



Statement of Environmental Effects

River Road Foreshore Management – Coastal Protection Works

Version 1.6 – June 2022

Table of Contents

1. Introduction.....	5
1.1 General.....	5
1.2 Project background	5
1.2.1 Emergency response works	12
1.3 Project description	12
1.3.1 Rock revetment infrastructure modification.....	14
1.3.2 Extended sand nourishment activities	15
2. Site context and analysis.....	19
2.1 Site Images	21
3. Matters for consideration.....	28
3.1 State Environmental Planning Policy (Transport and Infrastructure) 2021.....	28
3.2 State Environmental Planning Policy (Resilience and Hazards) 2021	28
3.3 State Environmental Planning Policy (Planning Systems) 2021.....	32
3.4 <i>Biodiversity Conservation Act 2016</i> (NSW).....	33
3.4.1 Assessment against the Biodiversity Offset Scheme entry trigger criteria.....	33
3.4.2 Threatened species impact assessment	34
3.5 <i>Fisheries Management Act 1994</i> (NSW)	35
3.6 <i>Crown Land Management Act 2016</i> (NSW)	36
3.7 <i>National Parks and Wildlife Act 1974</i> (NSW).....	37
3.8 <i>Environmental Planning & Assessment Act 1979</i> (NSW)	37
3.9 <i>Commonwealth Native Title Act 1994</i>	39
3.10 Shoalhaven Local Environment Plan 2014	41
3.10.1 Land Use Zones (SLEP Part 2)	41
3.10.2 Acid Sulfate Soils (SLEP Clause 7.1)	42
3.10.4 Flood planning (SLEP Clause 7.3)	44
3.10.5 Riparian land and watercourses (SLEP Clause 7.6).....	44
3.11 Shoalhaven Development Control Plan.....	45
3.11.1 Chapter 2: General and Environmental Considerations.....	48
3.11.2 G1 – Site Analysis, Sustainable Design & Building Materials	49
3.11.3 G2 – Stormwater Management & Erosion/Sediment Control	50
3.11.4 G3 – Landscaping Design Guidelines	50
3.11.5 G4 – Removal and Amenity of Trees	50
3.11.6 G5 – Threatened Species Impact Assessment.....	51
3.11.7 G6 – Coastal Management Areas	51

3.11.8 G7 – Waste Minimisation and Management Controls	51
3.11.9 G9 – Development on Flood prone Land	51
3.12 Community considerations	52
4. Mitigation measures to minimise impacts on the environment	52
5. Conclusion	58

Table of Figures and Tables

Figure 1 - Locality map.....	5
Figure 2 - Reference line for study area (WRL, 2022)	8
Figure 3 - Study area and management priority (WRL, 2022)	9
Figure 4 - Magryn design revetment alignment, pre-construction background image (Image: Nearmap 4/11/2020)	10
Figure 5 - Magryn design revetment alignment, post-construction background image (Image: Nearmap 30/07/2021)	11
Figure 6 - Temporary sandbag placement (April, 2022)	12
Figure 7 - Proposed concept design solution to ameliorate the end effect erosion (WRL, 2022)	14
Figure 8 - Concept design solution to ameliorate the end effect erosion (WRL, 2022)	15
Figure 9 - Overview of rectification works including sand nourishment undertaken as exempt development	16
Figure 10 - Nourishment design profile for Zone A, Ch 600 to 680 m	16
Figure 11 - Nourishment design Zone B, Ch 680 to 720 m.....	16
Figure 12 - Nourishment design profile for Zone C, Ch 720 to 800 m.....	17
Figure 13 - Concept sand nourishment sources and access	18
Figure 14 – Site mapping	19
Figure 15 - Site showing approx. location of works as completed per DA19/1910.....	20
Figure 16 - Updated area context map approximation site for construction rectification works and adjacent sand nourishment area	20
Figure 17 - Resilience and Hazards SEPP mapped areas	30
Figure 18 - Biodiversity Values Map and Threshold Tool (BMAT) test report clip	35
Figure 19 - AHIMS report	40
Figure 20 - Land use zones relative to the proposal	41
Figure 21 - Acid Sulfate Soils relative to the proposal	42
Figure 22 - Excerpt from ENSA 2019 letter report.....	43
Figure 23 - Heritage mapping.....	49

Table 1 - Recommended management options (refer to figure 2 for chainage references)	13
Table 2 - Applicable State Environmental Planning Policies.....	28
Table 3 - Coastal Environment Area - Resilience and Hazards SEPP.....	30
Table 4 - Coastal use area - Resilience and Hazards SEPP	32
Table 5 - EP&A Act s4.15 Matters for consideration checklist	38
Table 6 - Shoalhaven Development Control Plan (DCP) Checklist.....	45
Table 7 - Environmental risk mitigation actions	52

Supporting Documents

Document	Issue	Dated	Prepared By	Attachment Reference
Coastal Management Advice: 68 – 86 River Road, Shoalhaven Heads		February 2022	Water Research Laboratory (WRL) TR 2021/24 – M J Blacka	A
River Road, Shoalhaven Heads Revetment Modification Works – Technical Specification	Report	May 2022	Royal HaskoningDHV	B
DA19/1910 Determination		31/03/2020	Shoalhaven City Council	C
DA19/1910 Approved Plans		September 2018	Magryn	D
Potential Acid Sulfate Soil Assessment	(letter report)	18/7/2019	ENSA (Environment & Natural Resource Solutions)	E
Flora and Fauna Assessment	V1.0	28/06/2019	Technical Services, Shoalhaven City Council	F
Asbestos Management Plan	R2	13/06/2019	Opterra	G
Asbestos contamination report – clearance certificate	(letter report)	31/05/2019	Opterra	H
Review of River Road Foreshore, Shoalhaven Heads: Assessment of Coastal Management Options Report	(letter report)	15/02/2018	Manly Hydraulics Laboratory(MHL)	I
River Road Foreshore, Shoalhaven Heads: Assessment of Coastal Management Options	Final Draft	7/08/2017	UNSW Water Research Laboratory (WRL)	J

1. Introduction

1.1 General

This Statement of Environmental Effects (SOEE) has been prepared by Environmental Services, Shoalhaven City Council to support a Development Application (DA through NSW Planning Portal) for works involving modification to existing coastal protection infrastructure at River Road, Shoalhaven Heads (Figure 1). This SOEE also inclusively will serve to assist Council in the evaluation of potential environmental impacts and define the approvals pathway for associated extended sand nourishment works, which are planned to commence concurrently as Exempt Development.

The purpose of this SOEE is to address the likely impacts of the proposed works on the environment in accordance with the requirement of the NSW *Environmental Planning & Assessment Act 1979*.

In 2019, Shoalhaven City Council prepared a SOEE to support the development of the now existing coastal protection infrastructure (DA19/1910). Modification to this infrastructure is now proposed, which is to progress as a new Development Application. The SOEE applicable to the proposed works makes reference to the existing coastal protection infrastructure due to corresponding and consistent elements being evident across both.



Figure 1 - Locality map

1.2 Project background

In June 2016, the northern estuary foreshore adjacent to River Road at Shoalhaven Heads was impacted on by coastal erosion during a significant storm event. Shoalhaven City Council engaged the Water Research Laboratory (WRL) of the School of Civil and Environmental Engineering at UNSW (Sydney) to assess the immediate erosion risk levels along the area

between Jerry Bailey Road in the west and the boat ramp in the east, to provide recommendations for managing the impacts from the storm. WRL's assessment and recommendations were synthesised in a Technical Report (Blacka & Coghlan, 2017), along with a corresponding review completed by Manly Hydraulics Laboratory (MHL, 2018).

This initial assessment (Blacka & Coghlan, 2017), which provided a risk prioritisation of the site, identified a stretch of approximately 170 metres where the resulting erosion scarp and embankment was deemed to be a high risk in that it could become geotechnically unstable if further erosion of the embankment toe was to occur. Recommendations for managing the site were proposed by WRL, which included concept design for a rock revetment to provide immediate protection to the toe of the embankment between Renown Avenue and 66 River Road. Other short to medium term recommendations were also made, which included improving access, nourishment of a larger stretch of foreshore, revegetation works, and improvements to the management of stormwater where it crossed the foreshore. Council subsequently engaged MHL to provide a technical review of the recommendations, which largely concurred with WRL's findings.

Detailed design of the management works was completed by Magryn during the 2018/19 period, and construction of the resulting design including rock revetment, foreshore access steps and sand nourishment was completed in February of 2021 through the Restart NSW funding program RNSW1279, as project titled 'Shoalhaven Heads River Road Foreshore Precinct Rehabilitation'. These works were completed as per DA19/1910. DA determination and approved plans (attached) included:

- a) Rock revetment construction and peer review amendments;
- b) Stormwater remediation works;
- c) New access stairs and a segment of boardwalk within the rock revetment;
- d) Undertaking beach scraping/nourishment works, supplemented from dry-notch maintenance; and;
- e) Undertaking site rehabilitation/revegetation works as per the plan.

Further erosion to areas east of the rock revetment has occurred since completion of these works, with a small area of exacerbated erosion evident immediately adjacent to the eastern end of the revetment. Following a meeting with community representatives, Council sought recommendations to mitigate the impacts of this subsequent erosion in the formulation of an environmental assessment to determine an appropriate engineering solution. Water Research Laboratory were engaged to provide a design solution to this issue in relation to this erosion over the study area defined by Figure 2 and Figure 3, which is detailed in Attachment A *Coastal Management Advice: 68 – 86 River Road, Shoalhaven Heads* (WRL, 2022). RHDHV were then subsequently engaged to provide a peer-review of the proposed amelioration solution.

Further erosion of areas directly to the east of the constructed rock revetment infrastructure have occurred as a result of the discrepancy from the initial design. The exacerbated erosion issues immediately adjacent to the eastern end of the revetment are known as "end effects".

It is apparent from the original revetment design and cross section drawing that the final 5 to 15 metres of the revetment at the eastern end was to deviate slightly landward (north) in alignment, with the structure to become progressively tapered into the natural bank slope. Only the upper section of the revetment armour above approximately 2 metres AHD was to be exposed above the natural bank in this area (Figure 4). In comparison to the intended design, Figure 5 **Error! Reference source not found.** shows that the alignment of the as-

constructed revetment has not deviated landward. The as constructed revetment is approximately 5 metres seaward of the intended (as designed) alignment. This deviation from the design specifications is consistent with site inspection observations.

As detailed in Attachment A (WRL, 2022), the area of foreshore immediately adjacent to the eastern end of the rock revetment (Ch 720 to 750 m) has experienced scouring, which is primarily the result of swash interacting with the revetment end in this area. Given the interaction of swash with the toe and end of the revetment at higher stages of the tide, the changes (erosion) immediately east of the revetment are likely to be part of the foreshore re-adjusting alignment to form a new equilibrium due to the construction of the revetment (the disturbance). While there is a buffer of land within the reserve that separates the private properties from the intertidal zone, the ultimate extent of realignment and final position of the erosion scarp is not definite. The ongoing process may continue to degrade the condition of the foreshore in this area, and the erosion may cause out-flanking issues for the revetment end.



Figure 2 - Reference line for study area (WRL, 2022)



Figure 3 - Study area and management priority (WRL, 2022)



Figure 4 - Magryn design revetment alignment, pre-construction background image (Image: Nearmap 4/11/2020)

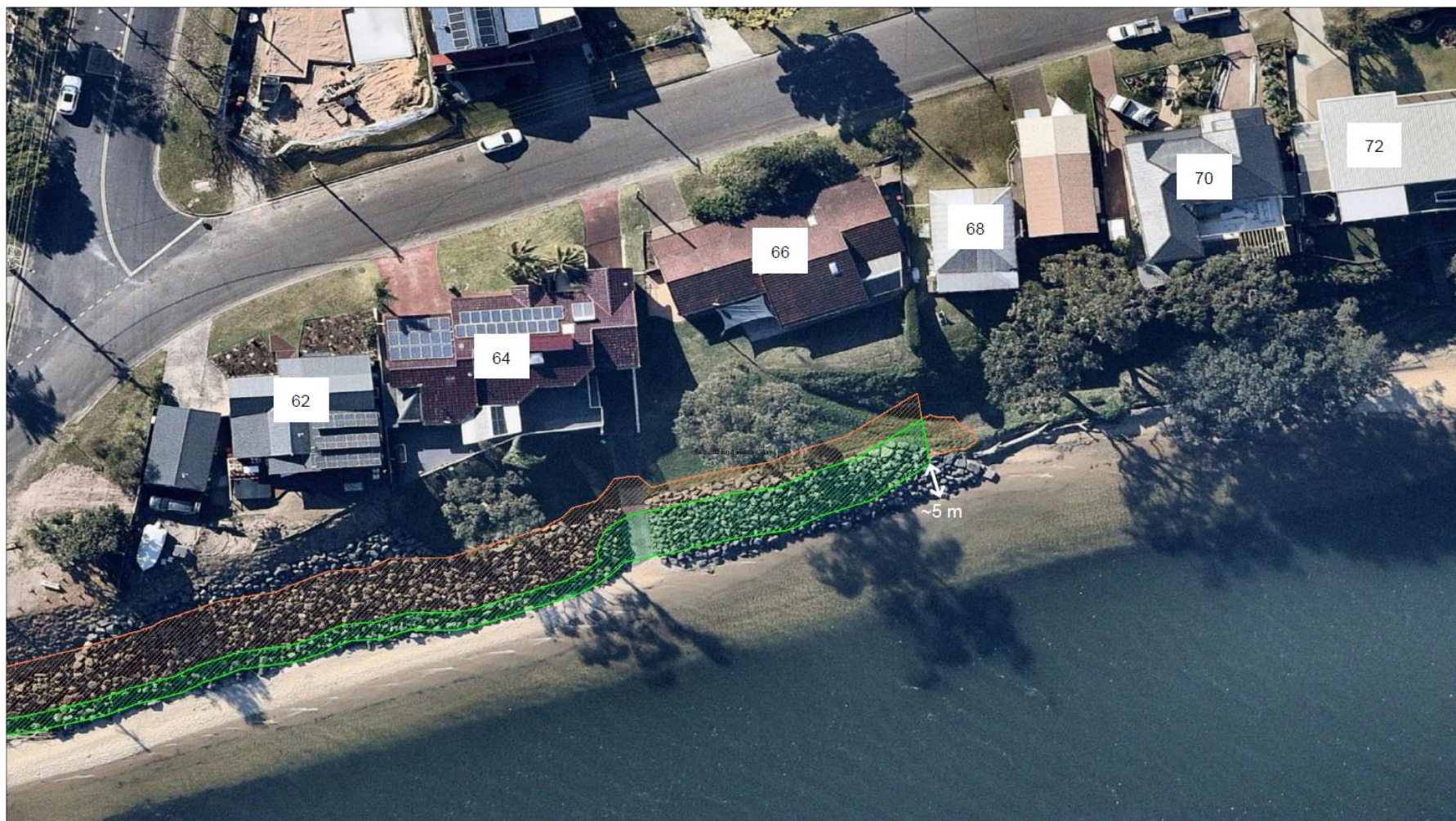


Figure 5 - Magryn design revetment alignment, post-construction background image (Image: Nearmap 30/07/2021)

1.2.1 Emergency response works

In April 2022, Council implemented priority emergency works in response to the immediate hazards resulting from coastal erosion. These works were completed as Exempt Development under *part 2.3 (3) of the State Environmental Planning Policy (Resilience and Hazards) 2021* (hereafter referred to as Resilience and Hazards SEPP) as addressed in Section 3.2. In consultation with NSW DPI fisheries and DPE Crown Land, works proceeded under Fisheries Permit PN22/159 to allow the placement of sandbags for a period of not more than 90 days.

The works involved the placement for sand filled bags around an at-risk mature banksia tree along the foreshore, which included back filling with marine sands around exposed tree roots to protect subject trees to be retained (Figure 6). These works enabled the stability function of the mature banksia to be continued until the proposed works could occur. Sand for these works was sourced from Shoalhaven Heads beach and tracked to site.



Figure 6 - Temporary sandbag placement (April 2022)

1.3 Project description

The proposed works are inclusive of the following foreshore management activities:

1. Modification to the eastern end of the existing rock revetment structure to mitigate end effects as per Section [1.3.1 Rock revetment infrastructure modification](#).
2. Sand nourishment works and reprofiling of erosion scarp extending from the eastern end of the existing rock revetment, up to and including the foreshore area adjacent to the shared user path and the River Road boat ramp infrastructure. As per Section [1.3.2 Extended sand nourishment activities](#).
3. The sourcing of marine sands from Seven Mile Beach utilising heavy plant machinery to stock pile and then transport material to the River Road foreshore

area, and beach scraping or import of material as described in section 1.3.2.1 Sand Nourishment concept works plan.

4. Stabilisation and ongoing monitoring and management utilising best practice revegetation techniques and other erosion and sediment controls as defined by the mitigation measures for Coastal landform impacts in section 4.

The site is defined by the area described in Section 2 [Site context and analysis](#).

The proposed works are to be implemented to maintain beach amenity, address potential public safety considerations, and mitigate risk of further environmental erosion impact on the site.

Table 1 provides an outline of development works from Chainage 680 m to 950 m. The development works will also include sand nourishment adjacent to the Shared User Path located to Chainage 1050 as shown in Figure 2.

Table 1 - Recommended management options (refer to figure 2 for chainage references)

Foreshore management zone	Recommended management approach ¹
Ch 680 - 720 m	<u>Now:</u> Modify this section of rock revetment including: - Temporarily remove rock armour (primary and secondary) and geotextile underlayer - Re-align and profile lower section of earth bank to a slope of 1V:1.5H - Replace geotextile, secondary armour and a single layer of primary armour only, to a maximum crest height of 4 m AHD (adjacent to private boat ramp) and reducing to level of natural ground at the eastern end - Place excess/excavated soil onto current erosion scarp at eastern end of rock revetment, burying end of revetment within bank alignment if possible Nourish the intertidal area of beach to elevate it to a consistent longshore level (at least 1.1 m AHD) against revetment toe, per current level of beach areas further to the west.
Ch 720 - 800 m	<u>Now:</u> Nourish the intertidal section of beach in this localised area to achieve a more suitable beach volume, including re-building of the back-beach erosion scarp to a more stable slope. Stabilise the re-profiled bank surface and crest through revegetation and ground cover. Consider improved pedestrian access controls. <u>Mid-Term Future:</u> Nourish beach more extensively if needed, or if recommended short-term nourishment volumes cannot be achieved.
Ch 800 - 950 m	<u>Now:</u> Re-profile erosion scarp, stabilise surface, revegetate, consider improved access. <u>Mid-Term Future:</u> Nourish beach more extensively if needed.
All sections	Monitor the beach through regular beach profile surveys or UAV surveys and collect photographs: - Quarterly (minimum 6-monthly) - After erosion events

1.3.1 Rock revetment infrastructure modification

The proposed works includes modification to the eastern end of the rock revetment (Ch: 680 – 720 m) as shown in **Error! Reference source not found.** in Figure 8. The modification works to the rock revetment will result in a reduction of occupation space and will reduce current impacts on adjacent stretches of which are not fronted by hard infrastructure i.e., the rock revetment. The scope of works for this component of works entail:

- Temporarily remove rock armour (primary and secondary) and geotextile underlayer
- Re-align and re-profiling the lower section of earth bank to the design slope of 1V:1.5H
- Replace geotextile, secondary armour, and a single layer of primary armour only, to a maximum crest height of 4 metres AHD (adjacent to private boat ramp) and reducing to level of natural ground at the eastern end
- Place excess/excavated soil onto current erosion scarp at eastern end of rock revetment, burying end of revetment within bank alignment if possible
- Nourish the intertidal area of foreshore to elevate it to a consistent longshore level (at least 1.1 metres AHD) against revetment toe, per current levels of areas further to the west.

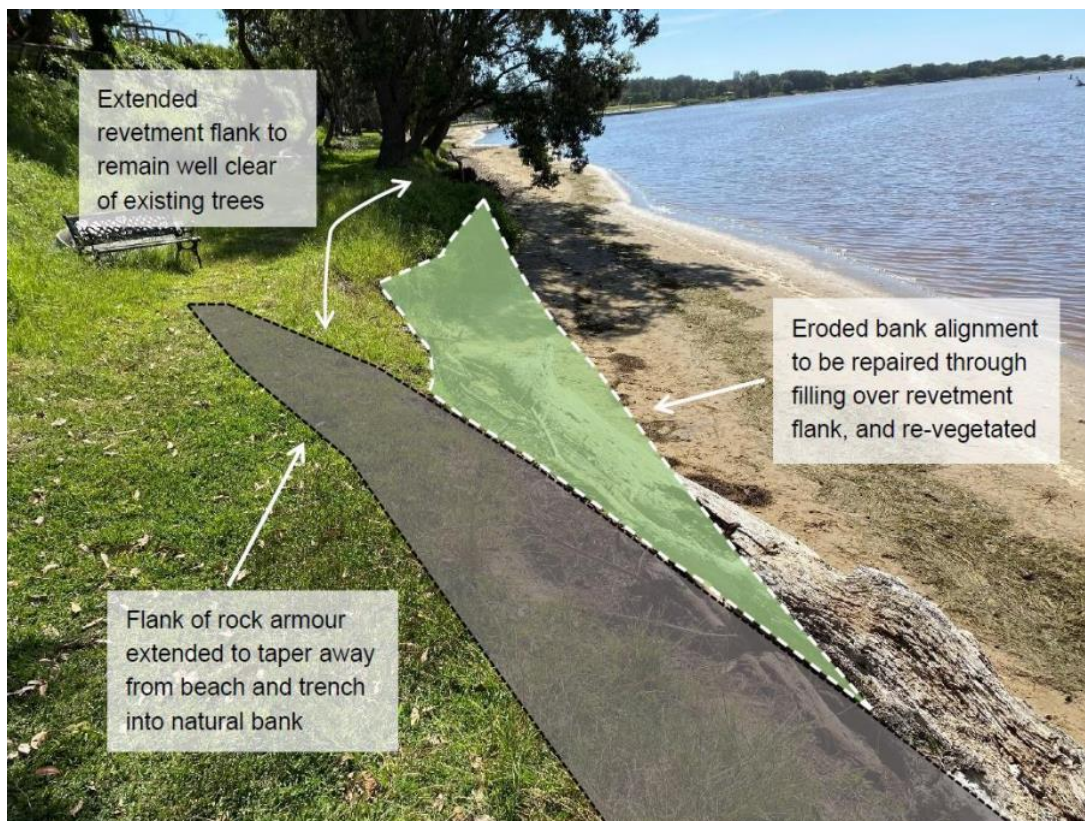


Figure 7 - Proposed concept design solution to ameliorate the end effect erosion (WRL, 2022)



Figure 8 - Concept design solution to ameliorate the end effect erosion (WRL, 2022)

1.3.2 Extended sand nourishment activities

Following the recommendations by WRL (2022), extended sand nourishment works will be undertaken along the adjacent foreshore areas, to occur concurrently with the rock revetment modification works. Sand nourishment activities are to be implemented to mitigate potential public safety risks which exist along the foreshore through protection of at-risk mature vegetation and the protection of Council infrastructure to reduce associated hazards adjacent to the subject shared user path.

These activities will be undertaken as Exempt Development (Emergency coastal protection works by public authority) under Part 2.3 of the *State Environmental Planning Policy (Resilience and Hazards) 2021*. Approval will be sought from DPE Crown Lands in consultation with DPI – Fisheries prior to implementation of these management measures. Details of the proposed sand nourishment, in accordance with chainages shown in Figure 9, are as follows:

- Ch 600 to 680 m (Figure 10):
 - Estimated minimum lineal foreshore nourishment volume 413m³ (5.2 m³/m)
- Ch 680 to 720 m (Figure 11):
 - Estimated minimum lineal foreshore nourishment volume 144m³ (3.6 m³/m)
- Ch 720 to 800 m (Figure 12)
 - Estimated minimum lineal foreshore nourishment volume 772m³ (9.7 m³/m)
- Ch 800 to 1050 m:
 - Foreshore sand nourishment where required.



Figure 9 - Overview of rectification works including sand nourishment undertaken as exempt development

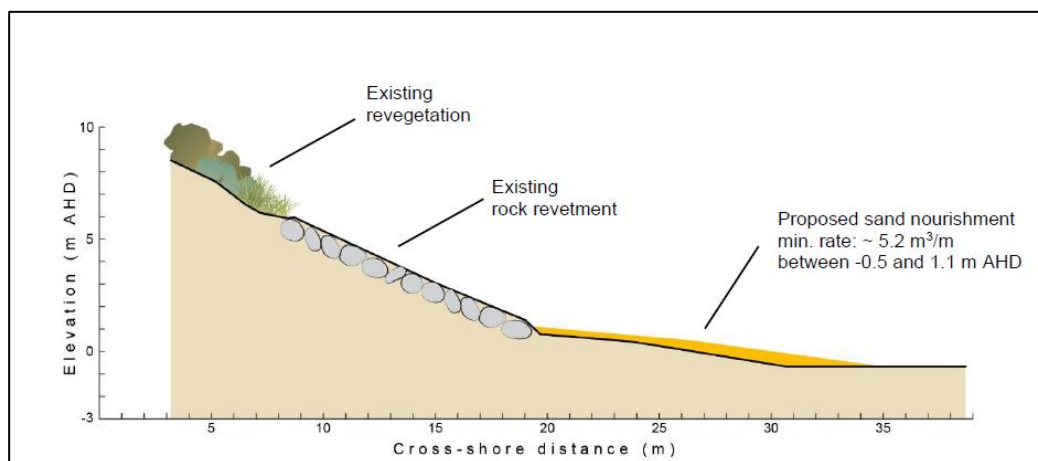


Figure 10 - Nourishment design profile for Zone A, Ch 600 to 680 m

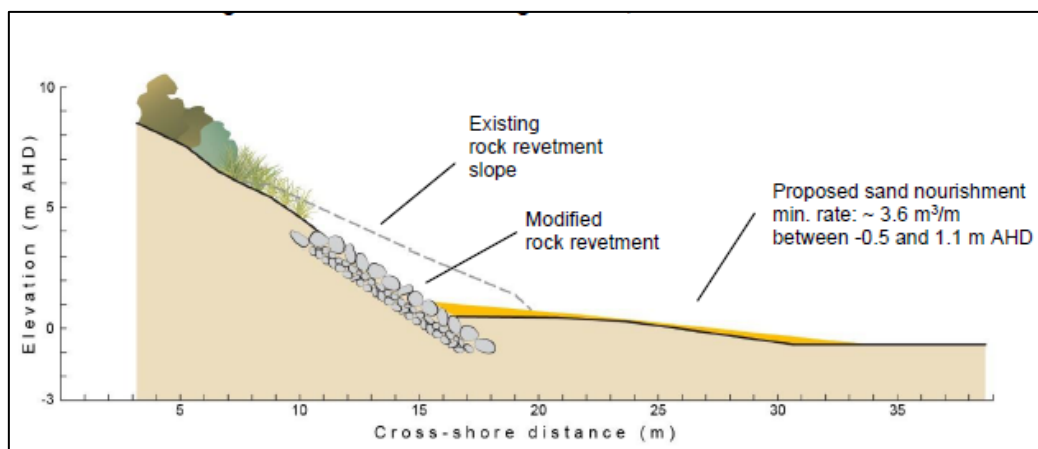


Figure 11 - Nourishment design Zone B, Ch 680 to 720 m

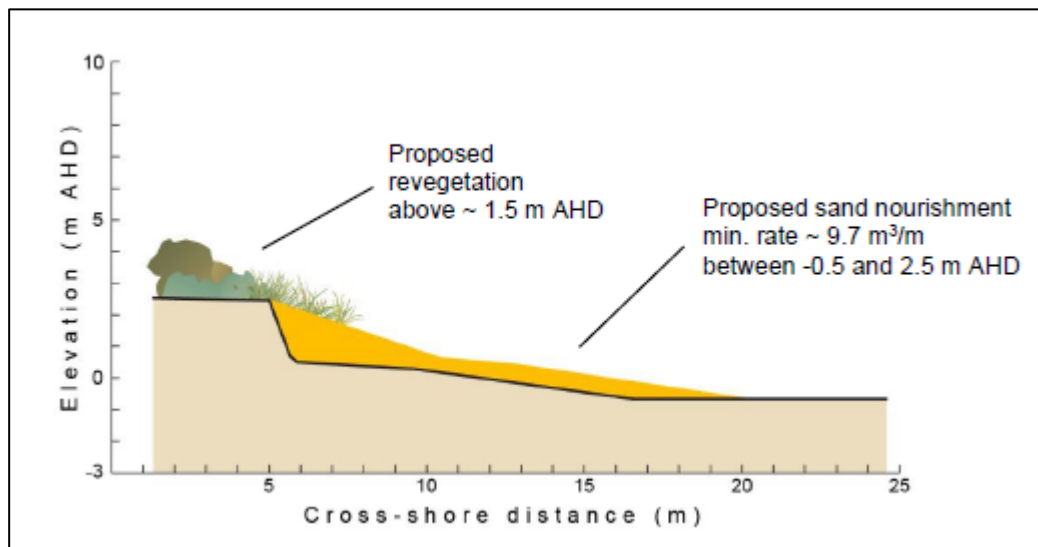


Figure 12 - Nourishment design profile for Zone C, Ch 720 to 800 m

1.3.2.1 Sand Nourishment concept works plan

Marine sand for all nourishment works may be sourced through the following methods as shown in Figure 13:

1. Sourcing or marine sands from Seven Mile beach adjacent to the Shoalhaven River entrance dry notch berm. Material would then be hauled to site via defined vehicle beach access points and along eastern end of river road. Sand for nourishment may sourced from the existing dry notch at Shoalhaven River entrance pending entrance condition at time of works. This method would ensure that sand is of similar grain size and composition to that which currently exists on the river foreshore are. Total haulage movements are to be determined pending specific contractor implementation methodology.
2. Immediate area cut and filled utilising the excess sediment deposits (sand fans) at two locations within the River Road foreshore area using beach scraping technique to replenish adjacent foreshore scarp. The sand that has accumulated at these locations should be re-deposited using Nature Assisted Beach Enhancement (NABE) or beach scraping (above the low water mark) to the foreshore bank this is expected to involve the use of sand that has deposited at the end of the stormwater outlets as highlighted below. The process of sand removal from the sand fans will not be near any seagrass habitat or seagrass populations. This process will reprofile the sand in and around the stormwater outlet to prevent sand movement into the Shoalhaven River. Thus, ensuring a neutral or beneficial impact on the environment and no direct or indirect impacts on seagrass habitat/seagrass populations.
3. Importing of certified Virgin Excavated Natural Material (VENM) sand where needed to meet the required sand nourishment volume



Figure 13 - Concept sand nourishment sources and access

2. Site context and analysis

The site for the proposed works will be defined by the portion of the north-western foreshore of the Shoalhaven River immediately landward of Shoalhaven Heads and traverses approximately 500 metres along the foreshore up to 20 metres wide to include the river foreshore, waterway and vegetated embankment. The site also includes the sand sourcing area and haulage route as shown in Figure 14. The site includes Lot 7005 DP 1075719 (SCC is Trust Manager) and the Shoalhaven River waterway (NSW Crown managed). For contextual reference Figure 15 shows mapping to indicate approximate location of previous development works completed as per DA19/1910. Figure 16 gives and current site context map for construction to indicate proximity of proposed rectification works and adjacent sand nourishment areas.

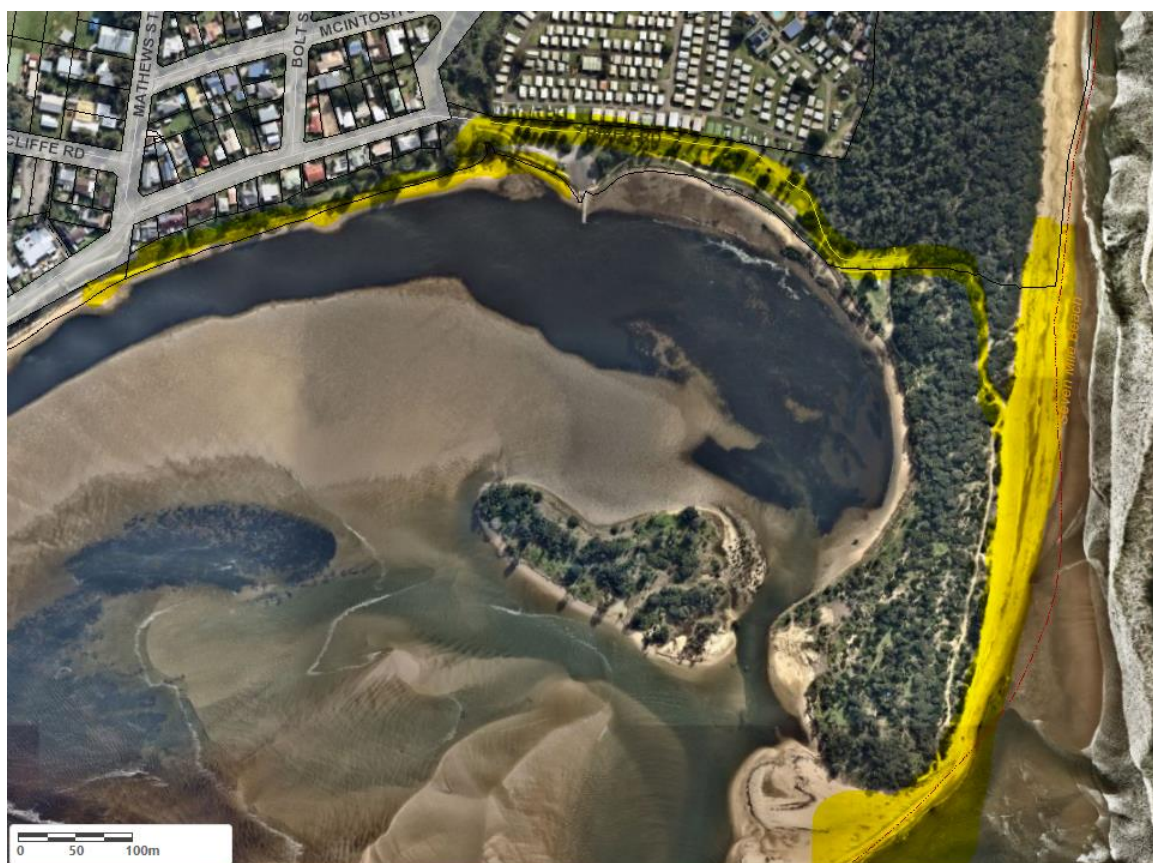


Figure 14 – Site mapping

The foreshore area within the site comprises of a narrow sandy beach existing through the length of the site between the river the embankment and the rock revetment, typically 2 metres to 3 metres wide, becoming slightly wider at the eastern end of the site. The sandy beach slopes gently to shallow sandflats, which are partially exposed at low tide. In some locations, there are pebble deposits over the sandflats. No vegetation occurs on the sandflats. The sandflats give way to a deeper channel, occurring 10-15 metres south of the intertidal area (i.e., away from embankment) and up to 25 metres south where existing storm-water pipes have caused plumes/lobes of sand extending further into the river. The area is heavily utilised for recreational purposes including walking, fishing and other waterway activities. As such, the proposed works will inclusively aim maintain the recreational amenity whilst addressing the evident public safety risks and impacts from coastal erosion hazards.



Figure 15 - Site showing approx. location of works as completed per DA19/1910

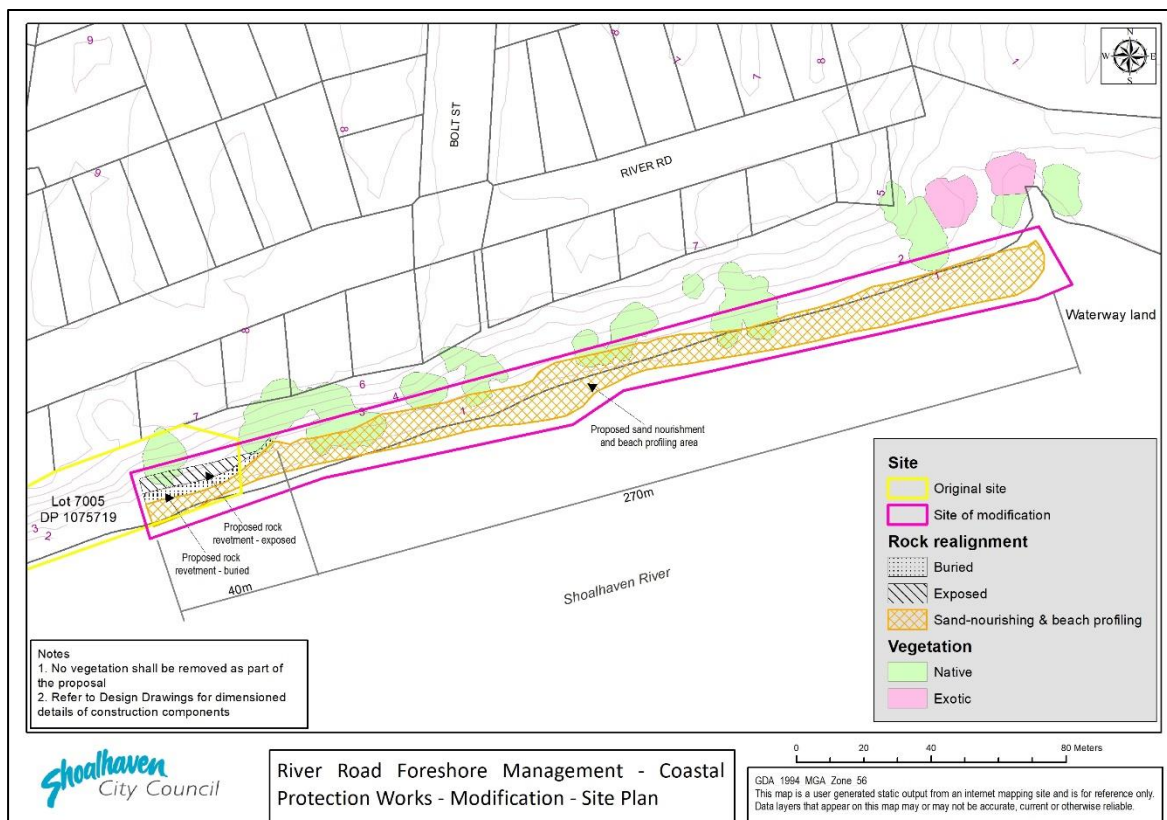


Figure 16 - Updated area context map approximation site for construction rectification works and adjacent sand nourishment area

2.1 Site Images

Pre and post initial rock revetment photographs are illustrated below (Photo 1 – Photo 14).

Photo 1. Site looking east from west end prior to initial revetment construction works (2021)



Photo 2. Site looking west from east end prior to initial revetment construction works (2021)



Photo 3 & 4. Pre and post construction works at eastern end of revetment



Photo 5 & 6. Pre and post construction works facing east along foreshore



Photo 7 & 8. Pre and post construction works facing west along foreshore



Photo 9 & 10. Pre and post construction works showing end effects at eastern end of rock revetment



Photo 11. End effects at eastern end of rock revetment facing east



Photo 12. Zone along shared used path requiring sand nourishment

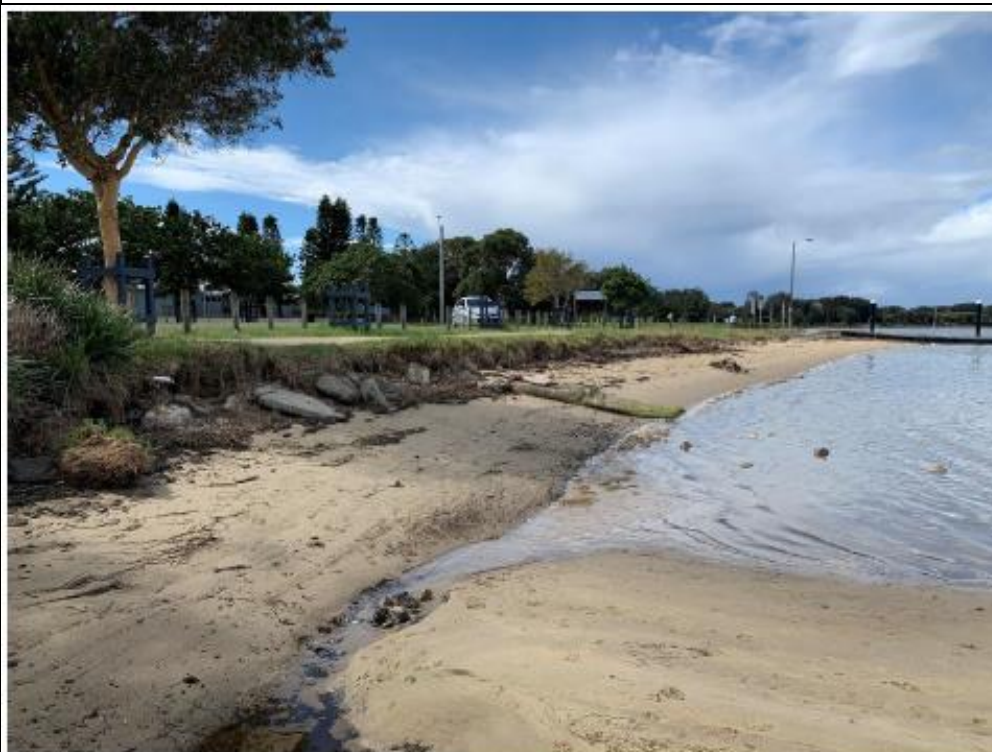


Photo 13 & 14. Zone requiring sand nourishment



3. Matters for consideration

Matters for consideration applicable to the proposed works include the following environmental legislative instruments and associated State Environmental Planning Policies. Table 2 lists the applicable State Environmental Planning Policies and provides a description of the relevance to the works.

Table 2 - Applicable State Environmental Planning Policies

Instrument	Relevance to the proposed works
<i>State Environmental Planning Policy (Resilience and Hazards) 2021</i>	Legislative review for Coastal Protection works addressed in Section 3.2. Potentially contaminated land addressed in section 3.11.1.1. Remediation of asbestos contamination has been undertaken. An Asbestos Management Plan has been developed to manage any further findings/unexpected finds of asbestos (D19/196540).
<i>State Environmental Planning Policy (Transport and Infrastructure) 2021</i>	Addressed in Section 3.1. The Resilience and Hazards SEPP (addressed in Section 3.2) prevails over the Transport and Infrastructure SEPP.
<i>State Environmental Planning Policy (Planning Systems) 2021</i>	Addressed under Section 3.3. Proposal does not meet the criteria for State or Regional Development.

3.1 State Environmental Planning Policy (Transport and Infrastructure) 2021

The Coastal Management SEPP (2018) replaced by the Resilience and Hazards SEPP (2021) prevails over the Transport and Infrastructure SEPP (2021) by virtue of Part 2.1 Section 2.7 (2), which deals with the instrument's relationship to other environmental planning instruments.

Section 2.7 (2) of the Transport and Infrastructure SEPP (2021) provides that:

“Except as provided by subclauses (3) and (4), if there is an inconsistency between a provision of this Policy and any of the following provisions of another environmental planning instrument, the provision of the other instrument prevails to the extent of the inconsistency:

(a) clauses 10, 11 and 19 of State Environmental Planning Policy (Coastal Management) 2018”

The Coastal Management SEPP (2018), replaced by the Resilience and Hazards SEPP (2021), must therefore be considered to determine whether the proposed works can be undertaken as a Part 5 activity under the *Environmental Planning & Assessment Act 1979* or if the works require development consent under Part 4 of the Act.

3.2 State Environmental Planning Policy (Resilience and Hazards) 2021

Chapter 2 (Coastal management) Part 2.1 Section 2.5 (1) of the Resilience and Hazards SEPP (2021) provides that:

“In the event of an inconsistency between this Chapter and another environmental planning instrument, whether made before or after the commencement of this Chapter, this Chapter prevails to the extent of the inconsistency.”

Section 2.16 references coastal protection works as defined by the *Coastal Management Act 2016* to mean:

- (a) *beach nourishment activities or works, and*
- (b) *activities or works to reduce the impact of coastal hazards on land adjacent to tidalwaters, including (but not limited to) seawalls, revetments and groynes.*

Coastal protection works by public authority are defined under part 2.3 (2) which provides:

Development for the purpose of coastal protection works may be carried out on land to which this Chapter applies by or on behalf of a public authority—

- a) *without development consent if the coastal protection works are—*
 - i. *identified in the relevant certified coastal management program, or*
 - ii. *beach nourishment*
 - iii. *the placing of sandbags for a period of not more than 90 days, or*
 - iv. *routine maintenance works or repairs to any existing coastal protection works, or*
- b) *with development consent—in any other case.*

Emergency coastal protection works by public authority under part 2.3 (3) provides:

Development for the purpose of emergency coastal protection works carried out on land to which this Chapter applies is exempt development if it is carried out by or on behalf of a public authority in accordance with a coastal zone emergency action subplan.

Shoalhaven City Councils coastal erosion emergency action Subplan under the Shoalhaven Coastal Zone Management Plan for the beaches in the Shoalhaven (2018), provides that the after-storm actions are likely to include remedial works to restore safe beach access, rehabilitating damaged dune vegetation, beach scraping and/or sand nourishment to restore beach amenity.

Approvals for sand nourishment coastal protection works described in this document will hence proceed as exempt development not applicable to the NSW Planning Development Application. The Development Application will be applicable only to works as described by section [1.3.1 Rock revetment infrastructure modification](#).

The proposed works would be undertaken in an area mapped for the purposes of this SEPP as “Coastal Use Area” and “Coastal Environment Area” (Figure 17). The provisions of the SEPP for these areas relate to development considerations are detailed in Table 3 and Table 4.

Table 3 provides a description of the proposed works activities associated to the conditions of development under *Chapter 2 Part 2.2 section 2.10 – Development on land within the coastal environment area*.



Figure 17 - Resilience and Hazards SEPP mapped areas

Table 3 - Coastal Environment Area - Resilience and Hazards SEPP

Chapter 2 Part 2.2 section 2.10 – Development on land within the coastal environment area	
(1) Development consent must not be granted to development on land that is within the coastal environment area unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the following:	
(a) the integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment,	The purpose of the works is to stabilise and protect the foreshore and riparian area of the Shoalhaven River (within the site boundary). The flora and fauna assessment (Technical Services, Shoalhaven City Council 2019) concluded that the proposed works would not have a significant impact on threatened flora and fauna and that the vegetation and habitat on site would be protected and enhanced in the long-term as a result of the works. A review of contemporary records to confirm the likelihood of impact on the biophysical and ecological environment has confirmed the findings of the 2019 report.
(b) coastal environmental values and natural coastal processes,	Coastal environmental values would be protected and enhanced as per (a) above. The activities will enhance natural coastal processes through nourishment, preservation of native vegetation and the amendment of end effects to improve natural sand replenishment and stabilization processes. This in turn will result in reduced impacts on coastal habitat areas and ecosystems. Coastal processes would therefore be only positively impacted on as result of the works.

(c) the water quality of the marine estate (within the meaning of the Marine Estate Management Act 2014), in particular, the cumulative impacts of the proposed development on any of the sensitive coastal lakes identified in Schedule 1,	Water quality within the estuary would not be adversely impacted on as a result of the proposed works. It is anticipated that future erosion along the embankment within the site will be reduced as a result of the works, thereby reducing existing impacts on water quality. Erosion and sediment control measures are to be implemented and maintained consistent with standards defined in <i>Managing Urban Stormwater: Soils and Construction 4th Edition Landcom, 2004</i> to prevent the entry of sediment into the waterway.
(d) marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms,	Works are not anticipated to result in indirect impacts on marine vegetation, works to be undertaken in consultation with DPI Fisheries under an executed Fisheries Permit. A buffer will be established prior to works (and maintained throughout) to prevent direct impacts to marine vegetation. Sand will not be placed within 5 m to adjacent seagrass beds and no excavation works or vehicle movement activity is to be conducted within the established 5 m buffer zone. Machinery will only track along the sandy foreshore area with excavation and sand nourishment activity to only occur when the sandy foreshore area exposed, to mitigate risk of impacts on aquatic habitat. Stockpiling of material will not be on marine vegetation (saltmarsh, mangrove, seagrass) or riparian vegetation. Stockpiles will be located at least 20 metres away from adjacent water land and managed by standards prescribed in <i>Managing Urban Stormwater: Soils and Construction 4th Edition Landcom, 2004</i> to ensure sediments do not enter the waterway. Refer also to answer (a).
(e) existing public open space and safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,	The foreshore will be made temporarily unavailable for public use while construction works are being undertaken but will be enhanced both in terms of safety and aesthetic values as a result of the works. The foreshore area itself will be 2-3m wider and the embankment and its vegetation will be more stable. The development will result in improved foreshore amenity as described in section 1.3.
(f) Aboriginal cultural heritage, practices and places	No records of Aboriginal sites or places exist in the vicinity of the site. Aboriginal due diligence will be observed throughout works.
(g) the use of the surf zone.	N/A – not in the surf zone

Table 4 provides a description of the proposed works items associated to the conditions of development consent under *Chapter 2 Part 2.2 section 2.11 – Development on land within the coastal use area*.

Table 4 - Coastal use area - Resilience and Hazards SEPP

Chapter 2 Part 2.2 section 2.11 – Development on land within the coastal use area <i>(1) Development consent must not be granted to development on land that is within the coastal use area unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the following:</i>	
(i) existing, safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,	The foreshore will be made temporarily unavailable for public use while construction works are being undertaken but will be enhanced both in terms of safety and aesthetic values as a result of the works. The foreshore area itself will be 2-3 metres wider and the embankment and its vegetation will be more stable.
(ii) overshadowing, wind funnelling and the loss of views from public places to foreshores,	Existing views will be retained. Revegetation will be designed through species selection and positioning to maximise scenic appreciation of the locality, while ensuring adequate vegetative stabilisation of the site and enhancement of the existing Bangalay Sand Forest EEC.
(iii) the visual amenity and scenic qualities of the coast, including coastal headlands,	See (1)(i).
(iv) Aboriginal cultural heritage, practices, and places,	No records of Aboriginal sites or places exist in the vicinity of the site. Aboriginal due diligence will be observed throughout works.
(v) cultural and built environment heritage,	No records for non-indigenous heritage sites exist in the vicinity of the site. Site is not listed in the heritage schedules of the Shoalhaven Local Environment Plan 2014 or on State heritage lists.

3.3 State Environmental Planning Policy (Planning Systems) 2021

The development proposal has been reviewed against the conditions of significant development and significant infrastructure outlined in Schedules 1-6 of the *Planning Systems SEPP (2021)*. The proposal does not involve development of infrastructure to which Schedule 3, 4 or 5 applies, or for any of the purposes listed as significant development in Schedules 1, 2 and 6.

Section 3 of Schedule 6 of the SEPP identifies “Council related development over \$5 million” as Regionally Significant Development.

Preliminary total cost estimate to complete all staged project components including, sand nourishment, modifications to infrastructure and foreshore revegetation work is

\$297,000. The cost estimate specific to the DA (total cost excluding Exempt Development works) is estimated at \$105,000 (inclusive of a 40% contingency) as detailed by WRL (2022). The proposal therefore does not qualify as Council related development over \$5 million, and as such Section 3 of Schedule 6 of the SEPP does not apply.

Section 8A of Schedule 6 of the SEPP identifies “Certain coastal protection works” as Regionally Significant Development. This applies to *“development on land within the coastal zone that is directly adjacent to, or is under the waters of, the open ocean, the entrance to an estuary or the entrance to a coastal lake that is open to the ocean”*

The site lies within the Shoalhaven River estuary and includes areas adjacent to the open ocean and entrance to the Shoalhaven River.

The proposal is therefore considered Regionally Significant Development.

3.4 Biodiversity Conservation Act 2016 (NSW)

The purpose of the Biodiversity Conservation Act is to maintain a healthy, productive, and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development. The Act establishes a framework for assessing and offsetting impacts on biodiversity from proposed works, including the introduction of the Biodiversity Offset Scheme with associated entry triggers.

Section 7.2 of the *Biodiversity Conservation Act 2016 (BC Act)* states that Development is likely to significantly affect threatened species if:

- a) *it is likely to significantly affect threatened species or ecological communities, or their habitats, according to the test in section 7.3, or*
- b) *the development exceeds the biodiversity offsets scheme threshold if the biodiversity offsets scheme applies to the impacts of the development on biodiversity values, or*
- c) *it is carried out in a declared area of outstanding biodiversity value.*

The proposed works are unlikely to significantly affect threatened species or communities listed in the schedules of the Act (refer to section 3.4.2) and are not within an area declared to be of “outstanding biodiversity value” as defined in the Act, nor would it exceed the Biodiversity Offsets Scheme threshold as specified in section 3.4.1.

The proposed works therefore is not deemed to be likely to significantly affect threatened species and a Species Impact Statement (SIS) or a Biodiversity Development Assessment Report (BDAR) is not required.

3.4.1 Assessment against the Biodiversity Offset Scheme entry trigger criteria

The proposed works and associated impacts have been assessed against the criteria that determine entry into NSW Biodiversity Offset Scheme (BOS) pursuant to Part 7 of the NSW Biodiversity Conservation Act 2016 and Part 7 of the NSW Biodiversity Conservation Regulation 2017 (NSW BC Reg.).

3.4.1.1 Vegetation clearing threshold

There will be no vegetation clearing associated to the development. Relevant vegetation

clearing threshold will therefore not be exceeded.

3.4.1.2 Biodiversity Values Map threshold

No other prescribed actions (Clause 6.1 NSW BC Reg.) will impact land included on the Biodiversity Values Map (Figure 18).

3.4.1.3 Significant impact on threatened species

The test of significance undertaken in the Flora and Fauna Assessment (Technical Services, Shoalhaven City Council 2019) concludes that there will be no significant impact to any threatened species or endangered ecological community (see Section 3.4.2 below). Given the minor extent of the proposed works and a review of contemporary records to confirm the likelihood of occurrence on the biophysical and ecological environment, there is no change to the conclusions from the 2019 report.

Accordingly, the proposed works and associated impacts do not trigger entry into the Biodiversity Offset Scheme and do not require a Biodiversity Development Assessment Report to be undertaken.

3.4.2 Threatened species impact assessment

Threatened species impact assessment including Tests of Significance in accordance with the NSW *Biodiversity Conservation Act 2016* and *Fisheries Management Act 1994* was undertaken within *Flora and Fauna Assessment – River Road Foreshore Management Stabilization Works* (Technical Services, Shoalhaven City Council 2019).

This report identified Bangalay Sand Forest EEC as occurring on site, in addition to marginal habitat for threatened and migratory shorebirds occurring within and adjacent to the site.

The report concluded that there will be no significant impact on any threatened species or endangered ecological community. The report also concluded that vegetation and habitat throughout the site, including Bangalay Sand Forest EEC will be protected and enhanced in the long-term as a result of the works. Neither a species impact statement nor referral to the Commonwealth are required.

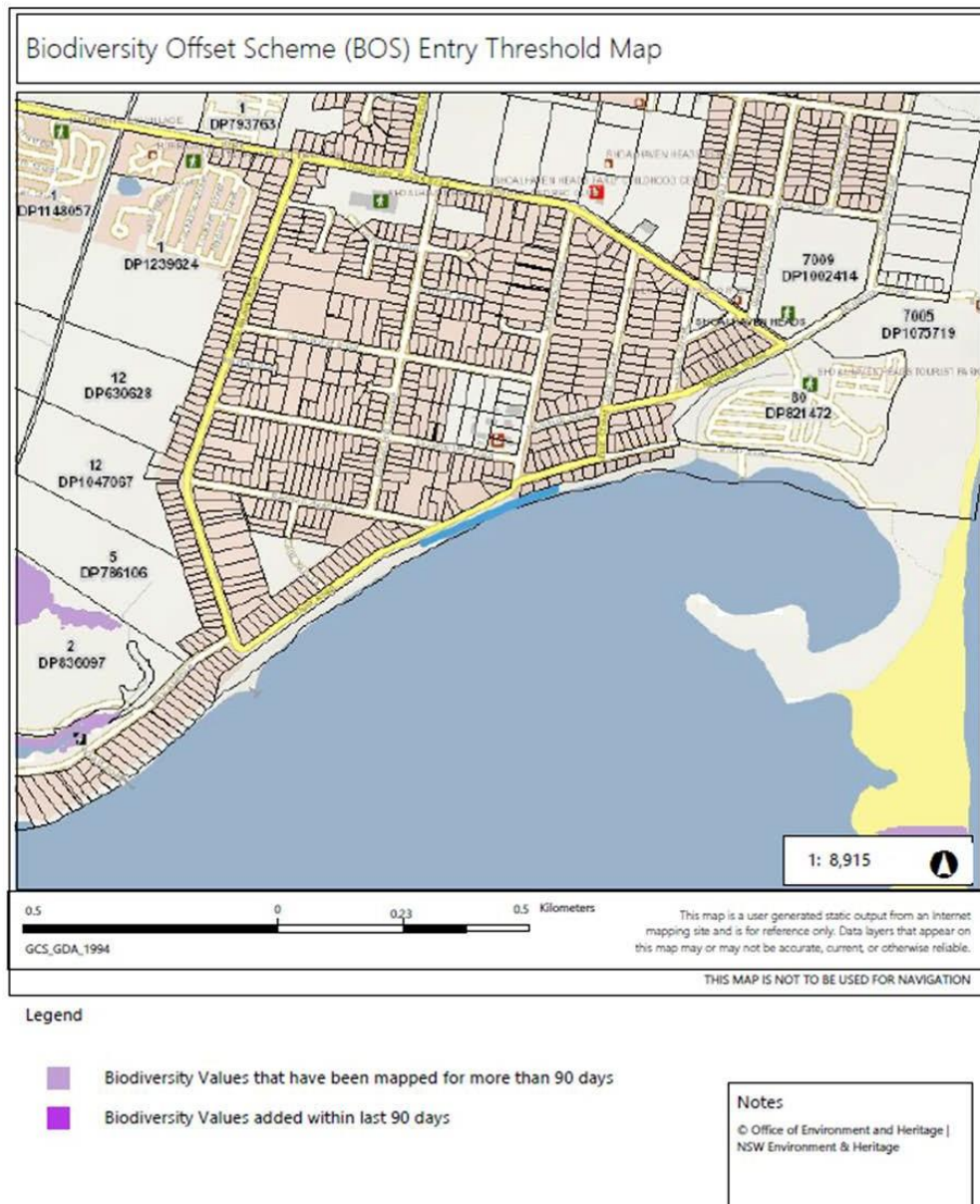


Figure 18 - Biodiversity Values Map and Threshold Tool (BMAT) test report clip

3.5 Fisheries Management Act 1994 (NSW)

The proposed sand nourishment works would be considered reclamation in water land which is regulated under Part 7 of the *Fisheries Management Act 1994*. Section 200 of the Act prescribes circumstances where a local government can carry out reclamation, i.e.:

- Under the authority of a permit (“Fisheries Permit”), or
- Work authorised under the Crown Land Management Act 2016, or

- Work authorised by a relevant public authority (other than a local government authority).

Fisheries permits have been executed for previous works, which included sand nourishment (reclamation in water land) within the site boundary of the proposed works (PN19/205 and PN22/159). A separate permit will be sought for the proposed works to include a nourishment area extending from the rock revetment to the shared user path at the River Road boat ramp to the east including encompassing access pathways. Application for this Fisheries Permit will be submitted by Council to progress in parallel to that of the Development Application.

3.6 Crown Land Management Act 2016 (NSW)

The proposed works will be undertaken on Crown Land Lot 7004 DP 94785 and Lot 7005 DP 1075719, in addition to waterway land.

Shoalhaven City Council is the Reserve Trust Manager for Lot 7004 DP 94785 and Lot 7005 DP 1075719 and as such, must manage the land as a public reserve in accordance with the provisions of Section 3.22 of the Act, in addition to the NSW *Local Government Act 1993*.

Categorisation of these Crown lots under the Act has not yet been finalised. The designated purpose of the land is public recreation, so the lots will likely be categorised as Park. The proposed works are not inconsistent with Council's *Generic Community Land Plan of Management – Parks 2011*, the core objectives being:

- to encourage, promote and facilitate recreational, cultural, social and educational pastimes and activities, and
- to provide for passive recreational activities or pastimes and for the casual playing of games, and
- to improve the land in such a way as to promote and facilitate its use to achieve the other core objectives for its management.

The land within the subject site is currently managed by Council as a Natural Area Reserve and has an active Bushcare Group undertaking conservation works within Lot 7004 DP 94785 in accordance with an approved Bushcare Action Plan. The proposed works are consistent with the objectives Council's *Generic Community Land Plan of Management - Natural Areas 2001*, section 2.1 as follows

NA1: To conserve biodiversity and maintain ecosystem function in respect of the land, or the feature or habitat in respect of which the land is categorised as a natural area,

NA 3: To provide for restoration and regeneration of the land,

F1: To maintain the foreshore as a transition area between the aquatic and the terrestrial environment, and to protect and enhance all functions associated with the foreshore's role as a transition area

The waterway land is managed by Crown Land. As such, SCC must obtain a licence under Section 2.20 of the *Crown Land Management Act 2016* prior to the commencement of works.

Council had attained a Crown Land Short-term Licence for the previous rock revetment

construction works (RN 609408).

Application for a new licence will be submitted by Council to progress in parallel to that of the Development Application. The application will reference this SOEE and encompass all proposed works including rock revetment infrastructure and sand nourishment works.

3.7 National Parks and Wildlife Act 1974 (NSW)

Under Section 86 of the NSW *National Parks and Wildlife Act 1974* (NPW Act) it is an offence to disturb, damage, or destroy any Aboriginal object without an Aboriginal Heritage Impact Permit (AHIP). The Act, however, provides that if a person who exercises 'due diligence' in determining that their actions will not harm Aboriginal objects has a defence against prosecution if they later unknowingly harm an object without an AHIP (Section 87(2) of the Act). The NSW Department of Environment, Climate Change and Water have prepared the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (2010) (hereafter referred to as the 'Due Diligence Guidelines') to assist individuals and organisations to exercise due diligence when carrying out activities that may harm Aboriginal objects and to determine whether they should apply for an AHIP.

In accordance with the Due Diligence Guidelines (2010), a search on the Aboriginal Heritage Information Management System (AHIMS) indicated that no known Aboriginal heritage site are known to exist in proximity to the proposed activity (Figure 19). The proposed works area is however, in an area that, according to step 2 of the Due Diligence Guidelines, may have a high propensity for artefacts, i.e. the site is not more than 200 metres from waters. The visible erosion and embankment destabilisation caused by the river indicate a history of disturbance.

As there are no recorded sites and as the area that would be impacted by the proposal has been subject to ongoing disturbance, it is reasonable to conclude that there is a low probability of objects occurring in the area. An Aboriginal Heritage Impact Permit (AHIP) is therefore not required, and the work can proceed with caution. However, the Due Diligence Guidelines will continue to be followed.

An appropriate Council Environmental Officer to be present at project start up to address the unexpected finds protocol as defined by the CEMP. Unexpected finds protocol will at a minimum include the following:

Should any previously unidentified Aboriginal (objects or places) or non-Aboriginal heritage items, be identified during excavation and construction, all works must cease in the vicinity of the find and the following be notified:

- NSW Department of Premier and Cabinet – Heritage NSW;
- Council representative;
- A qualified archaeologist;
- Jerrinja Local Aboriginal Land Council (LALC) in the case of Aboriginal heritage.

3.8 Environmental Planning & Assessment Act 1979 (NSW)

Table 5 provides a description of the proposed works items associated to the defined

matters for consideration under *Section 4.15 Evaluation* in the *Environmental Planning & Assessment Act 1979*.

Table 5 - EP&A Act s4.15 Matters for consideration checklist

(1) Matters for consideration—general	
In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:	
Matter	Comment
(a) the provisions of: (i) any environmental planning instrument, and (ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Planning Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and (iii) any development control plan, and (iiia) any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and (iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph), (v) (Repealed) that apply to the land to which the development application relates	(i) Addressed in sections 3.1, 3.2 and 3.3 (ii) Draft State Environmental Planning Policy (Environment) was open for public consultation until 31 January 2018. This SEPP however does not apply to the proposal (iii) Addressed in section 3.11 (iiia) N/A (iv) No item in the regulation (EP&A) applies to the proposal that requires consideration beyond that which has been given in this Statement of Environmental Effects.
(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality	Addressed in the following: Section 3.1 – particularly threatened species impact assessment under BC Act (s3.1.4) and FM Act (s3.1.5) Section 3.2 – particularly considerations of acid sulfate soils (s3.2.2) and riparian land (s3.2.4) Section 3.3 – particularly considerations of site analysis (s3.3.1), stormwater management and erosion control (s3.3.3) Section 3.4 – community considerations
(c) the suitability of the site for the development,	The project is concerned with the protection and enhancement of the natural attributes of the site and is designed in accordance with the recommendations of the NSW Water Research Laboratory (2022) (Attachment A) with the objectives of remediating manageable issues that are exacerbating erosion processes, specifically end effects from the existing rock revetment, and impacts from ongoing river, ocean and storm erosion demands. The

	proposal is therefore intended to remediate end effects and protect the site from ongoing coastal erosion impacts and has been designed for this purpose with to ensure minimal impacts on environment as a key consideration. Without action to address the existing end effect erosion and foreshore stabilisation issues present, the embankment and foreshore area within the site will continue to erode and lose vegetation in a cycle of exacerbating processes, degrading the natural attributes of the site, increasing risk to the public.
(d) any submissions made in accordance with this Act or the regulations	N/A
(e) the public interest	Within the site, both the river foreshore and the road reserve above are part of a popular recreational destination for local residents and visitors, being used for walking and access to the river. The existing site contains and contributes to the natural aesthetics and amenity of the locality. It provides natural areas for public access and affords scenic views of the Shoalhaven River estuary Extensive consultation has been undertaken with the Shoalhaven Heads Estuary Taskforce (SHET), Shoalhaven Heads Community Forum (CCB), and local residents which included an initial progress update mail out (D22/180882), and presentation to SHET (D22/112987) to inform Community members of the peer reviewed priorities for management strategies. The project is concerned with the protection and enhancement of the natural attributes of the site. Revegetation works will be designed to support the stability of the embankment in addition to enhancing the vegetation (Bangalay Sand Forest Endangered Ecological Community) and habitat present on site, while providing for retention of aesthetic qualities and amenity of the area.

3.9 Commonwealth Native Title Act 1994

Previous Aboriginal Native Title Future Act Assessment had been undertaken for the initial rock revetment development which involved consultation with NTS Corp and South Coast People as representatives of native title claimants. Through the consultation process, Council had committed to continuing to follow Aboriginal Heritage due diligence, including engaging an Aboriginal Heritage Monitoring Officer from Jerrinja Aboriginal Land Council during excavation works for development works which have since been complete. No further concerns or objections were raised regarding the initial development works. A new Native Title assessment will be submitted for the proposed works to include the extended nourishment area.



AHIMS Web Services (AWS) Search Result

Your Ref/PO Number : River Road Site

Client Service ID : 687749

Shoalhaven City Council - Nowra

Date: 02 June 2022

PO Box 42 Bridge Rd

Nowra New South Wales 2541

Attention: Luke Moroney

Email: luke.moroney@shoalhaven.nsw.gov.au

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat. Long From : -34.862, 150.7365 - Lat. Long To : -34.8532, 150.752, conducted by Luke Moroney on 02 June 2022.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

Figure 19 - AHIMS report

3.10 Shoalhaven Local Environment Plan 2014

3.10.1 Land Use Zones (SLEP Part 2)

Proposed works, would occur within land zoned as RE1 – Public recreation and W2 – Recreational Waterways (Figure 20). For each of these zones, “Environmental protection works” is permitted with consent.

Additionally, the objectives of RE1 include “to protect and enhance the natural environment for recreational purposes”, while an objective of W2 is to “protect the ecological, scenic and recreation values of recreational waterways”, and RE1 includes the objective “to enable other land uses that provide facilities or services to meet the day to day needs of residents”.

Environmental protection works as defined within the SLEP means:

“works associated with the rehabilitation of land towards its natural state or any work to protect land from environmental degradation, and includes bush regeneration works, wetland protection works, erosion protection works, dune restoration works and the like, but does not include coastal protection works.”

Coastal protection works under the SLEP has the same meaning as the *Coastal Management Act 2016*. The Resilience and Hazards SEPP (2021) prevails over the SLEP (through Section 3.28 of the EP&A Act) and as demonstrated in Section 3.1. and 3.2 the proposed works are permissible under the Resilience and Hazards SEPP with development consent.

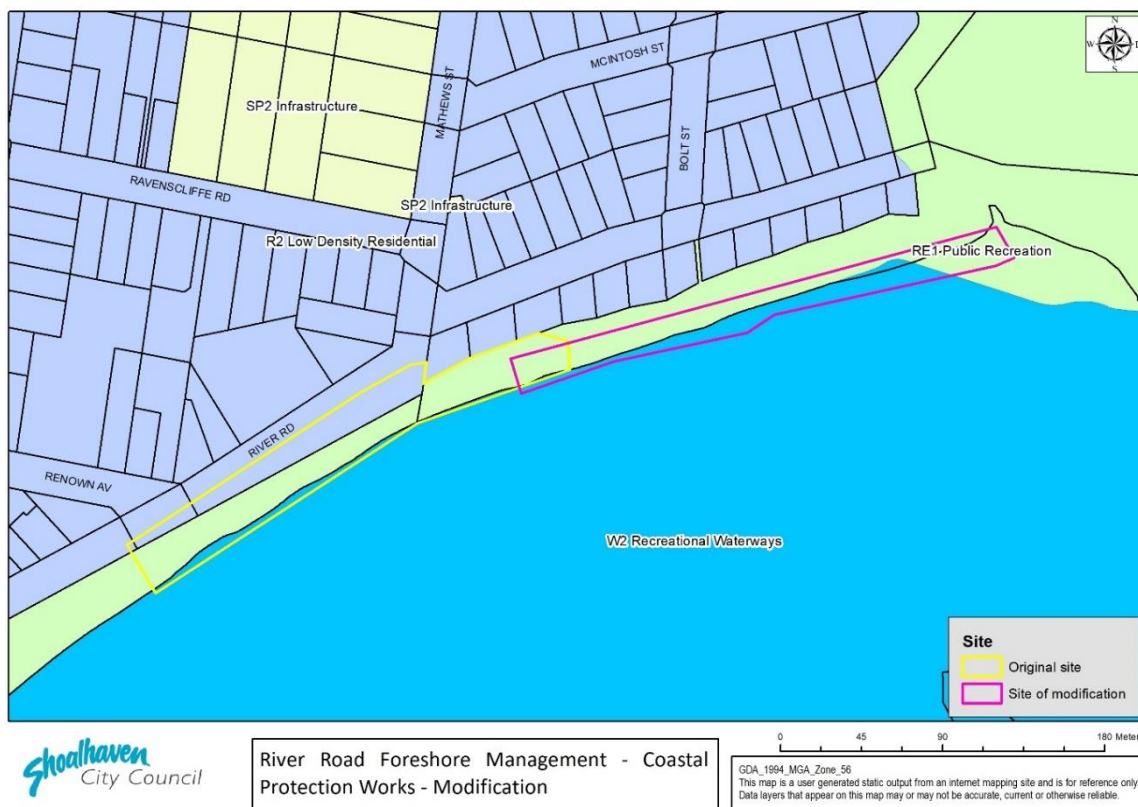


Figure 20 - Land use zones relative to the proposal

3.10.2 Acid Sulfate Soils (SLEP Clause 7.1)

The site occurs on land mapped as potentially containing Class 3 and Class 1 Acid Sulfate Soils (see Figure 21, below).

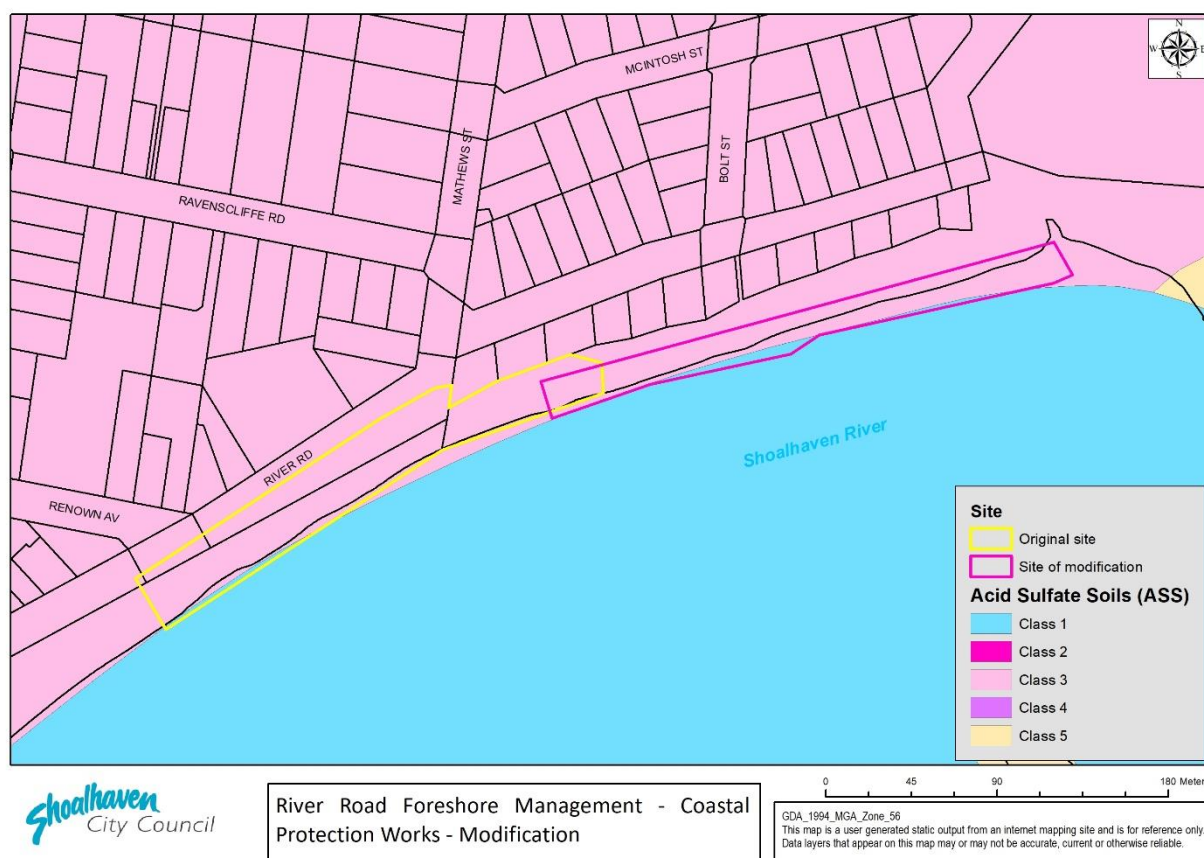


Figure 21 - Acid Sulfate Soils relative to the proposal

Excavation works up to a depth of 1 metre will occur in the area mapped as Class 3 Acid Sulfate Soils. Sand nourishment will be undertaken extending partially into the area mapped as Class 1 Acid Sulfate Soils.

In accordance with the Shoalhaven Local Environment Plan, development consent is required for the carrying out of any works in areas mapped as Class 1 Acid Sulfate Soils and involving works more than 1 metre below the ground (or works by which the water table is likely to be lowered by more than 1 metre below the natural ground surface) in areas mapped as Class 3 Acid Sulfate Soils.

Subclause 7.1(3) of the SLEP states that:

“development consent must not be granted under this clause for the carrying out of works unless an acid sulfate soils management plan has been prepared for the proposed works in accordance with the Acid Sulfate Soils Manual and has been provided to the consent authority”.

Council engaged a consultant (ENSA) to test for the presence of Acid Sulfate Soils within the site, to at least the depth that excavation will be required as part of the proposed works (i.e. 1 metre where rock revetment is proposed). The results of these investigations

were as follows:

ENRS conducted soil investigations in test pits on the 28th of June and 1st of July 2019 within the proposed excavation footprint (Figure 22) in accordance with industry standards. Soil logging identified coarse marine sands to the maximum investigation depth of 1.5 metres below ground level (mbgl). No silty jarosite or oxide staining was observed in the loose sediments. No visual or olfactory evidence of ASS conditions was noted. Field screening of excavated material was conducted with three (3) samples from each borehole tested at depths of 0.5, 1.0 and 1.5 metres below ground level. All samples reported oxidised pH values greater than pH4. Borehole logs identifying soil conditions and field screening results are presented in Attachment 2. Samples were not submitted for further laboratory testing as the Site was deemed to present a very low to negligible risk for potential acid sulfate soil.

RECOMMENDATIONS

Based on the findings of field observations compared against field indicators and mapped PASS/ASS soils it was determined that the soil to be excavated as part of the proposed works is likely to present a very low to negligible risk for potential acid sulfate soil.

If during excavation works different subsurface conditions are encountered to those documented in this report the soil should be re-assessed against the criteria detailed in Table 2: ASS Field Indicators by a person suitably qualified to do so.

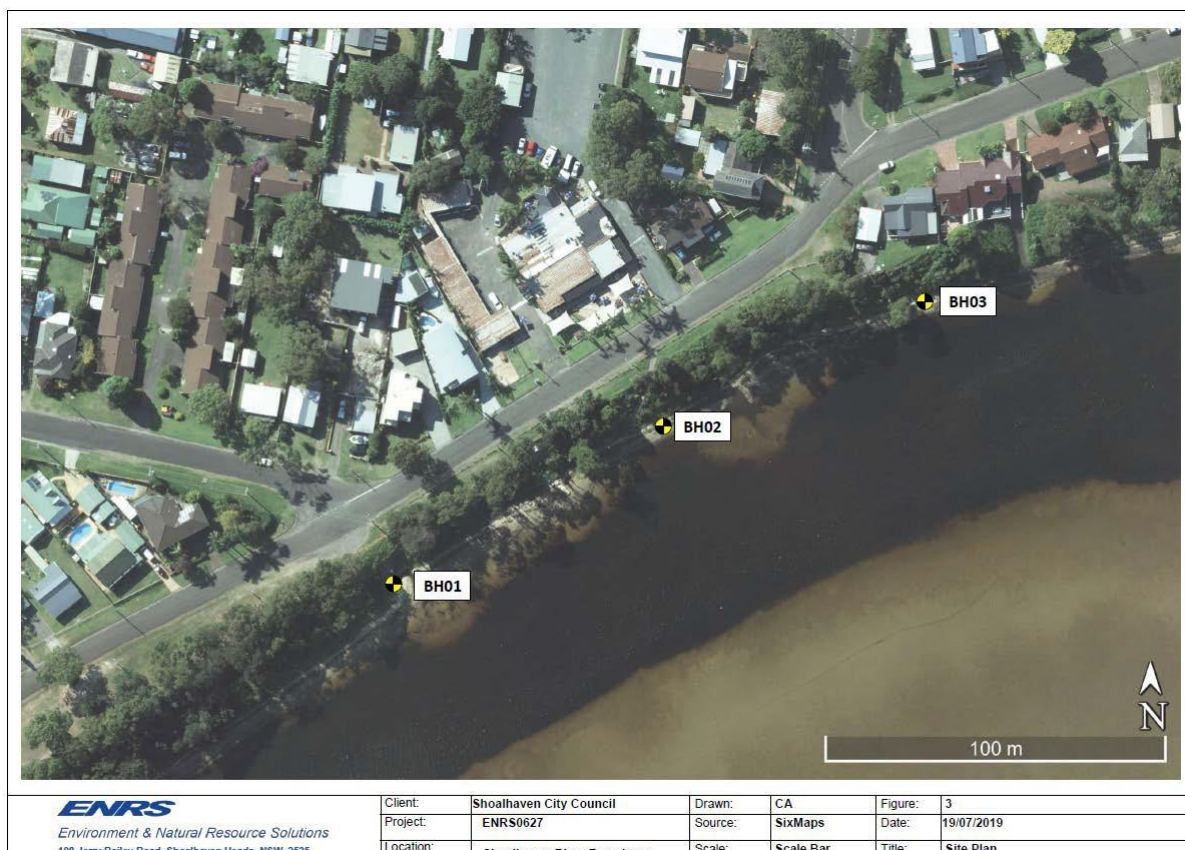


Figure 22 - Excerpt from ENSA 2019 letter report

Based on the findings of these investigations, an Acid Sulfate Soil Management Plan is not required. Due diligence will be followed as per the recommendations in the report including further assessment if different subsurface conditions are encountered to those documented in the report.

Earthworks (SLEP Clause 7.2)

The objective of clause 7.2 is to ensure that earthworks for which development consent is required will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land.

The proposed works are intended to stabilise the embankment and foreshore within the site. Earthworks associated with the project are to facilitate stabilisation and remediation works to enhance and protect the environmental characteristics and function of the riparian and foreshore area.

3.10.4 Flood planning (SLEP Clause 7.3)

The objectives of clause 7.3 are as follows:

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

The design of the proposed works is in accordance with the recommendations of:

- *River Road Foreshore, Shoalhaven Heads: Assessment of Coastal Management Options (2017)*
- *Coastal Management Advice: 68 – 86 River Road, Shoalhaven Heads (2022)*, prepared by NSW Water Research Laboratory
- *River Road, Shoalhaven Heads Revetment Modification Works – Technical Specification and Drawings (2022)*, prepared by Royal HaskoningDHV

The proposed works are intended to stabilise the embankment and foreshore within the site and protect and enhance the resilience of these features to river, ocean and storm processes including flooding.

3.10.5 Riparian land and watercourses (SLEP Clause 7.6)

The objective of clause 7.6 is to protect and maintain the following:

- a) water quality within watercourses,
- b) the stability of the bed and banks of watercourses,
- c) aquatic and riparian habitats,
- d) ecological processes within watercourses and riparian areas

The proposed works are intended to stabilise the embankment and foreshore and mitigate against end effects resulting from the existing foreshore protection infrastructure within the site. Associated sand nourishment and revegetation works will facilitate bank

stabilisation to enhance and protect the environmental characteristics and function of the riparian and foreshore area.

3.11 Shoalhaven Development Control Plan

The Shoalhaven Development Control Plan (DCP) provides detailed guidance and provisions for the use of land. The controls in the DCP inform design and assessment of new development. Table 6 below addresses the applicable criteria of assessment for the proposed works.

Table 6 - Shoalhaven Development Control Plan (DCP) Checklist

Chapter	Comments
Chapter 2: General and Environmental Considerations	Potentially contaminated land – addressed in S3.3.11.1.1 - Remediation of asbestos contamination has been undertaken. A management plan has been developed for dealing with any further findings of asbestos. European heritage – addressed in S3.11.1.2 – No heritage sites within or adjacent to the site. Aboriginal cultural heritage – addressed in S3.11.1.3 – No recorded sites. Low probability of objects occurring. Due diligence will continue.
Chapter 3: Exempt Development	Proposed modification of rock revetment is not exempt or complying development by virtue of the provisions of the Resilience and Hazards SEPP (2021). The extended sand nourishment will be undertaken as Exempt Development (Emergency coastal protection works by public authority) under Part 2.3 of the Resilience and Hazards SEPP (2021) as addressed in Section 3.2.
G1: Site Analysis, Sustainable Design and Building Materials in Rural and Coastal Areas	Addressed in Section 3.11.2. Project is designed with the purpose of protecting and enhancing the existing characteristics, aesthetics and amenity of the locality.
G2: Sustainable Stormwater Management and Erosion / Sediment Control	Addressed in Section 3.11.3. Stormwater upgrades are designed to reduce the impacts of existing stormwater infrastructure. Project is designed around and for the primary purpose of erosion control.
G3: Landscaping Design Guidelines	Addressed in Section 3.11.4. Landscaping within the proposal is designed for the purpose of environmental protection
G4: Tree and Vegetation Management	Addressed in Section 3.11.5. Proposal does not exceed Biodiversity Offset Scheme triggers but does occur within non-rural land.
G5: Biodiversity Impact Assessment	Addressed in Section 3.11.6 and more comprehensively in Section 3.4.1. The Flora and Fauna Assessment concluded that there will be no significant impact to any threatened species or endangered ecological community. The report also concluded that vegetation and habitat throughout the site, including Bangalay Sand Forest EEC will be protected and enhanced in the long-term as a result of

Chapter	Comments
	the works.
G6: Coastal Management Areas	Addressed in Section 3.11.7. The proposal is designed in accordance with the recommendations of the NSW Water Research Laboratory (2017) and Coastal Management Advice: 68 – 86 River Road, Shoalhaven Heads (2022) (see attachments) and with the purpose of stabilising and protecting the site from erosion particularly associated with coastal processes.
G7: Waste Minimisation and Management Controls	Addressed in Section 3.11.8. Waste minimisation management will be addressed in the Construction Environmental Management plan.
G8: Onsite Sewage Management	N/A. The proposal does not involve sewage management
G9: Development on Flood Prone Land	Addressed in Section 3.11.9. The site lies within flood prone land. The design of the works is in accordance with the recommendations of River Road Foreshore, Shoalhaven Heads: Assessment of Coastal Management Options (2017) and Coastal Management Advice: 68 – 86 River Road, Shoalhaven Heads (2022), prepared by NSW Water Research Laboratory. The proposed works are intended to stabilise the embankment and foreshore within the site and protect and enhance the resilience of these features to river, ocean, and storm processes including flooding.
G10: Caravan Parks in Flood Prone Areas	N/A. The proposal does not relate to caravan parks.
G11: Subdivision of Land	N/A. The proposal does not involve subdivision of land.
G12: Dwelling Houses and Other Low Density Residential Development	N/A. The proposal does not relate to dwelling houses, additions or structures ancillary to dwellings.
G13: Medium Density and Other Residential Development	N/A. The proposal does involve residential development.
G14: Other Residential Accommodation	N/A. The proposal does not relate to residential accommodation.
G15: Tourist and Visitor Accommodation	N/A. The proposal does not relate to accommodation.

Chapter	Comments
G16: Short Term Rental Accommodation	N/A. The proposal does not relate to accommodation.
G17: Business, Commercial and Retail Activities	N/A. The proposal does not involve business, commercial and retail activities.
G18: Streetscape Design for Town and Village Centres	N/A. The proposal does not involve streetscape design within a town or village centre.
G19: Home Based Business Activities	N/A. The proposal does not relate to home-based business activities.
G20: Industrial Development	N/A. The proposal does not relate to industrial development.
G21: Car Parking and Traffic	N/A. The proposal does involve creation of car parking areas or facilities, or changes affecting traffic.
G22: Advertising Signs and Structures	N/A. The proposal does not involve advertising signs and structures.
G23: Jetties, Wharf and Boating Facilities, Mooring Pens and Boat Launching Ramps	N/A. The proposal does not involve construction of jetties, wharf and boating facilities, mooring pens and boat launching ramps.
G24: Restricted and Sex Services Premises	N/A. The proposal does not relate to sex services premises.
G25: Stationery Food Vans/Vehicles on Service Station Sites and Food Stalls	N/A. The proposal does not relate to food vehicles, sites or stalls.
G26: Acid Sulphate Soils and Geotechnical (Site Stability) Guidelines	Addressed in Section 3.10.2. The site is mapped as Class 3 and Class 1 (within the mapped waterway) Acid Sulfate Soils. Investigations were undertaken (ENSA 2019 letter report) which concluded that <i>the Site was deemed to present a very low to negligible risk for potential acid sulfate soil.</i>

Chapter	Comments
G27: Dog Breeding and Boarding Establishments (Including Catteries)	N/A. The proposal does not relate to dog or cat breeding and boarding establishments.
G28: Design Guidelines for Permanent Occupation of caravan parks	N/A. The proposal does not relate to caravan parks.
V1: Lot Averaging Subdivision	N/A. The proposal does not involve subdivision of land.
V2: Chapter V2 - Building Lines provides building line provisions for certain site within Shoalhaven. The controls in this Chapter have been transferred from Shoalhaven LEP 1985 and POL12/112 and POL12/314.	N/A. The proposal does not involve construction of – or additions to – a building.
V3: Miscellaneous Site Specific Issues	N/A. DCP Chapter applies to certain land at Leebold Hill Road, Paris of Cambewarra and Burrill Lake Foreshore.
N4: Shoalhaven Heads Village Centre	N/A – the site lies outside the subject area for this chapter.

3.11.1 Chapter 2: General and Environmental Considerations

3.11.1.1 Potentially contaminated land

Council began investigations into asbestos within the construction zone as triggered by a Potentially Contaminated Land note (PCL452E) outlining uncontrolled land-fill dumping resulting in asbestos contamination of the Crown Reserve. Cement sheeting fragments were visible across the surface of the sand in an area approximately 150 metres in length, present from the base of the embankment across the profile of the beach into the water. The highest concentration of cement sheeting fragments appeared to be surrounding the stormwater outlet opposite the Heads Hotel on River Road. Council collected samples of the cement sheeting fragments and submitted them to the laboratory for analysis. Laboratory analysis confirmed that the samples were non-friable asbestos containing material.

Following the positive result from the laboratory, Council engaged a hygienist to inspect the site and design a scope (D19/193840) for removal of the visible asbestos. A licenced asbestos removal contractor was engaged to remove any visible cement sheeting

fragments, in conjunction with the relevant NSW Government and Safe Work Australia legislative requirements, on 30 May 2019. Directly following the removal works, a hygienist conducted a visual inspection and provided a clearance certificate (D19/185904) stating that no residual/remnant asbestos was identified within the outlined area at the time of the inspection. Both the removal works, and clearance inspection were conducted during low tide.

Council engaged a hygienist to provide an Ongoing Management Plan, including an unexpected finds protocol for use during the coastal protection works.

3.11.1.2 European heritage

There are no heritage sites of objects listed on the NSW State Heritage Register occurring within or adjacent to the site. The nearest record is approximately 450 meters from the western end of the site (Figure 23) and will not be impacted on by the proposed works.

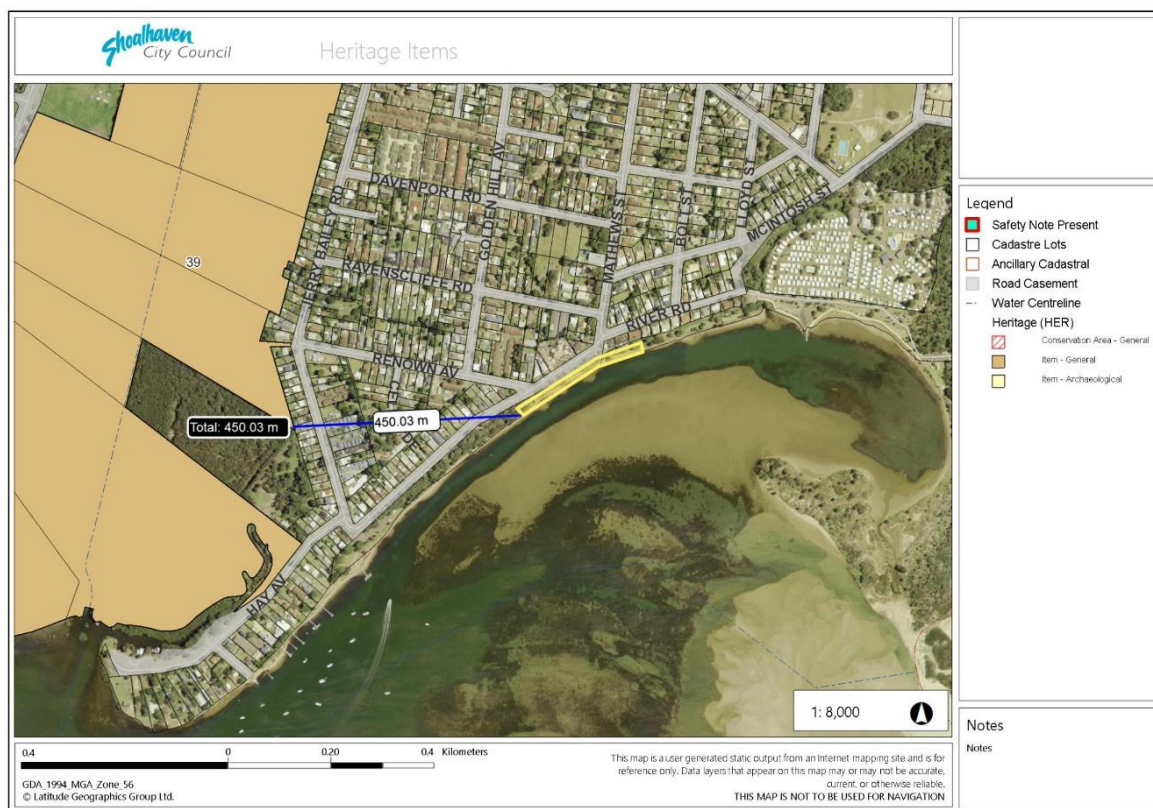


Figure 23 - Heritage mapping

3.11.1.3. Aboriginal heritage

As there are no recorded sites and as the area that would be impacted on by the proposal has been subject to ongoing disturbance, it is reasonable to conclude that there is a low probability of objects occurring in the area. An Aboriginal Heritage Impact Permit (AHIP) is therefore not required, and the work can proceed with caution. However, the Due Diligence Guidelines will continue to be followed along with specific unexpected finds protocols as detailed in section 4.

3.11.2 G1 – Site Analysis, Sustainable Design & Building Materials

This chapter is concerned with consideration of the characteristics of the site and adjacent or adjoining sites, in addition to design, to enable incorporation of sustainable design principles resulting in long-term environmental and financial savings. The location

of a building and choice of materials also help to maintain and protect views and provide amenity to surrounding residents.

The existing site contains and contributes to the natural aesthetics and amenity of the locality. It provides natural areas for public access and affords scenic views of the Shoalhaven River estuary.

The river foreshore and the road reserve above are part of a popular recreational destination for residents and visitors, being used for walking and access to the river.

The project is concerned with the protection and enhancement of the natural attributes of the site and is designed in accordance with the recommendations of the NSW Water Research Laboratory (2017) and Coastal Management Advice: 68 – 86 River Road, Shoalhaven Heads (2022) (see attachments).

The rock revetment modification works will serve to prevent further erosion where end effects have resulted in further deterioration of the embankment.

Native vegetation will be retained. Revegetation works will be designed to support the stability of the embankment in addition to enhancing the vegetation (Bangalay Sand Forest Endangered Ecological Community) and habitat present on site.

Sand nourishment works will serve to protect the embankment stabilisation works and will also improve amenity of the foreshore.

3.11.3 G2 – Stormwater Management & Erosion/Sediment Control

Erosion control is the primary objective of the project. The proposed works are intended to stabilise the embankment and foreshore within the site. Works associated with the project are to facilitate stabilisation and remediation works to enhance and protect the environmental characteristics and function of the riparian and foreshore area. Works will be undertaken in accordance with the erosion and sediment control specifications of the Blue Book. Where disturbance will occur to the embankment, geotextile fabric (beneath rock revetment) and jute mesh or similar (embankment above rock revetment) will be used to stabilise the surface immediately following excavation or other disturbance. Native vegetation on the embankment will be retained. Revegetation with native plant species consistent with Bangalay Sand Forest EEC, and the locally endemic coastal or wetland species will occur following completion of works.

The proposal will not create or increase concentration of stormwater.

3.11.4 G3 – Landscaping Design Guidelines

Landscaping within the proposal is designed for the purpose of environmental (coastal) protection (see 1.3).

Native vegetation will be retained. Revegetation with native plant species consistent with Bangalay Sand Forest EEC, and the locally endemic coastal or wetland species will occur following completion of works.

3.11.5 G4 – Removal and Amenity of Trees

The proposal does not exceed the Biodiversity Offset Scheme thresholds (see Section 3.4.1).

Native vegetation will be retained, and revegetation works will be designed to support

the stability of the embankment in addition to enhancing the vegetation (Bangalay Sand Forest Endangered Ecological Community) and habitat present on site.

Without the proposed works, the stability of the foreshore embankment will continue to degrade which may result in loss of existing native vegetation.

3.11.6 G5 – Threatened Species Impact Assessment

See Sections 3.4.2.

Threatened species impact assessment including Tests of Significance in accordance with the NSW Biodiversity Conservation Act and Fisheries Management Act was undertaken within Flora and Fauna Assessment – River Road Foreshore Management – Stabilisation Works (Technical Services, Shoalhaven City Council 2019).

This report identified Bangalay Sand Forest EEC as occurring on site, in addition to marginal habitat for threatened and migratory shorebirds occurring within and adjacent to the site.

The report concluded that there will be no significant impact on any threatened species or endangered ecological community. The report also concluded that vegetation and habitat throughout the site, including Bangalay Sand Forest EEC will be protected and enhanced in the long-term as a result of the works.

3.11.7 G6 – Coastal Management Areas

The site does not lie within identified areas of Coastal Hazards including the *Shoalhaven Coastal Hazard Mapping Review 2016*.

The site is however subject to coastal processes and hazards.

The proposal is designed in accordance with the recommendations of the NSW Water Research Laboratory (2017) *and Coastal Management Advice: 68 – 86 River Road, Shoalhaven Heads (2022)* (see attachments) and with the purpose of stabilising and protecting the site from erosion particularly associated with coastal processes. The proposal considers the risks associated with local coastal hazards such as coastal erosion, shoreline recession, coastal inundation, coastal entrance migration, slope instability and stormwater erosion in accordance with Chapter G6.

3.11.8 G7 – Waste Minimisation and Management Controls

Waste generation will be limited to the excavation of soil, sand and debris (which may uncover some dumped materials) for the purpose of installing the rock revetment. Some of this excavated material may not be suitable to be reused on the site.

Waste minimisation will be addressed in the Construction Environmental Management Plan.

3.11.9 G9 – Development on Flood prone Land

Addressed in Section 3.10.4. The site lies within flood prone land. The design of the works is in accordance with the recommendations of River Road Foreshore, Shoalhaven Heads: Assessment of Coastal Management Options (2017) *and Coastal Management Advice: 68 – 86 River Road, Shoalhaven Heads (2022)*, prepared by NSW Water Research Laboratory. The proposed works are intended to stabilise the embankment

and foreshore within the site and protect and enhance the resilience of these features to river, ocean and storm processes including flooding.

3.12 Community considerations

Extensive consultation has been undertaken with the Shoalhaven Heads Estuary Taskforce (SHET), Shoalhaven Heads Community Forum (CCB), and local residents which included an initial progress update mail out (D22/180882), and presentation to SHET (D22/112987) to inform Community members of the peer reviewed priorities for management strategies. Jerrinja Local Aboriginal Land Council will be notified by email.

Consideration for the public interest also addressed in section 3.8 under the *Environmental Planning & Assessment Act 1979*.

4. Mitigation measures to minimise impacts on the environment

Table 7 below provides an overview of general recommended mitigation measures that will be implemented to reduce the risk of impact to the environment. Further risk mitigation measures and details on each item will be included in the Site-Specific Construction Environmental Management Plan (CEMP) to be developed prior to works commencing.

Table 7 - Environmental risk mitigation actions

Impact	Mitigation measures
General	
	- Take and store pre-dilapidation photographs of works areas. - If in doubt about carrying out any mitigation measures, or in the case of new issues arising during works, cease works and contact Council's Project Manager for advice. - Ensure the scope of works is understood before the commencement of works. - Abide by conditions of applicable Crown Land Licence and DPI Fisheries Permit. - Signage denoting a notification of works signage to be installed on site prior to work indicating dates of purpose activities, purpose, and requirements. - Safe Work Methods Statement (SWMS) established by the appointed contractor to include mapping details and controls to address site works area and public exclusion zones. This is to ensure public safety is maintained throughout the entirety of the works. - Site delineation will be undertaken prior to works commencing including the following: - o Stakes with high visibility flagging will be installed every 10 metres along sand-flat to delineate buffer line of 5 metres to the Eelgrass (<i>Zostera</i> sp.). - o Exclusion fencing will be used at either end of the site on the foreshore to prevent entry by pedestrians etc.

Impact	Mitigation measures
Coastal landform impacts	
Erosion of sand and other sediment	- If sourcing sand from Shoalhaven River entrance dry notch a depth of no more than 300 mm of sand can be excavated from within this area. When excavating the sand, the technique of 'beach scraping' (where the sand is excavated in shallow increments) is to be used. - Undertake revegetation works to stabilise foreshore. Planting of mature stock to be in conjunction with installation of seedling stock in areas at high risk of destabilisation to enable quick colonisation and succession as part of the revegetation program. Temporary public exclusion areas (using suitable bunting) are to be prepared to permit planted vegetation to establish. - Revegetation works to be undertaken in growing season (i.e. Spring and Summer) where possible to expediate stabilising function. This is to take into consideration the rainfall patterns and temperatures to enable the highest possible likelihood of plant survival. - Areas within the foreshore with significant sand exposure where immediate ground cover is required to be fenced off and covered with biodegradable jute or coir mesh to minimize windblown erosion prior to vegetation establishment. - Maintenance of revegetated areas to be periodically addressed to ensure longevity and establishment of plants installed. - Works to be conducted in accordance with a site-specific erosion and sediment control plan (ESCP) consistent with currently accepted best management practice (i.e. Managing Urban Stormwater: Soils and Construction 4th Edition Landcom, 2004) particularly section 5.3, i.e., retention of vegetation, minimising disturbance, erosion control and rapid establishment. - ESCP to include details of boundaries for plant machinery, and sediment traps/fencing. Sediment and erosion controls shall be maintained in good working order for the duration of the action and subsequently until the site has been stabilised and the risk of erosion and sediment from the site is minimal. Where required details for the removal of non-biodegradable sediment and erosion controls following the appropriate stabilisation of the site are to be included. - Limit access and egress movements by heavy plant machinery utilised to undertake the works.
Biodiversity impacts	
Impacts on Fauna	- Disturbance of shorebirds will be minimised through only undertaking works outside of the August through April period unless for emergencies. A suitably qualified person must inspect the entire site of works and occupation for the presence of threatened and migratory shorebirds. Works must be separated from threatened shorebirds as follows: - o 50 m April - September: A minimum buffer of 50 m (as adopted standard of the National parks and Wildlife Service) must be maintained from individual migratory shorebirds using habitat, where all plant, personnel and equipment will be excluded at least 50 m from the shorebird. - o 255 m October - March: Should the birds be nesting then the buffer distance must be not less than 255 m ('Industry guidelines for avoiding, assessing, and mitigating impacts on EPBC Act listed migratory shorebird species' (Commonwealth of Australia, 2017). If nesting migratory shorebirds are detected within 255 meters of the works or ancillary sites or activities, work will immediately stop and the local office of the NPWS will be contacted for instruction and/or clearance.

Impact	Mitigation measures
	○ If migratory shorebirds are detected within 50 m of the works or ancillary sites or activities, works and/or machinery movement will stop immediately and not resume until the bird has vacated the site of its own accord. ○ In the case whereby earth works surface disturbance is attracting bird activity an assessment is to be made onsite for the likelihood of impact on fauna. In the case of cause-and-effect conditions that may arise works may proceed if impacts on bird species are deemed low risk by relevant Council officer. ○ Exclusion zones are to be established and shown in a Works Plan, where required. - Works are to avoid more heavily vegetated areas, as well as potential habitat features such as large logs and snags, to reduce potential impacts on habitat. - No snags are to be removed, realigned, or relocated without consultation and approval from DPI Fisheries. - Machine movement to be limited to 20km/h to minimise risk of injury to fauna. - Fauna spotter ahead of machinery movement and operation to be implemented where risk of impacts on fauna significant (to be determined by Council Officer). - Fauna foraging and breeding habitat avoided on by the works specifically through no impacts on hollow bearing trees or no access to site through old growth vegetation areas. - Site access to be via official defined Council accessways or where required at well-defined points with minimal to negligible vegetation disturbance designated by Council prior to works commencing. Access points to be detailed in Works Plan. - To mitigate impacts on aquatic habitat, machinery can only track along the sandy foreshore area and excavation and sand/sandbag placement activity can only occur when the sandy foreshore area exposed during mid-lower tide levels.
Impacts on flora	- When working near marine vegetation (seagrass, mangroves and saltmarsh), riparian vegetation or water land these areas need to be identified and appropriately delineated as “No Go” areas - There is to be no harm of seagrass. Prior to the commencement of works a 5m buffer zone shoreward from the edge of the seagrass bed must be established. No excavation works or vehicle movement activity is to be conducted within this 5m buffer zone. - Control the spread of Bitou Bush, Lantana, Crofton Weed and other invasive weeds by avoiding disturbance to vegetation and ensuring machinery is clean prior to arrival of site (to prevent spread of seed). Treat weed species on site where identified, prior to commencement of works, to contain and reduce risk of spread during works. - Vegetation management works to include control of <i>Asparagus</i> spp., <i>Chrysanthemoides monilifera subsp. rotundata</i> (Bitou Bush), <i>Conyza</i> spp. (Fleabane), <i>Hypochaeris radicata</i> (Cats Ear), <i>Ipomoea</i> spp. (Morning Glory spp.), <i>Lantana camara</i>, <i>Pennisetum clandestinum</i> (Kikuyu) and <i>Eragrostis curvula</i> (African Lovegrass) where applicable. - Protection zones for trees from machinery and vehicles will be maintained in accordance with AS 4970-2009 - <i>Protection of Trees on Development Sites</i>. - Thoroughly clean all plant and equipment prior to arriving on site and when leaving the site to avoid transfer of weeds or weed seeds and pathogens.

Impact	Mitigation measures
	- Revegetation measures will be planned in consultation with Council's Environmental Services Department to guide the revegetation and subsequent maintenance of the vegetated bank above the rock revetment area. Revegetation practices will give preference to species consistent with the locally occurring Bangalay Sand Forest EEC, and endemic dune and wetland species.
Cultural heritage impacts	
Damage/impacts on unknown cultural heritage sites, Aboriginal & non-Aboriginal.	- An appropriate Council Environmental Officer to be present at project start up to address the unexpected finds protocol which is to be implemented by the Contractor. Should any previously unidentified Aboriginal (objects or places) or non-Aboriginal heritage items, be identified during excavation and construction, all works must cease in the vicinity of the find and the following be notified: - o NSW Department of Premier and Cabinet – Heritage NSW; - o Council representative; - o A qualified archaeologist; - o Jerrinja Local Aboriginal Land Council (LALC) in the case of Aboriginal heritage. - In the case of skeletal remains the following process will be implemented: - o The find will be reported to NSW Police and state coroner; - o DPE Crown Land will be notified of the find; - o Aboriginal stakeholders - Jerrinja Local Aboriginal Land Council (LALC); - o Heritage NSW will be notified of the find.
Soil and Contamination impacts	
Uncovering contaminated Soils	- If unexpected, contaminated material, ASS or Potential Acid Sulfate Soil (PASS) is discovered works are to shut down and a proper assessment protocol developed in consultation with Council's Environmental Officer. ASS or Potential Acid Sulfate Soil (PASS) would be managed according to Council's <i>Chapter G26 – Acid Sulphate Soils and Geotechnical Guidelines</i> (Shoalhaven Council, 2021). - An asbestos Management Plan exists which is to be followed where necessary through the duration of the proposed works.
Fuels and hydraulic spills	- To avoid the risk of pollution from machinery, refuelling shall generally be done off site, however if refuelling on site is required, due care shall be taken to avoid spilling fuel and bunding shall be used to mitigate risk of accidental fuel spill. - Storage of fuel, oils and other hazardous chemicals will not be allowed within the work site. - All machinery to be used shall be clean, and in good working order prior to entering the site, with daily pre-start checklists to be recorded for all heavy plant used on site. - An emergency marine spill kit is to be available on site at all times with procedures to contain and collect any leakage or spillage of fuels, oils and greases from plant and equipment. In the event of an accidental oil/fuel spill, Council is to be notified immediately by phone and a written incident report

Impact	Mitigation measures
	with corrective actions is to be supplied by the Contractor to Council within 24 hours of the incident occurring. - No major equipment maintenance works shall be undertaken on-site. - Changing of hydraulic attachments on machinery is to take place offsite in the compound or hardstand area within bunding.
Waterways and water quality	
Turbulence increase due to sediment release.	- Works are to be undertaken during low flows in the Shoalhaven River. - Where taking place in the intertidal zone, planned work to be undertaken around the low tide (mid-low, low-mid) to minimise machinery working in water as much as practical and reduce the potential for any sediment plumes in adjacent waters. In addition, works will be timed to occur during a spring tidal phase where tidal ranges are greater, providing lower low tides to ensure optimal conditions for obtaining sand during the periods of low water where intertidal shoals will be most exposed. - Material storage and stockpiling is not to be undertaken on water land, marine vegetation (saltmarsh, mangrove, seagrass) or riparian vegetation. Stockpiles should also be located 20 metres away from adjacent water land. - Stabilising exposed dunes through revegetation, brush matting and implementation of measures outlined in the works specification to limit movement of sediment to waterways.
Traffic and transport impacts	
Detours or disruptions to traffic flow (vehicular, cycle and pedestrian) and parking during works undertaking.	- Limit works to low-use times where possible i.e., outside of all holiday periods - Conduct works in standard working hours (unless for emergencies): - o Monday to Friday 7.00am to 6.00pm - o Saturday 8.00am to 2.00pm - o No work on Sundays or public holidays - Compound machinery away from parking spaces and accessways where possible. - Ensure public vehicle 4WD access to foreshore is not available. Access points / gates to be closed off to ensure no public vehicle access through site or onto beach.
Socio-economic impacts	
Impacts on community and business use of the site.	- Limit works to low-use periods where possible (see above). - Conduct works in standard working hours (see above). - Notification at approximately two weeks prior to commencement of works shall be given to residents and property owners including: - o All property owners on River Road adjacent to site and - o Notification of works signage to be installed on site and - o Email to stakeholders and community groups to inform of works commencement dates
Noise and air quality impacts	
Noise or vibration impacts on surrounding	- Conduct works in standard working hours (see above). - Maintain vehicles and plant to ensure they are in good working order.

Impact	Mitigation measures
properties or receptors.	
Air quality impacts from wind transport of sand.	- Limit works during high wind conditions. - Limit stockpiling to minimum necessary. - Compact sand appropriately and sufficiently enough to minimise wind erosion following placement.

5. Conclusion

This Statement of Environmental Effects has been prepared to support a development application for proposed coastal protection works at River Road, Shoalhaven Heads, involving rock revetment rectification works, sand nourishment works and revegetation of the embankment. Environmental considerations, constraints, and potential direct and indirect impacts have been identified and addressed.

The project is concerned with the protection and enhancement of the natural attributes of the site and is designed in accordance with the recommendations of the NSW Water Research Laboratory (2022) (attachment A). The primary objectives being to remediate issues that left unmanaged are exacerbating erosion processes, and to stabilise and protect identified high-priority areas of the foreshore/embankment from ongoing river, ocean, and storm erosion hazards. The proposal is therefore intended to remediate and protect the site from ongoing environmental impacts and has been designed for this purpose with minimal environmental impact as a key consideration.

The rock revetment component of the coastal protection works will serve to prevent further erosion of the embankment due to end effects of construction works completed under DA19/1910 and facilitate regeneration and revegetation of the upper embankment. Native vegetation will be retained, and revegetation works will be designed to support the stability of the embankment in addition to enhancing the vegetation (Bangalay Sand Forest Endangered Ecological Community) and habitat present on site, while providing for retention of aesthetic qualities

General mitigation measures have been provided in Section 4 and will be implemented alongside those outlined in the Construction Environmental Management Plan (to be developed) to minimise direct and indirect impacts, and minimise risk to the environment and public, while ensuring success of the project.