required? e.g. Sulfur or acid trail above listed action criteria	Nearby acid sulfate soils sampling indicates that acid sulfate soil is present within underlying soils in the Activity area (refer to Appendix D). Sampling will be undertaken during the works to confirm any presence of ASS.
4. Based on above items is an Acid Sulfate Soil Management Plan required?	An Acid Sulfate Soils Management Plan, will be prepared in accordance with the Acid Sulfate Soils Manual.

3.2.2 Impact Assessment

Considering the existing environment, the probability for exposing contaminated soils is likely.

Radioactive Sands

Surface gamma radiation survey identified that dose rates (nGy/h) along the Activity area alignment do in some sections exceed the screening reference level of 150 nGy/h including:

- One area on the eastern extent of Lawson Street (150-250 nGy/h).
- Two areas on the eastern side of Fletcher Street (150-250 nGy/h).

Shielding of gamma radiation by overlying materials, such as soil layers, footpaths and roads, reduces the extent and magnitude of the HMSRs readings. Therefore, it is expected that dose rates (nGy/h) of excavated material will likely be higher once that material is excavated from the ground and temporarily stockpiled prior to reuse or disposal.

As shown by the surface gamma radiation survey prepared for the Activity, most of the material within the alignment is below 150 nGy/h, within only 3 discrete areas identified as being in the range of (150-250 nGy/h). The dose rates (nGy/h) within the alignment would currently comply with the existing land use associated with public road reserves (2000 nGy/h). Therefore, any material excavated and used to backfill the excavation is considered acceptable based on the dose rates (nGy/h) and land use criterion. Furthermore, the excavated areas will be predominantly covered by the road formation, landscaping and concrete footpaths providing shielding from gamma radiation.

Spoil material will be generated from the works and this material is likely to contain HMSRs. Spoil generated from the works will be tested and managed accordingly in regard to any potentially elevated gamma radiation levels. This will require the preparation of a project specific HMSR Management Plan.

ASS

The works are located in areas mapped acid sulfate soils (Class 3 and 5). Nearby acid sulfate soils sampling indicates that acid sulfate soil is present within underlying soils in the Activity area (refer to Appendix D). Excavations required for the Activity have potential to occur at a depth of 1.0 m to 2.5 m below surface level, therefore it is likely that the works will excavate ASS material

When exposed to air, the iron sulfides in ASS react with oxygen to create sulfuric acid. The acid makes metals in the soil, such as iron and aluminium, more soluble. These metals can be released in toxic amounts.

The acid and released metals can have many damaging effects including:

- Damaging waterways and killing aquatic life: Rainfall can wash acid and toxic metals into waterways, killing organisms that are immobile (such as oysters) or that live in sediment. It can also reduce survival and growth rates of plants and animals and promote outbreaks of disease (especially red-spot disease in fish).
- Killing plants: Very acidic soil can kill all plants growing in it.
- Corrosion: Sulfuric acid can corrode concrete, iron, steel and some aluminium alloys.
- Toxic water and dust: Acid sulfate soil and water can irritate skin and eyes. Drinking acidic water may make animals ill.

Sampling will be undertaken during the trenching component of the works to confirm any presence of ASS.

An Acid Sulfate Soils Management Plan will be prepared in accordance with the Acid Sulfate Soils Manual.

PFAS

Due to the presence of PFAS in soil samples and groundwater bores in and adjoining the town centre, there is potential for PFAS to be encountered within construction groundwater and spoil.

Based on existing groundwater bore investigations in the vicinity of the site, groundwater is encountered at shallow depths (less than 1 m below ground surface). This is consistent with the low-lying nature of the site and surrounding area. It is therefore highly likely that excavations for the drainage works will encounter groundwater and PFAS.

Construction management will need to address presence of PFAS during construction dewatering and spoil disposal due to the known PFAS contamination in underlying soils and groundwater.

The dewatering process and handling/disposal of PFAS materials has been developed through input from the EPA. The NSW EPA has endorsed the dewatering process that addresses PFAS in the groundwater. A copy of the EPA letter is provided at Appendix G.

Unexpected Findings Protocol (UFP)

The Activity area is located within the road corridor and services corridors, which have potential to contain unknown fill material including hazardous materials. As noted above, spoil material will be generated from the works and temporarily stockpiled prior to either reuse or disposal from site to a licensed waste facility. It is therefore recommended that the construction safeguards include an Unexpected Findings Protocol (UFP) to address potential discovery of hazardous materials excavated during the works.

Chemical Spills

During construction there is potential for chemical spills to occur from plant and equipment used during construction (e.g. petrol, lubricants). Chemicals have potential to move into drainage lines and into soil profiles. Spill kits and construction staff training are required to minimise chemical spill impacts during construction.

The following safeguards are required to manage potential impacts associated with contaminated land and ASS.

Is there any evidence within or nearby the likely footprint of potential contamination?	Yes	☒	No	☐
Are there any known occurrences of salinity or acid sulfate soils in the area?	Yes	☒	No	☐

Contaminated Land and Acid Sulfate Soils - Recommended Safeguards:

- *Spill kits maintained onsite during the construction period and employees trained how to use spill kits.*
- *CEMP is to contain suitable unexpected finds protocols and waste handling procedures for managing potentially contaminated soils. This should include, as a minimum:*
    - *Works to proceed with caution and cease immediately if any potential source of contamination are encountered during development, then works should be halted until confirmation of the presence of contamination is undertaken. In instances where contamination is confirmed, remediation in accordance with an approved Remediation Action Plan will be required.*
    - *Any excess spoil to be disposed offsite from the proposed works will need to be classified pursuant to the EPA Waste Classification Guidelines. Relevant permits may need to be obtained for such waste in accordance with the POEO Act 1997 and the relevant guidelines.*
- *An Acid Sulfate Soils Management Plan shall be prepared for the works in accordance with the Acid Sulfate Soils Manual. The location of any areas for treatment and stockpiling of excavated ASS materials shall be approved in writing by Council following Council review of the Acid Sulfate Soils Management Plan. The plan will include the temporary use of the former South Byron Sewer Treatment Plant (Lot 2/-/DP573835) for stockpiling and treatment of potential acid sulfate material generated from the works.*
- *A project specific HMSR Management Plan shall be prepared and will include a description of the contamination and the activities to be conducted to further define the HMSRs as part of the works, management options proposed regarding stockpiling, testing, reuse and/or disposal of HMSR material to be conducted, along with relevant waste tracking and disposal options.*
- *Stockpiling of material is permitted at an existing BSC approved temporary stockpile location and is required to be consistent with the works specific HMSR Management Plan prepared for the Activity.*

3.3 Water Quality and Hydrology

3.3.1 Existing Environment

The Activity area is not mapped key fish habitat under the provisions of the *Fisheries Management Act 1994*.

The Activity area does not include Coastal Wetland mapped under R&H SEPP.

The Activity area is identified as flood prone land under BSC flood planning framework.

As outlined in Section 3.2, groundwater bore investigations in the vicinity of the site, confirm that groundwater is encountered at shallow depths (less than 1 m below ground surface), and it is highly likely that excavations for the drainage works will encounter groundwater. Groundwater in adjoining areas has been confirmed to contain PFAS (refer to Appendix D).

Within the alignment of the Activity, a single culvert provides the only overland flow path for stormwater within the town centre to pass west to Belongil Creek, due to the existing rail line embankment.

The existing culvert that crosses the adjoining rail corridor is the single crossing point in the drainage network that currently receives input from west as far as Marvel Street and Middleton Street as well as the entire drainage catchment of the town centre feeding in from Jonson Street, Fletcher Street, Lawson Street and Byron Street.

The existing culvert size does not provide sufficient capacity to enable stormwater flows in the catchment to adequately drain to Belongil Creek. This pinch point in the drainage system contributes to flooding in the town catchment.

Engeny prepared the Byron Bay Drainage Scheme Concept Design Flooding Assessment Report 2023 (Engeny Flood Report 2023) to support design and implementation of the Preferred Byron Bay Drainage Strategy (Appendix B). This included an updated model of the 1%AEP flood extent as shown at Figure 3-2.

The Engeny Flood Report 2023 also investigated and confirmed the existing drainage network and key issues relating to the drainage system to include:

- There are no overland flow relief points from the town centre to allow for overland flow to discharge to the Belongil Creek floodplain as overland flow is significantly restricted by the rail line embankment.
- Peak flows in the culvert underneath the railway line ranges from 1.3m^3/s in the 50% AEP to 2.6m^3/s in the 1% AEP.
- The Cowper Street system is characterised by two low lying basins at Cowper Street and Middleton Street. The first basin at Cowper Street is represented by a low point of 1.8m AHD roughly halfway between Carlyle Street and Lawson Street. The Middleton Street basin is immediately east of Middleton Street and north of Marvell St within the existing swamp at approximately 1.5m AHD.
- The Cowper Street network currently discharges to Clarkes Beach and is hydraulically connected via pipes to the Byron Street pipe network. However, the pipe grade and levels are inconsistent across this connection and is not hydraulically efficient.
- Depending on the nature of a given flood event and where the outlet capacity is available (i.e. Belongil Creek vs Clarkes Beach), there is potential for hydraulic grade to flow either way between the town centre and Cowper Street. The Middleton Street network connects to the Byron Street pipe network and ultimately discharges to the Belongil Creek floodplain.
- Both the Cowper Street and Middleton Street sag points do not have any overland flow relief points to Clarkes Beach or the Belongil Creek floodplain. Like other parts of Byron Bay that are severely flood prone, the Cowper Street system is not able to provide 50% AEP flood immunity to road and properties in the area.
- Flooding within the town centre is observed to pond at several local low points due to inadequate network capacity:

- Ponding levels along Lawson Street in the 10% AEP are observed to be approximately 2.7m AHD producing a peak ponding depth of 0.3m.
- Ponding at the intersection of Jonson Street and Byron Street are observed to be at approximately 2.5m AHD producing a peak ponding depth of 0.6m.

The existing drainage network is shown at Figure 3-3 and the existing drainage longitudinal section from the Cowper Street chamber to the town centre outlet into the Belongil Creek floodplain is shown at Figure 3-4.

Figure 3-2 | 1% AEP Flood extents

Source: Engeny Flood Report 2023

Figure 3-3 | Existing drainage network Byron Bay

Source: Engeny Flood Report 2023

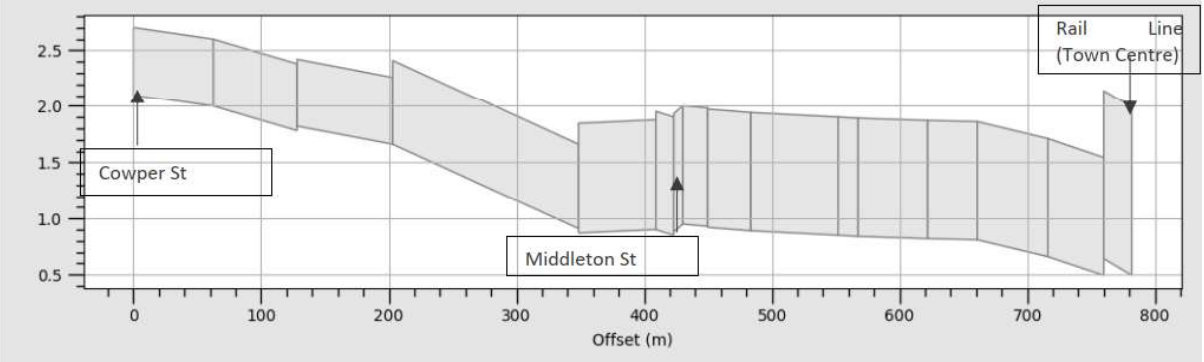

Figure 3-4 | Existing drainage longitudinal section from the Cowper Street chamber to the town centre outlet

3.3.2 Impact Assessment

Construction activities have potential to impact the pH, electrical conductivity, turbidity, dissolved oxygen and temperature of receiving water environments. Variations in water quality can negatively impact aquatic environments resulting in fish disease, kills, loss of food resource, reduced fish migration and recruitment potential and disturbance to water plant communities.

The Activity area does not feature any significant waterways and is not located directly adjacent to any significant natural water environments.

The Activity will include augmentation of an existing stormwater system that ultimately outlets to Belongil Creek.

Best practice erosion and sediment controls will be established and implemented during construction to ensure sediment laden runoff does not significantly impact the drainage system and

downstream water quality of Belongil Creek during works. This will include off-stream sediment control in combination with instream devices such as silt booms at the Butler Street drain.

Excavations required to install the drainage design will require construction dewatering, particularly in the event of heavy rainfall and surface water inflow into excavation areas. Therefore, a construction Dewatering Management Plan is required to support the construction phase of the Activity.

BSC engaged ENV Solutions to prepare an options assessment for the Activity regarding construction dewatering with potential to encounter PFAS. The assessment considered dewatering disposal options considered vertical reinjection, horizontal reinjection, turkey nest infiltration, and surface water disposal, highlights their suitability based on specific site conditions and project requirements.

The final Dewatering Management Plan has been endorsed in writing by the EPA and the EPA has confirmed that the project is not a Scheduled Activity and does not require an Environmental Protection License (EPL) under the Protection of the Environment Operations Act 1997.

The EPA has requested that during any dewatering activities Council provides weekly reports, which include the following information:

- Daily flow/volume data.
- All daily water testing results and the weekly PFAS sample results.
- The report must highlight any results received that do not comply with the water quality objectives identified in the DMP (Table 7: On-Site Groundwater Discharge Objectives and Criteria).
- Confirmation of what actions were taken in response to any non compliances.
- If there are any non compliances with the water quality objectives (DMP Table 7), any issues with the collection of this data or with laboratory turnaround times please advise the EPA as soon as Council becomes aware.

A copy of the letter issued by the EPA is provided at Appendix G.

Construction dewatering for the Activity requires a water supply works approval under the *Water Management Act 2000*.

The Activity forms part of a broader upgrade of the stormwater system that includes an augmentation in the storage capacity of the drainage network within the Byron Bay town centre resulting in an increase in volume of stormwater discharge (during rain events) into the Butler Street drainage channel that exits to Belongil Creek.

Water sensitive urban design (WSUD) will be applied to the broader stormwater system upgrade, including improvements upstream of the Activity under a separate environmental approval process, that will improve the quality of stormwater entering the Belongil Creek catchment, including installation of WSUD devices, rain gardens and other design treatments.

Engeny prepared a stormwater assessment (2024) for the broader drainage system upgrade that considers both water quality and volume entering the Butler Street drain. A copy of the stormwater assessment is provided at Appendix B.

A summary of the stormwater assessment findings is presented at Table 3.1.

Table 3.1 | Stormwater Assessment Summary (Engeny)

Item	Description
Quality	Stormwater quality modelling was undertaken using the Model for Urban Stormwater Improvement Conceptualisation (MUSIC). The modelling incorporated Drain Buddy gross pollutant traps at all stormwater inlet structures, and street tree pits fitted into the design where sufficient road verge space allows comprising: • 24 Drain Buddies at grated inlet pits. • 3 street tree bioretention pits.

Item	Description
	• 4 WSUD biopods. The improvement offered by the integration of these devices includes the following pollutant load based reductions: • Total Suspended Solids (TSS) - 51.3% • Total Phosphorus (TP) - 49.6 % • Total Nitrogen (TN) - 37.1% • Gross Pollutants (GP) - 87.5 Therefore, based on the proposed upstream works in the town centre there is a measurable net benefit improvement in storm water quality outletting at the rail corridor.
Quantity	The proposed drainage upgrades augment the capacity of gravity drainage from the town centre and crossing the rail corridor to the Butler Street drain. The increase in the drainage system capacity results in an increased peak flow discharge to the Butler Street drain by 1.0 m3/s in the 10% AEP and 1.2 m3/s in the 1% AEP events, respectively as outlined below: • 1% AEP - baseline Scenario Peak Flow of 3.6M^3/s to Upgrade Scenario Peak Flow of 4.8 M^3/s • 10% AEP - baseline Scenario Peak Flow of 2.8M^3/s to Upgrade Scenario Peak Flow of 3.8 M^3/s Hydraulic modelling indicates that the town centre drainage upgrade gravity system is flowing full in the 10% AEP, therefore the system is considered to be pipe limited. The hydraulic modelling also confirms a constriction in the Butler Street drain is located immediately adjacent to the Butler Street reserve near Milton Street. Flood afflux will be experienced at 6-12 Shirely Lane (approximately 0.06m increase) are driven by increased discharge from the upstream catchment which report to a localised constriction of the drain east of Milton St. This is addressed further below.

Engeny prepared a flood assessment scenario for gravity only drainage upgrades associated with the Preferred Byron Bay Drainage Strategy (Engeny Flood Memorandum 2023). This assessment confirms flood impacts associated with the gravity drainage works applicable to the town centre.

This assessment was updated under the Engeny Stormwater Assessment 2024 based on design refinements upstream of the rail corridor including road upgrades and WSUD treatments.

As identified previously, the drainage upgrades result in an increased peak flow discharge to the Butler Street drain by 1.0 m^3/s in the 10% AEP and 1.2 m^3/s in the 1% AEP events.

The Engeny Flood Memorandum 2023 identified that the gravity drainage upgrades within the town centre will increase potential for flood afflux at:

- 1 Kendall Street due to the flow increases resulting from the town centre gravity drainage works (refer to Figure 3-5).
- The Rail Corridor within Lot 2 DP 1289363 owned by TfNSW (refer to Figure 3-6)

The 2024 hydraulic modelling has identified that flood afflux will be experienced at 6-12 Shirley Lane (approximately 0.06m increase) created by the increased discharge from the upstream catchment and localised constriction of the drain east of Milton St. The afflux created will not extend above existing floor levels of affected properties as shown at Figure 3-7.

Figure 3-5 | Flood Afflux at Kendall Street from the proposed gravity drainage system upgrades

Figure 3-6 | Flood Afflux at Rail Corridor from the proposed gravity drainage system upgrades

Address	Property Ground Level	Property Floor Level	10% AEP Flood Level (mAHD)	1% AEP Flood Level (mAHD)
6-10 Shirley Lane (eastern dwelling at rear of lot)	1.54	3.10	1.96	2.26
6-10 Shirley Lane (central dwelling at rear of lot)	1.53	3.10	1.99	2.27
6-10 Shirley Lane (western dwelling at rear of lot)	1.43	3.10	1.94	2.25
12 Shirley Lane (dwelling at front of lot)	2.30	3.17	2.17	2.29
12 Shirley Lane (dwelling at rear of lot)	2.40	3.18	1.84	1.99

Figure 3-7 | Flood Afflux at Shirley Lane from the proposed gravity drainage system upgrades

The updated 2024 hydraulic modelling also confirmed a reduction in flood affected properties following construction of the gravity drainage upgrades within the town centre and rail corridor based on a 10% AEP and 1% AEP flood event as shown in Figure 3-8 and Figure 3-9.

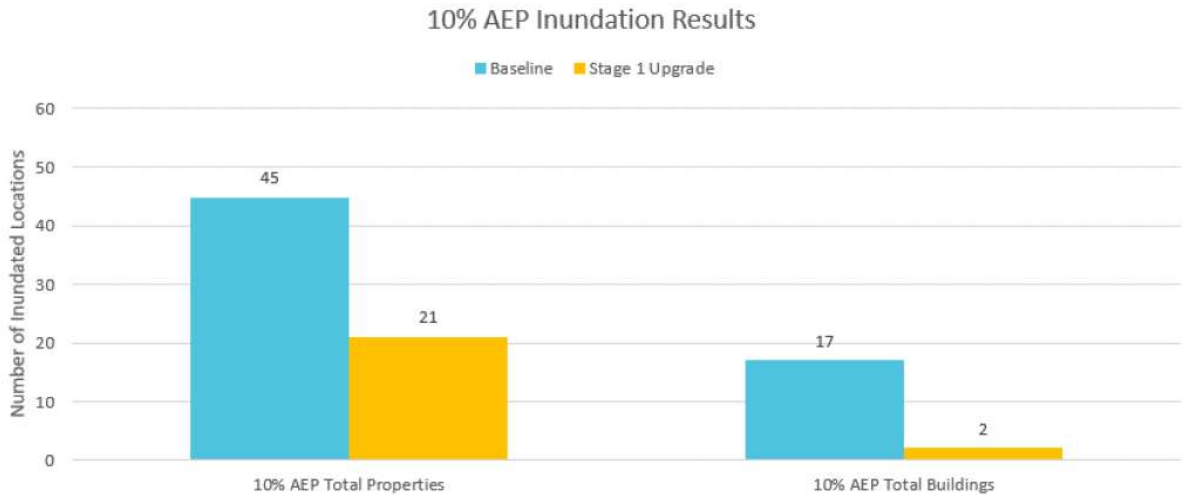

Figure 3-8 | 1% AEP Inundation Results

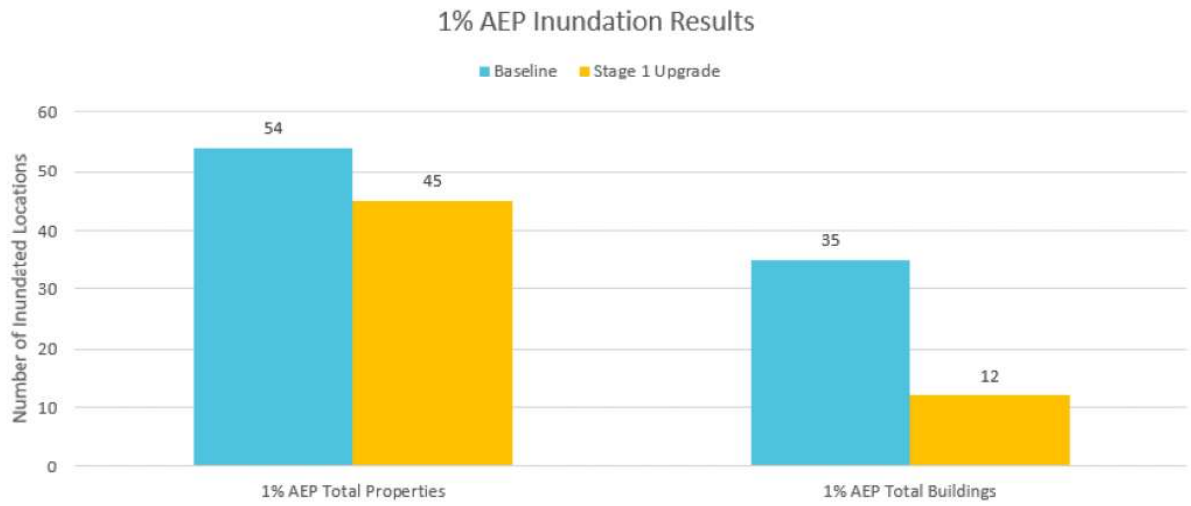

Figure 3-9 | 10% AEP Inundation Results

Whilst the gravity drainage works will improve the stormwater flow exiting the town centre and reduce flooding impacts on properties and buildings within the town centre, the gravity drainage works will result in flood afflux at private property in Kendall Street, Shirley Lane and in the rail corridor owned by TfNSW. These afflux issues are addressed in later stages of the Preferred Byron Bay Drainage Strategy, through construction of flood levees and flood pumps (not part of this REF scope) subject to further funding arrangements.

Given the potential for flood afflux on private land at Kendall Street, Shirley Lane and the rail corridor, it is recommended that Council notify affected landholders regarding any afflux impacts resulting from the proposed drainage upgrades.

The implementation of the recommended safeguards tabled below will ensure any adverse impact on water quality and hydrology will be restricted to the minimal possible extent.

Are the works located within, adjacent to or near a waterway or body of water?	Yes	☐	No	☒
Is the location known to flood or be prone to water logging?	Yes	☒	No	☐
Will the proposed works be undertaken on a bridge?	Yes	☐	No	☒
Are the works likely to require the extraction of water from a local water course?	Yes	☐	No	☒

Water Quality and Hydrology - Recommended Safeguards:

- *Best management erosion and sediment control practices such as those found in the Department of Housing's "Blue Book (4th Edition) shall be implemented for the works. This will include the use of off-stream sediment control in combination with instream devices such as silt booms.*
- *Machinery is appropriately cleaned, degreased and serviced prior to use at the site.*
- *Spill kits maintained onsite during the construction period and employees trained how to use spill kits.*
- *Visual monitoring of local drainage systems within the site is to be undertaken during rainfall events to identify any potential spills or deficient controls.*
- *Contractors and BSC shall monitor weather forecasts daily and review construction activities to ensure that:*
  - *Works are scheduled and planned to consider significant rain/flood events; and*
  - *The works do not negatively impact emergency evacuation routes where possible.*
- *Dewatering activities will be undertaken in accordance with the EPA endorsed Dewatering Management Plan*

  Note: Construction dewatering requires a water supply works approval under the Water Management Act 2000
- *The EPA has requested that during any dewatering activities Council provides weekly reports, which include the following information:*
  - *Daily flow/volume data.*
  - *All daily water testing results and the weekly PFAS sample results.*
  - *The report must highlight any results received that do not comply with the water quality objectives identified in the DMP (Table 7: On-Site Groundwater Discharge Objectives and Criteria).*
  - *Confirmation of what actions were taken in response to any non compliances.*
  - *If there are any non compliances with the water quality objectives (DMP Table 7), any issues with the collection of this data or with laboratory turnaround times please advise the EPA as soon as Council becomes aware.*
- *Given the potential for flood afflux on private land at Kendal Street, Shirely Lane and land owned by TfNSW (rail corridor), it is therefore recommended that Council notify affected landholders regarding any afflux impacts resulting from the proposed drainage upgrades.*
- *It is recommended that BSC further develop mitigation strategies to address potential afflux impacts resulting from the town centre gravity drainage works.*

3.4 Biodiversity

3.4.1 Existing Environment

The Activity area includes sections of street landscaping, featuring garden beds and street trees. The Activity area does not constitute a native vegetation community or any threatened flora.

The Activity alignment does not include any areas mapped as vegetation communities or high environmental value under BSC online mapping. Similarly, review of the NSW SEED mapping does not map the Activity area as being subject to a native vegetation community.

Review of the Byron Shire Council online mapping also confirms the Activity area does not include Koala Habitat mapped under the Byron Coast Comprehensive Koala Plan of Management.

The Activity area is not mapped Biodiversity Value Land under the *Biodiversity Conservation Act 2016* or littoral rainforest/coastal wetland under R&H SEPP

The site is not mapped key fish habitat under the provisions of the *Fisheries Management Act 1994*.

Results of biodiversity database searches (refer to Appendix E) undertaken for the Activity area are summarised at Table 3.2.

Table 3.2 | Biodiversity Database Searches

Search	Potential for
BioNet Wildlife Atlas	Flora: • Records of 32 threatened flora species within 5 km of the site, 18 of which are also listed under the EPBC Act • Records of 20 TECs from within 5 km of the site
	Fauna. • Records of 55 threatened fauna species (excluding marine and pelagic species) within 5 km of the site including 17 of which are also species listed in the EPBC Act
EPBC Protected Matters Search Tool	• Habitat for 34 EPBC listed threatened flora species within 5 km of the site. • Habitat for 7 EPBC listed TECs within 5 km of the site.

3.4.2 Impact Assessment

Sections of street landscaping such as garden beds and street trees will require removal either directly to enable the design or indirectly to support the construction process.

Streetscape works within the alignment of Fletcher Street and Byron Street include the following existing street tree loss:

- Loss of existing plantings including 6 x Lilli Pilli trees in the medium strip along Byron Street.
- Loss of 1 x Alexander Palm on the northern corner of Lateen Street / Fletcher Street
- Loss of 1 x Tuckeroo tree growing in the footpath of the western side of Fletcher Street

Retained mature street trees proximate to works which are not subject for removal will be clearly fenced and managed during construction activities in accordance with the Australian Standard 'AS 4970 Protection of Trees on Development Sites'.

The loss of the street landscaping will be rectified through implementation of new street landscaping proposed within Byron Street and Fletcher Street.

The works will require upgrade of an existing underground stormwater system. However, the drainage system does not present suitable habitat for microbats and other fauna species.

The implementation of the recommended safeguards tabled below will ensure any adverse impact on biodiversity will be restricted to the minimal possible extent.

Have relevant database searches been carried out?	Yes ☒	No ☐
Did the database searches identify any endangered ecological communities, threatened flora and/or threatened or protected fauna within the vicinity of the proposed works?	Yes ☒	No ☐

Will the proposed works require the removal of any vegetation?	Yes ☒	No ☐
Will the proposed works affect any tree hollows or hollow logs?	Yes ☐	No ☒
Are there any known areas of critical habitat, coastal wetland or littoral rainforest area within the vicinity of the proposed works?	Yes ☐	No ☒
Will the proposed works provide any additional barriers to the movement of wildlife?	Yes ☐	No ☒
Will the proposed works disturb any natural waterways or aquatic habitat?	Yes ☐	No ☒
Will the proposed works disturb any crevices or other locations (such as on bridges and culverts) for potential bat habitat?	Yes ☐	No ☒
Will there be impact on any vegetation or land that is part of an offset or is protected under a condition of approval from a previous project?	Yes ☐	No ☒

Biodiversity - Recommended Safeguards:

- *Prior to removal of any mature street trees a pre-clearing survey must be completed by an ecologist or spotter-catcher prior to vegetation clearance in the event that fauna is present. The ecologist or spotter-catcher shall advise the project superintendent on any measures necessary to avoid any active nests/dreys or other features.*
- *For all tree removal completed, material shall be chipped and the mulch used for landscaping or removed from site as last resort if necessary.*
- *Weed hygiene measures must be practiced for the duration of the works to ensure propagules are not spread during clearing works.*
- *WIRES are to be contacted on 1300 094 737 in the unlikely event that fauna become harmed during works.*
- *Retained mature street trees proximate to works which are not subject for removal are to be clearly fenced and managed during construction activities in accordance with the Australian Standard 'AS 4970 Protection of Trees on Development Sites'. The contractor shall engage a qualified arborist to ensure all retained trees are adequately protected.*

3.5 Aboriginal Heritage

3.5.1 Existing Environment

The Activity is located within the cultural heritage land boundary of Tweed Byron Local Aboriginal Land Council and Arakwal. More broadly, the Activity is located within the Bundjalung Nation boundary whose people are the original custodians of northern coastal areas of New South Wales, stretching from Grafton on the Clarence River in the south to the Logan River in the north and inland as far as the Great Dividing Range at Tenterfield and Warwick.

Search of the AHIMS database identified no Aboriginal sites/objects recorded within the alignment of the Activity.

The NSW Government's 'Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales' and Part 5 of the *National Parks and Wildlife Regulation 2019* defines disturbed land as 'land is disturbed if it has been the subject of human Activity that has changed the land's surface, being changes that remain clear and observable'. The Activity area traverses disturbed land associated with the previous development of the Byron Bay town centre

Parts 1 and 2 of the Generic Due Diligence Process under the NSW Government's 'Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales' has been completed at Table 3.3.

Table 3.3 | Due Diligence Review – Part 1 and 2

Due Diligence Process Step	Comment
1. Will the Activity disturb the ground surface or any culturally modified trees?	The Activity will result in ground disturbance to enable the works. The street trees located within the town centre do not include culturally modified trees.
2a. Are there any relevant confirmed site records or other associated landscape feature information on AHIMS?	AHIMS search of the Activity area found there are no registered sites within the Activity area alignment. The Activity area occurs within 200m of the ocean and within a sand dune system, however as identified previously the Activity area is disturbed land due to the construction of the town centre.
2b. Are there any other sources of information of which a person is already aware?	No.
2c. Are there any landscape features that are likely to indicate presence of Aboriginal objects?	The Activity area occurs within 200m of the ocean and within a sand dune system however as identified previously the Activity area is disturbed land. The Activity occurs within the town centre featuring buildings, roads, hardstand areas and supporting infrastructure.

3.5.2 Impact Assessment

Parts 3 - 5 of the Generic Due Diligence Process under the NSW Government's 'Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales' has been completed at Table 3.4.

Table 3.4 | Due Diligence Review – Part 3-5

Due Diligence Process Step	Comment
If after completing steps above and no information indicates site importance, it is reasonable to conclude that there are no known Aboriginal objects or a low probability of objects occurring in the area of the proposed Activity, you can proceed with caution.	
3. Can harm to Aboriginal objects listed on AHIMS or identified by other sources of information and/or can the carrying out of the Activity at the relevant landscape features be avoided?	AHIMS search of the Activity area found there are no sites occurring in the general area.
4. Does a desktop assessment and visual inspection confirm that there are Aboriginal objects or that they are likely?	Land associated with the Activity area is consistent with the definition of disturbed land. The NSW Government's 'Due Diligence Code of Practice for the Protection of Aboriginal

Note: This step only applies if your Activity is on land that is not disturbed land or contains known Aboriginal objects.	Objects in New South Wales' defines disturbed land as 'land is disturbed if it has been the subject of human Activity that has changed the land's surface, being changes that remain clear and observable'. The Activity area traverses land disturbed due to the construction of the town centre.
5. Further investigation and impact assessment	No further investigation or assessment is required.

Based on the application of the Generic Due Diligence Process under the NSW Government's 'Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales'; further onsite investigation and assessment is not required.

An Aboriginal Heritage Impact Permit (AHIP) in accordance with the NP&W Act 1974 is not required.

The Activity will not likely result in harm to Aboriginal archaeological sites. As such the works can be undertaken using the Due Diligence approval pathway (Section 87(2) of the NPW Act).

As a precautionary approach, as per Council's usual work practices, Unexpected Finds and Stop Work Protocols will be in place and implemented during the works.

The implementation of the recommended safeguards tabled below will ensure any adverse impact on Aboriginal cultural heritage will be restricted to the minimal possible extent.

Will the works involve disturbance in any area that has not been subject to previous ground disturbances?	Yes	☐	No	☒
Has online AHIMS search been completed?	Yes	☒	No	☐
Is there likely potential for the proposed works to impact on any items of Aboriginal heritage?	Yes	☐	No	☒
Will the works impact on any features that may indicate any potential archaeological remains?	Yes	☐	No	☒

Aboriginal Heritage - Recommended Safeguards:

- *The CEMP is to include Byron Shire Council's Unexpected Finds and Stop Work Protocols (provided at Appendix F of the REF).*

3.6 Historic Heritage

3.6.1 Existing Environment

Searches of the State Heritage Inventory, Australian Heritage Database, and Byron LEP 2014 Maps confirm that the works are not across items of State, National or Local heritage. Heritage searches are provided at Appendix E.

Several buildings listed as local heritage items under the Byron LEP 2014 are located adjacent to the works as outlined at Table 3.5

Table 3.5 | Locally listed heritage items adjoining the Activity area

Item	Location
Main Beach Backpackers - I085	SP 100307 - 19 Lawson Street.

Great Northern Hotel - I074	2/-/DP 597016 - 35-43 Jonson Street.
Commercial façade - I073	5/-/DP 11407 - 31 Jonson Street.
Terrace houses I069 **Semi-detached cottages - I070**	1/26/DP 758207 - 27-31 Fletcher Street.

The works also are proposed adjacent to an item listed under the State Heritage register, being the Railway Precinct, Byron Bay (Listing No 01107) located within the Byron Rail Corridor (2/-/DP 1289363).

The proposed works do not require the demolition of any buildings or structures that present any potential of holding heritage value.

3.6.2 Impact Assessment

The Activity is not located within or across any area identified as State, National or Local heritage.

The Activity does not represent risk to any known items of heritage significance.

Unexpected heritage finds may be encountered during the works and suitable unexpected finds protocols are recommended during construction of the Activity.

The implementation of the recommended safeguards tabled below will ensure any potential impact on heritage will be restricted to the minimal possible extent.

Have online heritage database searches been completed?	Yes ☒	No ☐
Are there any items of non-Aboriginal heritage or heritage conservation areas located within the vicinity of the proposed works?	Yes ☐	No ☒
Are there any items of potential non-Aboriginal heritage significance within the vicinity of the works?	Yes ☒	No ☐
Are works likely to occur in or near features that indicate potential archaeological remains?	Yes ☐	No ☒

Historic Heritage - Recommended Safeguards:

- *In the event of an unexpected find, works will not recommence until signed authority is received from BSC and any necessary permits and/or approvals are obtained.*
- *The Construction Contractor is to ensure all staff on site are aware of the unexpected finds protocol contained in the CEMP and the location of any adjoining heritage sites.*

3.7 Noise and Vibration

3.7.1 Existing Environment

Existing background noise will typically include vehicle traffic noise from local roads and noises associated with the broader coastal landscape (wave and wind) and operation of the busy town centre.

The primary noise receivers likely to be impacted by the Activity include commercial properties located within the affected sections of Byron Street, Lawson Street, Lateen Lane, Fletcher Street and Jonson Street in the Byron Bay town centre.

3.7.2 Impact Assessment

The works will involve the installation of new underground drainage and road works within the alignment of the public road network. This will require excavation of existing seal roads to enable the new drainage to be laid and then reinstating the affected sections of road formation.

Use of machinery, vehicles and work Activity during the construction phase will have potential to generate short-term noise impacts on nearby receivers.

The construction of the Activity will require the following prominent noise and vibration generating activities:

- Use of large construction equipment including excavators, graders and rollers, profilers, vibratory rollers, sheet piling equipment and compaction machines.
- Use of hydraulic hammers and concrete saws for breaking and cutting concrete and pavements;
- Use of chainsaws and mechanical mulchers during tree removal; and
- Concrete trucks and concrete pumps.

The construction period for the Activity is expected to take approximately 12 to 18 months pending weather conditions.

Construction working hours will be restricted to the normal daytime construction hours as specified by the EPA being:

- 7 am to 6 pm Monday to Friday.
- 8 am to 1 pm Saturdays.
- No works will be undertaken on Sundays or Public Holidays.

Works may be undertaken outside these hours where:

- The delivery of materials is required outside these hours;
- It is required in an emergency to avoid the loss of life, damage to property and/or to prevent environmental harm;
- Variation is approved in advance in writing by Council; and
- Receivers likely to be affected by the works are notified in writing of the timing and duration of these works at least 24 hours prior to the commencement of works (except for emergency work).

Use of plant and machinery, vehicles and works Activity during the construction phase will have short-term noise impacts. Trucks and construction staff accessing the site will also be a source of intermittent noise throughout of the construction period.

All reasonable and feasible work practices will be implemented to reduce construction noise including, maintaining all construction equipment in good working order and operating equipment as per manufacturer's specifications

EPA's Interim Construction Noise Guidelines recommendations for construction noise levels include:

- The noise management level (NML) for works during the recommended standard hours is background + 10 dB(A). Above this noise level the proponent needs to implement all feasible and reasonable work practices, as defined in the Guideline, to minimise noise impacts;
- For works outside the recommended standard hours, the NML is background + 5 dB(A); and
- The highly noise-affected level of LAeq 75 dB(A) represents the point above which there may be strong community reaction to noise and indicates a need to consider other feasible and reasonable ways to reduce noise, such as restricting the times of very noisy works to provide respite to affected residences.

The proposed works will be undertaken in close proximity (<10m) to existing commercial properties and it is likely that the Activity will result in a highly noise-affected level of LAeq 75 dB(A) at these

locations. Safeguards are considered necessary to manage noise impacts including the provision of respite periods to address highly noise-affected receivers (>/LAeq 75 dB(A)).

Use of excavators, graders and compaction machines and construction shoring has potential to cause vibration within the local environment.

At this stage a contractor has not been appointed to confirm the works methodologies and therefore a Construction Noise and Vibration Management Plan is required for the construction phase of the Activity to confirm all potential noise and vibration impacts based on confirmed construction methodologies presented by the appointed contractor including all feasible mitigation strategies to ensure no significant noise or vibration impacts will occur during construction.

It should be noted that the construction of the Activity will be staged via lateral shifts of works areas across the alignment to minimise disruption to local businesses and other potential environmental impacts associated with disturbed construction areas (dust), construction dewatering and traffic / access impacts.

Building dilapidation reports shall be prepared for any buildings or structures within 30m of the works alignments.

The proposed works do not alter the centre line of the public roads.

In terms of operational impact, no new noise/vibration impacts are likely to occur as a result of the Activity.

The implementation of the recommended safeguards tabled below will ensure any adverse impact regarding noise and vibration will be restricted to the minimal possible extent.

Are there any residential properties or other noise sensitive areas near the location of the proposed works that may be affected by the works (i.e. church, school, hospital)?	Yes	☒	No	☐
Are the proposed works going to be undertaken only during standard working hours?	Yes	☒	No	☐
Will the construction duration be greater than 3 weeks?	Yes	☒	No	☐
Is any explosive blasting required for the proposed works?	Yes	☐	No	☒
Will operation of the works alter the noise environment for sensitive receivers?	Yes	☐	No	☒
Will the works result in vibration being experienced by any surrounding properties or infrastructure (during either construction or operation)?	Yes	☒	No	☒

Noise and Vibration - Recommended Safeguards:

- *It is recommended that Construction Noise and Vibration Management Plan is prepared for the construction phase of the Activity.*
- *It is recommended that:*
  - *High noise generating activities are not carried out in continuous period that exceed three hours each, with a minimum respite period of one hour between each period.*
  - *High noise generating activities should be restricted to within the hours of 9am and 4pm Monday to Friday.*
- *Best practice mitigation and management measures would be used to minimise construction noise impacts at sensitive receivers; guided by the EPA's Interim Construction Noise Guidelines*

- *Construction working hours will be restricted to the normal daytime construction hours as specified by the EPA being:*
  - *7 am to 6 pm Monday to Friday.*
  - *8 am to 1 pm Saturdays.*
  - *No works will be undertaken on Sundays or Public Holidays.*
- *Works may be undertaken outside these hours where:*
  - *The delivery of materials is required outside these hours;*
  - *It is required in an emergency to avoid the loss of life, damage to property and/or to prevent environmental harm;*
  - *Variation is approved in advance in writing by Council; and*
  - *Receivers likely to be affected by the works are notified in writing of the timing and duration of these works at least 24 hours prior to the commencement of works (except for emergency work).*
- *Notification of any receivers within 100 m of the works (letterbox drop or equivalent) is recommended including the anticipated duration of such works at least two weeks prior to undertaking the works. All notified receivers will be provided with a contact telephone number for any complaints/ updates associated with the proposed works.*
- *Noise complaints will be recorded, including suitable identification/ description of the noise source (e.g. continual/ impulsive) and general location of the complaint. Any noise complaints will be investigated and actioned as required.*
- *All employees, contractors and subcontractors are to receive an environmental induction. The induction must at least include:*
  - *All relevant project-specific and standard noise mitigation measures.*
  - *Permissible hours of work.*
  - *Any limitations on high noise generating activities.*
  - *Location of nearest receivers.*
  - *Designated loading/ unloading areas and procedures.*
  - *Escalation protocols for noise complaints.*
- *Building dilapidation reports shall be prepared for any buildings or structures within 30m of the works alignments.*

3.8 Air Quality

3.8.1 Existing Environment

Activities within the immediate area identified as potential for generating air emissions include road traffic related activities. Potential airborne particles within the locality may also be impacted by bushfires in the broader landscape.

Commercial properties adjoin the entire alignment of the works areas. Recreational users and parking areas adjoining the works areas may also be impacted by variation in air quality associated with the Activity.

3.8.2 Impact Assessment

The Activity may generate emissions through the operation of machinery, plant and tools during construction. Of note, the works will require earthworks, pavement cutting and waste removal and these activities have potential to make materials airborne or enter the environment unless managed

appropriately. If works are undertaken in dry and high wind conditions, there is potential for dust to be generated and impact nearby receivers if safeguards are not implemented.

Safeguards and mitigation measures are required to protect workers and adjoining commercial receivers from dust and other materials produced from the Activity.

Given the works will require pavement cutting/breaking and excavations within 10m of active shop fronts, measures such as dust screening is recommended to minimise impacts on local businesses.

The construction of the Activity will be staged via a lateral shifts of works areas across the alignment to minimise impacts of dust on local businesses.

Construction works will require transportation of spoil from the construction areas to Lot 2/-/DP573835 for stockpiling, testing, treatment and classification prior to offsite disposal. This is required due to spatial constraints within the town centre and to reduce stockpiling and potential dust impacts adjacent to local businesses.

Mitigation measures such as covering truck loads and wetting down dust generating activities as necessary are to be employed and detailed under the Contractor's CEMP.

No additional negative air quality operational impacts will occur as a result of the Activity.

The implementation of the recommended safeguards tabled below will ensure any adverse impact on air quality will be restricted to the minimal possible extent.

Are the proposed works likely to result in large areas (>2ha) of exposed soils?	Yes	☐	No	☒
Will there be any dust sensitive receivers located within the vicinity of the proposed works during the construction period?	Yes	☒	No	☐
Is there likely to be an emission to air during construction?	Yes	☒	No	☐

Air Quality - Recommended Safeguards:

- *A Construction Air Quality Management Plan shall be prepared for the works.*
- *Dust screen fencing (1.8m) will be located between the works areas and shopfronts during construction to minimise dust and other materials impacting local businesses.*
- *Adjacent receivers with potential to experience impacts associated with dust and other airborne particles due to works are to be notified of any potential air quality impacts prior to undertaking the works. The notified receivers will be provided with a contact telephone number for any complaints/ updates associated with the proposed works.*
- *It is recommended that during forecasted strong wind periods:*
  - *All dust generating surfaces are wetted down and/or covered; and*
  - *Dust screens are temporarily removed to prevent fencing being blown into nearby buildings*
- *Vehicles and vessels transporting spoil, waste or other materials that may produce odours or dust are to be covered during transportation.*
- *Disturbed surfaces and stockpiles will be wetted down or covered with geotextile fabric during high wind conditions to prevent significant dust generation, as required.*
- *All plant and machinery will be serviced at regular intervals to minimise exhaust emissions.*
- *Vehicles will be switched off when not in use.*

3.9 Traffic & Access

3.9.1 Existing Environment

The works are required within the active Byron Bay town centre within sections of Byron Street, Lawson Street, Lateen Lane, Fletcher Street and Jonson Street.

All affected streets have a 50km/hour speed limit.

The road formation for both streets is a sealed road including two lanes of traffic. An overview of Fletcher Street and Byron Street is presented at Table 3.6.

Table 3.6 | Fletcher Street and Byron Street Overview

Street	Description
Fletcher Street	Sealed two lane road with concrete kerb and gutter. Parallel paid parking on the western side of the street, including dedicated parking lane. 45% angle parking on the eastern side of the street, including dedicated parking lane. Dual northbound exit lanes onto Lawson Street and single-entry lane from Lawson Street. Splitter island at connecting Lawson Street roundabout. Right hand turn lane entry to Aldi southbound traffic and painted traffic island. Sections of existing roadside landscaping including mature trees including palms and paperbarks.
Byron Street	Sealed two lane road with concrete kerb and gutter. 45% angle parking on both sides of the street with no dedicated parking lane. Landscaped traffic island running down the centreline including 4 pedestrian crossing points and two vehicle cross overs. Sections of existing roadside landscaping including mature trees including palms and paperbarks.

The affected sections of the public road network are subject to significant traffic movements and at times traffic congestion; particularly along Byron Street, Lawson Street, Fletcher Street and Jonson Street.

Paid parking and formalised pedestrian access are located on both sides of Byron Street, Lawson Street, Fletcher Street and Jonnson Street.

Current parking arrangements within the affected alignment of Byron Street and Fletcher Street are outlined in Table 3.7 below. This information reflects a parking survey undertaken in June 2022 in relation to operation of the Sunday Byron Markets and a typical Sunday for parking in the town centre (Planit Consulting 2022).

Table 3.7 | Town Centre parking survey (June 2022)

Location	Existing Parking spaces	Occupied parks 8:00am	Occupied parks 9:00am	Occupied parks 10:00am	Occupied parks 11:00am

Byron Bay Sunday Markets Parking Survey – Occupied Carparks					
Byron Street	48	28	35	35	41
Fletcher Street	84	43	43	43	43
Byron Bay Typical Sunday Parking Survey – Occupied Carparks					
Byron Street	48	22	28	23	33
Fletcher Street	84	45	68	71	79

3.9.2 Impact Assessment

The works would not require excessive vehicle movements. Traffic would be generated by the Activity during construction through construction worker movements (light vehicles) and truck deliveries. The impact of additional traffic movements associated with the proposed construction activities would represent a small and temporary increase compared to existing traffic movements.

The Activity requires works next to live traffic and traffic control would be required to ensure construction worker and public safety.

The works will occur within the town centre and sections of the road formation will be impacted to enable the works to proceed.

The works will be fenced with signage established and works zones delineated to ensure safe pedestrian and traffic flow for the public. Temporary road closure may be required for the delivery of plant and equipment.

As the works are being constructed within the public road reserve, parking within the affected sections of the road will be temporarily restricted during the construction phase. It also anticipated that formal and informal pedestrian access within the road reserve will be temporarily impacted during the construction phase of the Activity.

Due to the complexity of undertaking works within an active town centre and within roads subject to high traffic volumes and congestion; careful construction planning is required to minimise impacts on traffic, parking and pedestrian access.

The works will be staged to enable a lateral shift with bollards to enable traffic flow throughout town during the works period. The work zones would likely be 50-100m long in length and staggered as the works progress. This staged approach to construction will minimise impacts on parking, pedestrian access and traffic

The final staging and methodology for undertaking the works will ultimately be developed by the appointed contractor with BSC. It is therefore critical that the contractor develops a traffic, access and public safety management plan within the CEMP to minimise any impacts on traffic, parking and pedestrian access.

As addressed in Section 2.4.2, traffic control is also required for use of the former South Byron Sewer Treatment Plant (Lot 2/-/DP573835); to address vehicle accessing the site from Broken Head Road and to ensure continued access and safety of pedestrians using the adjoining sharded path network.

Potential traffic delays, road closures and detours will be notified prior to the works commencing via Council website, media notification and potable variable messages sign (VMS) located along the affected sections of road leading up to the works period.

It is also recommended that bus operators and local schools likely to be impacted by traffic delays are notified during the works period.

Streetscape and road design variations are proposed within the alignment of Fletcher Street and Byron Street as outlined at Table 3.8.

Table 3.8 | Streetscape and Road Design Variations

Item	Description	Impact
Street and pathway levels	Lifting of street and pathway levels and improvement of grade and fall to support surface drainage flow and pedestrian access	Road and pathways levels will improve road drainage and the incidence of water pooling in roads and footpaths.
Street landscaping	Variation in landscaping treatments within Byron Street and Fletcher Street including the following existing street tree loss: • Loss of existing plantings including 6 x Lilli Pilli trees in the medium strip along Byron Street. • Loss of 1 x Alexander Palm on the northern corner of Lateen St/ Fletcher Street. • Loss of 1 x Tuckeroo tree growing in the footpath of the western side of Fletcher Street. • Removal of roadside garden beds to enable construction of the works.	The loss of the street trees and gardens will be rectified via new landscaping treatments within the affected sections of the street with the final landscape design supporting the intent of the Byron Bay Town Centre Masterplan.
WSUD	Installation of WSUD devices, rain gardens and other WSUD design treatments.	This will improve the water quality discharge to Belongil Creek.
Car parking	Loss of 1 car parking space within Byron Street and 1 car parking space within Fletcher Street.	The loss of the 2 parking spaces within the affected sections of the town will represent a minor impact of parking within the town centre.
Road design variation	No variation of road centreline alignments is proposed. New raised crossings are proposed at Lateen Street entering fletcher Street and Williams Lane entering Byron Street. Kerb ramps and islands are proposed. Patterned footpath treatments, stamped and coloured asphalt treatments and changes to road related signage and line markings are also proposed.	Overall, the road designs proposed represents a minor variation from the existing designs.

As the works are being undertaken by BSC within local roads a Section 138 approval under the *Roads Act 1993* is not required as BSC are the relevant roads authority.

The implementation of the recommended safeguards tabled below will ensure any adverse impact on traffic and access will be restricted to the minimal possible extent.

Are the proposed works likely to result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during construction?	Yes	☒	No	☐
Are the proposed works likely to affect any other transport nodes or transport infrastructure (e.g. bus stops, bus routes) in the surrounding area? Result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during operation?	Yes	☒	No	☐
Is the work likely to generate traffic to an extent that will significantly strain the capacity of the existing road system in a local government area?	Yes	☐	No	☒
Will the work involve more than minor excavation of a road or adjacent footpath for which council is the roads authority and responsible for maintenance?	Yes	☒	No	☐

Traffic - Recommended Safeguards:

- *A Traffic, Access and Public Safety Management Plan shall be developed by the contractor and is to include:*
  - *Staging plan for completion of the proposed works.*
  - *Ancillary site layouts reflecting staging of works.*
  - *Flow of pedestrian and vehicle movements.*
  - *Layout of barriers, walkways, signs and general arrangements to warn and guide traffic around, past, or through a work site or temporary hazard.*
  - *Management of mobile work and traffic situations.*
  - *Any proposed detours and associated plans (if required).*
  - *Key bus operators and local schools likely to be impacted by traffic delays and the notification proposed to these groups to support the works.*
- *A Traffic Control Plan (TCP) shall be prepared by a qualified person and implemented for the works in accordance with the requirements of SafeWork NSW. Licensed traffic controllers will assist with traffic control during the works.*
- *Where possible, current traffic movements will be maintained during the works.*
- *Regard to public safety will be maintained at all times and appropriate signage will be erected and details will be confirmed by appropriate Council personnel responsible for site safety during the Activity.*
- *Any traffic delay notifications will be issued by Council at least two weeks prior to commencement of works. Notification will be made via Council website and potable variable messages sign (VMS) located along the affected public road.*

3.10 Waste and Chemical Management

3.10.1 Existing Environment

The main types of waste currently associated with the site include mixed forms of general rubbish and other waste streams which have been left on the site from public uses or has migrated into the site via wind or flooding.

3.10.2 Impact Assessment

Waste has the potential to disperse into the surrounding environment, impacting soils, water, biodiversity and adjoining land uses.

Potential forms of waste from the construction phase including:

- Excavated spoil materials.
- Green waste from tree removal.
- General waste from construction materials and site work.
- ASS spoil related waste.
- Hazardous waste including PFAS and HMSRs.

Excavated material to be removed from the site to enable the works will be classified in accordance with the EPA (2014) Waste Classification Guidelines, Part 1: Classifying Waste.

Further investigations will need to be undertaken during construction to confirm the waste classification of spoil generated by the Activity including:

- Exact volume of spoil material generated;
- Presence of PFAS, HMSRs and other potentially hazardous waste (e.g. asbestos); and
- Presence of Acid Sulfate Soils.

As outlined in Section 3.2 of this REF, HMSRs will be present in spoil material and any temporary stockpiling, reuse and disposal of the material will be undertaken in accordance the HMSR Management Plan prepared for the Activity.

As detailed previously the handling and disposal of PFAS has been developed through input from the EPA.

No additional waste would be generated from operation of the Activity.

The following safeguards have been provided to mitigate potential waste impacts associated with the Activity.

Are the proposed works likely to generate >200 tonnes of waste material (contaminated and /or non-contaminated material)?	Yes	☐	No	☒
Are the proposed works likely to require a licence from EPA?	Yes	☐	No	☒

Waste and Chemical Management - Recommended Safeguards:

- *Working areas are to be maintained, kept free of rubbish and cleaned up at the end of each working day.*
- *Waste is to be temporarily stockpiled at the site and transported to a Council waste handling facility.*
- *Where practical excavated road and spoil materials shall be stockpiled at a BSC approved site and used in other BSC projects in accordance with the excavated public road material order 2014 and applicable planning and waste legislation.*
- *Waste material with no reuse purpose shall be transported to a licensed waste facility in accordance with the provisions of the applicable planning and waste legislation.*
- *Work to be undertaken in accordance with the Protection of the Environment Operations (Waste) Regulation 2014.*
- *Spoil material generated from the works will be managed in accordance with the HMSR Management Plan prepared for the works.*

- *The contractor will provide waste disposal certificates to BSC regarding all waste generated from the Activity.*

3.11 Visual Amenity & Landscape

3.11.1 Existing Environment

The existing landscape character associated with the Activity area consists of the Byron Bay town centre featuring commercial buildings ranging from single to multi storey buildings.

Street lighting, roads, landscaping and street trees are located within sections of the Activity alignment. As outlined in section 3.6 of the REF there are buildings and areas that hold heritage value adjacent to works areas.

There are no direct lines of sight to iconic views of the Pacific Ocean or Cape Byron associated with the Activity area.

The visual landscape quality associated with the Activity area is considered to be moderate with value at a local scale.

Photos of the Activity area are provided below.

Plate 3-1 | View from Lawson Street looking west

Plate 3-2 | View from Fletcher Street looking north

Plate 3-3 | View from Fletcher Street looking south

Plate 3-4 | View from Fletcher Street into Lateen Street looking east

Plate 3-5 | View from Fletcher Street into Byron Street looking east

Plate 3-6 | View from Byron Street looking east

Plate 3-7 | View from Jonson Street looking south

Plate 3-8 | View from Jonson Street into Lateen Street looking east

Plate 3-9 | View from Byron Street looking west to the rail corridor

Plate 3-10 | View of the Lawson Street South Carpark (Lot 3 DP827049) looking south

3.11.2 Impact Assessment

Visual impacts will be created for properties adjoining the site, as construction works would be visible in most sections of the Activity alignment. Ancillary sites for stockpiles and laydown areas would also have temporary visual impacts on properties with views to the Activity area. The construction phase would therefore result in minor temporary visual impacts.

The Activity relates to the construction of new underground drainage and mirror ancillary works such as new drainage pits. Due to the new infrastructure being located underground and at street level, and will also include reinstatement of pathways, driveways, roads and the like there is no significant variation of the visual environment.

The proposed works include the following variation of the streetscape of Fletcher Street and Byron Street:

- Loss of existing trees in fletcher Street and Byron Street including:
  - Loss of existing plantings including 6 x Lilli Pilli trees in the medium strip along Byron Street.
  - Loss of 1 x Alexander Palm on the northern corner of Lateen St/ Fletcher Street.
  - Loss of 1 x Tuckeroo tree growing in the footpath of the western side of Fletcher Street.
- Minor variation in streetside gardens.
- Patterned footpath treatments.
- Stamped and coloured asphalt treatments.
- Minor changes to road related signage and line markings.
- Installation of WSUD devices, rain gardens and other WSUD design treatments.
- Loss of 1 car parking space within Byron Street and 1 car parking space within Fletcher Street.
- Relocation of the existing clock tower in Byron Street slightly west.

Overall, these variation in street landscaping are considered minor and do not vary the overall landscape quality of the affected sections of the town centre in a negative way. At the completion of works the street treatments will provide and visual improvement to the streetscape. Similarly, the new landscaping once established will improve the visual landscape of the town centre.

Adjoining buildings of heritage value and the State heritage listed Rail precinct adjacent to works areas will not be impacted by the Activity.

Overall, the visual landscape quality associated with the Activity area after works are completed is considered to remain moderate with value at a local scale.

The following safeguards have been provided to mitigate potential landscape impacts associated with the Activity.

Are the proposed works over or near an important physical or cultural element or landscape? (Heritage items and areas, distinctive or historic built form, National Parks, conservation areas, scenic highways etc.)?	Yes	☒	No	☐
Would the proposed works obstruct or intrude upon the character or views of a valued landscape or urban area? For example, locally significant topography, a rural landscape or a park, a river, lake or the ocean or a historic or distinctive townscape or landmark?	Yes	☐	No	☒
Would the proposal require the removal of mature trees or stands of vegetation, either native or introduced?	Yes	☒	No	☐
Would the proposal result in large areas of man-made material or clearing visible from the road or adjacent properties?	Yes	☐	No	☒
Would the proposal involve new noise walls or visible changes to existing noise walls?	Yes	☐	No	☒
Would the proposal involve substantial changes to the appearance of a bridge (including piers, girders, abutments and parapets) that are visible from the road or residential areas?	Yes	☐	No	☒
If involving lighting, would the proposal create unwanted light spillage on residential properties at night (in construction or operation)?	Yes	☐	No	☒

Would any new structures or features being constructed, result in over shadowing to adjoining properties or areas?	Yes	☐	No	☒

Visual Amenity & Landscape - Recommended Safeguards:

- *The works areas will be kept tidy throughout the works period.*
- *New landscaping treatments including gardens and street trees should be undertaken to be consistent with the intent of the Byron Bay Town Centre Masterplan.*

3.12 Bushfire

3.12.1 Existing Environment

The Activity area is not identified to be bushfire prone or within a bushfire prone buffer area under the *Rural Fires Act 1997*.

3.12.2 Impact Assessment

Power tools may be used at the site which have the potential to cause sparks. Due to the lack of significant stand of vegetation within the alignment it is highly unlikely that the works will present risk associated with bushfire.

No safeguards have been provided to mitigate potential fire risk impacts associated with the Activity.

Is the site identified as bushfire prone land?	Yes	☐	No	☒
Does the Activity involve a Special Fire Protection Purpose?	Yes	☐	No	☒
Will the proposed works cause an open flame/spark?	Yes	☒	No	☐

Bushfire - Recommended Safeguards:

- *N/A*

3.13 Socio-economic Considerations

The construction of the Activity is expected to take approximately six months to complete pending weather conditions.

The works will involve use of heavy machinery, excavation and cutting of pavements, shoring of trenches and other noisy and dust generating activities that will impact operation of adjacent commercial buildings.

Moderate disruptions will occur to local traffic and business operations within the town centre as a result of construction activities.

Local businesses and properties disrupted by the works shall be regularly notified of the works program and any likely impacts such as noise, dust, access, parking and services outages.

The appointed contractor and BSC will develop a communications strategy to provide clear, accessible and timely information about the construction process to the community, local businesses and affected stakeholder groups.

The town centre of Byron Bay is a very active tourism hub with an influx of visitors occurring consistently during public holidays and school holiday periods. Where practical works scheduling is planned outside these busier visitor periods. This will minimise any impacts on local businesses and

potential works disruptions associated with large numbers of visitors adjacent to active construction areas.

The appointed contractor will work together with BSC to develop a construction staging plan that minimises impacts on local businesses and avoids construction activities within the peak business periods of December and January.

Works staff will need to wear PPE and undertake the works appropriately to ensure a safe work site and no negative impacts to the health of the public.

Utility services located underground will need to be clearly located prior to undertaking any below surface works. This is required to ensure that no essential services are damaged during the works and that any potential services interruptions are communicated to the relevant services authorities to enable flow on notifications to any affected services customers.

Disturbance of hazardous material such as HMSR , ASS and PFAS and movement of heavy plant and equipment will be managed during construction to ensure public safety in accordance with the various construction management plans outlined previously.

The main objective of the Activity is to improve drainage capacity and flow within the town centre to Belongil Creek and reduce flooding in the town centre. The option of not implementing the Preferred Byron Bay Drainage Strategy means the flooding within Byron Bay will worsen as climate change influences including increased storm intensity and sea level rise progressively exacerbate flooding issues in the township.

BSC has nominated to undertake the underground drainage works in conjunction with the streetscape works ultimately to provide the following key benefits:

- Minimising the occurrence of disruption within the affected areas of the town centre and reducing the incidence of impacts to traffic and local business;
- Opportunity for overall cost savings for construction of both the drainage design and streetscape design were completed at the same time;
- Implementing water sensitive urban design (WSUD) as part of the streetscape works to improve the quality of stormwater entering the Belongil Creek catchment including installation of WSUD devices, rain gardens and other design treatments.

The drainage upgrades will alleviate flooding impacts on local business and properties within the town centre over the long term. The drainage works will also improve road operations during severe weather events supporting provision of emergency services operations in the area. The drainage upgrade will therefore provide a direct benefit to local business and the community over the long term.

It is noted that the proposed drainage works have potential to result in flood afflux at private property in Kendall Street, Shirley Lane and in the rail corridor. These afflux issues are addressed in later stages of the Preferred Byron Bay Drainage Strategy through construction of flood levees and flood pumps (not part of this REF scope) subject to further funding arrangements.

It is recommended that Council notify affected landholders regarding any afflux impacts resulting from the proposed drainage upgrades.

The following safeguards are recommended to prevent, minimise and mitigate potential negative impacts associated with the Activity:

Are the proposed works likely to directly impact on local business?	Yes ☒	No ☐
Are the proposed works likely to require any property acquisition?	Yes ☐	No ☒
Are the proposed works likely to alter any access for properties (either temporarily or permanently)?	Yes ☒	No ☐
Are the proposed works likely to alter any on-street parking arrangements (either temporarily or permanently)?	Yes ☒	No ☐

Are the proposed works likely to change pedestrian movements or pedestrian access (either temporarily or permanently)?	Yes ☒	No ☐
Are the proposed works likely to impact on any items or places of social value to the community (either temporarily or permanently)?	Yes ☐	No ☒
Are the proposed works likely to reduce or change visibility of any businesses, farms, tourist attractions or the like (either temporarily or permanently)?	Yes ☒	No ☐

Socio-economic Considerations - Recommended Safeguards:

- *The appointed contractor and BSC will develop a communications strategy to provide clear, accessible and timely information about the construction process to the community, local businesses and affected stakeholder groups.*
- *The appointed contractor will work together with BSC to develop a construction staging plan that minimises impacts on local businesses and avoids construction activities within the peak business periods of December and January.*
- *The appointed contractor and BSC will implement temporary Wayfinding measures within the town centre to enable customers to locate and support local business operations during the construction phase.*
- *Contractors/ workers would be mindful of the needs of the local community.*
- *In accordance with the Work Health and Safety Act 2011, workers would be provided with appropriate safety clothing and equipment. Supervisory staff and any visitors to the work area would also be required to wear protective clothing. Works personnel would be provided with or expected to have protective equipment and appropriate training.*
- *Prior to undertaking any excavation works all underground services will be clearly located. Any potential services interruptions shall be communicated to the relevant services authorities to enable flow on notifications to any affected services customers.*
- *Where feasible BSC shall consider undertaking works at night to minimise impacts on local businesses.*
- *Any local businesses and properties potentially disrupted by the works are to be kept notified regularly of the works program and any likely impacts such as noise, dust, access, parking and services outages. All notified receivers will be provided with a contact telephone number for any complaints/ updates associated with the proposed works.*
- *It is recommended that Council notify affected landholders regarding any afflux impacts resulting from the proposed drainage upgrades.*

3.14 Red Imported Fire Ants

NSW DPI has issued an Emergency Order (as amended), that places restrictions on the movement of fire ant carrier materials including (but not limited to) organic mulch, soil, and anything with soil on it, hay and baled material, potted plants, turf, agriculture, or earth moving machinery, mining or quarry materials, sand and gravel being moved into NSW from the fire ant infested areas of QLD, South Murwillumbah, and Wardell.

The Emergency Order refers to the following control areas:

- defines the QLD fire ant infested area (red), which includes 5 km around all detections in QLD.
- defines the NSW fire ant infested area (orange), which includes areas in NSW within 5 km the detection in QLD.
- defines the NSW fire ant movement control areas (yellow) in South Murwillumbah and Wardell, which includes 5 km around all detections

- defines the NSW Protection Zone (blue hatched), which is the whole of NSW excluding fire ant infested areas or movement control areas.

A list of current fire ant carrier materials is provided at https://www.dpi.nsw.gov.au/dpi/bfs/insect-pests/rifa

Carrier materials from and through the fire ant infested areas mapped below are subject to the requirements in the Order.

Material imported to site for the works from risk areas have potential to spread the fire ant further into NSW presenting further biosecurity risk. Measures are therefore required to ensure the works do not increase risks associated with the fire ant spread in the region.

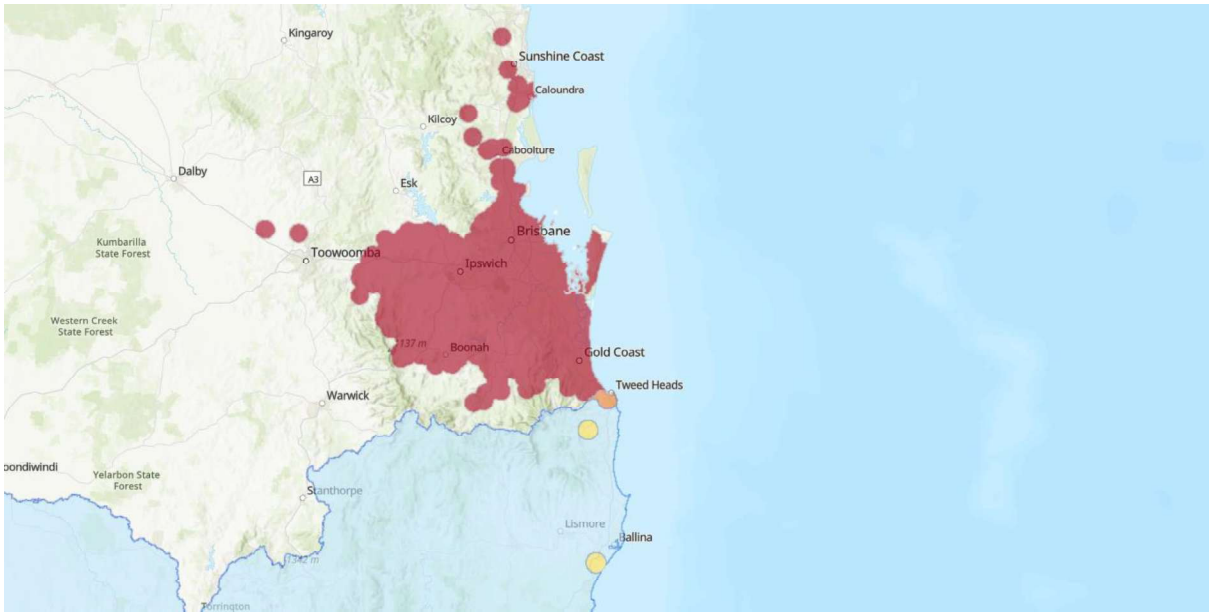

Figure 3-10 | Fire ant infested area map (Source: NSW DPI)

The implementation of the following recommended safeguards, any adverse effect will be restricted to the minimal possible extent.

Red Imported Fire Ants - Recommended Safeguards:

- *Prior to the use of materials and equipment that has travelled through or from a biosecurity zone, Project Managers are to ensure that contractors supply the necessary certificates for any of the materials and equipment. The biosecurity zones are shown at the NSW DPI Alert https://www.dpi.nsw.gov.au/dpi/bfs/insect-pests/rifa*
- *Moving fire ant carriers from the fire ant infested area of Queensland into NSW (the Emergency Zone) must:*
  - *Follow the requirements as specified for each fire ant carrier in part 2 of the emergency Orderhttps://www.dpi.nsw.gov.au/biosecurity/forms/report-exotic-ants*
  - *Obtain an approved biosecurity certificate for fire ant carrier materials.*
  - *Complete the record of movement Declaration form prior to the carriers moving into NSW*
- *Moving fire ant carriers out of the NSW fire ant movement control area in South Murwillumbah into the rest of NSW (the Emergency Zone) you must follow the requirements specified in Part 3 of the Emergency Order. https://www.dpi.nsw.gov.au/biosecurity/forms/report-exotic-ants.*
- *If red imported fire ants are suspected at or adjoining the works areas, stop work immediately, notify DPI of the issue and commence the following:*

- *Suspicious sightings of red imported fire ants or their mounds that have been identified within a site must be reported to NSW Department of Primary Industries immediately on 1800 680 244 or via their online form https://www.dpi.nsw.gov.au/biosecurity/forms/report-exotic-ants*
- *If red imported fire ants are suspected, do not disturb the ants or nests and make records of the ants and nest (including photographic record) as outlined in the NSW DPI Alert https://www.dpi.nsw.gov.au/biosecurity/forms/report-exotic-ants https://www.dpi.nsw.gov.au/biosecurity/insect-pests/fire-ants*

- *If red imported fire ants are suspected at or adjoining the works areas, works may not commence until:*
  - *DPI will work with the National Fire Ants Eradication Program to search the surrounding areas, treat the ants, and stop their spread, at no cost to the owners or occupiers.*
  - *A temporary requirement to only move certain materials and items off the property under permitted conditions could be put in place while the ants are controlled.*
  - *The ants are treated and monitored until it is clear they have been eradicated.*

3.15 Cumulative impacts

It is noted that the Byron Bay town centre is subject to ongoing development applications infrastructure projects.

The nearby Skatepark project has been completed. However, there are additional BSC projects nearby currently under construction including:

- Sandhills Wetland Project proposed east of the Activity area.
- Tennyson Street Upgrade currently occurring east of the Activity area.

There is potential that construction impacts associated with these projects may add a cumulative impact to the local amenity during construction phase of the works. Due to the landform, scale and location of these projects a significant impact on amenity is however unlikely. It is recommended that BSC and the contractor develop the works schedules to consider the nearby construction projects to minimise any cumulative impacts on the community.

The following safeguards are recommended to prevent, minimise and mitigate potential impacts associated with the Activity:

Are other projects proposed to be undertaken at the same time within the vicinity of the proposal?	Yes ☒	No ☐
Are there considered to be significant cumulative impacts as a result of the works proposed?	Yes ☐	No ☒

Cumulative Impacts - Recommended Safeguards:

- *It is recommended that BSC and the contractor develop the works schedules to consider any nearby construction projects to minimise any cumulative impacts on local amenity and businesses.*

3.16 Matters of National Environmental Significance (NES)

The following matters identified in Table 3.9 are required to be considered under the EPBC Act when determining if the proposal should be referred to the Commonwealth Department of Environment and Energy for assessment.

Table 3.9 | Review of Matters of NES

Matters of NES	Significant Impact
Any impact on a World Heritage property?	Yes ☐ No ☒
The Activity is not located on or within proximity to a World Heritage property.	
Any impact on a National Heritage place?	Yes ☐ No ☒
The Activity is not located on or within proximity to a National Heritage Place.	
Any impact on a wetland of international importance?	Yes ☐ No ☒
The Activity is not located on or within proximity to a wetland of international importance.	
Any impact on a listed threatened species or communities?	Yes ☐ No ☒
The Activity will not have any significant long-term impacts on threatened species or communities.	
Any adverse impacts on listed migratory species?	Yes ☐ No ☒
The Activity will not have any significant impacts on listed migratory species.	
Does the proposal involve a nuclear action (including uranium mining)?	Yes ☐ No ☒
No nuclear action proposed.	
Any impact on a Commonwealth marine area?	Yes ☐ No ☒
The Activity is not located on or within proximity to a Commonwealth marine area.	
Any impact on the Great Barrier Reef Marine Park?	Yes ☐ No ☒
The Activity is not located on or within proximity to the Great Barrier Reef Marine Park.	
Any impact on water resources from coal seam gas development and large coal mining development?	Yes ☐ No ☒
No coal seam gas or coal mine is development proposed.	
Additionally, any significant impact (direct or indirect) on Commonwealth land?	Yes ☐ No ☒
No impact on Commonwealth land is proposed.	

Matters of NES	Significant Impact
Additionally, any significant impact (direct or indirect) on the environment generally as a result of a Commonwealth action?	Yes ☐ No ☒
No significant impact on the environment as a result of a Commonwealth action is proposed or likely.	

This REF has determined that the proposed Activity does not require referral to the Commonwealth Department of Environment and Energy for assessment as will not have any significant impacts on matters of NES.

3.17 Clause 171 of the EP&A Regulations 2021 (the Regulations)

Clause 171 of the Regulation sets out 16 factors that need to be considered when assessing environmental impact under Part 5 of the EP&A Act. These factors are addressed in this report and are listed in Table 3.10.

Table 3.10 | Review of Clause 171 Factors

Clause 171 Factors	Significant Impact
Any environmental impact on a community?	Yes ☐ No ☒
The proposal will have some short term negative impacts associated with traffic, parking and pedestrian access. However, the Activity will have a long term positive impact through the improved drainage and reduced flooding impacts within the Byron Bay town centre.	
Any transformation of a locality?	Yes ☐ No ☒
The proposed works present minimal variation to existing landscape. The works will benefit the locality through reduced flooding in the locality. The Activity will not result in a negative transformation of the local area.	
Any environmental impact on the ecosystems of the locality?	Yes ☐ No ☒
Reference should be made to Section 3 of this REF. No detrimental environmental impact to ecosystems is likely to occur as part of the Activity.	
Any impact on the aesthetic, recreational, scientific or other environmental quality or value of a locality?	Yes ☐ No ☒
The Activity is unlikely to detrimentally impact on the aesthetic, recreational, scientific or other environmental quality or value of the locality.	
Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations?	Yes ☐ No ☒
Reference should be made to Section 3 of this REF. No impact to items of anthropological, archaeological, architectural, cultural, historical, scientific or social significance are anticipated.	
Any impact on the habitat of protected animals (within the meaning of the Biodiversity Conservation Act 2016)?	Yes ☐ No ☒

Clause 171 Factors	Significant Impact
The proposed Activity will not have any adverse impacts on the habitat of protected animals.	
Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?	Yes ☐ No ☒
The proposed Activity will not cause the endangering of any species of animal, plant or other form of life.	
Any long-term effects on the environment?	Yes ☐ No ☒
The proposal is not considered to have any long-term negative effects on the environment.	
Any degradation of the quality of the environment?	Yes ☐ No ☒
The proposed Activity will not degrade the quality of the environment.	
Any risk to the safety of the environment?	Yes ☐ No ☒
Minor short-term risks are likely and can be managed through appropriate safe work practices. These procedures have been recommended under this REF.	
Any reduction in the range of beneficial uses of the environment?	Yes ☐ No ☒
No reduction in the range of beneficial uses of the environment will occur.	
Any pollution of the environment?	Yes ☐ No ☒
Suitable construction methods will ensure there is no pollution of the environment and all waste will be disposed of correctly. These procedures have been recommended under this REF.	
Any environmental problems associated with the disposal of waste?	Yes ☐ No ☒
Any waste generated from the works will be categorised and disposed of in accordance with the relevant guidelines and all so as not to cause environmental problems.	
Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply?	Yes ☐ No ☒
The proposal will not increase demands on resources.	
Any cumulative environmental effect with other existing or likely future activities?	Yes ☐ No ☒
No significant cumulative impacts have been identified.	
Any impact on coastal processes and coastal hazards, including those under projected climate change conditions?	Yes ☐ No ☒
The Activity is located within the coastal zone but will not contribute to coastal processes and coastal hazards.	

The factors listed under Clause 171 have been considered and all impacts associated are considered acceptable.

As the Activity does not require an approval listed under Clause 171 (4) of the Regulations

The capital investment value of the Activity is estimated to be more than $5 million.

BSC is therefore required to publish the REF on the determining authority's website or the NSW planning portal.

The REF must be published under subsection (4):
(a) before the activity commences, or
(b) if publishing the review before the activity commences is not practicable—as soon as practicable, and no later than 1 month, after the activity commences.

4 Statutory and Planning Considerations

4.1 Planning Approval Pathway

The Activity is permitted without consent pursuant to:

- Division 17 (Roads and traffic) and clause 2.109 of T&I SEPP.
- Division 20 (Stormwater management systems) and clause 2.137(1) of T&I SEPP.

Further detail is outlined below.

The proposal is not located on land reserved under the National Parks and Wildlife Act 1974 and does not constitute Designated Development, State Significant Development or State Significant Infrastructure in accordance with State Environmental Planning Policy (Resilience and Hazards) 2021 or State Environmental Planning Policy (Planning Systems) 2021.

BSC is still required to undertake due diligence and environmental assessment before commencing the work to ensure it has had due regard to any potential environmental impacts. This is the purpose of this REF.

4.2 Land Use Definition

The Activity includes works consistent with road and road infrastructure facilities defined under Clause 2.108 of T&I SEPP.

Under clause 2.108 of T&ISEPP the following definition is provided:

public road *means—*

(a) any road that is opened or dedicated as a public road, whether under the Roads Act 1993 or any other Act or law, and

(b) *any road that is declared to be a public road for the purposes of the Roads Act 1993.*

road infrastructure facilities includes—

(a) tunnels, ventilation shafts, emergency accessways, vehicle or pedestrian bridges, causeways, road-ferries, retaining walls, toll plazas, toll booths, security systems, bus lanes, transit lanes, transitways, transitway stations, rest areas and **road related areas** (within the meaning of the *Road Transport Act 2013*).

Road related areas are defined under the *Road Transport Act 2013* as:

road related area means—

(a) an area that divides a road, or

(b) a footpath or nature strip adjacent to a road, or

(c) an area that is open to the public and is designated for use by cyclists or animals, or

(d) an area that is not a road and that is open to or used by the public for driving, riding or parking vehicles, or

(e) a shoulder of a road, or

(f) any other area that is open to or used by the public and that has been declared under section 18 to be an area to which specified provisions of this Act or the statutory rules apply.

The Activity includes works consistent with stormwater management system defined under Clause 2.136 of T&I SEPP

stormwater management system means—

(a) works for the collection, detention, harvesting, distribution or discharge of stormwater (such as channels, aqueducts, pipes, drainage works, embankments, detention basins and pumping stations), and

(b) stormwater quality control systems (such as waste entrapment facilities, artificial wetlands, sediment ponds and riparian management),

4.3 Permissibility

4.3.1 Division 17 (Roads and traffic)

Division 17 (Roads and traffic) and clause 2.109(1) of T&I SEPP:

Development for the purpose of a road or road infrastructure facilities may be carried out by or on behalf of a public authority without consent on any land.

As BSC is a public authority the road works may be carried out without development consent and therefore becomes an 'Activity' for the purposes of Part 5 of the EP&A Act.

4.3.2 Division 20 (Stormwater management systems)

Division 20 (Stormwater management systems) and clause 2.137(1) of T&I SEPP:

Development for the purpose of stormwater management systems may be carried out by or on behalf of a public authority without consent on any land.

As BSC is a public authority the stormwater works may be carried out without development consent and therefore becomes an 'Activity' for the purposes of Part 5 of the EP&A Act.

4.4 Commonwealth Legislation

4.4.1 Environment Protection & Biodiversity Conservation Act 1999 (EPBC Act)

The EPBC Act protects matters of National Environmental Significance (NES), such as threatened species and ecological communities and migratory species (protected under international agreements), promotes ecologically sustainable development, conservation of biodiversity and heritage places and recognises the knowledge of Indigenous Australians. Any actions that will, or are likely to have, a significant impact on the matters of NES require referral and approval from the Australian Government Environment Minister.

Significant impacts are defined by the Commonwealth for matters of NES.

As outlined in Section 3.16, the Activity will not result in an impact on matters of NES, therefore referral to the Commonwealth Department of Environment is not required.

4.4.2 Native Title Act 1993 (NT Act 1993)

The Native Title Act 1993 (NT Act) provides recognition and protection of native title on land across Australia. The NT Act establishes ways which future dealings affecting native title claim may be processed and establishes mechanisms for determining native title claims.

The proposed Activity does not intercept Crown Land, or any areas identified under a Native Title Determination or Indigenous Land Use Agreement.

4.5 State Legislation

4.5.1 Environmental Planning and Assessment Act 1979 (EP&A Act)

The EP&A Act is the principal planning legislation for NSW and provides a framework for the overall environmental planning and assessment of proposals.

BSC is the proponent, and the works are assessed as 'development permissible without consent' under Part 5 of the EP&A Act. Accordingly, BSC must satisfy Sections 5.5, 5.6 and 5.7 of the EP&A Act by examining, and considering to the fullest extent possible, all matters which are likely to affect the environment. This REF is intended to assist and ensure compliance with the EP&A Act including Sections 5.5, 5.6 and 5.7 and the requirements of clause 171 of the Regulation.

4.5.2 Biodiversity Conservation Act 2016

Section 7.8 of the BC Act provides the environmental assessment requirements for activities being assessed under Part 5 of the EP&A Act. If a significant impact is likely, the Environmental Impact Statement is to be accompanied by a Species Impact Statement, or if the proponent so elects, a Biodiversity Development Assessment Report.

Section 7.3 of the BC Act prescribes a test (the 'Test of Significance') for determining whether a proposed development or Activity is likely to significantly affect threatened species or ecological communities, or their habitats.

The consideration under Section 7.3 of the BC Act is outlined at Table 4.1.

Table 4.1 | Section 7.3 considerations

Section 7.3 of the BC Act	Response
1 (a) in the case of a threatened species, whether the proposed development or Activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,	There are no threatened species located within the areas of existing street landscaping proposed for removal. The Activity will not have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.
1 (b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or Activity— (i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or (ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,	The existing street landscaping proposed for removal does not constitute an endangered ecological community or critically endangered ecological community.
1 (c) in relation to the habitat of a threatened species or ecological community— (i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or Activity, and (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or Activity, and (iii) the importance of the habitat to be removed, modified, fragmented or isolated to	The existing street landscaping proposed for removal does not provide suitable habitat of a threatened species or ecological community.

the long-term survival of the species or ecological community in the locality	
(d) whether the proposed development or Activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),	The Activity area does not form any declared area of outstanding biodiversity value (either directly or indirectly),
(e) whether the proposed development or Activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process	Removal of trees and vegetation may be considered a key threatening process however the adjustment of the town centre landscaping is considered to have a negligible impact on the key threatening process.

Given that the Activity requires only removal of existing street landscaping, the proposal will not significantly affect threatened species or ecological communities, or their habitats. On this basis, the Biodiversity Offsets Scheme established in the BC Act is not triggered, and a Biodiversity Development Assessment Report (BDAR) is not required.

4.5.3 Coastal Management Act 2016 (CM Act)

The CM Act aims to manage the coastal environment of New South Wales in a manner consistent with the principles of ecologically sustainable development for the social, cultural and economic well-being of the people of the State. The CM Act defines the coastal zone and management objectives for coastal management areas and allows local Councils to prepare coastal management programs.

Council is currently in the process of developing a Coastal Management Program for the Shire. This program is currently in Stage 3 that involves develop management options, including the following:

- Identifying key threats and risks, along with opportunities (easy wins).
- Evaluating options for managing the threats and risks.
- Seeking feedback from stakeholders and the community to help shortlist the management options.

The Activity is located within the coastal zone. However, the Activity does not present any conflict with the provisions of the CM Act or the current status of the draft Coastal Management Program.

4.5.4 Contaminated Land Management Act 1997 (CLM Act)

Section 59 of the CLM Act requires the notification of contaminated sites. The NSW Environment Protection Authority's (EPA) Contaminated Lands Register does not list any sites within proximity to the works as contaminated sites.

A search of the NSW EPA Contaminated Lands Register returned no results for the proposed Activity area alignment.

The nearest registered cattle dip site (Andersons) is located at Belongil Beach within SP 85426, approximately 1.7km west of the site.

The nearest registered contamination site is the Butler Street Reserve, located at Butler Street, Byron Bay (being Lot 389 DP 728537, Lot 390 DP 728538 and Lot 391 DP 728539). Under Section 10 of the Act the EPA issued a preliminary investigation order (20181009) to BSC, to carry out investigations to delineate the nature and extent of contamination on the land and determine whether contamination originating on the land had impacted adjacent underground services, nearby properties and local groundwater quality. This site adjoins the Activity area.

A dewatering management plan for construction dewatering including measures to address the potential for PFAS to be present in groundwater has been developed through input from the EPA and endorsed by the EPA.

Spoil material will be generated from the works and this material is likely to contain HMSRs. As a precautionary measure, spoil generated from the works will be tested and managed accordingly in regard to potentially elevated gamma radiation levels. This will require the preparation of a project specific HMSR Management Plan to include a description of the contamination and the activities to be conducted to further define the HMSRs as part of the works, management options proposed regarding stockpiling, testing, reuse and/or disposal of HMSR material to be conducted, along with relevant waste tracking and disposal options

The EPA will need to be notified if other sources of contamination that present a risk of harm to human health or the environment are identified as part of the proposed Activity.

4.5.5 Crown Land Management Act 2016 (CLM Act)

The *Crown Land Management Act 2016* (CLM Act) regulates the ownership, use and management of Crown Land and requires environmental, social, cultural heritage and economic considerations to be taken into account in decision-making about Crown Land.

The works do not intercept Crown Land.

4.5.6 Forestry Act 2012

Section 60 of the *Forestry Act 2012* requires that a permit be obtained for the use of a forestry area for non-forestry uses. The Activity area does not form part of a state forest; therefore, no permit is required.

4.5.7 Fisheries Management Act 1994

The objectives of the *Fisheries Management Act 1994* are to conserve, develop and share the fishery resources of the State for present and future generations.

The Activity is not located within a Key Fish Habitat waterway and there are no mapped waterways within the site. The Activity does not require any works within a waterway.

The works will not require permits under Part 7 of the *Fisheries Management Act 1994*.

4.5.8 Heritage Act 1977

The *Heritage Act 1977* makes provision for the promotion and conservation of the state's heritage.

The works areas do not include any state or heritage listed items.

Section 60 Approval under the Act is not required for the scope of works being assessed under this REF.

A separate REF has been prepared for the scope of drainage works within the NSW state listed item under the Act being Byron Bay Railway Station and yard group (Lot 2 DP 1289363).

4.5.9 Local Land Services Act 2013 (LLS Act)

The objectives of the LLS Act include 'to ensure the proper management of natural resources in the social, economic and environmental interests of the State, consistently with the principles of ecologically sustainable development'.

The Act regulates the clearing of native vegetation; however, section 60(O)(b)(ii) excludes the need for consent under the LLS Act where the clearing is an Activity carried out by a determining authority within the meaning of Part 5.1 of the EP&A Act.

The Activity does not require approval for removal of native vegetation under the LLS Act.

4.5.10 National Parks and Wildlife Act 1974 (NP&W Act)

The *National Parks and Wildlife Act 1974* (NP&W Act) regulates the control and management of all national parks, historic sites, nature reserves, and Aboriginal objects and areas. The site is not located proximate to any national park, historic site, reserve or places of Aboriginal cultural significance.

The main aim of the NP&W Act 1974 is to conserve the natural and cultural heritage of NSW and where works will disturb Aboriginal objects, an Aboriginal Heritage Impact Permit (AHIP) is required.

Searches of the AHIMS database identified no Aboriginal sites/objects recorded within the alignment of the Activity. The AHIMS search is provided at Appendix E.

The Activity comprises disturbed land and does not include any registered Aboriginal cultural sites or objects.

An Aboriginal Heritage Impact Permit (AHIP) in accordance with the NP&W Act 1974 is not required for the Activity at this stage.

4.5.11 Protection of the Environment Operations Act 1997 (POEO Act)

The POEO Act is the key environmental protection and pollution statute. The POEO Act is administered by the EPA and establishes a licensing regime for waste, air, water and pollution. The following summarises key heads of consideration under the POEO Act:

- The contractor is required to notify EPA if a 'pollution incident' occurs during works, that is likely to impact upon the environment.
- The REF includes mitigations measures to minimise potential impacts that may result in pollution of the environment

Section 143 of the POEO Act requires waste to be transported to a place that can lawfully accept it. All waste generated from the works will need to be classified pursuant to the EPA Waste Classification Guidelines and certificates obtained for its disposal.

Schedule 1 confirms activities that require an Environmental Protection Licence (EPL) including:

15A Contaminated groundwater treatment

(1) This clause applies to contaminated groundwater treatment meaning the treatment of contaminated water.

(2) The activity to which this clause applies is declared to be a scheduled activity if it has the capacity to treat more than 100 megalitres per year of contaminated water.

Construction dewatering will encounter PFAS, however the groundwater modelling for the project indicates that less than 100 megalitres of dewatering per year will occur.

The EPA has provided written advice confirming the works are not a Scheduled Activity and do not require and EPL. The EPA also endorsed the project Dewatering Management Plan. A copy of the EPA letter is provided at Appendix G.

4.5.12 Water Management Act 2000 (WM Act)

The main objective of the WM Act is to manage NSW water in a sustainable and integrated manner that will benefit today's generations without compromising future generations' ability to meet their needs. The works do not occur within or adjacent to a waterway.

Section 91E of the WM Act establishes an approval regime for controlled activity approvals within waterfront land. Clause 41 of the *Water Management (General) Regulation 2018* provides an exemption for public authorities in relation to all controlled activities on waterfront land. Therefore, controlled activity approval under Section 91E of the WM Act is not required.

Approval under Part 3 of the WM Act is required to construct and use a water supply works including approval for construction dewatering to construct and use a work which takes water from a construction site, including water entering the site from an aquifer (groundwater source) and surface

water flowing into the site. Examples of water supply works for construction dewatering include water pumps, water bores, drainage channels and pipes.

Approval under Part 2 of the WM Act is required for construction dewatering. An exemption for construction dewatering under Schedule 4 of the *Water Management (General) Regulation 2025* applies to Public Authority works (see below).

4.5.13Water Management (General) Regulation 2025

Schedule 4 (Exemptions), Part 2 (Access License Exemptions) Section 4 (Essential infrastructure) creates exemptions for a public authority—in relation to the taking of water that occurs in connection with the construction of essential infrastructure, without needing to obtain a water access license (WAL) as outlined below:

3 Essential infrastructure

(1) A public authority—in relation to the taking of water that occurs in connection with the construction of essential infrastructure.

(2) An exemption conferred by this clause is subject to the condition that the public authority must—

(a) record in the approved form and manner the amount of water taken within 24 hours of the water being taken, and

(b) keep the record for 5 years after the record is made, and

(c) give a copy of the record to the Minister in an approved manner—

(i) not later than 28 days after the end of the water year in which the water was taken, or

(ii) by an earlier date if notified in writing by the Minister.

(3) Subclause (2) does not apply in relation to the taking of water in connection with construction for the purpose of rail or roads.

(4) In this clause—

essential infrastructure includes infrastructure for the following purposes—

(a) electricity generation, transmission and distribution,

(b) telecommunications,

(c) rail,

(d) roads,

(e) gas,

(f) sewerage systems, water supply systems, stormwater management systems or flood water management,

(g) airports, ports, shipping and harbours.

public authority includes the following—

(a) the Crown, including the Crown in right of the Commonwealth,

(b) a NSW Government agency or a statutory body representing the Crown, including the Crown in right of the Commonwealth,

(c) a statutory officer whether appointed under a law of the State or Commonwealth,

(d) a State owned corporation within the meaning of the *State Owned Corporation Act 1989*,

(e) a person established by or under a law of the Commonwealth with a function to provide essential infrastructure,

(f) a Commonwealth company within the meaning of the *Public Governance, Performance and Accountability Act 2013* of the Commonwealth with a function to provide essential infrastructure,

(g) a council or county council within the meaning of the *Local Government Act 1993*,

(h) a water supply authority,

(i) a person exercising a function, or acting for or on behalf of a public authority, including a contractor or sub-contractor.

Note—

See the definition of ***construct*** a work under the Act which includes install, maintain, repair, alter or extend the work.

BSC is therefore exempt from requirements for a WAL in relation to the Activity.

4.5.14 Roads Act 1993

Section 138 of the *Roads Act 1993* requires the approval from the relevant road's authority for the carrying out of works within a public road. Part 5(1) of Schedule 2 of the Act also states that public authorities do not require consent for works on unclassified roads.

The Activity proposes works in sections of Byron Street, Lawson Street, Lateen Lane, Fletcher Street and Jonson Street. These are all local roads (non-classified) under management of BSC as the local road authority.

The Activity is being undertaken by BSC (local roads authority) and approval under Section 138 of the *Roads Act 1993* is not required for the Activity in accordance with Schedule 2 of the Act.

4.5.15 Rural Fires Act 1997

The works are proposed upon land that is identified as being within a bushfire prone and bushfire prone buffer area. The works are not development for the purposes of Section 100B of the *Rural Fires Act 1997* and a bush fire safety authority is therefore not required.

4.5.16 Wilderness Act 1987

Proposals by statutory authorities affecting certain wilderness areas are required to be notified to the Minister and receive consent from the Minister under Section 15 of the Act. The proposal does not involve any Activity in a declared wilderness area. Therefore, the Act does not apply to the Activity.

4.5.17 Waste Avoidance and Resource Recovery Act 2001 (WARR Act)

The purpose of the WARR Act is to develop and support the implementation of regional and local programs to meet the outcomes of a State-wide strategy for waste avoidance and resource recovery. It also aims to 'minimise the consumption of natural resources and final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste'.

Waste generation and disposal reporting will be carried out during the construction of the proposal. Procedures will be implemented to promote the objectives of the WARR Act.

4.6 Environmental Planning Policies under the EP&A Act

4.6.1 State Environmental Planning Policy (Transport and Infrastructure) 2021 (T&I SEPP)

As discussed under Section 4.1 of this REF, the Activity is permitted without consent pursuant to:

- Division 17 (Roads and traffic) and clause 2.109 of T&I SEPP.
- Division 20 (Stormwater management systems) and clause 2.137(1) of T&I SEPP.

Part 2.2 of the T&I SEPP contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development. Consultation, including consultation as required by T&I SEPP (where applicable), is discussed in Section 5 of this REF.

The Activity is not for the purposes of a health services facilities, correctional centres or residential accommodation., in an area that is bush fire prone land (as defined by the Act). BSC is not required consider Planning for Bush Fire Protection before carrying out the development under clause 2.16 of T&I SEPP.

4.6.2 Other Environmental Planning Instruments (EPIs)

Table 4.2 provides a review of other Environmental Planning Instruments (EPIs) made under the EP&A Act. Whilst not applicable, this review of EPIs has been undertaken to assist in confirming the suitability, likely impacts, and necessary environmental considerations for the proposed Activity.

This review has confirmed that the Activity is consistent with the aims and objectives of the EPIs and EP&A Act.

Table 4.2 | EPI Review

EPI	Section	Comment
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008	Subdivision 38 Subdivision	Clause 2.75 enables the subdivision of land for the purposes of excising from a lot of land that is, or is intended to be, used for public purposes. The Activity does not require subdivision of land.
State Environmental Planning Policy (Resilience and Hazards) 2021 (R&H SEPP)	Chapter 2 Coastal management	The proposed Activity is located within the coastal zone. The Activity is not located on land mapped Coastal Wetland or Littoral Rainforest. The Activity is precluded from requiring development consent pursuant to provisions of T&I SEPP. Therefore, the provisions of the R&H SEPP do not apply to the development.
	Chapter 3 Hazardous and offensive development	The proposed Activity is not defined as a "potentially hazardous industry" or "potentially offensive industry".
	Chapter 4 Remediation of land	The proposed works do not require remediation of land.
State Environmental Planning Policy (Biodiversity and Conservation) 2021	Chapter 4 Koala habitat protection 2021	The SEPP indicates when a Koala Plan of Management is required in regard to development that requires consent. As the Activity is permitted without consent the provisions of the SEPP do not apply.
State Environmental Planning Policy (Planning Systems) 2021	Chapter 3 Aboriginal land	The Aboriginal Land SEPP only applies to land identified on the Land Application Map. The subject site is not identified on the Land Application Map.
	Schedule 1-7	The Activity is not identified as Regionally Significant Development, or State Significant Development.

EPI	Section	Comment
State Environmental Planning Policy (Precincts—Regional) 2021		The subject site is not located within a Regionally significant precinct.
Byron Local Environmental Plan 2014		The Activity area is zoned Zone E1 Local Centre and Zone SP2 Infrastructure (Rail Corridor) under the LEP. The Activity is precluded from requiring development consent pursuant to provisions of T&I SEPP.

4.7 Ancillary Approvals

Review of the above legislative framework based on current design finds that the following ancillary approvals may be required for the proposed Activity:

- Approval under Part 3 of the WM Act is required to construct and use a water supply works including approval for construction dewatering to construct and use a work which takes water from a construction site, including water entering the site from an aquifer (groundwater source) and surface water flowing into the site. Examples of water supply works for construction dewatering include water pumps, water bores, drainage channels and pipes.

5 Consultation Requirements

5.1 Consultation Requirements under Infrastructure SEPP

Part 2.2 Division 1 of the T&I SEPP requires public authorities to consult with Councils and other public authorities prior to the commencement of specified development. These requirements are summarised in Table 5.1.

Table 5.1 | Consultation Requirements Checklist

Infrastructure SEPP, Part 2.2, Division 1 Consultation	
Consultation with councils – development with impacts on council-related infrastructure or services	
Will the proposal have a substantial impact on stormwater management services provided by a council?	Yes ☐ No ☒
The Activity relates to stormwater system improvements being undertaken by BSC.	
Is the proposal likely to generate traffic to an extent that will strain the capacity of the road system in a local government?	Yes ☐ No ☒
The Activity relates to stormwater system improvements and road works being undertaken by BSC. The works will result in a short term moderate impact on the traffic in the town during the construction phase. Post works traffic movement in town will improve; particularly during wet weather events with reduced flood impacts.	
Will the proposal involve connection to, and a substantial impact on the capacity of, any part of a sewerage system owned by a council?	Yes ☐ No ☒
Will the proposal involve connection to, and use of a substantial volume of water from, any part of a water supply system owned by a council?	Yes ☐ No ☒
Will the proposal involve the installation of a temporary structure on, or the enclosing of, a public place that is under a council's management or control that is likely to cause a disruption to pedestrian or vehicular traffic that is not minor or inconsequential?	Yes ☐ No ☒
Will the proposal involve excavation that is not minor or inconsequential of the surface of, or a footpath adjacent to, a road for which a council is the roads authority under the *Roads Act 1993* (if the public authority that is carrying out the development, or on whose behalf it is being carried out, is not responsible for the maintenance of the road or footpath)?	Yes ☐ No ☒
Consultation with councils – development with impacts on local heritage	
Is the proposal likely to affect the heritage significance of a local heritage item, or of a heritage conservation area, that is not also a State heritage item, in a way that is more than minor or inconsequential, and is development that this Policy provides may be carried out without consent?	Yes ☐ No ☒

Infrastructure SEPP, Part 2.2, Division 1 Consultation	
Consultation with councils – development with impacts on flood liable land	
Is the proposed Activity located on flood liable land and will change flood patterns other than to a minor extent?	Yes ☒ No ☐
Comment: The proposed Activity is mapped flood prone land. The works are not considered to create a new barrier for floodwaters or likely to change the flood patterns of the locality.	
Consultation with State Emergency Service – development with impacts on flood liable land	
Is the proposed Activity permitted without consent under a **relevant provisions** and located on flood liable land?	Yes ☒ No ☐
Comment- The Activity relates to road works permitted without consent under a listed relevant provision. State Emergency Service (SES) were notified of the proposal in September 2024. NSW SES response is outlined below.	
Consultation with councils – development with impacts on certain land within the coastal zone	
Is the proposed development on land that is within a coastal vulnerability area and is inconsistent with a certified coastal management program that applies to that land?	Yes ☐ No ☒
Consultation with public authorities other than councils	
Is the development adjacent to land reserved under the National Parks and Wildlife Act 1974 or to land acquired under Part 11 of that Act—the Office of Environment and Heritage?	Yes ☐ No ☒
Is the development on land in Zone E1 National Parks and Nature Reserves or in a land use zone that is equivalent to that zone—the Office of Environment and Heritage?	Yes ☐ No ☒
Is the development adjacent to an aquatic reserve or a marine park declared under the Marine Estate Management Act 2014—the Department of Industry?	Yes ☐ No ☒
Is the development in the foreshore area within the meaning of the Sydney Harbour Foreshore Authority Act 1998—the Sydney Harbour Foreshore Authority?	Yes ☐ No ☒
Is the development comprising a fixed or floating structure in or over navigable waters—Roads and Maritime Services?	Yes ☐ No ☒
Will the development increase the amount of artificial light in the night sky and that is on land within the dark sky region as identified on the dark sky region map—the Director of the Observatory?	Yes ☐ No ☒
Is the development on defence communications facility buffer land within the meaning of clause 5.15 of the Standard Instrument—the Secretary of the Commonwealth Department of Defence?	Yes ☐ No ☒

Infrastructure SEPP, Part 2.2, Division 1 Consultation	
Is the development on land in a mine subsidence district within the meaning of the Mine Subsidence Compensation Act 1961—the Mine Subsidence Board?	Yes ☐ No ☒

The Activity requires consultation with SES under Clause 2.13 of T&I SEPP. SES were notified of the proposal in December 2024. To date a response from SES has not been provided.

They provided following advice is generally provided from SES regarding works notified under T&I SEPP:

- Consider the impact of flooding on the infrastructure and people using the road up to and including the Probable Maximum Flood (PMF) along with the impacts of climate change on the flood risks.
- Pursue, if relevant, site design and stormwater management that reduces the impact of flooding and minimises any risk to the community. Any improvements that can be made to reduce flood risk will benefit the community.
- Ensure workers and people using the site during and after the upgrades are aware of the flood risk, for example through site inductions and by using signage.
- Consider closing the worksite and securing all materials and equipment prior to the start of the working day if there is a risk of flooding, on receipt of advice from the Bureau of Meteorology (BoM), or when other evidence leads to an expectation of flooding. During site works, check the BoM website prior to start of the workday for any Weather Warnings or Severe Thunderstorm Warnings likely to lead to flooding.
- Develop an appropriate emergency plan to assist in being prepared for, responding to and recovering from flooding (and other relevant hazards). The NSW SES has a template which can assist in this process: http://www.sesemergencyplan.com.au/.

In addition to the above, SES also typically request that if the construction phase of the upgrades causes disruption to the operation of local roads, this may impact the ability for emergency vehicles to use these routes. The NSW SES requests that notification be provided where there are likely to be significant delays in the operation of the roads affected by the upgrades.

5.2 Consultation Requirements under CPP

The Byron Community Participation Plan does not prescribe a requirement for broad community consultation. For significant, controversial or highly complex projects, BSC may notify and exhibit the REF before it is finalised and approved by Council.

5.3 Additional Consultation and Notification Requirements

The following consultation and notification are proposed for the Activity:

- The appointed contractor and BSC will develop a communications strategy to provide clear, accessible and timely information about the construction process to the community, local businesses and affected stakeholder groups.
- Notification of any receivers within 100 m of the works (letterbox drop or equivalent) is recommended including the anticipated duration of such works at least two weeks prior to undertaking the works. All notified receivers will be provided with a contact telephone number for any complaints/ updates associated with the proposed works.
- Adjacent receivers with potential to experience impacts associated with dust and other airborne particles due to works are to be notified of any potential air quality impacts prior to undertaking the works.

- Any traffic/parking restriction notifications will be issued by Council at least two weeks prior to commencement of works. Notification will be made via Council website and potable variable messages sign (VMS) located along the affected public road/parking areas.
- Given the potential for flood afflux on private land at Kendal Street, Shirely Lane and land owned by TfNSW (rail corridor), it is therefore recommended that Council notify affected landholders regarding any afflux impacts resulting from the proposed drainage upgrades.

6 Mitigation Measures

Environmental safeguards and management measures outlined in this REF are recommended to be implemented during the works. The safeguards and management measures will minimise any potential adverse impacts arising from the proposed works on the surrounding environment.

The safeguards and management measures are summarised at Table 6.1.

Table 6.1 | Mitigation Measures

Safeguards/Mitigation Measures
1. General
• *A CEMP is to be prepared prior to any construction works commencing. The CEMP is to include the mitigation measures and management plans listed under this Table.* • *The NSW SES requests that notification be provided where there are likely to be significant delays in the operation of the roads affected by the upgrades.*
2. Ancillary Facility – Temporary use of Former South Byron Sewer Treatment Plant (Lot 2/-/DP573835)
• *A Traffic Control Plan (TCP) shall be prepared by a qualified person and implemented for the site use in accordance with the requirements of SafeWork NSW. Licensed traffic controllers will assist with traffic control. This is required to ensure safe vehicle movements at the site entry off Broken Head Road. The plan will also need to address safe movement of pedestrians using the adjoining shared path and interacting with trucks and vehicles accessing the site.* • *Where practical, trucks and vehicles entering the site shall be minimised between 7.30am 9.30am.* • *Continued safe public access for pedestrians using the adjoining shared path shall be maintained during site use.* • *The project Acid Sulfate Soils Management Plan shall include use of the site for treatment of acid sulfate soil.* • *The project Construction Air Quality Management Plan shall address potential impacts associated with air quality on the adjoining holiday park.* • *Site management will incorporate best management erosion and sediment control practices such as those found in the Landcom 2004 Blue Book on erosion and sediment control and Safe Work Australia 'Excavation Code of Practice (2018).* • *No additional tree/native vegetation clearing is permitted.* • *Tree protection measures shall be implemented in accordance with Australian Standard AS 4970-2009 'Protection of Trees on Development Sites'* • *WIRES are to be contacted on 1300 094 737 in the unlikely event that fauna become harmed during works.* • *The adjoining holiday park shall be notified and provided details of the temporary use and contact number for updates/complaints.* • *A fire extinguisher is to be kept on site throughout the proposed Activity.* • *In the event of a fire, 000 is to be called immediately.*
3. Ancillary Approvals

Safeguards/Mitigation Measures
The following ancillary approvals may be required for the proposed Activity: • *Approval under Part 3 of the WM Act is required to construct and use a water supply works including approval for construction dewatering to construct and use a work which takes water from a construction site, including water entering the site from an aquifer (groundwater source) and surface water flowing into the site. Examples of water supply works for construction dewatering include water pumps, water bores, drainage channels and pipes.*
4. Landform, Geology and Soils
• *Site management will incorporate best management erosion and sediment control practices such as those found in the Landcom 2004 Blue Book on erosion and sediment control and Safe Work Australia 'Excavation Code of Practice (2018).* • *Overburden and stockpiles will be placed in the form of a bund, a minimum of 10 m away from drainage lines and waterways where necessary to reduce surface water entering stockpiles.* • *All erosion control devices will be visually inspected weekly and before forecast rain events to ensure effectiveness as well as after each rainfall event.* • *Excavated areas will be stabilised as soon as practically possible.*
5. Contaminated Land and Acid Sulfate Soils
• *Spill kits maintained onsite during the construction period and employees trained how to use spill kits.* • *CEMP is to contain suitable unexpected finds protocols and waste handling procedures for managing potentially contaminated soils. This should include, as a minimum:* • *Works to proceed with caution and cease immediately if any potential source of contamination are encountered during development, then works should be halted until confirmation of the presence of contamination is undertaken. In instances where contamination is confirmed, remediation in accordance with an approved Remediation Action Plan will be required.* • *Any excess spoil to be disposed offsite from the proposed works will need to be classified pursuant to the EPA Waste Classification Guidelines. Relevant permits may need to be obtained for such waste in accordance with the POEO Act 1997 and the relevant guidelines.* • *An Acid Sulfate Soils Management Plan shall be prepared for the works in accordance with the Acid Sulfate Soils Manual. The location of any areas for treatment and stockpiling of excavated ASS materials shall be approved in writing by Council following Council review of the Acid Sulfate Soils Management Plan. The plan will include the temporary use of the former South Byron Sewer Treatment Plant (Lot 2/-/DP573835) for stockpiling and treatment of potential acid sulfate material generated from the works.* • *A project specific HMSR Management Plan shall be prepared and will include a description of the contamination and the activities to be conducted to further define the HMSRs as part of the works, management options proposed regarding stockpiling, testing, reuse and/or disposal of HMSR material to be conducted, along with relevant waste tracking and disposal options.* • *Stockpiling of material is permitted at an existing BSC approved temporary stockpile location and is required to be consistent with the works specific HMSR Management Plan prepared for the Activity.*

Safeguards/Mitigation Measures	
6.	**Water Quality and Hydrology**

	• *Best management erosion and sediment control practices such as those found in the Department of Housing's "Blue Book (4th Edition) shall be implemented for the works. This will include of use of off-stream sediment control in combination with instream devices such as silt booms.*
	• *Machinery is appropriately cleaned, degreased and serviced prior to use at the site.*
	• *Spill kits maintained onsite during the construction period and employees trained how to use spill kits.*
	• *Visual monitoring of local drainage systems within the site is to be undertaken during rainfall events to identify any potential spills or deficient controls.*
	• *Contractors and BSC shall monitor weather forecasts daily and review construction activities to ensure that:*
	  ○ *Works are scheduled and planned to consider significant rain/flood events; and*
	  ○ *The works do not negatively impact emergency evacuation routes where possible.*
	• *Dewatering activities will be undertaken in accordance with the EPA endorsed Dewatering Management Plan*
	  Note: Construction dewatering requires a water supply works approval under the Water Management Act 2000
	• *The EPA has requested that during any dewatering activities Council provides weekly reports, which include the following information:*
	  ○ *Daily flow/volume data.*
	  ○ *All daily water testing results and the weekly PFAS sample results.*
	  ○ *The report must highlight any results received that do not comply with the water quality objectives identified in the DMP (Table 7: On-Site Groundwater Discharge Objectives and Criteria).*
	  ○ *Confirmation of what actions were taken in response to any non compliances.*
	  ○ *If there are any non compliances with the water quality objectives (DMP Table 7), any issues with the collection of this data or with laboratory turnaround times please advise the EPA as soon as Council becomes aware.*
	• *Given the potential for flood afflux on private land at Kendal Street, Shirely Lane and land owned by TfNSW (rail corridor), it is therefore recommended that Council notify affected landholders regarding any afflux impacts resulting from the proposed drainage upgrades.*
	• *It is recommended that BSC further develop mitigation strategies to address potential afflux impacts resulting from the town centre gravity drainage works.*

7.	**Biodiversity**
	• *Prior to removal of any mature street trees a pre-clearing survey must be completed by an ecologist or spotter-catcher prior to vegetation clearance in the event that fauna is present. The ecologist or spotter-catcher shall advise the project superintendent on any measures necessary to avoid any active nests/dreys or other features.* • *For all tree removal completed, material shall be chipped and mulch used in landscaping or removed from site as last resort if necessary.* • *Weed hygiene measures must be practiced for the duration of the works to ensure propagules are not spread during clearing works.*

Safeguards/Mitigation Measures
• *WIRES are to be contacted on 1300 094 737 in the unlikely event that fauna become harmed during works.* • *Retained mature street trees proximate to works which are not subject for removal are to be clearly fenced and managed during construction activities in accordance with the Australian Standard 'AS 4970 Protection of Trees on Development Sites'. The contractor shall engage a qualified arborist to ensure all retained trees are adequately protected.*
8. **Aboriginal Heritage**
• *The* CEMP is to include Byron Shire Council's Unexpected Finds and Stop Work Protocols (provided at Appendix F of the REF).
9. Historic Heritage
• *In the event of an unexpected find, works will not recommence until signed authority is received from BSC and any necessary permits and/or approvals are obtained.* • *The Construction Contractor is to ensure all staff on site are aware of the unexpected finds protocol contained in the CEMP and the location of any adjoining heritage sites.*
10. Noise and Vibration

• *It is recommended that Construction Noise and Vibration Management Plan is prepared for the construction phase of the Activity.*
• *It is recommended that:*
  o *High noise generating activities is not carried out in continuous period that exceed three hours each, with a minimum respite period of one hour between each period.*
  o *High noise generating activities should be restricted to within the hours of 9am and 4pm Monday to Friday.*
• *Best practice mitigation and management measures would be used to minimise construction noise impacts at sensitive receivers; guided by the EPA's Interim Construction Noise Guidelines*
• *Construction working hours will be restricted to the normal daytime construction hours as specified by the EPA being:*
  o *7 am to 6 pm Monday to Friday.*
  o *8 am to 1 pm Saturdays.*
  o *No works will be undertaken on Sundays or Public Holidays.*
• *Works may be undertaken outside these hours where:*
  o *The delivery of materials is required outside these hours;*
  o *It is required in an emergency to avoid the loss of life, damage to property and/or to prevent environmental harm;*
  o *Receivers likely to be affected by the works are notified in writing of the timing and duration of these works at least 24 hours prior to the commencement of works (except for emergency work).; and*
  o *Variation is approved in advance in writing by the Regulatory Authority.*
• *Notification of any receivers within 100 m of the works (letterbox drop or equivalent) is recommended including the anticipated duration of such works at least two weeks prior to*

Safeguards/Mitigation Measures
undertaking the works. All notified receivers will be provided with a contact telephone number for any complaints/ updates associated with the proposed works. • *Noise complaints will be recorded, including suitable identification/ description of the noise source (e.g. continual/ impulsive) and general location of the complaint. Any noise complaints will be investigated and actioned as required.* • *All employees, contractors and subcontractors are to receive an environmental induction. The induction must at least include:* o *All relevant project-specific and standard noise mitigation measures.* o *Permissible hours of work.* o *Any limitations on high noise generating activities.* o *Location of nearest receivers.* o *Designated loading/ unloading areas and procedures.* o *Escalation protocols for noise complaints.* • *Building dilapidation reports shall be prepared for any buildings or structures within 30m of the works alignments.*
11. Air Quality
• *A Construction Air Quality Management Plan shall be prepared for the works.* • *Dust screen fencing (1.8m) will be located between the works areas and shopfronts during construction to minimise dust and other materials impacting local businesses.* • *Adjacent receivers with potential to experience impacts associated with dust and other airborne particles due to works are to be notified of any potential air quality impacts prior to undertaking the works. The notified receivers will be provided with a contact telephone number for any complaints/ updates associated with the proposed works.* • *It is recommended that during forecasted strong wind periods:* o *All dust generating surfaces are wetted down and/or covered; and* o *Dust screens are temporarily removed to prevent fencing being blown into nearby buildings* • *Vehicles and vessels transporting spoil, waste or other materials that may produce odours or dust are to be covered during transportation.* • *Disturbed surfaces and stockpiles will be wetted down or covered with geotextile fabric during high wind conditions to prevent significant dust generation, as required.* • *All plant and machinery will be serviced at regular intervals to minimise exhaust emissions.* • *Vehicles will be switched off when not in use.*
12. Traffic *and Access*
• *A Traffic, Access and Public Safety Management Plan shall be developed by the contractor and is to include:* o *Staging plan for completion of the proposed works.* o *Ancillary site layouts reflecting staging of works.* o *Flow of pedestrian and vehicle movements.*

Safeguards/Mitigation Measures
○ *Layout of barriers, walkways, signs and general arrangements to warn and guide traffic around, past, or through a work site or temporary hazard.* ○ *Management of mobile work and traffic situations.* ○ *Any proposed detours and associated plans (if required).* ○ *Key bus operators and local schools likely to be impacted by traffic delays and the notification proposed to these groups to support the works.* • *A Traffic Control Plan (TCP) shall be prepared by a qualified person and implemented for the works in accordance with the requirements of SafeWork NSW. Licensed traffic controllers will assist with traffic control during the works.* • *Where possible, current traffic movements will be maintained during the works.* • *Regard to public safety will be maintained at all times and appropriate signage will be erected and details will be confirmed by appropriate Council personnel responsible for site safety during the Activity.* • *Any traffic delay notifications will be issued by Council at least two weeks prior to commencement of works. Notification will be made via Council website and potable variable messages sign (VMS) located along the affected public road.*
13. Waste and Chemical Management
• *Working areas are to be maintained, kept free of rubbish and cleaned up at the end of each working day.* • *Waste is to be temporarily stockpiled at the site and transported to a Council waste handling facility.* • *Where practical excavated road and spoil materials shall be stockpiled at a BSC approved site and used in other BSC projects in accordance with the excavated public road material order 2014 and applicable planning and waste legislation* • *Waste material with no reuse purpose shall be transported to a licensed waste facility in accordance with the provisions of the applicable planning and waste legislation.* • *Work to be undertaken in accordance with the Protection of the Environment Operations (Waste) Regulation 2014.* • *Spoil material generated from the works will be managed in accordance with the HMSR Management Plan prepared for the works.* • *The contractor will provide waste disposal certificates to BSC regarding all waste generated from the Activity.*
14. Visual Amenity & Landscape
• *The works areas will be kept tidy throughout the works period.* • *New landscaping treatments including gardens and street trees should be undertaken to be consistent with the intent of the Byron Bay Town Centre Masterplan.*
15. Socio-economic
• *The appointed contractor and BSC will develop a communications strategy to provide clear, accessible and timely information about the construction process to the community, local businesses and affected stakeholder groups.*

Safeguards/Mitigation Measures
• *The appointed contractor will work together with BSC to develop a construction staging plan that minimises impacts on local businesses and avoids construction activities within the peak business periods of December and January.* • *The appointed contractor and BSC will implement temporary Wayfinding measures within the town centre to enable customers to locate and support local business operations during the construction phase.* • *Contractors/ workers would be mindful of the needs of the local community.* • *In accordance with the Work Health and Safety Act 2011, workers would be provided with appropriate safety clothing and equipment. Supervisory staff and any visitors to the work area would also be required to wear protective clothing. Works personnel would be provided with or expected to have protective equipment and appropriate training.* • *Prior to undertaking any excavation works all underground services will be clearly located. Any potential services interruptions shall be communicated to the relevant services authorities to enable flow on notifications to any affected services customers.* • *Where feasible BSC shall consider undertaking works at night to minimise impacts on local businesses.* • *Any local businesses and properties potentially disrupted by the works are to be kept notified regularly of the works program and any likely impacts such as noise, dust, access, parking and services outages. All notified receivers will be provided with a contact telephone number for any complaints/ updates associated with the proposed works.* • *It is recommended that Council notify affected landholders regarding any afflux impacts resulting from the proposed drainage upgrades.*
16. Red Imported Fire Ants

• *Prior to the use of materials and equipment that has travelled through or from a biosecurity zone, Project Managers are to ensure that contractors supply the necessary certificates for any of the materials and equipment. The biosecurity zones are shown at the NSW DPI Alert https://www.dpi.nsw.gov.au/dpi/bfs/insect-pests/rifa*
• *Moving fire ant carriers from the fire ant infested area of Queensland into NSW (the Emergency Zone) must:*
  ○ *Follow the requirements as specified for each fire ant carrier in part 2 of the emergency Orderhttps://www.dpi.nsw.gov.au/biosecurity/forms/report-exotic-ants*
  ○ *Obtain an approved biosecurity certificate for fire ant carrier materials.*
  ○ *Complete the record of movement Declaration form prior to the carriers moving into NSW*
• *Moving fire ant carriers out of the NSW fire ant movement control area in South Murwillumbah into the rest of NSW (the Emergency Zone) you must follow the requirements specified in Part 3 of the Emergency Order. https://www.dpi.nsw.gov.au/biosecurity/forms/report-exotic-ants.*
• *If red imported fire ants are suspected at or adjoining the works areas, stop work immediately, notify DPI of the issue and commence the following:*
  ○ *Suspicious sightings of red imported fire ants or their mounds that have been identified within a site must be reported to NSW Department of Primary Industries immediately on 1800 680 244 or via their online form https://www.dpi.nsw.gov.au/biosecurity/forms/report-exotic-ants*
  ○ *If red imported fire ants are suspected, do not disturb the ants or nests and make records of the ants and nest (including photographic record) as outlined in the NSW*

Safeguards/Mitigation Measures
DPI Alert https://www.dpi.nsw.gov.au/biosecurity/forms/report-exotic-ants https://www.dpi.nsw.gov.au/biosecurity/insect-pests/fire-ants • *If red imported fire ants are suspected at or adjoining the works areas, works may not commence until:* o *DPI will work with the National Fire Ants Eradication Program to search the surrounding areas, treat the ants, and stop their spread, at no cost to the owners or occupiers.* o *A temporary requirement to only move certain materials and items off the property under permitted conditions could be put in place while the ants are controlled.* o *The ants are treated and monitored until it is clear they have been eradicated*
17. **Cumulative Impact**
• *It is recommended that BSC and the contractor develop the works schedules to consider any nearby construction projects to minimise any cumulative impacts on local amenities and businesses.*

7 Conclusion

An assessment of relevant legislation and environmental planning instruments has confirmed the proposed Activity is permitted without development consent in accordance with Clause 2.109 and 2.137 of T&I SEPP.

An environmental assessment of the Activity has been undertaken in accordance with Part 5 of the EP&A Act. For this Activity, BSC is both a public authority proponent (EP&A Act s.5.3) and the determining authority (EP&A Act s.5.1). The REF has been prepared in accordance with Section 171 of the EP&A Regulation.

This environmental assessment has also identified the Activity is not a prescribed Activity, and therefore does not require an Environmental Impact Statement (EIS) in accordance with Section 5.7 of the EP&A Act 1979, and is not likely to significantly affect threatened species, and therefore does not require a Species Impact Statement (SIS) in accordance with Section 7.8 of the *Biodiversity Conversation Act 2016*. The Activity is also unlikely to affect Commonwealth land or have an impact on any matters of national environmental significance.

Overall, it is considered that having regard to the relevant tests under the NSW and Commonwealth planning frameworks, the Activity will not result in any significant impacts and should be supported subject to the reasonable and relevant safeguards prescribed in this REF.

8 REF Determination Page

8.1 Author Declaration

This REF provides a true and fair review of the Activity in relation to its likely effects on the environment. It addresses to the authors best attempt possible all matters affecting or likely to affect the environment as a result of the Activity and provides information to determine whether there is likely to be a significant impact on the environment as a result of the Activity.

This REF identifies that significant impacts to the environment are highly unlikely. Together with the identified mitigation methods under this report, these safeguards will ensure appropriate environmental outcomes are achieved when undertaking the proposed Activity.

Assessor Declaration	
Project Name:	BSC Drainage Upgrades – Byron Town Centre
Assessor Name:	Sean Cochran
Position:	Senior Environmental Planner, Planit Consulting
Signature:	
Date	8/10/2025

8.2 Determiner declaration & approval

BSC is required to review the document and determine the Project. By signing below BSC has indicated that it has considered that the project is unlikely to have a significant environmental impact provided the mitigation measures outlined in this REF are followed and therefore an Environmental Impact Statement or a Species Impact Statement is not required.

Determiner declaration & approval	
Determiner Name:	Phillip Holloway
Authority:	Byron Shire Council
Position:	Director Infrastructure Services
Signature:	
Date:	15/10/2025

References

Australian Government, Department of the Environment and Energy, Protected Matters Search Tool, Available at: http://www.environment.gov.au/epbc/protected-matters-searchtool (Accessed: 2024)

ENV (2025) DISPOSAL OPTIONS ASSESSMENT FOR EXTRACTED GROUNDWATER - BYRON SHIRE DRAINAGE UPGRADE, Prepared for BSC.

NSW Environment Protection Authority (2023), Contaminated Lands Register, Available at: http://www.epa.nsw.gov.au/prclmapp/searchregister.aspx (Accessed: 2024)

NSW Office of Environment and Heritage (2023), BioNet ATLAS of NSW wildlife, Available at: http://www.bionet.nsw.gov.au/ (Accessed: 2024)

NSW Office of Environment and Heritage (OEH), Aboriginal Heritage Information System (AHIMS), Available at: http://www.environment.nsw.gov.au/licences/AboriginalHeritageInformationManagementSystem.htm (Accessed: 2024

Heritage NSW, State Heritage Inventory, Available at: https://www.heritage.nsw.gov.au/search-for-heritage/search-for-nsw-heritage/ (Accessed: 2024)

NSW SEED Portal, SEED Mapping Available at: https://www.seed.nsw.gov.au/ Accessed: 2024) `

National Native Title Tribunal Register of Native Title Claims Available at http://www.nntt.gov.au/searchRegApps/NativeTitleRegisters/Pages/Search-Register-of-Native-Title-Claims.aspx Accessed: 2024)