NSW GOVERNMENT Public Works Advisory

Nelligen Water Supply Reservoirs

Review of Environmental Factors

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Kristen Parmeter

Environmental Scientist

4 Parramatta Square, 12 Darcy Street, Parramatta NSW 2150

Locked Bag 5022, Parramatta NSW 2124

p 02 9240 8803

e kristen.parmeter@finance.nsw.gov.au | **w** www.publicworksadvisory.nsw.gov.au

Cover image: Aerial view of Nelligen, SIX Maps, 2021

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Declaration

This Review of Environmental Factors (REF) has been prepared by Public Works, Department of Regional NSW on behalf of Eurobodalla Shire Council. The report presents the assessment of potential impacts that may result from activities associated with the proposal to construct new water supply reservoirs at Nelligen and Bay Ridge as part of the Nelligen Water Supply Scheme project.

Eurobodalla Shire Council is a public authority and a determining authority as defined in the *Environmental Planning & Assessment Act 1979* (EP&A Act). The proposal satisfies the definition of an activity under the Act, and as such Eurobodalla Shire Council must assess and consider the environmental impacts of the proposal before determining whether to proceed.

This REF has been prepared in accordance with Sections 5.5 and 5.7 of the EP&A Act and Clause 171 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Reg). It provides a true and fair assessment of the proposed activity in relation to its likely effects on the environment. It addresses to the fullest extent possible all matters affecting or likely to affect the environment as a result of the proposed activity.

On the basis of this REF it is concluded that:

(1) the proposed activity is not likely to have a significant impact on the environment. An Environmental Impact Statement is not required.

(2) the proposed activity is not likely to significantly affect threatened species, populations, ecological communities, or critical habitat. A Species Impact Statement (SIS) is not required.

(3) the proposed activity is not likely to affect or being carried out on any Commonwealth land, or significantly affect any Matters of National Environmental Significance.

Subject to implementation of the measures to avoid, minimise or manage environmental impacts listed in this REF, the proposed activity is recommended to proceed.

Author & Qualifications	Kristen Parmeter BSc (Hons)
Designation	Environmental Scientist
Reviewer & Qualifications	Liz Mathieson BSc
Designation	Principal Scientist
Organisation	Public Works, Department of Regional NSW
Signature	
Date	20 June 2022

Verification and Determination

Verifier

I have examined this REF and the Declaration by Kristen Parmeter (the author) and accept the report on behalf of Eurobodalla Shire Council.

Name	BRETT CORVEN
Designation	DIVISION MANAGER WATER & SEWER
Organisation	EUROBODALLA SHIRE COUNCIL
Signature	

Eurobodalla Shire Council Determination

I determine that the activity is approved and may proceed.

Name	BRETT CORVEN
Designation	DIVISION MANAGER WATER & SEWER
Organisation	EUROBODALLA SHIRE COUNCIL
Signature	21/6/22

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List of Abbreviations

ACHA	Aboriginal Cultural Heritage Assessment
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
ASS	Acid Sulfate Soils
BC Act	*Biodiversity Conservation Act 2016*
CEMP	Construction Environmental Management Plan
DPIE - <agency>	Department of Planning, Industry and Environment
EEC	Endangered Ecological Community
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2021*
EPA	Environment Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
ESC	Eurobodalla Shire Council
FCNSW	Forestry Corporation of NSW
FM Act	*Fisheries Management Act 1994*
LEP	Local Environmental Plan
NPW Act	*National Parks and Wildlife Act 1974*
OEH	Office of Environment and Heritage (now Department of Planning, Industry and Environment – Biodiversity, Conservation and Science)
OEMP	Operation Environmental Management Plan
POEO Act	*Protection of The Environment Operations Act 1997*
REF	Review of Environmental Factors
SEPP	State Environmental Planning Policy
SWMP	Soil and Water Management Plan
TMP	Traffic Management Plan
WM Act	*Water Management Act 2000*

1 Introduction

This section provides an overview of the Proposal.

1.1 Background

Nelligen village is located on the Clyde River in the South Coast region of NSW, approximately 7 km north-west of Batemans Bay. The village is currently served by rainwater tanks for its potable water supply. Eurobodalla Shire Council (ESC) is proposing to construct a reticulated potable water supply scheme to provide the Nelligen village with a similar level of water supply services to the majority of the Eurobodalla Shire.

The Nelligen Water Supply Scheme project works are being constructed as three separate packages of works including:

- construction of a new water supply reservoir at Bay Ridge (Bay Ridge reservoir), which would be connected to the existing water supply network which serves the Eurobodalla region; and a new water supply reservoir and chlorination system at Old Nelligen Road, Nelligen (Nelligen reservoir);
- a new water supply reticulation network within the Nelligen village area including a new trunk main connection from the Nelligen reservoir.
- a 4.75 km gravity pressure trunk main along the Kings Highway from the new Bay Ridge reservoir site connecting to the new Nelligen reservoir, including a trunk main connection from the Nelligen reservoir to the new water supply reticulation network for the Nelligen village.

Public Works has been engaged by ESC to prepare a Review of Environmental Factors (REF) for the Proposal to construct the two new water supply reservoirs; one at Nelligen located on Old Nelligen Road and one at Bay Ridge, located on Clyde Road North Batemans Bay, to provide potable water to the Nelligen township (the Proposal).

The scope of this REF is limited to assessment of the construction and operation of the Nelligen and Bay Ridge reservoirs. The proposed Nelligen Water Supply Scheme project trunk main and Nelligen village reticulation network works would be subject to separate REF assessments.

1.2 Proposal Objectives

The proposed water supply reservoir works would meet the following objective:

- Provide potable water supply system infrastructure to improve the quality, security and reliability of the water supply to Nelligen.

1.3 Overview of the Proposed Works

The proposed Nelligen and Bay Ridge reservoir works would include:

- new 880 kL capacity water supply reservoir at Bay Ridge (Bay Ridge reservoir) located at Clyde Road, North Batemans Bay within Lot 3 DP 1169262, which would be connected to the Bateman's Bay water supply network.

- a new 880 kL capacity water supply reservoir (Nelligen reservoir) and onsite chlorination dosing system (enclosed within a 2.5 m(w) x 3.5 m(l) x 2.4 m(h) concrete building) at Old Nelligen Road, Nelligen within Lot 1 DP 1264985, to supply water to the Nelligen village reticulation system.

A location map and an aerial overview of the Proposal sites are shown in Figure 1-1 to Figure 1-3. Photographs of the two reservoir sites are provided in the Flora and Fauna and Aboriginal Cultural Heritage assessments provided in Appendix B and C. Plans are provided in Appendix E.

1.4 Land Ownership

The proposed Bay Ridge reservoir would be located within Lot 3 DP 1169262 which is ESC operational land.

The Nelligen reservoir site is located within Lot 1 DP 1264985 which is ESC land which has been acquired from the Forestry Corporation of NSW.

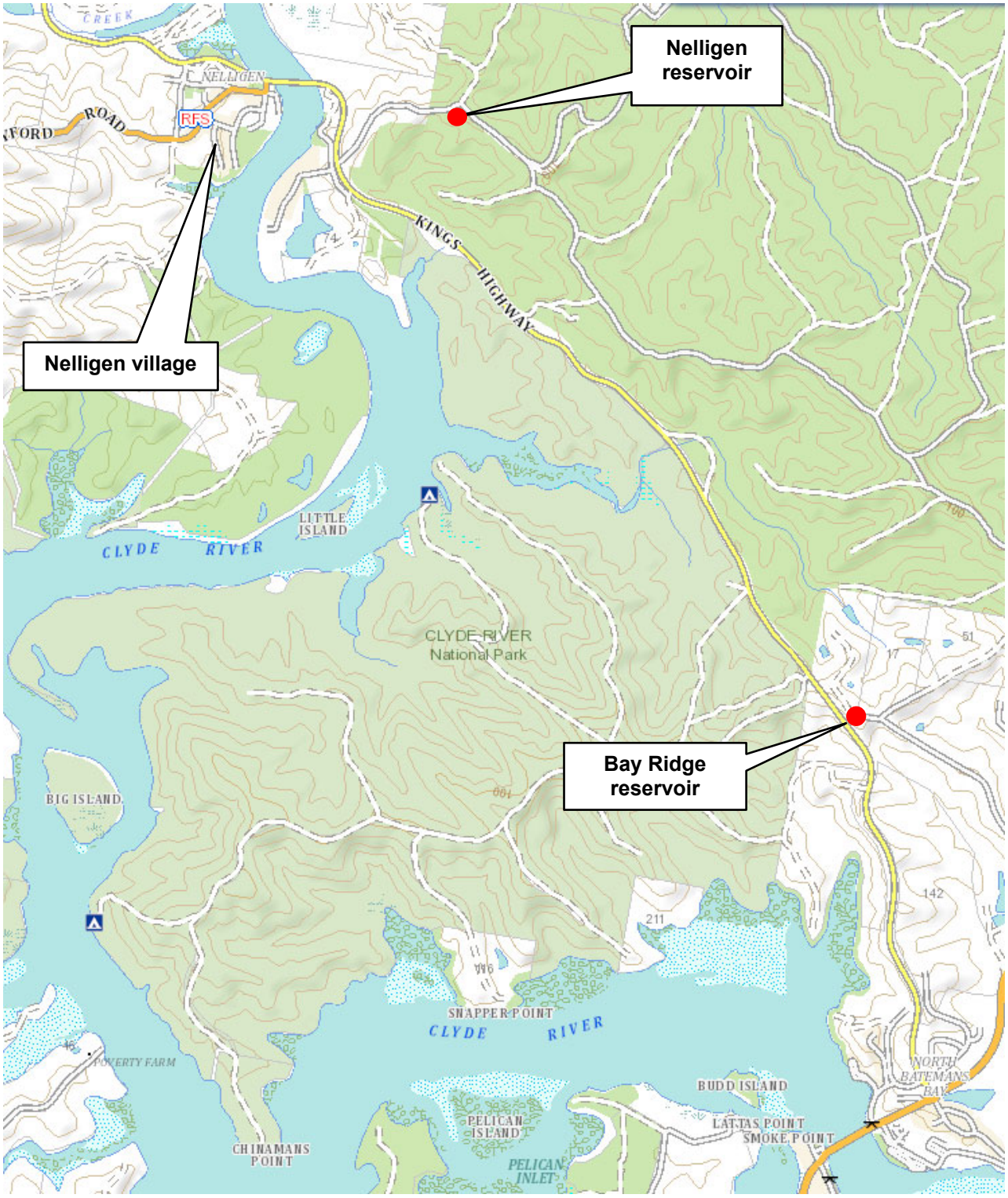

Figure 1-1 Location map of Nelligen village and the proposed location of the Nelligen and Bay Ridge reservoirs

Source: SIX Maps, accessed August 2021

Figure 1-2 Aerial overview of the proposed Nelligen reservoir site (in red)
Source: Six Maps, accessed March2022

Figure 1-3 Aerial overview of the proposed Bay Ridge reservoir site (in red)
Source: DPIE - Crown lands spatial viewer, accessed August 2021

2 Statutory Planning Framework

This section presents the statutory planning and strategic policy context for the Proposal.

2.1 Environmental Planning Instruments

2.1.1 Eurobodalla Local Environmental Plan 2012

The Proposal is located within the Eurobodalla Shire Council (ESC) local government area (LGA). The proposed works would be located within land zoned RU3 Forestry at the Nelligen reservoir site and R5 Large Lot Residential at the Bay Ridge reservoir site under the *Eurobodalla Local Environment Plan 2012* (LEP), as shown in Figure 2-1 and Figure 2-2.

The Eurobodalla LEP 2012 defines water storage facilities and dosing facilities as components of a *water supply system*. The Proposal works are permitted with consent in the two land use zones under the LEP.

The Proposal is not explicitly consistent with all of the aims of the two LEP land use zones which the proposed works would be located. However, *State Environmental Planning Policy (Transport and Infrastructure) 2021* is the relevant environmental planning instrument for the Proposal, as discussed in Section 2.1.2 below.

Furthermore, Clause 5.12 (1) of the Eurobodalla LEP 2012 states that the LEP *does not restrict or prohibit, or enable the restriction or prohibition of, the carrying out of any development, by or on behalf of a public authority, that is permitted to be carried out with or without development consent, or that is exempt development, under State Environmental Planning Policy (Transport and Infrastructure) 2021.* Therefore, the development controls contained within the LEP would not be applicable to the Proposal.

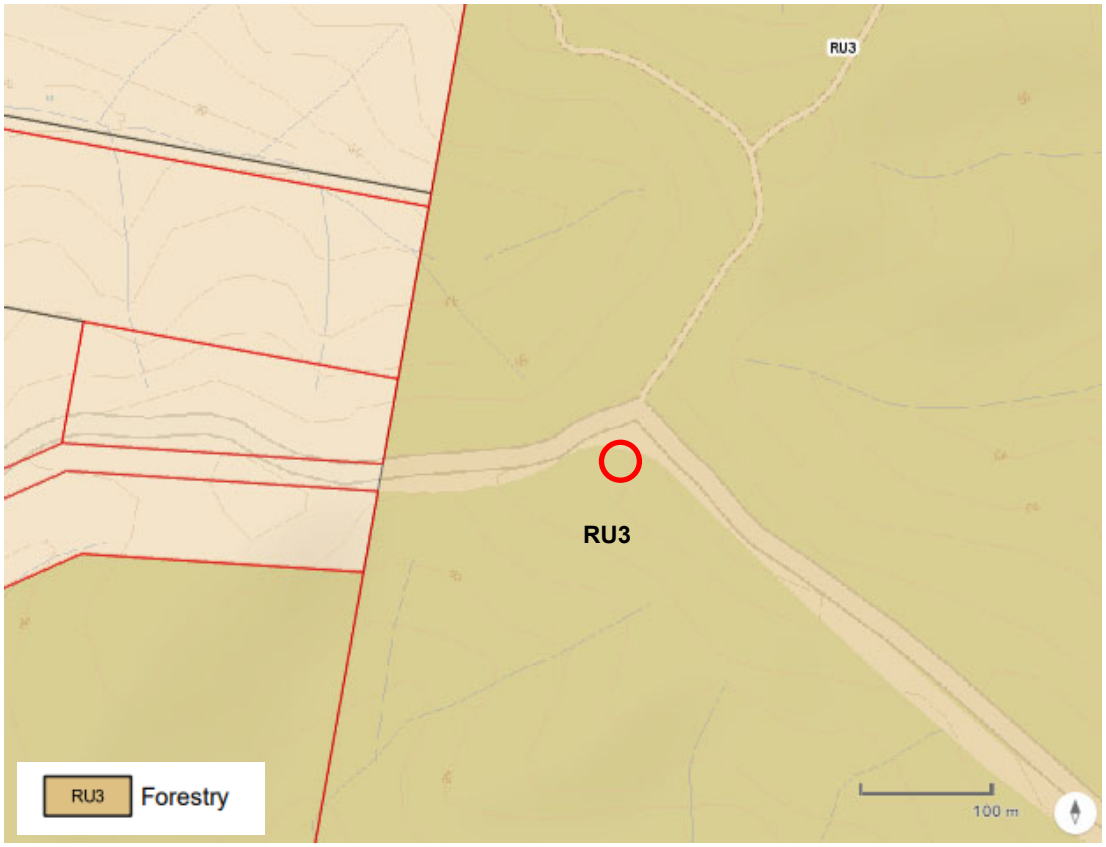

Figure 2-1 Eurobodalla LEP 2012 Land Zoning at the Nelligen reservoir site
Source: NSW Planning Portal eplanning spatial viewer, accessed August 2021

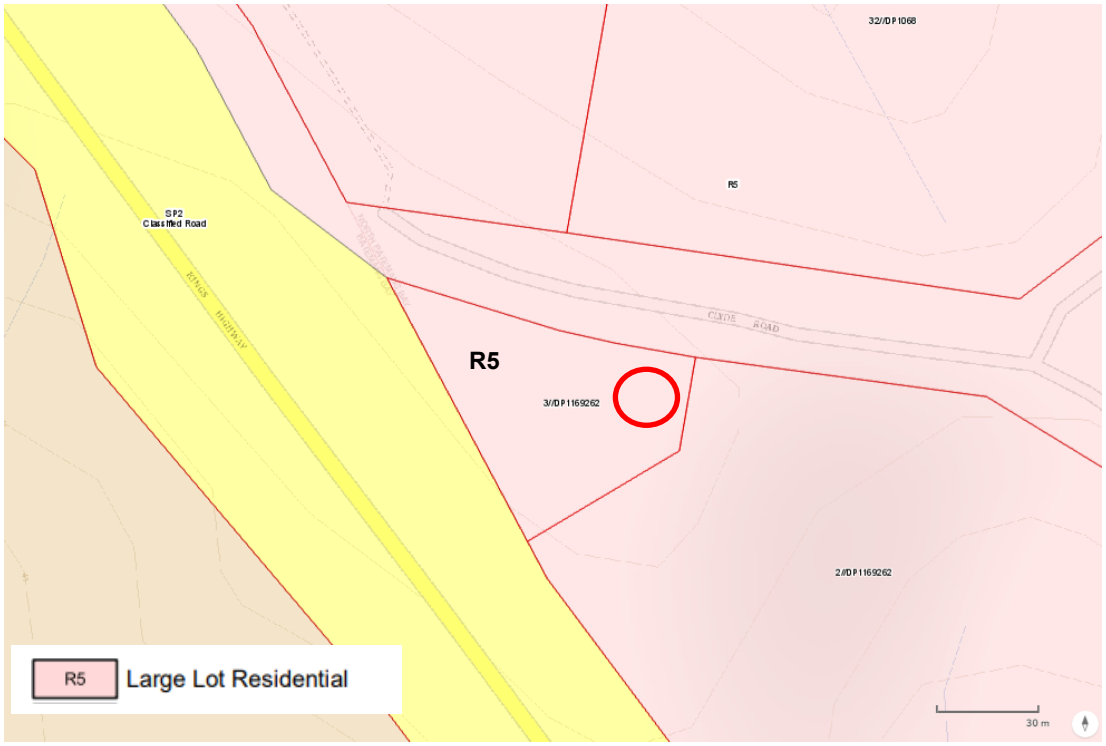

Figure 2-2 Eurobodalla LEP 2012 Land Zoning at the Bay Ridge reservoir
Source: NSW Planning Portal eplanning spatial viewer, accessed August 2021

2.1.2 State Environmental Planning Policy SEPP (Transport and Infrastructure) 2021

State Environmental Planning Policy SEPP (Transport and Infrastructure) 2021 (SEPP (Transport and Infrastructure) 2021) aims to assist in the effective delivery of public infrastructure throughout the State by improving certainty and regulatory efficiency through a consistent planning assessment and approvals regime for public infrastructure and services across NSW. The SEPP provides clear definition of environmental assessment and approval process for transport, public infrastructure and services facilities.

Division 24 Section 2.158(1) of the SEPP (Transport and Infrastructure) 2021 permits development for the purpose of water reticulation systems to be carried out by or on behalf of a public authority to proceed without development consent on any land. Division 24 Section 2.157 defines water reticulation systems as a building or place used for the transport of water, including pipes, tunnels, canals, bores, pumping stations, related electricity infrastructure, dosing facilities and also includes water supply reservoirs. The SEPP removes the need for development consent for the proposed water reticulation works and therefore these works would be assessed under Part 5 of the EP&A Act.

Therefore, the Proposal can be undertaken without development consent.

2.1.3 State Environmental Planning Policy (Biodiversity and Conservation)) 2021

State Environmental Planning Policy (Biodiversity and Conservation) 2021 (SEPP (Biodiversity and Conservation)) aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline. SEPP (Biodiversity and Conservation) provisions relating to Koala habitat do not apply to proposals assessed under Part 5 of the EP&A Act, however it has been taken into consideration for this REF as Eurobodalla local government area is identified under Schedule 2 – Local Government Areas of SEPP (Biodiversity and Conservation).

A Flora and Fauna Assessment undertaken for the Proposal identified one tree species (Forest Red Gum (*Eucalyptus tereticorni*)) recognised under Schedule 3 of SEPP (Biodiversity and Conservation) as a Koala feed tree (See Section 5.4). However, Forest Red Gum was considered to comprise less than 15% of the tree canopy in the vicinity of the Proposal site. As such, the Proposal works area would not constitute 'Potential or Core Koala Habitat' and therefore the requirements of the SEPP would not be triggered.

2.2 Relevant Legislation

2.2.1 Environmental Planning and Assessment Act 1979 (NSW)

The relevant environmental planning instrument for the Proposal is SEPP (Infrastructure) 2007 which removes the requirement to obtain development consent. Therefore, the Proposal has been assessed under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Eurobodalla Shire Council is the proponent and the determining authority for the Proposal.

This REF has been prepared in accordance with Section 5.5 of the EP&A Act, which requires that the proponent take into account to the fullest extent possible all matters affecting or likely

to affect the environment due to the proposed activity. Consideration of the factors listed under Clause 171(2) of the *Environmental Planning and Assessment Regulation* 2021 (EP&A Regulation) has been used to assist in assessing the significance of the Proposal, and is provided in Appendix A.

Ecologically Sustainable Development

The encouragement of ecologically sustainable development (ESD) is one of the Objects of the EP&A Act. The principles of ESD are:

The reasons justifying the carrying out of the development or activity in the manner proposed, having regard to biophysical, economic and social considerations, including the following principles of ecologically sustainable development:

(a) the precautionary principle, namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

In the application of the precautionary principle, public and private decisions should be guided by:

(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and

(ii) an assessment of the risk-weighted consequences of various options,

(b) inter-generational equity, namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,

(c) conservation of biological diversity and ecological integrity, namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,

(d) improved valuation, pricing and incentive mechanisms, namely, that environmental factors should be included in the valuation of assets and services, such as:

(i) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,

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

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

The works are considered to be consistent with these principles. Environmental safeguards have been proposed during the construction works to prevent long term and irreversible environmental degradation in accordance with the precautionary principle and inter-generational integrity. The proposed works would not significantly impact on biological diversity and ecological integrity at the sites.

2.2.2 Local Government Act 1993 (NSW)

The *Local Government Act 1993* principally deals with the legal and governance framework of local councils and county councils in New South Wales. Section 60 of this Act states that a Council must not, except in accordance with the approval of the Minister for Water, Property and Housing, construct or extend water treatment works. As the Proposal works do not require construction or extension of water treatment works, approval is not required under the *Local Government Act* 1993.

2.2.3 National Parks and Wildlife Act 1974 (NSW)

The *National Parks and Wildlife Act 1974* (NPW Act) provides for the statutory protection of Aboriginal cultural heritage places, objects and features. Part 6 of the NPW Act provides specific protection for Aboriginal objects and declared Aboriginal places by establishing offences of harm. It is a defence against prosecution for unintentionally harming Aboriginal Objects if due diligence had been exercised to determine that no Aboriginal object would be harmed, or the harm or desecration was authorised by an Aboriginal heritage impact permit (AHIP).

Investigations have been undertaken into the Aboriginal cultural heritage impacts of the Proposal have been undertaken, including an Aboriginal Cultural Heritage Assessment (see Appendix C and D). The assessments determined that an AHIP would not be required for the proposed reservoir construction works (see Section 5.6).

2.2.4 Heritage Act 1977

The *Heritage Act 1977* protects and aims to conserve the environmental heritage of New South Wales. Environmental heritage is broadly defined under Section 4 of the *Heritage Act* 1977 as consisting of "those places, buildings, works, relics, moveable objects, and precincts, of State or local heritage significance" (Heritage Branch, DoP 2009:4). Aboriginal places or objects that are recognised as having high cultural value (potentially of local and State significance) can be listed on the State Heritage Register and protected under the provisions of the *Heritage Act 1977.*

No items listed on the State Heritage Register and or listed under the Section 170 Heritage and Conservation Register are located in the vicinity of the Proposal works sites (refer to 5.7). It is anticipated that the works can be carried out to avoid impacts to listed heritage items. Therefore, no approval under the *Heritage Act* 1977 is required.

2.2.5 Protection of the Environment Operations Act 1997 (NSW)

The *Protection of the Environment Operations Act 1997* (POEO Act) regulates air, noise, land and water pollution. The Environment Protection Authority (EPA) is generally responsible for implementing the POEO Act and would be the appropriate regulatory authority for the Proposal.

The Proposal does not constitute a scheduled activity listed under Schedule 1 of the POEO Act and therefore an environment protection licence would not be required. Furthermore, as management measures would be implemented to prevent water pollution, it is considered unlikely that a licence would be required under Section 120 of the POEO Act for the pollution of waters.

Other relevant provisions of the POEO Act that the Proposal would need to comply with include:

- Section 115 – It is an offence to dispose of waste in a manner that harms or is likely to harm the environment.
- Section 116 – It is an offence to cause any substance to leak, spill or otherwise escape (whether or not from a container) in a manner that harms or is likely to harm the environment.
- Section 139 – The occupier of any premises who operates any plant (other than control equipment) at those premises in such a manner as to cause the emission of noise from those premises is guilty of an offence if the noise so caused, or any part of it, is caused by the occupier's failure: (a) to maintain the plant in an efficient condition, or (b) to operate the plant in a proper and efficient manner.
- Section 167 – The occupier of any premises must maintain any control equipment installed at the premises in an efficient condition. The occupier of any premises must operate any control equipment installed at the premises in a proper and efficient manner.

2.2.6 Protection of the Environment Operations (Waste) Regulation 2014 (NSW)

The *Protection of the Environment Operations (Waste) Regulation* 2014 sets out the provisions with regards to non-licensed waste activities and non-licensed waste transporting, in relation to the way in which waste must be stored, transported, and the reporting and record-keeping requirements. The proposed works (in particular aspects such as removal of spoil) would be undertaken to be consistent with the requirements of this regulation.

2.2.7 Water Management Act 2000 (NSW)

The objects of the *Water Management Act 2000* (WM Act) are to provide for the sustainable and integrated management of the water sources of the state for the benefit of both present and future generations.

Section 91B(1) of the WM Act requires a water supply works approval to be obtained for a number of works, including:

(b) a work (such as a tank or dam) for the purpose of capturing or storing water.

but does not include:

(e) any work (other than a water supply work under the control or management of… a local water utility) that receives water from a water supply work under the control or management of.. a local water utility.

As such, water supply works approval is not required for the reservoirs as they receive water from an approved water supply work under the control of ESC, which is a local water utility.

Section 91(F) of the WM Act states that an aquifer interference activity cannot be carried out without, or otherwise than as authorised by, an aquifer interference approval. However, extracting less than 3 ML of groundwater per annum is exempt from requiring an aquifer interference licence. Groundwater is not anticipated to be encountered during the works and no groundwater would be extracted during construction or operation of the Proposal.

Nelligen is located in the Clyde Estuaries Tributaries catchment and is subject to the *Draft Water Sharing Plan for the Clyde Unregulated and Alluvial Water Sources 2013.* Council

currently sources water from the Deua and Tuross Rivers under existing water access licenses (WALs). These are subject to *Water Sharing Plan for the Deua River Unregulated and Alluvial Water Sources 20*16, and *the Water Sharing Plan for the Tuross Unregulated and Alluvial Water Source 2016.* The Eurobodalla water supply system is an integrated system and the demand for Nelligen has been modelled and can be accommodated within the existing WALs. No changes to the existing WALs would be required.

2.2.8 Biodiversity Conservation Act 2016 (NSW)

The Biodiversity Conservation Act 2016 (BC Act) protects species of threatened flora and fauna, endangered populations and endangered ecological communities and their habitats in NSW. It also lists Key Threatening Process that adversely affects threatened species, populations or ecological communities or that may cause species, populations or ecological communities that are not threatened to become threatened.

Amongst other matters, offences are established for damage to habitats of threatened species or threatened ecological communities. Defences to those offences include that the act was necessary for the carrying out of an activity by a determining authority within the meaning of, and after compliance with, Part 5 of the EP&A Act . Part 4 of the *Biodiversity Conservation Act 2016* sets out provisions for threatened species and threatened ecological communities and introduces a new biodiversity assessment method (BAM), a new biodiversity offset scheme (BOS) and an expanded biodiversity certification program.

A Flora and Fauna Assessment has been prepared to assess impacts to threatened species and is attached in Appendix B. The assessment concluded that there would be no significant impact to threatened flora or fauna species or their habitat, endangered populations or endangered ecological communities of State conservation significance, provided that the mitigation measures proposed are implemented (see Section 5.4). No approval under the BC Act is therefore required.

2.2.9 Biosecurity Act 2015

The *Biosecurity Act 2015* repeals the *Noxious Weeds Act 1993*, which previously provided regulatory controls and powers to manage noxious weeds in NSW. The *Biosecurity Act 2015* guides the management of weeds at the regional level throughout NSW. Under the Act, all plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant who knows or ought to know of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable. Individual land holders and managers are required under the Act to control priority weeds for their area according to the relevant biosecurity toolset.

One weed species listed under Schedule 3 of the *Biosecurity Act 2015* was identified within the Proposal works area and is discussed further in section 5.4). This weed species would be managed in accordance with the *Biosecurity Act 2015* and the *Biosecurity Regulation 2017*.

2.2.10 Forestry Act 2012

The Nelligen reservoir would be located within former State Forest land which was acquired by ESC in December 2021. A permit for non-forestry use is not anticipated to be required under Section 60 of the *Forestry Act 2012*. However, formal authority should be sought from FCNSW for use of any land within a forestry area under Section 67 of the Forestry Act 2012 prior to

commencing constructions works within areas of State Forest land surrounding the acquired reservoir site.

2.2.11 Roads Act 1993

Under Section 138 of the *Roads Act 1993* a person must not "erect a structure or carry out a work in, on or over a public road." other than with the consent of the appropriate roads authority.

However, Schedule 2 Section 5(1) of the Act does not require a public authority to obtain a roads authority's consent to exercise the public authority's functions in, on or over an unclassified road other than a Crown road. Council is the roads authority for the roads impacted by the proposed works through the installation of new driveway access, and by undertaking these works would be exercising their function as the local water authority. As such no approval under the *Roads Act* 1993 would be required.

2.2.12 Work Health and Safety Act 2011

The Nelligen reservoir operation involves the use of chlorine liquid (sodium hypochlorite) which is classified as dangerous goods (Class 8 - Corrosive Substances) under the *Australian Dangerous Good Code* (National Transport Commission 2020) (ADG Code). The storage and handling of dangerous goods is regulated under Part 7.1 of the *Work Health and Safety Regulation* 2017. Safework NSW must be notified if any dangerous goods, stored and handled above statutory defined quantities are to be used (as per clause 328 of the Regulation). If the proposed Nelligen reservoir is likely to exceed the storage threshold of 100 kg or L of dangerous goods, notification to Safework NSW would be required.

The *Work Health and Safety Regulation* 2017 requires that a register of hazardous chemicals used, handled or stored at the workplace must be kept. The register is to include:

- A list of hazardous chemicals used, handled or stored, and
- The current safety data sheet for each hazardous chemical listed.

2.2.13 Native Title Act 1993 (Commonwealth)

The *Native Title Act 1993* sets up processes to determine where native title exists, how future activity impacting upon native title may be undertaken, and to provide compensation where native title is impaired or extinguished. The Act gives Indigenous Australians who hold native title rights and interests or who have made a native title claim, the right to be consulted and, in some cases, to participate in decisions about activities proposed to be undertaken on the land.

A search of the National Native Title Register found one application which covers the Proposal area (South Coast People – NC2017/003). NTSCORP and relevant Aboriginal community representatives were contacted as part of the Aboriginal Cultural Heritage Assessment (ACHA) consultation process. Twelve Registered Aboriginal Parties (RAPs) were identified and consulted.

2.2.14 Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides for Commonwealth involvement in development assessment and approval in

circumstances where there exist 'matters of national environmental significance'. Matters of national environmental significance include:

- world heritage properties
- national heritage places
- wetlands of international importance
- nationally threatened species and ecological communities
- migratory species
- Commonwealth marine areas
- the Great Barrier Reef Marine Park
- nuclear actions (including uranium mining)
- a water resource, in relation to coal seam gas development and large coal mining development.

A Flora and Fauna Assessment has been prepared to assess impacts to threatened species and is attached in Appendix B. The assessment concluded that it is unlikely that the Proposal would significantly impact any matters of national environmental significance as listed under the EPBC Act, therefore referral to the Commonwealth under the EPBC Act is not required (See Section 5.4).

2.3 Relevant Policies, Guidelines and Standards

The following general policies, guidelines and standards would need to be considered as part of the Proposal and are addressed in this REF;

- *Interim Construction Noise Guidelines* (DECC, 2009)
- *Managing Urban Stormwater: Soils and Construction - Volume 1, 4th Edition* (Landcom, 2004)
- *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW, 2010)
- *NSW Guidelines on Assuring Future Urban Water Security - Assessment and Adaption Guidelines for NSW Local Water Utilities*
- *Code of Practice – Work near Overhead Power Lines* (Workcover NSW 2006)

2.4 Summary of Approvals

The following table provides a summary of the approvals required for the Proposal. Council would be responsible for ensuring that all permits and approvals are obtained, either by Council or by others on behalf of Council, prior to commencement of the relevant works.

Table 2-1 Summary of Approvals and Requirements

Agency	Requirements	Reference
Eurobodalla Shire Council	Determination of the Proposal	Part 5 of EP&A Act
Forestry Corporation of NSW	Authority/consent for construction works within Benandarah State Forest	Section 67 of Forestry Act 2012

2.5 Consultation

A number of government agencies were consulted in relation the Nelligen Water Supply Scheme project. A list of agencies contacted, and a summary of their responses applicable to the Proposal is provided in Table 2-2 below. Copies of the responses received which are relevant to the Proposal are provided in Appendix D.

Table 2-2 Agency Consultation applicable to the Nelligen Water Supply Reservoirs

Agency	Summary of Comments relevant to the Proposal	Addressed in REF
Office of Environment and Heritage (OEH) – **(NB. now known as DPIE – Biodiversity, Conservation and Science (BCS))**	**OEH – 16/11/17** The REF should comprehensively cover the potential direct and indirect impacts of the proposal on flooding, water quality, impacts in river/estuary health, biodiversity and Aboriginal cultural heritage. An Aboriginal Cultural Heritage Assessment (ACHA) report will be produced for the proposal. The ACHA report will consider the geotechnical report as well as the construction works for the rising main. This ACHA and the need for any formal Aboriginal Impact permit (AHIP) to be issued under the *NPW Act 1974* should be referred to South East Regional Operations Division at the Office of Environment and Heritage Office. An REF should be prepared to carry out the environment assessment required under *Part* 5 *of the EP&A Act 1979. OEH* (now DPIE- BCS)	Section 5.3, 5.4 and 5.6
Environment Protection Authority (EPA)	<u>Water Pollution - General</u> The EPA considers that particular care and attention must be placed in the design and operation of the proposal as the receiving waters, the Clyde River, form part of the environmentally sensitive and high conservation value Batemans Marine Park. The EPA also considers that through appropriate environmental assessment and planning, and the implementation of best management stormwater and sediment and erosion control practices, maximum protection of water quality can be achieved. Sediment and erosion control management must be carried out to ensure that any discharge from the site complies with Section 120 of the POEO Act. The environmental assessment should present all of the pollution control measures employed at the site (such as sediment curtain placement etc), any operational procedures, any operational procedures that would be required to prevent the pollution of waters and must also demonstrate that the measures are consistent with the 'Blue Book'. <u>Waste</u>	Section 5.3 Section 5.11

Agency	Summary of Comments relevant to the Proposal	Addressed in REF
	Any waste generated during the project should be assessed in accordance with the Waste Classification Guidelines (EPA, 2014). Any waste that cannot be re-used or recycled must be transported to a place that can lawfully accept such waste for disposal in accordance with the POEO Act and the *POEO (Waste) Regulation 2014.* <u>Noise Pollution</u> Noise generated during the construction phase of the project must be managed in a manner consistent with the principles stated in the NSW Industrial Noise Policy (NSW EPA, 2000). The amenity of residents adjacent to the site must be considered. <u>Air Pollution (including dust)</u> The management of dust around the construction sites and premises once operational is required to reduce the potential for the pollution of waters or impact on amenity of adjacent residents.	Section 5.8 Section 5.9
NSW Forestry Corporation (FCNSW)	FCNSW has no in principle objections to any of the proposed works associated with the Nelligen Water Supply Scheme but there is a need to follow due process if steps have not already been taken to do so. FCNSW noted that: • Any flora and fauna, and cultural heritage investigations/assessments/etc. on State forest require the proponent to apply for a Research Permit (online on FCNSW website - http://www.forestrycorporation.com.au/about/permits) and subsequent conditional approval from Forestry Corporation (FCNSW). There is no fee associated with this process. A key condition of all Research Permits is providing the results to FCNSW.	Permit and authority was obtained by the flora and fauna consultant prior to the Nelligen in forestry land. reservoir site investigation.

Agency	Summary of Comments relevant to the Proposal	Addressed in REF
	• For any other works/operations/investigations on State forest the entity undertaking this work would require an authority letter from FCNSW' to enter State forest for this purpose.	Section 5.2 . A letter of authority is required from FCNSW to enter into State Forest land
	• While it would seem the most practical solution to traverse the Benandarah SF within the existing power supply easement, the current easement holder should be consulted to confirm their concurrence to this proposal to ensure that there will be no easement use conflicts.	Noted

3 Need for the Proposal

This section provides the need and justification for the Proposal.

The village of Nelligen is currently served by rainwater tanks for its potable water supply. ESC is proposing to provide a reticulated potable water supply system to improve the quality, security and reliability of the water supply to the Nelligen village.

The construction of water supply infrastructure including the village reticulation network and trunk water main which form part of the Nelligen water supply scheme would be carried out as three separate packages of works. The village reticulation network and trunk water main works are subject to a separate approval and are not assessed within this REF.

3.1 Option Assessment

The Nelligen Water and Sewerage Strategic Options Report (PWA, 2016) considered options for the implementation of reticulated water services for Nelligen.

The two potential options for provision of water supply to Nelligen included:

- Option 1 – Extract and treat water from the Clyde River.
- Option 2 – Connect to the Existing Bateman's Bay Water Supply System.

3.1.1 Option 2 – Connect to the Existing Bateman's Bay Water Supply System - Preferred Option

Water Supply System

Option 1 was discounted as water from the Clyde River at Nelligen has high salinity and would require the construction and operation of a reverse osmosis plant to treat the water to satisfy the Australian Drinking Water Guidelines (ADWG) water quality requirements. This option would involve a high capital cost and require the construction of significant power supply infrastructure, land acquisition, high operation and maintenance requirements, and ongoing management and disposal of a highly concentrated brine effluent stream. .

Option 2, consisting of the construction of a new water reservoirs at Bay Ridge and Nelligen, was identified as the preferred solution. This option also comprises a new pipeline between Batemans Bay and Nelligen along the Kings Highway and under the Clyde River for connection to a new water reticulation network in the village.

4 Description of the Proposal

This section provides a description of the Proposal which is assessed in this REF.

4.1 Overview of the Proposed Works

The proposed works include the provision of two new reservoirs to supply water to the village of Nelligen.

The reservoirs form part of the Nelligen water supply scheme, whereby potable water would be provided to Nelligen village by connecting to the existing Eurobodalla water supply scheme at North Batemans Bay. The water would be transferred via a new gravity main from a new reservoir located at Bay Ridge and a new service reservoir with chlorination system at Nelligen which would be connected to a new reticulation system throughout the village.

4.1.1 Nelligen Water Supply Reservoirs

The following infrastructure components would be constructed for the Nelligen water supply scheme as part of the first package of construction works:

- An 880 kL concrete reservoir at Bay Ridge (Bay Ridge reservoir) with associated ring and access roads and site security fencing;
- An 880 kL concrete service reservoir (Nelligen reservoir) off Old Nelligen Road with associated ring and access roads; and
- A re-chlorination system located within the Nelligen service reservoir site.

4.1.2 Bay Ridge Reservoir

A new reservoir is proposed on Clyde Road within Lot 3 DP 1169262, a high point along the route to Nelligen from Batemans Bay. The Bay Ridge reservoir would supply the Bay Ridge Estate and store Nelligen's water prior to being transferred to the Nelligen Reservoir . The reservoir would be supplied from the existing 450 mm pressure water main along the Princess Highway in North Batemans Bay.

To provide storage for peak day demand for Bay Ridge Estate and Nelligen, an 880 kL capacity concrete reservoir with an operating height of 9 m and 12.5 m diameter would be constructed on the site.

A 1.5 m wide sealed footpath and 3 m wide sealed bitumen ring road would be constructed around the perimeter of the reservoir within Lot 3 DP 1169262, including new driveway access off Clyde Road to provide vehicular access to the site for operational maintenance. The reservoir site would be fenced with a 1.8 m tall galvanised steel mesh security fence with angled barbed wire capping to prevent unauthorised access.

The location and layout of the proposed Bay Ridge reservoir is shown in Figure 4-1 and Figure 4-2.

Figure 4-1 Location of the new Bay Ridge reservoir
Source: SIX Maps, 2018

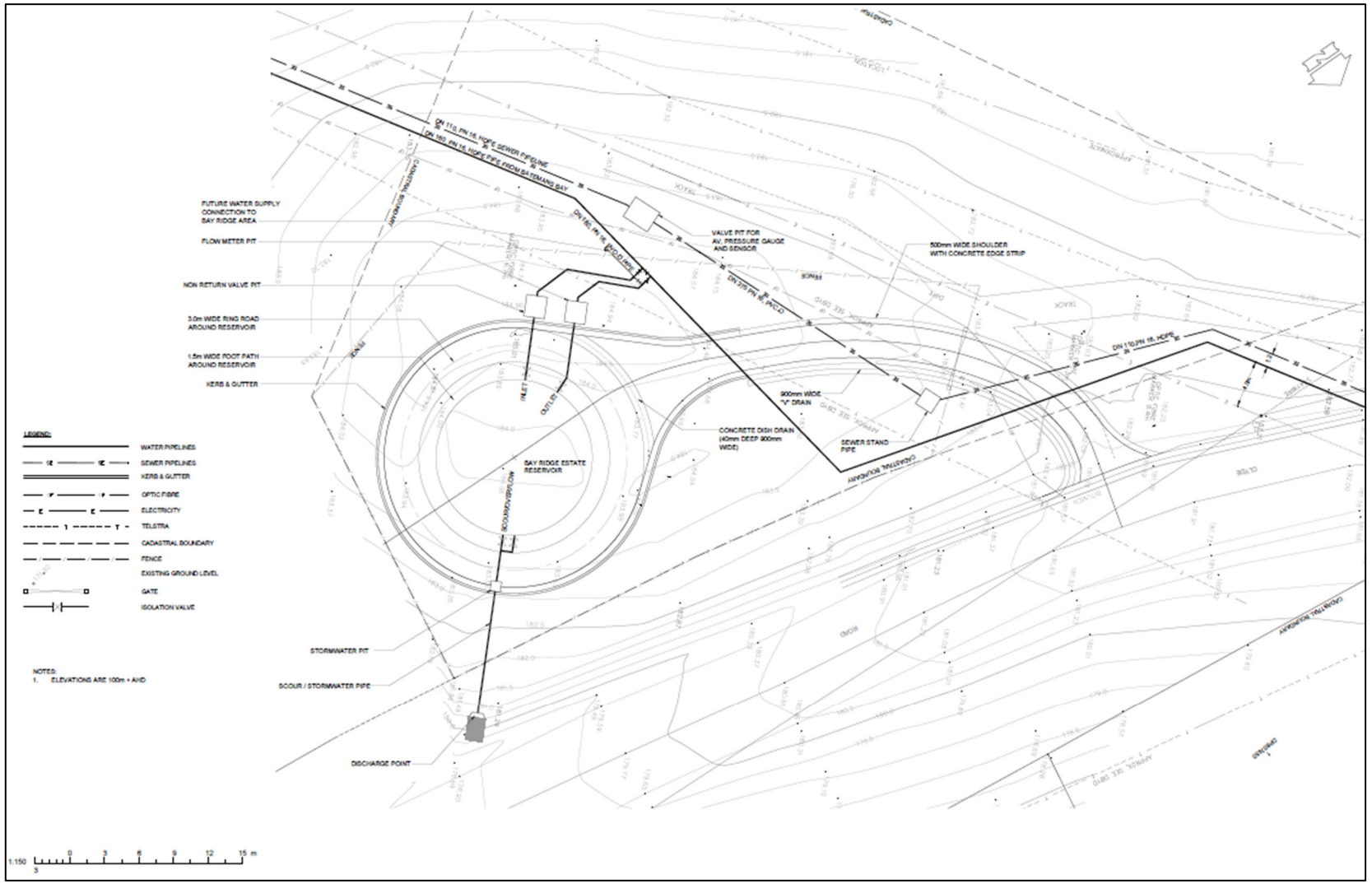

Figure 4-2 Layout of proposed new Bay Ridge reservoir (refer to Appendix E for annotations)

Source: PWA, 2022

4.1.3 Nelligen Reservoir

A service reservoir with a capacity of 880 kL would be required at Nelligen to store water for the village's water supply demands. The new reservoir (approximately 9 m high with a 12.5 m diameter) would be located at a site within Lot 1 DP 1264985 on Old Nelligen Road. The reservoir would be located high enough to be able to reticulate water by gravity to the customers in the village to meet the minimum pressure requirement.

A re-chlorination system would be required at the service reservoir to maintain a residual chlorine level in the water supplied to consumers. A liquid chlorination system using sodium hypochlorite (nominal 6% concentration), housed in a prefabricated concrete building (Dimensions: 2 m x 3.5 m internal, height 2.4 m min.)

), would be constructed within the reservoir site for this purpose.

An access road, comprising a 3 m wide sealed bituminous ring road around the reservoir and roadway (within an easement) from the northern end of the Old Nelligen Road road reserve to the reservoir site would be constructed for maintenance and deliveries. A catchdrain would be constructed within the State Forest land surrounding the reservoir site to manage stormwater runoff from the site.

The location and layout of the proposed Nelligen reservoir are shown in Figure 4-3 and Figure 4-4. A copy of the site layout plan is provided in Appendix E.

Figure 4-3 Proposed site location of Nelligen reservoir on Old Nelligen Road
Source: SIX Maps, 2019

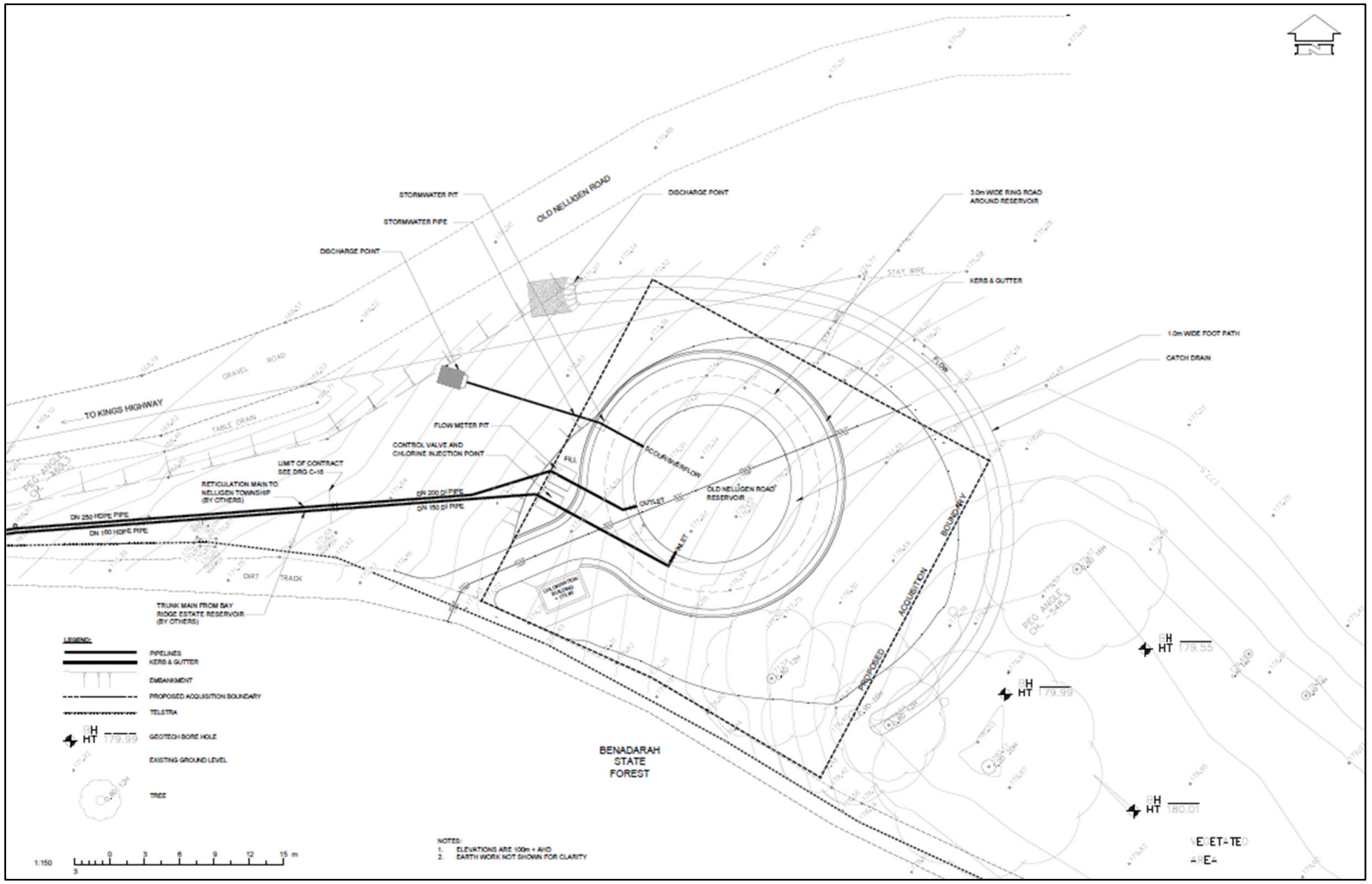

Figure 4-4 Proposed site layout plan of Nelligen reservoir (refer to Appendix E for annotations)

Source: PWA, 2022

4.1.4 Reservoir Access Road Design

A vehicular access road would be provided at both reservoir sites for operational maintenance, with a ring road surrounding the reservoir.

The access road would comprise a 3 m wide sealed bituminous road (2 coat seal with minimum 150 mm thick compacted base layer) with a minimum 2 % crossfall away from the reservoir to assist with surface drainage. A 0.5 m – 1.0 m wide shoulder would be constructed adjacent to the road, with a table drain located on the low side of the road (1.2 m wide, topsoil and turf lined). A general road design cross section is provided below in Figure 4-5 .

A new driveway with v-drain and 500 mm shoulder would be constructed to provide access to the Bay Ridge reservoir site off Clyde Road.

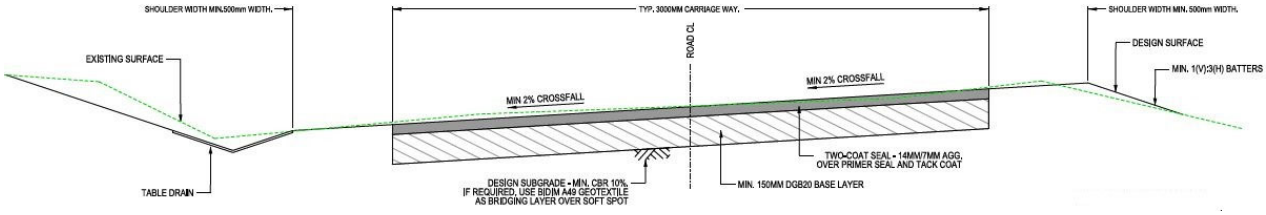

Figure 4-5 Typical cross section of reservoir access road (refer to Appendix E for annotations)

Source: PWA, 2021

4.2 Construction Methodology

The proposed construction methodology would be dependent on several factors including the contractor's chosen method, equipment, and program. A construction methodology has been predicted based on previously constructed similar sized projects.

Construction works are anticipated to start in late 2022 with a construction period of approximately 18 weeks at Bay Ridge and 28 weeks at the Nelligen reservoir site.

The general methodology for the Proposal works is likely to involve the following steps:

- Establish environmental and traffic controls
- Establish worker compound, storage and set down areas within the site
- Clearing of groundcover/ vegetation (as required)
- Excavate/ regrade reservoir site
- Stockpile excavated topsoil separately
- Construct reservoir (incl. re-chlorination building and equipment at Nelligen)
- Construct associated reservoir site pipelines, thrust blocks and valves
- Backfill using excavated soil and topsoil
- Construct permanent site access (including sealed footpath and road) and install security fencing (fencing required only at Bay Ridge)
- Restore disturbed areas and stabilise site (incl. landscaping as required)

- Remove environmental controls only once the site is stabilised.

Generally, the reservoir site levelling excavations should be readily achievable using conventional equipment such as a backhoe or excavator.

Restoration of disturbed surfaces to pre-construction condition would be undertaken for all ground disturbing works.

4.3 Construction Environmental Management

Construction of the Proposal would be undertaken in accordance with a Construction Environmental Management Plan (CEMP) that would be prepared by the construction contractor/s and approved by ESC prior to commencement. The CEMP would incorporate all of the mitigation measures identified in this REF as well as management of the full extent of the works including any site compounds to be established for the construction works, any conditions of approval and any other licence/approval conditions. The CEMP would also incorporate an emergency response plan in case of a pollution incident, a complaints handling procedure and a 24-hour telephone contact number. The complete list of the mitigation measures recommended in this REF is provided in Section 6.

5 Environmental Assessment

This section identifies and characterises the existing environment, the likely potential impacts associated with the construction and operational phases of the project and any associated mitigation measures. Where considered necessary, feasible mitigation measures are identified for implementation as part of the proponent's environmental management.

5.1 Assessment Methodology

The key objectives of this assessment are to:

- Identify those facets of the environment likely to be affected by the Proposal during construction and operation;
- Identify the sensitivity of the site;
- Identify and characterise the associated impacts; and
- Identify and evaluate feasible mitigation measures for the identified impacts.

Environmental issues of potential relevance to the Proposal include:

- Land use
- Geology, soils and water
- Biodiversity
- Bushfire
- Heritage (Aboriginal and historic)
- Noise and vibration
- Air quality
- Traffic and access
- Waste management
- Hazards and risks
- Visual amenity
- Utilities and infrastructure

5.2 Land Use

The new Nelligen reservoir would be located off Old Nelligen Road within Benandarah State Forest on land to be acquired by ESC. Some land clearing of mature native vegetation would be required for the construction of the reservoir and excavation works for site levelling and construction of a stormwater management catch drain would be required within surrounding State Forest land. The proposed location of the reservoir is shown in Figure 4-3.

The Bay Ridge reservoir would be located within ESC-owned land on Lot 3 DP 1169262, as shown in Figure 4-1. The site is located on Clyde Rd, North Batemans Bay and has been subject to past disturbance and land clearing.

Overall, the majority of the two Proposal sites have previously been disturbed and modified due to vegetation clearing and past roadway and services installation, in addition to residential development near the Bay Ridge reservoir. Previous ground disturbance in the Proposal works areas is likely to be variable, ranging from deep to shallow disturbance, with the areas having experienced high levels of previous impact primarily in the form of groundcover clearance and earthworks.

5.2.1 Impact Assessment

The Nelligen reservoir would be located within Lot 1 DP 1264985 under the control of ESC and an easement has been created for the new access road to the reservoir site from the northern extent of the Old Nelligen Road road reserve. However, the surrounding land comprises State Forest land within Benandarah State Forest managed by FCNSW and excavation works and stormwater management works would be carried out with this area. Accordingly, formal authority should be obtained to enter into and for works such as pipeline connections, stormwater infrastructure or foundation excavations within Benandarah State Forest from FCNSW prior to the commencement of works.

Construction of the Nelligen and Bay Ridge reservoirs are not anticipated to significantly impact surrounding land users as they are both located within generally isolated locations with few surrounding residents or other lands users. Access to the Nelligen reservoir site would be via Old Nelligen Rd and the roadway easement within the State Forest land and access to the Bay Ridge reservoir would be via Clyde Rd. Both of these roads are low-volume local roads.

Construction works associated with the Proposal may cause some temporary disruption to users/owners of surrounding private and public land, and to the users local roads. The existing State Forest vehicle tracks and roadway easement to the reservoir site located off Old Nelligen Road would remain accessible throughout the construction works and would not be impeded by the operation of the Nelligen reservoir. Due to the temporary nature of the works, these impacts are not anticipated to be significant, assuming implementation of the mitigation measures listed below.

Given the proper implementation of the mitigation measure provided in 5.2.2, the impact of the Proposal on land use is unlikely to be significant.

5.2.2 Mitigation Measures

- Prior to commencement of construction activities, all necessary approvals, permits, licenses and agreements would be obtained from the relevant landowners/authorities.
- For any construction works or operations on State Forest land outside the Nelligen Reservoir site, an authority letter from the Forestry Corporation of NSW would be required to enter State Forest for construction works.
- ESC should consult and notify neighboring landowners / residents who may be affected by the proposed construction works.
- No construction activities (e.g. tree clearing, stockpiling etc.) would be undertaken on property adjoining the works areas without prior approval of the relevant landowner.

- Appropriate security, supervision and access controls would be put in place and properly monitored to ensure no access by unauthorised personnel, either to the work area or via the work area to adjoining areas.
- The contractor would be required to ensure the necessary care and maintenance of property facilities and operations. However, if any damage does occur to property it would be restored to a condition equivalent to the original condition.
- Temporary fencing and gates would be installed where necessary to exclude the general public from the work sites. Any temporary fencing or gates no longer required would be removed at the completion of the construction works.
- As operator of the water reticulation infrastructure, ESC should provide a 24-hour telephone number so that any issues relating to the operation of the new infrastructure can be clarified and complaints dealt with by those able to respond.

5.3 Geology, Soils and Water

The following description of the Proposal area is taken from the geotechnical assessment carried out by PWA (2021) for the Proposal. A copy of the geotechnical report is provided in Appendix F.

Regional Geology

The Ulladulla 1:250,000 Geological Series Sheet SI 56-13 (First Edition, 1966) indicates that indicates that both the Bay Ridge reservoir site and the Nelligen reservoir sites are located within a sequence of sedimentary and meta-sedimentary rocks. The formation is Ordovician in age and comprises siltstone, claystone, sandstone, quartzite and chert.

The fieldwork revealed that meta-sedimentary bedrock (generally meta-sandstone with some interbeds of phyllite and meta-siltstone) was encountered at shallow depths within the investigated sites.

Subsurface Profile

Bay Ridge reservoir

Meta-sandstone bedrock was encountered from the surface in all four boreholes drilled at the site. The bedrock is highly weathered meta-sandstone to depths of 0.2m to 1.05m. The rock substance strength is very weak or weak to medium strong. From 0.2m depth, highly weathered to moderately weathered bedrock with a weak to medium strong rock substance strength was encountered to the borehole termination depths of 0.8m and 1.1m respectively.

One borehole was diamond cored beyond the TC bit refusal depth of 1.05m to the borehole termination depth of 3.87m. Within the depth of coring, the bedrock is a meta-sandstone, interbedded with phyllite between depths of 1.05m and 1.7m, and 2.42m and 3.87m. The coring also indicated the occurrence of clay in the upper part of the interbedded meta-sandstone and phyllite layer between 1.05 and 1.35m depth. The meta-sandstone layer between 1.7m and 2.42m contains some meta-siltstone/carbonaceous laminations. The bedrock is extremely weathered to highly weathered to 1.5m depth, and then becomes moderately weathered. The rock substance strength varies from very weak between 1.05m and 1.5m depth; weak to 1.7m; strong to 2.42m; and then strong/medium strong to 3.87m

depth. Considering the engineering geology borehole log, it is inferred that the bedrock is variably weathered and contains weaker strength interbeds to a possible depth of 2m.

At the proposed reservoir site, meta-sandstone bedrock is exposed at the ground surface. Consequently, this site classifies as Class A (rock site with little or no movement from moisture changes), at the current state, in accordance with *Australian Standard AS2870-2011 – Residential slabs and footings.*

Nelligen reservoir

Borehole investigation found that gravelly silty sand or sandstone gravel and cobbles in a sandy silt matrix was encountered to depths of 0.4m to 0.6m. The consistency is generally loose to 0.1m depth and then medium dense below this. Meta-sandstone bedrock was then encountered in all boreholes. The bedrock is extremely weathered to highly weathered with a very weak rock substance strength to depths of 0.5m to 1.5m, which also corresponds to the TC bit refusal depths.

One borehole was diamond cored beyond the TC bit refusal depth of 1.0m to the borehole termination depth of 3.4m. Within the depth of coring, the bedrock is a moderately weathered metasandstone, with some fine meta-siltstone/ carbonaceous laminations. The rock substance strength varies from weak to medium strong between 1.00m and 1.76m depth; medium strong to 2.59m; and medium strong to strong to 3.40m depth.

Within the boreholes drilled near the proposed reservoir site, gravelly silty sand or sandstone gravel and cobbles in a sandy silt matrix were encountered to shallow depths of 0.4m to 0.6m, followed by meta-sandstone bedrock. If similar conditions are encountered, the site would classify as a Class A (sand or rock site with little or no ground movement from moisture changes), at the current state, in accordance with *Australian Standard AS2870-2011 – Residential slabs and footings.*

A small proportion of the north-western part of the site would need to be filled to meet the proposed finished floor level. Therefore, the final site classification would depend on the final earthworks proposed.

It is anticipated that moderately weathered meta-sandstone would be exposed at foundation level in the south-eastern part of the reservoir footprint, and extremely weathered to highly weathered meta-sandstone and/or overburden (gravelly silty sand/ sandstone gravel or cobbles in a sandy silt matrix) will be exposed in the north-western part. Consequently, it is recommended that a combination of shallow and deep footing systems be adopted to prevent differential settlement. In the south-eastern part, a shallow footing system may be adopted and founded on moderately weathered bedrock, while in the north-western part a deep edge beam may be required, or alternatively, piers may be adopted and founded within moderately weathered bedrock.

Acid Sulfate Soils

The two reservoir sites are mapped as having no known occurrence of Acid Sulfate Soils.

Water and Flooding

The two reservoir sites are not identified as being located within flood planning areas based on ESC flood planning mapping. Therefore, impacts associated with flooding during construction or operation of the Proposal are not anticipated.

Groundwater

The groundwater depth in the proposed works sites was investigated as part of the geotechnical investigation . No groundwater was encountered within the depths of investigation at the Nelligen or Bay Ridge reservoir sites.

5.3.1 Impact Assessment

Foundation preparation for the proposed reservoirs, ring road/ access roads would be limited to grading of the surface level. The stripping of the surface should expose a subgrade comprising weak to medium strong meta-sandstone; consequently, proof-rolling of the foundation areas should not be required. Excavation in soils and extremely to highly weathered rock would be readily achievable using conventional earthmoving equipment. Excavation in moderately weathered or better quality bedrock is likely to be more difficult and would require a large hydraulic excavator with assistance from a rock breaker.

Depending on the final finished reservoir foundation levels, the subgrade may need to be marginally raised above the stripped levels, in which case fill would need to be imported. Imported fill materials should be of suitable materials (preferably granular for controlled fill) as described in Section 4 of *AS 3798-2007 - Guideline on Earthworks for Commercial and Residential Development*. Also, imported fill materials should be validated in accordance with the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (ASC NEPM). The fill material should not contain asbestos, and not be acid sulfate soil or saline soil. The imported fill material should be 'virgin excavated natural material' (VENM) or 'excavated natural material' (ENM), as defined in the NSW EPA waste classification guidelines because of their low risk of contamination.

The excavation and ground disturbing activities proposed to be undertaken during construction include minor excavation and regrading/ ground levelling which have the potential to cause erosion and sedimentation if excavated materials are transported off-site. Therefore, construction erosion and sediment controls and stabilisation following the works would be required to prevent any impacts off-site, including sedimentation of drainage lines. It should be noted that although a number of mitigation measures to protect water quality have been listed in this REF, further site specific plans and construction details would be included in the CEMP (including an Erosion and Sediment Control Plan (ESCP)) when further detail regarding the construction methodology is known. As only relatively minor earthworks are proposed for levelling and regrading of the reservoir sites, it is assessed that the impacts can be adequately managed through the implementation of appropriate mitigation measures and therefore the overall impact is assessed to be low.

In addition, as part of the construction and commissioning process, the two reservoirs may be required to be disinfected with chlorinated water. To manage the wastewater from this procedure, the Contractor would prepare a management plan for the disposal of the chlorinated water from reservoirs to avoid any potential impact on nearby waterways.

Mitigation measures listed in Section 5.3.2 of this REF would minimise any adverse impacts to water quality in drainage lines and waterways that may arise as a result of these works. Appropriate mitigation measures would also be implemented in the event of accidental spills of fuel and other materials from vehicles and machinery.

Groundwater

Construction works for the reservoirs are not located in close proximity to any watercourses and would comprise shallow excavation for footings. Therefore, no adverse impacts to water quality are anticipated due to these works.

The operation of the reservoirs is unlikely to result in adverse impacts to water quality.

Flooding

No flood risks would be associated with construction or operation of the Proposal.

5.3.2 Mitigation Measures

- A detailed Erosion and Sediment Control Plan (ESCP) shall be prepared as part of the CEMP. The ESCP would describe the site specific measures to be implemented for all works areas, in accordance with the guidelines outlined in the 2004 Landcom publication *Managing Urban Stormwater: Soils and Construction*, 4th edition ("The Blue Book") and *Volume 2a Installation of Services*. The ESCP would need to be site specific and would need to address the following issues to prevent erosion, sediment loss and water quality impacts:
  - Minimisation of disturbance to soil and water adjacent to, and within, all watercourses in the works area.
  - Identification of any environmentally sensitive areas on or near construction sites to ensure runoff is diverted away from sensitive areas.
  - Requirements for vegetation clearing to be kept to a minimum.
  - Retention of all surface runoff on-site and where possible stormwater from off site would be diverted around the construction site.
  - Backfilling and stabilising of the reservoir sites once constructed.
  - Location of construction compounds (at least 50m from any drainage lines).
  - Location and management of stockpiles, such as locating stockpiles away from any drainage lines near the works areas.
  - Regular inspection of all erosion and sediment controls, especially when rain is expected and directly after any rain events.
- The CEMP would incorporate a pollution incident response management plan that defines appropriate procedures for the management and notification of pollution incidents in accordance with s. 147 to 153 of the POEO Act. The EPA is to be notified immediately of any pollution incidents or harm to the environment (as defined under Part 5.7 of the POEO Act).
- Workers are to be made aware of the provisions of Section 120 of the POEO Act with regards to water pollution.
- The Contractor will prepare a management plan for the disposal of the chlorinated water from reservoirs if it is required as part of end phase of the construction works to avoid any potential impact on waterways.

- A site-specific spill management plan would be prepared and include the following requirements:
  - Emergency spill kits are to be kept at the site (vehicle kits).
  - Refueling of machinery to be undertaken in a dedicated area within the construction compound appropriately protected as outlined in the spill management plan.
  - Any chemicals and fuels are to be stored in a bunded area at least 50 metres from any waterway or drainage line.
  - Any hazardous materials stored on site would be stored in the compounds and within impervious and bunded enclosures capable of storing 120% of the volume of material stored there.
  - Workers would be trained in the spill management plan and the use of the spill kits.
- Imported fill materials should consist of suitable materials (preferably granular for controlled fill) as described in Section 4 of *AS 3798-2007 - Guideline on Earthworks for Commercial and Residential Development* and validated in accordance with the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (ASC NEPM). Imported fill material should comprise 'virgin excavated natural material' (VENM) or 'excavated natural material' (ENM) only.
- Works should not be scheduled when heavy rainfall is forecast and works involving soil disturbance should not take place during heavy rainfall periods, other than work necessary to stabilise the site.
- Any excess spoil would be removed off site for disposal in accordance with EPA requirements.
- All stockpiles of materials would be protected from scour and erosion.
- Access tracks would be designed so as to provide adequate drainage and stormwater control.
- All areas where ground disturbance has occurred would be stabilised following completion of works to ensure there is no erosion hazard and restored to their pre-construction condition. This would involve, where required, reshaping the ground surface, covering it with topsoil excavated from the site and re-establishing an appropriate vegetation cover.

5.4 Biodiversity

A Flora and Fauna Assessment was undertaken by Lesryk Environmental (2019) to assess the entire Nelligen Water Supply Scheme project area, including the two reservoir sites . The following is a summary of the assessment, which is provided in Appendix B.

Vegetation mapping

The vegetation within the Proposal area has been typed by OEH (now DPIE- Biodiversity Conservation and Science) with reference to the classifications of Tozer *et al.* (2010). A review of this information identified the vegetation within, and near to, the proposed reservoir sites as being mapped as:

- Spotted Gum - White Stringybark - Burrawang shrubby open forest on hinterland foothills, northern South East Corner
- Spotted Gum - Blackbutt shrubby open forest on the coastal foothills, southern Sydney Basin and northern South East Corner
- Turpentine - Red Bloodwood - Sydney Peppermint shrubby open forest on the foothills, southern Sydney Basin and northern South East Corner.

None of the vegetation communities are is listed as an Endangered Ecological Community (EEC) under the EPBC or BC Act.

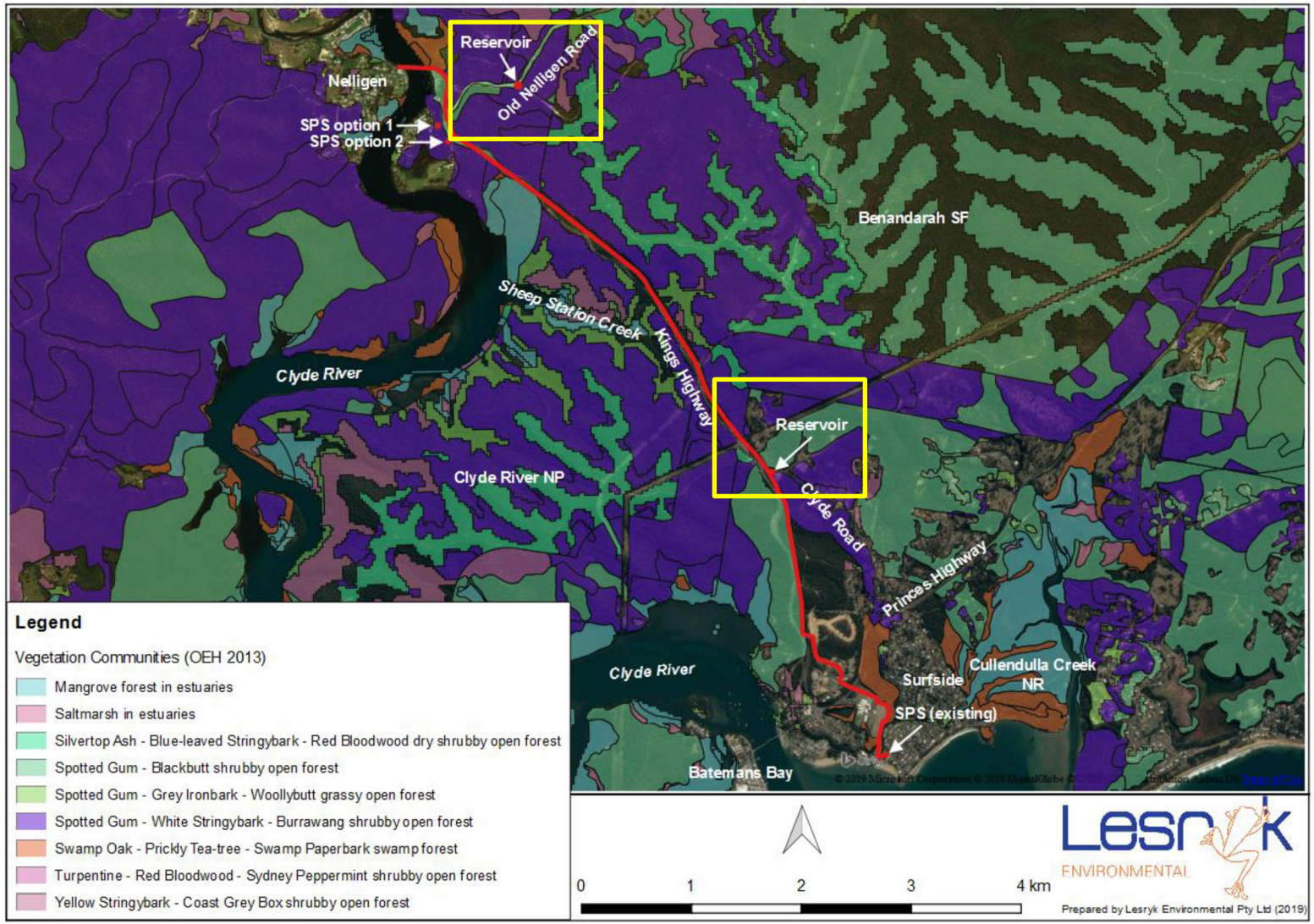

Figure 5-1 Vegetation mapping within the Proposal sites (identified in yellow)

Source: Lesryk Environmental, 2019

Vegetation Communities

The Proposal area consists of:

- Spotted Gum/Blackbutt Woodland
- Red Bloodwood/White Stringybark woodland

The location of each identified vegetation community in relation to the Proposal works areas and its conservation significance has been provided below. A description of each vegetation community is provided in full in Appendix B.

Spotted Gum/Blackbutt Woodland

This vegetation community occurs at the reservoir site at Bay Ridge Estate. The Spotted Gum/Blackbutt Woodland is of no conservation significance.

Red Bloodwood/White Stringybark woodland

This vegetation community occurs at the reservoir site off Old Nelligen Road. The Red Bloodwood/White Stringybark woodland is of no conservation significance.

Threatened Flora Species

Databases searches (NSW and Commonwealth) identified 10 threatened plants listed under the EPBC Act and/or the schedules of the BC Act that have been previously recorded, or are considered to have habitat, in the region of the Proposal sites. Based on the consultation of standard texts and vegetation mapping, there is the possibility that the region may provide potential habitat for some of these species. Therefore, during the course of the field investigation, efforts were made to target these plants and populations, or occurrences of their necessary vegetation associations.

No threatened flora species, or flora of conservation significance, were detected within the Proposal area during the flora and fauna survey. However, based on the presence of suitable habitat it is considered that the East Lynne Midge Orchid has the potential to occur. To determine the presence of any orchid species within area of the Proposal sites, targeted orchid searches were undertaken at five locations in the vicinity of the Proposal sites during a period when the orchid was confirmed to be in bloom at nearby reference sites. A recognized expert on orchids, particularly within the Shoalhaven area was consulted through email around the time of the investigation to discuss the orchid species and its reference sites. At each location, transects of various lengths were established. The orchid was not identified at any of the targeted search locations. To further consider the impact of the Proposal on the East Lynne Midge Orchid, assessments that refer to the EPBC Act's Significant Impact Guidelines and Section 7.3 of the BC Act were undertaken.

Threatened Fauna Species

Consultation of the Commonwealth, NSW databases and applicable background data, identified 54 threatened animals listed under the schedules of the EPBC and BC Acts that have been previously recorded, or are considered to have habitat, in the region of the Proposal sites. Based on a consideration of the habitat needs of those threatened species, combined with the identification of those habitats present within the Proposal area, it was considered there is the potential for some of these animals to occur within, or in the vicinity of the Proposal sites. As

such, during the course of the field investigation, targeted surveys for these species, or their necessary habitats, were undertaken.

By the completion of the field investigation two native mammals, 58 native birds, one reptile and three amphibians had been recorded within, or in the vicinity of the Proposal sites. In addition, several introduced animals were detected.

Of the fauna species detected, two are listed under the Schedules to the BC and/or EPBC Acts, these being the:

- Glossy Black-Cockatoo (*Calyptorhynchus lathami*) – listed as vulnerable under the BC Act.
- Australian Reed-Warbler (*Acrocephalus australis*) – listed as a marine species under the EPBC Act.

The remaining native species recorded during the field investigation are protected, as defined by the NPW Act, but considered to be common to abundant throughout the surrounding region. The species recorded would not be solely reliant upon those habitats present within, or in close proximity to, the Proposal site.

Fauna Habitats

One habitat type available to native fauna was recorded within the Proposal area comprising eucalypt woodland. No rocks, rock outcropping, caves, ledges or crevices are present within the Proposal area.

The Proposal area consists predominantly of native woodland, generally with a continuous and relatively uniform canopy, with several stands occurring in proximity to the proposed works at the Nelligen reservoir site.

Within the proposed Nelligen reservoir site, the adjacent woodland supports trees 10 m to 12 m in height, with the occasional isolated hollow-bearing tree (where the hollow diameter is approximately 150 mm) and regenerating small trees present. The middle-storey is absent, while the understorey is to 5 m high with a ground cover of grasses and ferns, both of these composed of regenerating species. The woodland downslope of this area is observed to be better developed with more mature trees (a number of which are hollow-bearing).

The woodland near the Bay Ridge reservoir area supports trees that are up to 20 m in height; however, no middle-storey is present and ground cover is either absent or composed of isolated grasses and forbs. Leaf litter, ground debris and small 100 mm surface rocks are present in several locations.

Three hollow-bearing trees were identified at, or near to the proposed Nelligen reservoir site. Due to their proximity to the proposed work, the approximate locations of the hollow-bearing trees is shown in Figure 5-2 below and their position recorded using a GPS, the coordinates being:

- E242298; N6051255
- E242288; N6051243
- E242282; N6051239

Figure 5-2 Indicative locations of hollow-bearing trees recorded within and close to the Nelligen reservoir site

Source: Lesryk, 2019

Koala Habitat

Within the entire Nelligen Water Supply Scheme project survey area, four eucalypt species were recorded, one of which (Forest Red Gum (*Eucalyptus tereticornis*)) is listed under Schedule 3 of SEPP (Biodiversity and Conservation) as a Koala Feed Tree. Forest Red Gum is however considered to comprise less than 15% of the tree canopy in the vicinity of the Proposal sites.

Weeds

Of the introduced plant species recorded during the field survey for the Nelligen Water Supply Scheme project area, one is listed under Schedule 3 of the NSW *Biosecurity Regulation 2017* (Blackberry *Rubus fruticosus agg. spp*.). With reference to the DPI NSW Weedwise database, this weed, and three further weed species (Bridal Creeper *Asparagus asparagoides*, Asparagus Fern *Asparagus aethiopicus* and African Lovegrass *Eragrostis curvula*) are also listed as 'priority weeds' in the South East NSW region.

Blackberry, Bridal Creeper and Asparagus Fern are also included on the list of Weeds of National Significance, which is part of a combined State and Commonwealth initiative to combat invasive species.

5.4.1 Impact Assessment

Vegetation Communities

The Proposal has been designed to avoid impacts to undisturbed and remnant native vegetation within the Proposal area, and as such, it is not anticipated that the Proposal would significantly impact directly or indirectly on any native vegetation communities. Impacts would be limited to shrubland/grassland and Spotted Gum/Blackbutt Woodland vegetation communities, which are of negligible conservation significance, and no Endangered Ecological Communities listed under the EPBC Act or BC Act would be impacted by the Proposal .

Threatened Flora

The Proposal would not disturb, remove, modify or fragment any habitats critical to the life cycle requirements of the East Lynne Midge Orchid. Therefore, it is not considered that the Proposal would have a significant impact on this threatened species, its population or habitat.

Threatened Fauna

The Glossy Black-Cockatoo is a thinly distributed species in central and south eastern Australia, living in eucalypt woodland and feeding almost exclusively on casuarina fruit. Within its range it is tied to groves of its food trees, *Casuarina* spp. and *Allocasuarina* spp.

The site investigation of the proposed Nelligen reservoir was conducted on 24 July 2019 and lasted for around 60 minutes. During this investigation, no Glossy Black-cockatoos were observed accessing, or inspecting, the three hollow-bearing trees present at this site, and none were heard calling. During the investigation of the proposed reservoir site, no evidence (e.g. chewed bark, white-wash, bird activity, discarded feathers and so forth) was obtained to suggest that a breeding pair of Glossy Black-cockatoos were using any of the hollow-bearing trees recorded.

The Proposal is not considered to have a significant impact on the local status of the Glossy Black-Cockatoo. The work would not remove any significant portions of this species' roosting or breeding sites and no major foraging areas would be significantly affected. The work would not present a barrier to the dispersal or movement patterns of the Glossy Black-Cockatoo. Therefore, it is considered that the Proposal would not have a significant impact on this species or its habitat.

Fauna Habitats

The proposed works would predominantly be carried out in modified environment areas which have been affected by past and present land use practices, including the installation of infrastructure, the maintenance of road verges and the clearing of areas to permit the construction of roads, urban and semi-rural developments.

The assessment concluded that the Proposal would not have a significant effect on threatened species recorded or potentially occurring, or any areas of their habitats due to the low level of vegetation removal required for the Proposal.

For the purposes of this investigation, it is assumed that the three hollow-bearing trees on the proposed Nelligen reservoir site (shown in Figure 5-2) would be cleared. These three trees are not unique, with other hollow-bearing plants being observed beyond the reservoir site. These trees would not be directly or indirectly disturbed for the Proposal.

Koala Habitat

Forest Red Gum comprises less than 15% of the canopy trees in the vicinity of the Proposal sites. As such, the Proposal area does not qualify as Potential or Core Koala Habitat, pursuant to SEPP (Biodiversity and Conservation) and no further provisions of the SEPP (Biodiversity and Conservation) apply. Therefore, the Proposal does not require the preparation of a Plan of Management for the conservation and management of areas of Koala habitat.

Weeds

Where the four priority weed species occur, they must be controlled to result in their suppression. This should be done at the commencement of work to avoid the further spread of these species.

Assessments of Significance

An assessment of significance on the criteria provided under Section 7.3 of the BC Act was undertaken for threatened fauna species observed during the survey period or with potential to occur within the Proposal area or immediate surrounds. The assessments concluded that the Proposal would not have a significant effect on the threatened species recorded or potentially occurring, or any areas of their habitats.

Assessments referring to the EPBC Act's Significant Impact Guidelines that are relevant to EECs, vulnerable and migratory species have been carried out on the threatened species likely to occur on the within the Proposal area or immediate surrounds or with potential to be indirectly affected by the Proposal. The assessment concluded that the proposed work would not have a significant effect on the East Lynne Midge Orchid, Greater Glider, Grey-headed Flying-fox, Eastern Osprey or Satin Flycatcher. Therefore, it is considered that these matters do not require referral to the Federal Minister for the Environment and Energy for further consideration or approval, nor is the preparation of an SIS/BDAR required.

As the proposed work is not located within the Commonwealth marine area, this being from 3 to 200 nautical miles from the coast, no assessment using the EPBC Significant Impact Guidelines that are relevant to the Commonwealth marine environment has been carried out with regard to the Australian Reed-Warbler, Eastern Osprey and Satin Flycatcher.

It is considered that with adherence to the recommendations provided in Section 5.4.2, no ecological constraints to the Proposal proceeding as planned were identified or considered likely to occur. The adoption of the mitigation measures provided below would ensure that the development is undertaken in an ecologically sustainable manner.

5.4.2 Mitigation Measures

- Vegetation clearing should be limited to the minimum required to successfully complete the Proposal.
- Prior to the undertaking of site clearing work, the hollow-bearing trees present at the Nelligen reservoir site be should be identified and clearly marked by an ecologist and retained where possible. Hollow-bearing trees to be removed should be checked for sheltering animals by a qualified independent ecologist. These trees should be removed in a two-stage process under the guidance of a qualified ecologist, and should involve:
    - Stage 1: All surrounding vegetation to be cleared and grubbed.

  - Stage 2: 24 to 48 hours later the hollow-bearing trees that are to be removed to be inspected by an ecologist. If resident fauna is observed, the hollow section is to be lowered to the ground and the animal allowed to move on of its own volition. If injured the animal is to be taken to a WIRES carer or appropriate veterinarian for care.

- Locations of the hollow-bearing trees to be retained should be included on any plans provided to the Contractor. These plants will require protection during the construction activities, including barriers to avoid root damage within the drip line of any retained tree.
- Where possible, any felled trees should not be mulched but should be relocated locally within the subject site to provide habitat for native species and their prey.
- Preference should be given to traversing and driving over ground cover and understorey vegetation, as opposed to clearing it. Traversing this vegetation will permit it to regenerate post-disturbance.
- Vehicles and machinery should be stored and parked in treeless areas.
- The storage of materials and stockpiling of equipment should also occur within sites/areas that have been previously disturbed and cleared.
- Any animals injured during the clearing work should be collected and taken to a local veterinarian or wildlife carer.
- In accordance with the *Biosecurity Act 2015*, listed weeds identified on site must be controlled to result in their suppression.
- Post-development the reservoir sites should be regularly monitored to manage any occurrences of weeds and other non-native species.

5.5 Bushfire

The proposed works would be located within land which is identified as bushfire prone, including vegetation category 1 and vegetation buffer (refer to Figure 5-3).

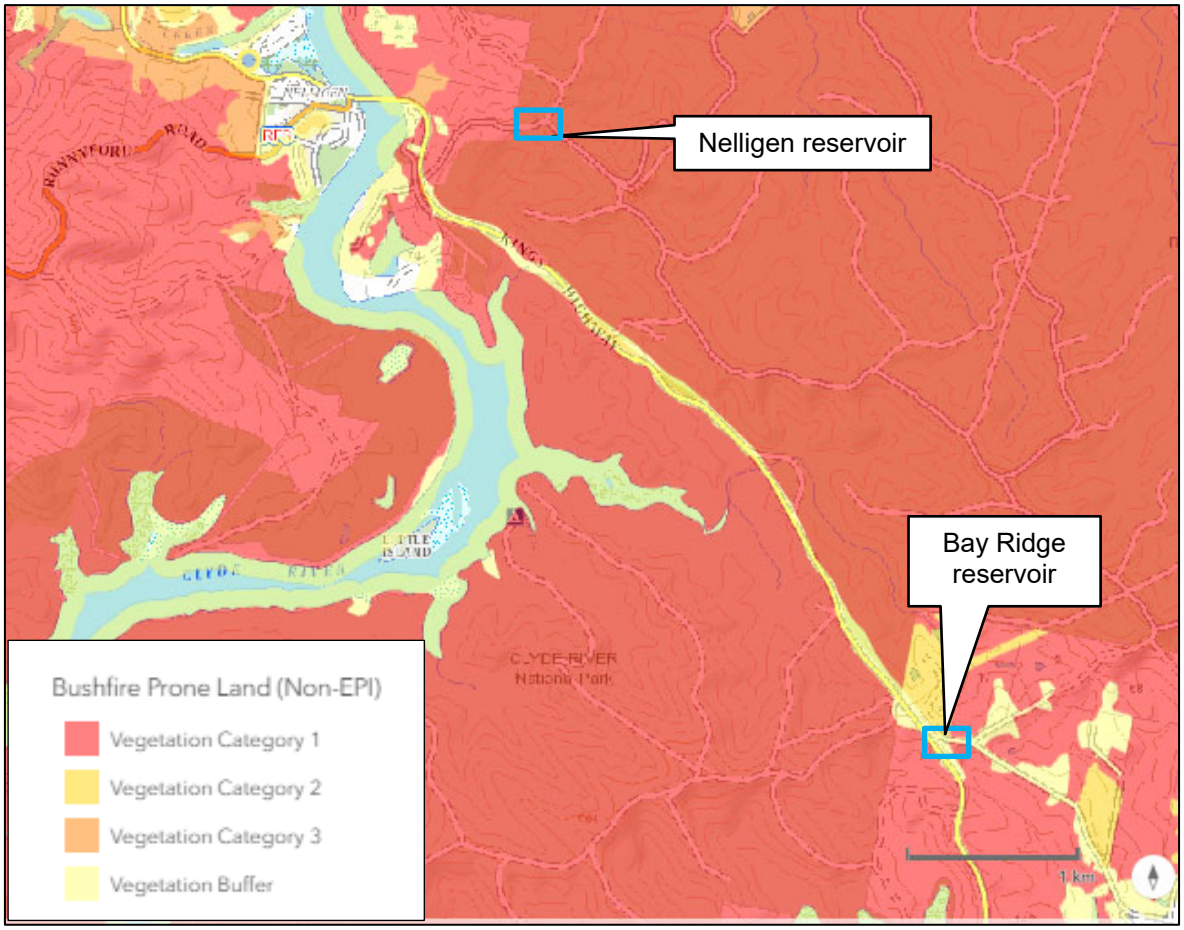

Figure 5-3 Bushfire Prone Land Map for the Nelligen and Bay Ridge reservoir sites
Source: NSWW Planning Portal ePlanning Spatial Viewer, accessed August 2021

5.5.1 Impact Assessment

Design of the aboveground infrastructure at the reservoir sites, including the chlorine storage building at Nelligen reservoir site, should take into consideration the potential bushfire risk at the site, in accordance with the relevant principles of the RFS publication *Planning for Bushfire Protection 2019*. However, it is noted that the clearing of vegetation would reduce the ongoing risk of bushfire at the reservoir sites.

Although the construction activities are not anticipated to pose a significant bushfire risk, mitigation measures listed below would be implemented to ensure that the works do not start a bushfire in grassland and surrounding vegetated areas.

During operation Nelligen reservoir, chlorine would be stored within an enclosed, secure brick structure in a cleared area at some distance from surrounding buildings. As such , bushfire risk associated with chlorine storage at the site is anticipated to be minor.

5.5.2 Mitigation Measures

- Design of the above ground infrastructure at the reservoir sites should take into consideration the potential bushfire risk at the site, in accordance with the relevant principles of the RFS publication *Planning for Bushfire Protection 2019*.

- Construction staff to be made aware of the location of the proposed works in bushfire prone land and the potential for bushfire risk.
- During high risk bush fire danger rating days, no construction activities would be undertaken that pose a risk of starting a bushfire (e.g. welding).
- No maintenance activities should be undertaken at the reservoir sites which pose a risk of starting a bushfire during high risk bush fire danger rating days.

5.6 Aboriginal Heritage

A Due Diligence assessment and subsequent Aboriginal Cultural Heritage Assessment (ACHA) including field survey was undertaken by NSW Archaeology in 2018 to assess the entire Nelligen Water Supply Scheme project, including the two reservoir sites. A subsequent addendum Due Diligence assessment of the relocated Nelligen reservoir site was completed in August 2019. The findings of the ACHA and addendum Due Diligence assessment are summarised below and a copy of the report is provided in Appendix C.

A search of the Aboriginal Heritage Information Management System (AHIMS) was undertaken on 30 September 2017 in respect of the entire Nelligen Water Supply Scheme project area (AHIMS #304613). The search covered an area of 64 square kilometres, encompassed by Eastings: 239000 - 247000, Northings: 6045000 - 6053000, with a buffer of 50 metres. Additional AHIMS searches were carried out for the two reservoir sites in August 2021 (provided in Appendix C) .

The AHIMS database search results indicated that there are 5 previously recorded Aboriginal sites located near the Nelligen reservoir site and 1 previously recorded Aboriginal site in proximity to the Bay Ridge reservoir site (Figure 5-4 and Figure 5-5). No additional registered AHIMS site within or in close proximity to the reservoir sites were identified by the AHIMS search in August 2021.

No new Aboriginal object sites were identified within the reservoir sites during the field survey. One new stone artefact site was recorded during the field survey in proximity the Nelligen reservoir site.

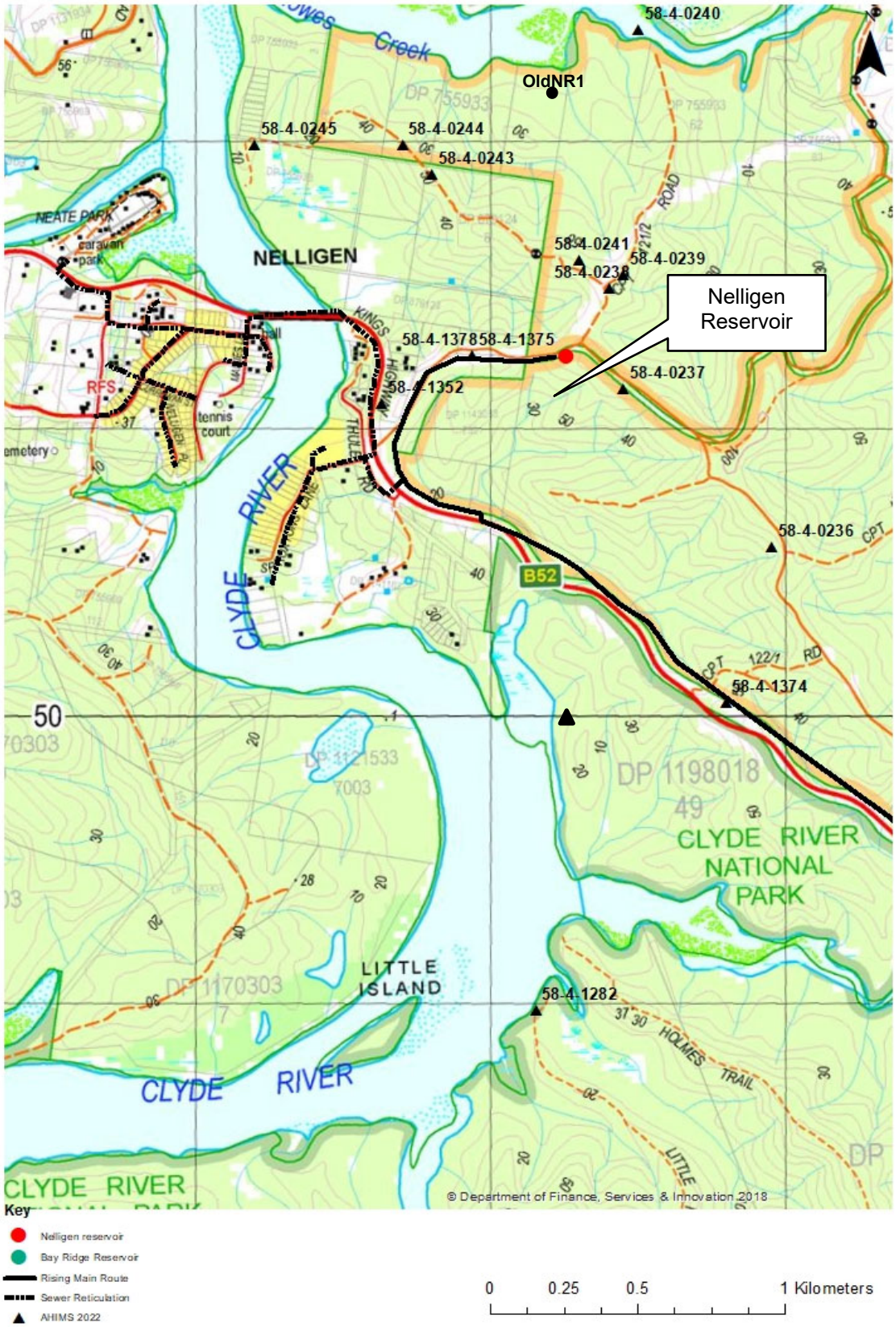

Figure 5-4 Location of existing AHIMS sites in the vicinity of the Nelligen reservoir site (red circle)

Source: NSW Archaeology, 2022

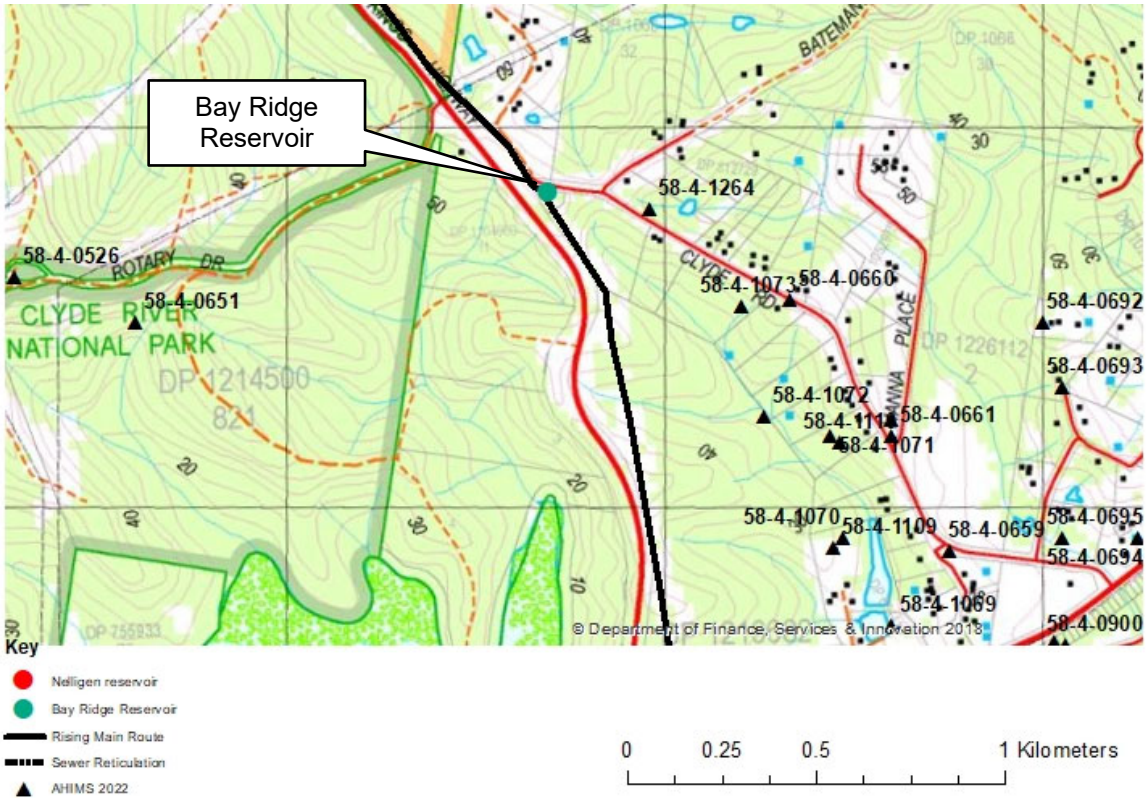

Figure 5-5 Location of existing AHIMS sites in the vicinity of the Bay Ridge reservoir site (in green)

Source: NSW Archaeology, 2022

The ACHA field survey was undertaken by NSW Archaeology in August 2018 and the revised sections of the alignment surveyed in March 2022. A copy of the report is provided in Appendix C. This was undertaken in accordance with the relevant requirements of the following:

- *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW, 2010)*
- *Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010)*
- *Guide to investigation, assessing and reporting on Aboriginal Cultural heritage in NSW (OEH, April 2011)*

In order to identify, notify and register Aboriginal people who may hold cultural knowledge relevant to determining the cultural significant of Aboriginal objects and/or places in the area of the Proposal, correspondence dated 2 February 2018 and 10 January 2022 was sent to seven stakeholders and an advertisement appeared in the 14 February 2018 and 12 January 2022 edition of the local newspaper (Batemans Bay Post). Responses were received from the *Office of the Registrar Aboriginal Land Rights Act 1983* indicating that the project area described did not have Registered Aboriginal Owners pursuant to Division 3 of the *Aboriginal Land Rights Act 1983*. The National Native Title Tribunal provided a report via email on 14 February 2018 and 14 January 2022 listing the South Coast People as Native Title applicants. A letter was sent to this group c/o NTSCORP advising of the project and inviting them to

register an interest. In accordance with Heritage NSW list of known Aboriginal parties for the Eurobodalla Local area (received 6 February 2018 and 24 January 2022), further correspondence dated 13 February 2018and 21 January 2022 was sent to these additional parties.

Information about the Nelligen Water Supply and Sewerage Scheme Project, proposed consultation and assessment methods was forwarded to seven Registered Aboriginal Parties (RAPs) on 7 March 2018 and nine RAPS on 26 February 2022 . No responses were received.

Visual inspection of the land to be impacted by the Proposal was undertaken to inform the ACHA assessment process. The entire area of impact for the Nelligen Water Supply Scheme project was subject to a pedestrian survey. The field inspection was conducted by staff from NSW Archaeology Pty Ltd, on 28 October 2017 as part of the Due Diligence assessment. A further survey was conducted by NSW Archaeology staff and Mr Les Simons (representative from Batemans Bay Local Aboriginal Land Council) on 6 April 2018 and 25 March 2022 as part of the ACHA assessment. The relocated Nelligen reservoir site was surveyed by NSW Archaeology on 21 June 2019.

The ACHA field surveys found that the entire Nelligen Water Supply Scheme Project area has been highly disturbed by previous impacts. Frequently, the landforms have been fundamentally altered by either removal, such as in deep road cuttings, or significant changes due to clearance and erosion or mechanical levelling. These prior impacts have acted to either remove any potential artefact bearing soil profiles or otherwise to disturb them in such a manner as to render their archaeological integrity totally compromised.

One new stone artefact site was recorded during the field survey in proximity the Nelligen reservoir site. The artefact was recorded as -*Old Nelligen Road 1 (OldNR1)* comprised two stone artefacts found on a recreational bike/pedestrian track adjacent to an old bush track on the south side of Old Nelligen Road. The location of the new site is shown in Figure 5-4 and Figure 5-6.

The location of the Nelligen Reservoir was subsequently shifted approximately 300 m east along Old Nelligen Road due to operational design requirements. An additional due diligence assessment, including a field inspection, was undertaken on the 21 June 2019 as an addendum to the ACHA assessment. The site survey found that the relocated Nelligen Reservoir site was mostly cleared however some tree removal would be required for the proposed works.

No previously identified AHIMS sites were recorded at the new Nelligen reservoir site and no Aboriginal objects or scar trees were found during the field inspection. Ground exposure and archaeological visibility was reasonable and it was concluded that the absence of artefact recordings was an accurate reflection of the archaeological potential of the area.

The Bay Ridge reservoir site was included as part of the Kings Highway power supply easement survey area. The entire survey area, including the reservoir site, was found to be highly disturbed by previous clearance, road excavation and drainage works. Much of the original land surface is highly eroded. No previously recorded or new Aboriginal sites were identified at the proposed reservoir site.

A summary of existing recorded and the new Aboriginal object site identified in or near the Nelligen and Bay Ridge reservoir site impact areas based on the field survey are provided in Table 4 below.

Table 5-1 Summary description of Aboriginal object sites located in the Proposal area

Site Name and AHIMS ID	Easting (GDA)	Northing (GDA)	Description	Proposed Impacts
Old Nelligen Road 1 (OldNR1) AHIMS ID: 58-4-1375 (*Duplicate:* *58-4-1378)*	241942	6051258	Two artefacts (silcrete flakes) on a crest landform. Highly disturbed. Very low density artefact distribution. No subsurface potential	None for reservoir works. In area of Nelligen Reservoir pipeline;
RMS Nelligen Artefact Scatter 1 AHIMS ID: 58-4-1352	241635	6051090	Artefact	None
9/PK/28; AHIMS ID: 58-4-0241	242304	6051591	Artefact Open Camp Site	None
89/PK/32; 89 AHIMS ID: 58-4-0239	242454	6051541	Artefact Open Camp Site	None
89/PK/33; AHIMS ID: 58-4-0238	242404	6051491	Artefact Open Camp Site	None
89/PK/35; AHIMS ID: 58-4-0237	242454	6051141	Artefact Open Camp Site	None
CR-1 AHIMS ID: 58-4-1264	244964	6047791	Artefact : 2	None

Figure 5-6 Location of Old Nelligen Road 1 site (AHIMS ID: 58-4-1375) in relation to the Nelligen reservoir site

Source: SIX Maps, August 2021

5.6.1 Impact Assessment

The nature of the proposed works are such that the landscape will be minimally impacted. In respect of Aboriginal objects, archaeological deposits and so on, *direct harm* would not occur as a result of the Proposal.

The Nelligen Reservoir site was found to be highly disturbed as a result of high levels of previous European activities such as forestry, mechanical excavations, road construction, electricity easement clearance, vehicle traffic and recreational bike use and natural erosional process. It was concluded that the area is of very low archaeological potential.

One recorded Aboriginal object site (Old Nelligen Road 1 – AHIMS ID: 58-4-1375 (duplicate site AHIMS ID:58-4-1378) is located in proximity to the Nelligen reservoir site. The location of the site is noted in Table 5-1 and shown in Figure 5-6 . If machinery or equipment is located in this area, the site should be cordoned off for the duration of construction works with a 10 m buffer to avoid impacts to this site.

The Bay Ridge reservoir site archaeological potential is considered very low. The landforms in the area are not archaeologically sensitive (artefact density is predicted to be very low) and there are high levels of previous disturbance. Much of the original land surface is disturbed and highly eroded.

The NSW Archaeology ACHA concluded that there are no cultural archaeological or cultural heritage constraints in regard to the proposed reservoir construction works, and that no further cultural and archaeological heritage investigations are required in respect of the proposed activity. The ACHA assessment found that an AHIP would be required for works associated with other works components of the Nelligen Water Supply and Sewerage Scheme Project as five Aboriginal object or sites are located within the construction works footprint in areas which would not be impacted by the reservoir works. However, an Aboriginal Heritage Impact Permit (AHIP) would not be required for the proposed Nelligen and Bay Ridge reservoir construction works, as no Aboriginal sites or objects would be impacted by the Proposal.

The mitigation measures provided in Section 5.6.2 should be implemented to provide guidance in regard to managing and mitigating potential Aboriginal cultural heritage impacts during construction works.

No Aboriginal cultural heritage impacts are anticipated during operation of the Proposal.

5.6.2 Mitigation Measures

- If machinery or equipment will be located in proximity to Aboriginal object site Old Nelligen Road 1 – AHIMS ID: 58-4-1375 which is located in proximity to the Nelligen reservoir site. (location of the AHIMS site shown in Table 5-1 and shown in Figure 5-6 of the REF), the site should be cordoned off with a 10 m buffer for the duration of construction works to avoid impacts to the site.
- In the event that potential Aboriginal objects are encountered (including skeletal material), the following Unanticipated Finds Protocol should be followed:

  Unanticipated Finds Protocol:

  - All ground surface disturbance in the area of the finds should cease immediately once the finds are uncovered.
  - The discoverer of the find(s) would notify machinery operators in the immediate vicinity of the find(s) so that work can be halted; and the Principal's Authorised Person would be informed of the find(s).
  - If there is substantial doubt regarding an Aboriginal origin for the finds, then gain a qualified opinion from an archaeologist as soon as possible. This can circumvent proceeding further along the protocol for items which turn out not to be archaeological. If a quick opinion cannot be gained, or the identification is positive, then proceed to the next step.
  - Immediately notify the following authorities or personnel of the discovery:
    - Heritage NSW; and
    - Relevant Aboriginal Community Representatives.
  - Facilitate, in co-operation with the appropriate authorities and relevant Aboriginal community representatives:
    - The recording and assessment of the finds;

  - Fulfilling any legal constraints arising from the find(s). This would include complying with Heritage NSW directions; and
  - The development and conduct of appropriate management strategies. Strategies would depend on consultation with stakeholders and the assessment of the significance of the find(s).

- Where the find(s) are determined to be Aboriginal Objects, any re-commencement of construction related ground surface disturbance may only resume in the area of the find(s) following compliance with any consequential legal requirements and gaining written approval from Heritage NSW (as required).

5.7 Historic Heritage

The Australian Heritage Database, State Heritage Register and Inventory and Eurobodalla LEP 2012 were reviewed and searched for historical heritage items in the vicinity of the proposed reservoir sites.

The reservoirs sites are not located in close proximity to any registered local heritage items listed under the Eurobodalla LEP 2012 or the State Heritage Register under the *Heritage Act 1977*. The closest heritage item to the Nelligen reservoir site is a local heritage item (Ferry Masters Residence, Item # I315 under the Eurobodalla LEP 2012) which is located approximately 550 m to the west of the site on Thule Road. No listed heritage items are located in the vicinity of the Bay Ridge reservoir site.

5.7.1 Impact Assessment

No impacts are anticipated to occur to any local or State heritage items during construction or operation of the Proposal.

5.7.2 Mitigation Measures

- Construction staff would be made aware that archaeological relics are protected under the *Heritage Act 1977*. In the event that any relics are discovered during the course of the works, work would cease in the affected area and Heritage NSW and ESC would be contacted.

5.8 Noise and Vibration

The Nelligen reservoir site is located in a relatively secluded location adjacent to cleared vacant land to the north and the Benandarah State Forest. One residential noise receiver is located approximately 500 m to the west of the site.

The Bay Ridge reservoir is also located within a relatively secluded bushland location. The Kings Highway is located approximately 70 m to the south-west of the site beyond the power supply easement and a narrow vegetated area, and bushland is present to the north on the opposite side of Clyde Road. A residential dwelling is located on the adjacent lot to the south-east, approximately 15 m from the reservoir site.

Noise monitoring was not undertaken as part of the REF, however background noise levels in the Proposal areas are likely to vary from 35-40 dB(A) around the State Forest bushland and low density rural residential areas.

5.8.1 Impact Assessment

Construction

The typical A-weighted sound power levels for equipment which may be required to undertake the construction works are listed in Table 5-2 below (it is noted that this list is not definitive and these levels are taken from the *Australian Standard AS2436-2010 Guide to Noise Control on Construction, Demolition and Maintenance Sites*).

Table 5-2 Construction Equipment Sound Power Level

Equipment	Typical Sound Power Levels (dB)	Sound Pressure Level at 15m distance (dB(A))	Sound Pressure Level at 100m distance (dB(A))
Excavator	118	83	70
Truck	117	82	69
Light vehicles	106	71	58
Jackhammer	121	86	73
Rock breaker	118	83	70
Machine mounted drill	116	81	68
Compressor (silenced)	101	66	53
Concrete agitator truck	109	74	61
Hand Tools	102	67	54
Crane (mobile)	104	69	56

Notes: The method specified in AS2436 suggests that errors are introduced for distances greater than 100m from the sound source.

The total duration of construction works is anticipated to be 18 weeks for Bay Ridge and 28 weeks for the Nelligen reservoir. The reservoir sites are located in areas with few surrounding sensitive noise receivers; therefore, noise and vibration during construction would impact a relatively small number of sensitive receivers.

Under the *Interim Construction Noise Guideline* (DECCW, 2009) construction noise criteria for residences where the construction duration is greater than three weeks is the rating background noise plus 10 dB(A), and the resultant noise management level for the proposed works would be 50 dB(A) (internal). Based on the typical sound power levels in Table 5-2 and using the methodology in the *Australian Standard Guide to Noise and Vibration Control on*

Construction, Demolition and Maintenance Sites and the *Interim Noise Construction Guideline*, the maximum predicted noise levels at the closest residence (15 m away) to the Bay Ridge reservoir site during construction may exceed the recommended noise affected level as well as the highly affected noise level (75 dB(A)) above which there may be strong community reaction to noise (DECCW, 2009).

Noise levels would vary depending on the nature of the activities being undertaken. The use of several items of construction equipment simultaneously is only expected to occur intermittently. In addition, construction hours would be restricted to the normal daytime construction hours as specified by EPA and the nature of the works would be temporary. However, overall impacts are not anticipated to be significant due to the limited development in the immediate vicinity of the reservoir sites.

The use of the construction equipment listed in Table 5-2 also has the potential to cause some vibration impacts, although it should be noted that no blasting would be undertaken during the works.

The vibration generated from construction works for the chlorination system would vary depending on the level and type of activity carried out at each site during each activity. Potential vibration generated to receivers for the works would be dependent on separation distances, the intervening soil and rock strata, dominant frequencies of vibration and the receiver structure.

Dominant vibration generating plant include:

- Bulldozer
- Excavator
- Compactor

There is the potential for the nearest affected residential receiver to be affected by the above listed construction plant at the Bay Ridge reservoir site. For any residences located in close proximity to any such works, control measures to minimise noise and vibration impacts would be implemented during construction of the Proposal as part of the contractor's Construction Environmental Management Plan (CEMP).

Some low-level operational noise would occur during the operation of the re-chlorination system at the Nelligen reservoir site or during maintenance. However, operational noise is anticipated to be intermittent and of a low volume as the re-chlorination system will be located within a building, within a relatively isolated location, approximately over 500 m from the closest sensitive noise receiver. Therefore, is not anticipated to significantly impact on nearby residential or other land users.

5.8.2 Mitigation Measures

- Community notification would be undertaken where appropriate and where work is likely to cause vibration or offensive noise and impact the public and nearby residents.
- Undertake construction works in accordance with the *NSW Government Ministerial Environment Planning and Assessment (COVID-19 Development – Infrastructure Constructions Work Days No.2) Order 2020* (Order). Pursuant to cl 6 of the Order, the Proposal can be carried out on Saturdays, Sundays, and Public Holidays, in the hours set

out for Monday-Friday in the approval, i.e. 7am to 6pm. It should be noted that during the extended times, works must not involve the carrying out of rock breaking, rock hammering, sheet piling, pile driving or similar activities, and that the contractors must take all feasible and reasonable measures to minimise noise. As per cl. 2 of the Order, the Order will remain in force until the 'prescribed period' as defined in s. 10.17 of the EP&A Act. The prescribed period is currently until 31 March 2022.

- Should the Order cease to apply, construction works would only be undertaken during standard hours, being between 7am to 6pm Monday to Friday; 8am to 1pm Saturdays. No work would be undertaken on Sundays, Public Holidays or outside these work hours without notification to affected community, Council and EPA. Notification would provide the following details:
  - The locations and types of surrounding receivers likely to be affected;
  - The nature of the Proposal;
  - The noise characteristics of any powered equipment likely to be used;
  - Measures to be taken to reduce noise emissions; and
  - Any other information the Council may request.
- Control measures to minimise noise and vibration impacts on adjoining land would be implemented during construction as part of the contractor's CEMP, which would require review by ESC prior to commencement of works. The CEMP would address site specific issues, including limited work hours and noise and vibration reduction practices, taking into consideration DECCW's Interim Construction Noise Guideline (in particular Tables 4 – 10) and Assessing Vibration: A Technical Guideline (in particular mitigation measures in Section 3). Mitigation measures to minimise noise and vibration impacts may include the following:
  - Optimum siting of work areas, vehicle and plant parking areas, materials stockpiles and equipment storage areas in locations where potential acoustic and vibration impacts would be minimised;
  - Regular maintenance of all plant and machinery used for the project;
  - Identify locations where construction noise and vibration is most intrusive and develop strategies to reduce impacts for these areas.
- All construction machinery is to be turned off when not in use.
- Use quieter and less noise emitting construction methods where feasible and reasonable.
- All plant and equipment to be appropriately maintained to ensure optimum running conditions, with periodic monitoring.
- Plant used intermittently to be throttled down or shut down when not in use where practicable.
- Non-tonal reversing beepers (i.e. quackers or an equivalent mechanism) should be fitted and used on all construction vehicles and mobile plant regularly used on site for periods of over two months where practicable.

- High noise generating plant and equipment, such as rock hammers, should be used only when required (if hard rock is encountered).

5.9 Air Quality

Air quality is expected to be good, with the main influence on air quality in the area being vehicle emissions associated with moderate and low traffic volumes along the Kings Highway and local roads, respectively. There are no point sources of air pollution in the vicinity of the Proposal sites. However, in high wind events, dust can be a major source of air particulates.

5.9.1 Impact Assessment

The main impact to air quality during construction would be expected to arise from the generation of airborne localised dust associated with earthworks and from trucks transporting materials to and around the construction sites. This is not anticipated to cause notable adverse environmental impacts unless the weather is particularly windy. Dust suppression methods, including the use of water carts, would be applied on windy days to prevent dust being transported off the reservoir site.

Local air quality may be affected by emissions from construction traffic. These emissions would, however, occur only intermittently, and are expected to be minor and temporary. It would be unlikely that they would contribute to a permanent detectable reduction in local air quality.

Construction vehicles and machinery would generate greenhouse gas emissions during the works. The Proposal involves the pumping of water which would require energy derived from fossil fuel use and therefore result in the generation of greenhouse gases. The greenhouse gas emissions generated from the construction and operation of the Proposal would not be expected to be significant.

With implementation of the recommended mitigation measures, potential air quality impacts during construction are considered minor and unlikely to be significant.

No adverse air quality impacts are anticipated during operation of the reservoirs.

5.9.2 Mitigation Measures

- Construction vehicles and equipment would be suitably serviced within the six-month period prior to commencement of construction activities and all necessary maintenance undertaken during the construction period to meet EPA air quality requirements.
- The excessive use of vehicles and powered construction equipment would be avoided.
- All construction machinery would be turned off when not in use to minimise emissions.
- Construction contractors would monitor dust generation potential.
- Dust suppression methods including the use of water carts would be applied where required (i.e. on windy days when earthworks and vehicle movements are generating dust).
- Any stockpiled spoil/fill would be protected to minimise dust generation to avoid sediment moving offsite.
- Vehicles transporting spoil from the sites would be covered.

5.10 Traffic and Access

The two reservoir sites would be accessed from low-traffic local roads. The Nelligen reservoir site would be accessed via Old Nelligen Road off the Kings Highways and the Bay Ridge reservoir is accessible via Clyde Road. However, no formal access roads are present within the proposed reservoir sites.

5.10.1 Impact Assessment

The Nelligen and Bay Ridge reservoir sites would be accessed using existing sealed public roads and unsealed access tracks within the sites during the construction works. Clearing of groundcover vegetation and the creation of new access tracks would be required within the reservoir sites and existing public roads, such as Old Nelligen Road, may require upgrades to be made suitable for heavy vehicles and machinery.

Impacts may occur during construction works to local vehicle traffic volumes due to an increase in construction vehicles and machinery accessing the sites during the works. The anticipated increased traffic movements due to construction vehicles would be short term and relatively infrequent and therefore are not expected to result in a significant impact on the local road network. There is likely to be some impacts to road users such as minor temporary disruptions to traffic flow on Clyde road and Old Nelligen Road. Works would be carried out so as to minimise interruption to access for nearby landowners. Overall, temporary impacts to vehicular traffic would occur during construction. However, traffic impacts to surrounding roads users during construction works are not anticipated to be significant due to the limited development in the immediate vicinity of the reservoir sites and through the implementation of a Traffic Control Plan (TCP) for the works.

Permanent sealed access roads would be constructed within the reservoir sites including ring roads around the base of the reservoirs to provide access for operational maintenance. However, traffic impacts are not anticipated during the operation of the reservoirs, as the sites would only be accessed for scheduled maintenance by Council staff and for occasional chlorine deliveries to the Nelligen reservoir site.

5.10.2 Mitigation Measures

- The contractor would prepare a Traffic Control Plan as part of the CEMP, to be reviewed by ESC prior to commencement of works. The Traffic Control Plan would include measures to minimise traffic impacts ensure public safety and would be prepared in accordance with:
    - *RMS' Traffic Control at Work Sites Manual, (July 2018), and*
    - *Australian Standard 1742.3 - 2009 Traffic Control for Works on Roads.*
- Prior to the commencement of works, existing access tracks and roads that would be used by heavy vehicles would be assessed for adequacy and upgraded where necessary, subject to further impact assessment if the upgrades extend outside the existing road alignment. Appropriate drainage would be provided for any unsealed tracks utilised during the works to ensure that vehicle movements do not cause erosion and sedimentation of nearby waterways.
- Any disturbance to landowners as a result of vehicle movements and noise would be minimised by adhering to the working hours outlined in Section 5.8.2 of the REF. The

contractor would avoid any inconvenience to residences/landowners, and all access gates would be in their original condition following completion of the works.

- Any temporary access tracks required for the works would be located so as to minimise disturbance to the existing environment, with preference given to traversing and driving over ground cover and understorey vegetation, as opposed to clearing it to facilitate vegetation regeneration post-works Following completion of the works the temporary tracks would be removed, topsoil provided and re-grassed. Existing tracks would be restored to their condition prior to works.
- All traffic would comply with all applicable traffic laws and regulations including speed limits. All construction vehicles would comply with the speed limits set for the roads accessing the site.

5.11 Waste Management

5.11.1 Impact Assessment

The construction of the Proposal would generate wastes including excess spoil, vegetation and general building wastes such as packaging, off cuts, excess materials and workers wastes such as drinks containers, food scraps, etc. Portable toilets would be provided for workers at each site.

Minimal excess spoil is predicted during the works and it is anticipated that spoil and green waste would be spread out or used as backfill at the works site. Packaging and workers waste would be removed from the construction site and transferred to an appropriately licenced waste facility for recycling and/or disposal. Appropriate covered waste containers would be made available on site for disposal of waste materials and general works wastes.

To ensure that environmental harm does not occur as a result of uncontrolled or inappropriate collection, transport and disposal, the relevant provisions of the following Acts would be implemented:

- *Waste Avoidance and Resource Recovery Act 2001*
- *Protection of the Environment Operations Act 1997*
- *Protection of the Environment Operations (Waste) Regulation 2014*

The construction works are not anticipated to produce contaminated waste or cause contamination of the site or surrounding land, with appropriate response procedures deployed for any contaminated materials encountered during the works.

The waste management procedures and/or measures listed below would be implemented for the Proposal. It is assessed that construction waste can be adequately managed to avoid adverse environmental impacts during construction and operation of the Proposal, assuming implementation of the mitigation measures listed in Section 5.11.2.

Operational waste associated with the reservoirs is predicted to be minimal.

5.11.2 Mitigation Measures

- The contractor undertaking the works would detail waste management procedures in a Waste Management Plan (WMP) to be incorporated into the CEMP. The contractor is to

assume responsibility for the appropriate disposal of any waste generated. Adequate procedures should be established and detailed in the CEMP, including notification requirements to EPA for incidents that cause material harm to the environment. The WMP would also follow the resource management hierarchy principles embodied in the *Waste Avoidance and Resource Recovery Act 2001*. Namely, to:

  - avoid unnecessary resource consumption;
  - recover resources (including reuse, reprocessing, recycling and energy recovery); and
  - dispose (as a last resort).

- The Waste Management Plan would also need to be consistent with the *Waste Classification Guidelines* (EPA, 2014 and 2016 addendum) in that all waste removed from the construction sites is to be classified and disposed of appropriately at an appropriate licensed waste disposal facility.
- Any required concrete would be mixed off-site and transported to the construction site. Excess concrete would be removed off-site for recycling.
- If practicable, surplus excavated materials/fill would be reused onsite as part of rehabilitation and restoration works. Any surplus spoil disposed of in this manner would be seeded to minimise the likelihood of it being transported offsite through wind or water action.
- Waste receptacles for recyclable and non-recyclable waste are to be provided for workers waste.
- If any contaminated material is encountered during earthworks, work shall cease, the site secured, and a safe work method statement(s) and appropriate practices shall be implemented. Any contaminated material would be classified first and then stored, transported and disposed of in accordance with EPA requirements at an EPA licensed waste facility.
- Cleared vegetation (devoid of weeds) would be spread out on site or alternatively disposed off site in accordance with EPA requirements.
- All equipment should be cleaned of soil and vegetation before being brought to the site to minimise the risk of spreading weeds.
- Any noxious or controlled weeds must be controlled and disposed of at a landfill site in accordance with EPA requirements and not mixed with soil to be reused on site or elsewhere.

5.12 Hazards and Risks

5.12.1 Impact Assessment

Liquefied Chlorine (Sodium Hypochlorite) (Class 8) which is classified as Dangerous Goods under the ADG Code would be stored on site for the operation of the chlorination system at the Nelligen reservoir site.

Class 8substances are classified as corrosive (acids). These are defined as substances that are known to be so toxic or corrosive to humans as to pose a hazard to health. Accordingly, a dangerous good storage notification to SafeWork NSW would be undertaken for the Chlorine liquid.

Chlorine would be stored in cylinders delivered to the site. It is anticipated that two cylinders would be connected at any one time to allow automatic duty/standby operation and two spare cylinders would be stored on site. The quantity which would be stored is below the relevant thresholds that would trigger additional requirements under *State Environmental Planning Policy (Resilience and Hazards*) 2021.

Public safety hazards are unlikely beyond the boundary of the reservoir site. Chemicals stored and used at the site are required to be stored in accordance with Australian Standards and SafeWork NSW guidelines and included in the site Operational Environmental Management Plan, adequately sealed within infrastructure and appropriately stored. Chemicals may be required to be disposed of during operation of the chlorination system.

Safety equipment such as self-contained breathing apparatus' (SCBAs), safety eyewash and shower, gloves, goggles and aprons would also be provided at the Nelligen reservoir site. For the protection of the public, the chlorination building would be fenced.

The risk of chemical spills during operation of the Nelligen reservoir chlorination system is considered to be low. Council would likely store the chemical in bulk at one of its depots and refill the storage as required. It is considered that implementation of the mitigation measures below in Section 5.12.2 would minimise this risk.

5.12.2 Mitigation Measures

- Fuel and lubricants for machinery maintenance are to be stored and managed appropriately.
- Notification to the EPA in accordance with Part 5.7 of the POEO Act is to be undertaken where a pollution incident occurs in the course of an activity so that material harm to the environment is caused or threatened.
- Standard occupational health and safety practices would be adhered to during construction and operation.
- Appropriate signage, locked gates and site fencing would be installed around the reservoir sites, as required.
- The transport and handling of all chemicals used in the operation of the chlorination dosing system would be undertaken in accordance with all relevant SafeWork NSW guidelines including the following:
  - *Code Of Practice: Managing Risks Of Hazardous Chemicals In The Workplace* (SafeWork NSW, August 2019).
  - *Code Of Practice: Labelling Of Workplace Hazardous Chemicals (*SafeWork NSW, August 2019).
- SafeWork NSW would be notified regarding the storage of dangerous goods at the Nelligen reservoir site, as required.

- Appropriate signage is to be maintained where chemicals are stored during operation of the Nelligen reservoir.
- Safety Data Sheets for chemicals used in the treatment process are to be available on sites at all times.
- All hazardous substances are to be listed in a register together with the relevant Safety Data Sheets and and included in the site Operational Environmental Management Plan. Employees are to have access to this register.

5.13 Visual Amenity

5.13.1 Impact Assessment

There would be minor visual impacts during construction of the Proposal due to the presence of construction equipment at the reservoir sites. However, this impact is not anticipated to be significant due to the temporary nature of the construction works and the limited number of surrounding residents.

Vegetation removal will be required for the Nelligen and Bay Ridge reservoir works however visual impacts are unlikely to be significant as the Bay Ridge reservoir would be installed within a previously cleared area on the site and the Nelligen reservoir is surrounded by State Forest. Furthermore, over time the vegetation clearing impacts associated with the Proposal would decrease as vegetation regenerates and any ongoing / maintained clearing would be restricted to that required for operational maintenance purposes. These visual impacts are unlikely to be significant.

The reservoirs would be new elements in the visual landscape. As a result, visual amenity would be reduced for a small number of existing residences located on surrounding rural properties as the two reservoir sites are currently undeveloped or have been subject minimal development. However, due to the relatively isolated location with only a small number of surrounding residences, the new reservoirs are not anticipated to have a significant adverse impact on the visual amenity of the surrounding area.

5.13.2 Mitigation Measures

- The clearing of vegetation would be kept to the minimum required for the works
- Construction compounds and areas for the parking of vehicles and storing of equipment would be located in cleared areas wherever possible.
- Revegetation of disturbed areas to be undertaken as soon as practicable.
- All waste must to be removed from the work site, which must be left in a clean and tidy condition following completion of the works.

5.14 Utilities and Infrastructure

5.14.1 Impact Assessment

Relevant utilities and infrastructure providers would be consulted regarding the design and construction requirements for the water supply infrastructure at the Nelligen reservoir site, where the new water infrastructure is located in close proximity to, or has the potential to impact on, existing power supply and telecommunications infrastructure. Those requirements would

be incorporated into the design and construction of the proposed new water supply scheme infrastructure.

5.14.2 Mitigation Measures

- Utility and service providers would be consulted prior to the commencement of and during construction works in the event that impacts on any utilities and services by the Proposal are likely.
- SafeWork NSW has publications that provide guidance when working close to electricity infrastructure, including the *Code of Practice – Work near Overhead Power Lines.* The contractor should adhere to the SafeWork NSW guidelines during construction works near overhead power lines.
- Utilities and services which may be impacted by the Proposal would be accurately located prior to commencement of works using Dial Before You Dig (DBYD) and confirmed by physical location and marking prior to construction.

6 Environmental Management

6.1 Construction Environmental Management Plan

Preparation of a Construction Environmental Management Plan (CEMP) is mandatory for all projects undertaken by or on behalf of government agencies or where funding is being provided by the government.

The CEMP would be developed to ensure that appropriate environmental management practices are followed during a project's construction and/or operation. ESC would review the CEMP for this Proposal, which should include the following elements, as described in the Guideline for the Preparation of Environmental Management Plans (DIPNR, 2004):

Table 6-1 Construction Environmental Management Plan Structure

Background	Introduction to the document Description of the Proposal and project details The context for the CEMP with regard to the overall project The CEMP objectives The contractor's environmental policy
Environmental Management	Environmental management structure of the organisation and specific team responsibilities with respect to the CEMP and its implementation Approval and licensing requirements relevant to the project Reporting requirements Environmental training Emergency contacts and response
Implementation	A project specific risk assessment A detailed list of environmental management safeguards and controls CEMP sub plans for specific environmental controls A detailed schedule assigning responsibility to each environmental management activity and control
Monitor and Review	Environmental monitoring Environmental auditing Corrective action CEMP review and document control procedures

The CEMP would include a risk assessment which ensures that the safeguards identified in this REF, as well as any others that are considered relevant, are effectively translated into

actual construction techniques and environmental management activities, controls and monitoring/verification to prevent or minimise environmental impacts. The CEMP should also identify the requirements for compliance with relevant legislation and any other regulatory requirements to ensure environmental safeguards described throughout this REF are implemented. The environmental management objectives and supporting actions presented in this section are intended to assist in this process.

The following details the environmental objectives during construction and the proposed mitigation to be included in the CEMP. This list is not definitive, and additional measures detailed as part of the determination of the project and conditions of any other approvals must also be included. Operational safeguards are also included.

6.2 Environmental Management Measures

Implementation of the mitigation measures outlined below would be undertaken during a number of phases of the project. These phases comprise:

- Pre-construction – prior to the contractor arriving on site to carry out the works
- Construction – during construction phase
- Operation – post construction

6.2.1 Land Use

Objective

- Minimise impacts to surrounding land users during construction and operation

Actions

Action/Phase	Responsibility
Pre-construction	
Prior to commencement of construction activities, all necessary approvals, permits, licenses and agreements would be obtained from the relevant landowners/authorities.	ESC / Contractor
For any construction works or operations on State Forest land outside the Nelligen Reservoir site, an authority letter from the Forestry Corporation of NSW would be required to enter State Forest for construction works.	ESC / Contractor
ESC should consult and notify neighbouring landowners / residents who may be affected by the proposed construction works.	ESC / Contractor
Construction	
No construction activities (e.g. tree clearing, stockpiling etc.) would be undertaken on property adjoining the works areas without prior approval of the relevant landowner.	Contractor

Action/Phase	Responsibility
Appropriate security, supervision and access controls would be put in place and properly monitored to ensure no access by unauthorised personnel, either to the work area or via the work area to adjoining areas.	Contractor
The contractor would be required to ensure the necessary care and maintenance of property facilities and operations. However, if any damage does occur to property it would be restored to a condition equivalent to the original condition.	Contractor
Temporary fencing and gates would be installed where necessary to exclude the general public from the work sites. Any temporary fencing or gates no longer required would be removed at the completion of the construction works.	Contractor
Operation	
As operator of the water reticulation infrastructure, ESC should provide a 24-hour telephone number so that any issues relating to the operation of the new infrastructure can be clarified and complaints dealt with by those able to respond.	ESC

6.2.2 Water Quality, Erosion and Sediment Control and Flooding

Objective

- To effectively manage sediment and erosion control during the construction stage of the project.
- Prevention/minimisation of impacts to the waterways during the construction works.

Actions

Action/Phase	Responsibility
Pre-construction	
A detailed Erosion and Sediment Control Plan (ESCP) shall be prepared as part of the CEMP. The ESCP would describe the site specific measures to be implemented for all works areas, in accordance with the guidelines outlined in the 2004 Landcom publication *Managing Urban Stormwater: Soils and Construction*, 4th edition ("The Blue Book") and *Volume 2a Installation of Services*. The ESCP would need to be site specific and would need to address the following issues to prevent erosion, sediment loss and water quality impacts: – Minimisation of disturbance to soil and water adjacent to, and within, all watercourses in the works area.	Contractor

Action/Phase	Responsibility
– Identification of any environmentally sensitive areas on or near construction sites to ensure runoff is diverted away from sensitive areas. – Requirements for vegetation clearing to be kept to a minimum. – Retention of all surface runoff on-site and where possible stormwater from off site would be diverted around the construction site. – Backfilling and stabilising of the reservoir sites once constructed. – Location of construction compounds (at least 50m from any drainage lines). – Location and management of stockpiles, such as locating stockpiles away from any drainage lines near the works areas. – Regular inspection of all erosion and sediment controls, especially when rain is expected and directly after any rain events.	
The CEMP would incorporate a pollution incident response management plan that defines appropriate procedures for the management and notification of pollution incidents in accordance with s. 147 to 153 of the POEO Act. The EPA is to be notified immediately of any pollution incidents or harm to the environment (as defined under Part 5.7 of the POEO Act).	Contractor
Workers are to be made aware of the provisions of Section 120 of the POEO Act with regards to water pollution.	Contractor
The Contractor will prepare a management plan for the disposal of the chlorinated water from reservoirs if it is required as part of end phase of the construction works to avoid any potential impact on waterways.	Contractor
A site-specific spill management plan would be prepared and include the following requirements: – Emergency spill kits are to be kept at the site (vehicle kits). – Refueling of machinery to be undertaken in a dedicated area within the construction compound appropriately protected as outlined in the spill management plan. – Any chemicals and fuels are to be stored in a bunded area at least 50 metres from any waterway or drainage line. – Any hazardous materials stored on site would be stored in the compounds and within impervious and bunded enclosures capable of storing 120% of the volume of material stored there. – Workers would be trained in the spill management plan and the use of the spill kits.	Contractor
Construction	
Imported fill materials should consist of suitable materials (preferably granular for controlled fill) as described in Section 4 of *AS 3798-2007 - Guideline on*	Contractor

Action/Phase	Responsibility
Earthworks for Commercial and Residential Development and validated in accordance with the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (ASC NEPM). Imported fill material should comprise 'virgin excavated natural material' (VENM) or 'excavated natural material' (ENM) only.	
Works should not be scheduled when heavy rainfall is forecast and works involving soil disturbance should not take place during heavy rainfall periods, other than work necessary to stabilise the site.	Contractor
Any excess spoil would be removed off site for disposal in accordance with EPA requirements.	Contractor
All stockpiles of materials would be protected from scour and erosion.	Contractor
Access tracks would be designed so as to provide adequate drainage and stormwater control.	Contractor
All areas where ground disturbance has occurred would be stabilised following completion of works to ensure there is no erosion hazard and restored to their pre-construction condition. This would involve, where required, reshaping the ground surface, covering it with topsoil excavated from the site and re-establishing an appropriate vegetation cover.	Contractor

6.2.3 Biodiversity

Objective

- Avoidance/minimisation of impacts to flora and fauna
- Minimise clearing of vegetation
- Avoid weed invasion
- Prevention/minimisation of impacts to the drainage lines

Actions

Action/Phase	Responsibility
Construction	
Vegetation clearing should be limited to the minimum required to successfully complete the Proposal.	Contractor
Prior to the undertaking of site clearing work, the hollow-bearing trees present at the Nelligen reservoir site be should be identified and clearly marked by an ecologist and retained where possible. Hollow-bearing trees to be removed should be checked for sheltering animals by a qualified independent	Contractor

Action/Phase	Responsibility
ecologist. These trees should be removed in a two-stage process under the guidance of a qualified ecologist, and should involve: – Stage 1: All surrounding vegetation to be cleared and grubbed. – Stage 2: 24 to 48 hours later the hollow-bearing trees that are to be removed to be inspected by an ecologist. If resident fauna is observed, the hollow section is to be lowered to the ground and the animal allowed to move on of its own volition. If injured the animal is to be taken to a WIRES carer or appropriate veterinarian for care.	
Locations of the hollow-bearing trees to be retained should be included on any plans provided to the Contractor. These plants will require protection during the construction activities, including barriers to avoid root damage within the drip line of any retained tree.	Contractor
Where possible, any felled trees should not be mulched but should be relocated locally within the subject site to provide habitat for native species and their prey.	Contractor
Preference should be given to traversing and driving over ground cover and understorey vegetation, as opposed to clearing it. Traversing this vegetation will permit it to regenerate post-disturbance.	Contractor
Vehicles and machinery should be stored and parked in treeless areas.	Contractor
The storage of materials and stockpiling of equipment should also occur within sites/areas that have been previously disturbed and cleared.	Contractor
Any animals injured during the clearing work should be collected and taken to a local veterinarian or wildlife carer.	Contractor
In accordance with the *Biosecurity Act 2015*, listed weeds identified on site must be controlled to result in their suppression.	Contractor
Operation	
Post-development the reservoir sites should be regularly monitored to manage any occurrences of weeds and other non-native species.	Contractor

6.2.4 Bushfire

Objective

- Minimise potential bushfire risk impacts to due to the works and during operation of the Proposal.

Actions

Action/Phase	Responsibility
Pre-construction	
Design of the above ground infrastructure at the reservoir sites should take into consideration the potential bushfire risk at the site, in accordance with the relevant principles of the RFS publication *Planning for Bushfire Protection 2019.*	ESC
Construction	
Construction staff to be made aware of the location of the proposed works in bushfire prone land and the potential for bushfire risk.	Contractor
During high risk bush fire danger rating days, no construction activities would be undertaken that pose a risk of starting a bushfire (e.g. welding).	Contractor
Operation	
No maintenance activities should be undertaken at the reservoir sites which pose a risk of starting a bushfire during high risk bush fire danger rating days.	ESC

6.2.5 Aboriginal Heritage

Objective

- Minimise potential impacts to items and places of Aboriginal cultural heritage due to the works

Actions

Action/Phase	Responsibility
Construction	
If machinery or equipment will be located in proximity to Aboriginal object site Old Nelligen Road 1 – AHIMS ID: 58-4-1375 which is located in proximity to the Nelligen reservoir site. (location of the AHIMS site shown in Table 5-1 and shown in Figure 5-6 of the REF), the site should be cordoned off for the duration of construction works with a 10m buffer to avoid impacts to the site.	Contractor
In the event that potential Aboriginal objects are encountered (including skeletal material), the following Unanticipated Finds Protocol should be followed: **Unanticipated Finds Protocol:** – All ground surface disturbance in the area of the finds should cease immediately once the finds are uncovered.	Contractor

Action/Phase	Responsibility

– The discoverer of the find(s) would notify machinery operators in the immediate vicinity of the find(s) so that work can be halted; and the Principal's Authorised Person would be informed of the find(s).
– If there is substantial doubt regarding an Aboriginal origin for the finds, then gain a qualified opinion from an archaeologist as soon as possible. This can circumvent proceeding further along the protocol for items which turn out not to be archaeological. If a quick opinion cannot be gained, or the identification is positive, then proceed to the next step.
– Immediately notify the following authorities or personnel of the discovery:
  – Heritage NSW; and
  – Relevant Aboriginal Community Representatives.
– Facilitate, in co-operation with the appropriate authorities and relevant Aboriginal community representatives:
  – The recording and assessment of the finds;
  – Fulfilling any legal constraints arising from the find(s). This would include complying with Heritage NSW directions; and
  – The development and conduct of appropriate management strategies. Strategies would depend on consultation with stakeholders and the assessment of the significance of the find(s).
– Where the find(s) are determined to be Aboriginal Objects, any re-commencement of construction related ground surface disturbance may only resume in the area of the find(s) following compliance with any consequential legal requirements and gaining written approval from Heritage NSW (as required).	

6.2.6 Historic Heritage

Objective

- Minimise potential impacts to items and places of historic heritage due to the works

Actions

Action/Phase	Responsibility
Construction	
Construction staff would be made aware that archaeological relics are protected under the *Heritage Act 1977*. In the event that any relics are discovered during the course of the works, work would cease in the affected area and Heritage NSW and ESC would be contacted.	Contractor

6.2.7 Noise and Vibration

Objective

- Compliance with relevant recommendations specified in the Interim Construction Noise Guideline (DECC, 2009).
- Avoidance/minimisation of noise impacts on nearby sensitive noise receivers.

Actions

Action/Phase	Responsibility
Pre-construction	
Community notification would be undertaken where appropriate and where work is likely to cause vibration or offensive noise and impact the public and nearby residents.	ESC /Contractor
Construction	
Undertake construction works in accordance with the *NSW Government Ministerial Environment Planning and Assessment (COVID-19 Development – Infrastructure Constructions Work Days No.2) Order 2020* (Order). Pursuant to cl 6 of the Order, the Proposal can be carried out on Saturdays, Sundays, and Public Holidays, in the hours set out for Monday-Friday in the approval, i.e. 7am to 6pm. It should be noted that during the extended times, works must not involve the carrying out of rock breaking, rock hammering, sheet piling, pile driving or similar activities, and that the contractors must take all feasible and reasonable measures to minimise noise. As per cl. 2 of the Order, the Order will remain in force until the 'prescribed period' as defined in s. 10.17 of the EP&A Act. The prescribed period is currently until 31 March 2022.	Contractor
Should the Order cease to apply, construction works would only be undertaken during standard hours, being between 7am to 6pm Monday to Friday; 8am to 1pm Saturdays. No work would be undertaken on Sundays, Public Holidays or outside these work hours without notification to affected community, Council and EPA. Notification would provide the following details: – The locations and types of surrounding receivers likely to be affected; – The nature of the Proposal; – The noise characteristics of any powered equipment likely to be used; – Measures to be taken to reduce noise emissions; and – Any other information the Council may request.	Contractor
Control measures to minimise noise and vibration impacts on adjoining land would be implemented during construction as part of the contractor's CEMP, which would require review by ESC prior to commencement of works. The CEMP would address site specific issues, including limited work hours and	Contractor

Action/Phase	Responsibility
noise and vibration reduction practices, taking into consideration DECCW's Interim Construction Noise Guideline (in particular Tables 4 – 10) and Assessing Vibration: A Technical Guideline (in particular mitigation measures in Section 3). Mitigation measures to minimise noise and vibration impacts may include the following: – Optimum siting of work areas, vehicle and plant parking areas, materials stockpiles and equipment storage areas in locations where potential acoustic and vibration impacts would be minimised; – Regular maintenance of all plant and machinery used for the project; – Identify locations where construction noise and vibration is most intrusive and develop strategies to reduce impacts for these areas.	
All construction machinery is to be turned off when not in use.	Contractor
Use quieter and less noise emitting construction methods where feasible and reasonable.	Contractor
All plant and equipment to be appropriately maintained to ensure optimum running conditions, with periodic monitoring.	Contractor
Plant used intermittently to be throttled down or shut down when not in use where practicable.	Contractor
Non-tonal reversing beepers (i.e. quackers or an equivalent mechanism) should be fitted and used on all construction vehicles and mobile plant regularly used on site for periods of over two months where practicable.	Contractor
High noise generating plant and equipment, such as rock hammers, should be used only when required (if hard rock is encountered).	Contractor

6.2.8 Air Quality

Objective

- Avoidance/minimisation of off-site dust nuisance to neighbouring residences and the community.
- Minimisation of air quality impacts resulting from machinery and vehicle emissions.

Actions

Action/Phase	Responsibility
Pre-construction	
Construction vehicles and equipment would be suitably serviced within the six-month period prior to commencement of construction activities and all	Contractor

Action/Phase	Responsibility
necessary maintenance undertaken during the construction period to meet EPA air quality requirements.	
Construction	
The excessive use of vehicles and powered construction equipment would be avoided.	Contractor
All construction machinery would be turned off when not in use to minimise emissions.	Contractor
Construction contractors would monitor dust generation potential.	Contractor
Dust suppression methods including the use of water carts would be applied where required (i.e. on windy days when earthworks and vehicle movements are generating dust).	Contractor
Any stockpiled spoil/fill would be protected to minimise dust generation to avoid sediment moving offsite.	Contractor
Vehicles transporting spoil from the sites would be covered.	Contractor

6.2.9 Traffic and Access

Objective

- Ensure that construction vehicles do not cause excessive inconvenience to road and pedestrian users.
- Ensure the safety of road users and construction personnel for the duration of the works.
- Minimise the pollution impacts resulting from the use of vehicles during construction.

Actions

Action/Phase	Responsibility
Pre-construction	
The contractor would prepare a Traffic Control Plan as part of the CEMP, to be reviewed by ESC prior to commencement of works. The Traffic Control Plan would include measures to minimise traffic impacts ensure public safety and would be prepared in accordance with: – *RMS' Traffic Control at Work Sites Manual, (July 2018), and* – *Australian Standard 1742.3 - 2009 Traffic Control for Works on Roads.*	Contractor
Prior to the commencement of works, existing access tracks and roads that would be used by heavy vehicles would be assessed for adequacy and upgraded where necessary, subject to further impact assessment if the	ESC /Contractor

Action/Phase	Responsibility
upgrades extend outside the existing road alignment. Appropriate drainage would be provided for any unsealed tracks utilised during the works to ensure that vehicle movements do not cause erosion and sedimentation of nearby waterways.	
Construction	
Any disturbance to landowners as a result of vehicle movements and noise would be minimised by adhering to the working hours outlined in Section 5.8.2 of the REF. The contractor would avoid any inconvenience to residences/landowners, and all access gates would be in their original condition following completion of the works.	Contractor
Any temporary access tracks required for the works would be located so as to minimise disturbance to the existing environment, with preference given to traversing and driving over ground cover and understorey vegetation, as opposed to clearing it to facilitate vegetation regeneration post-works Following completion of the works the temporary tracks would be removed, topsoil provided and re-grassed. Existing tracks would be restored to their condition prior to works.	Contractor
All traffic would comply with all applicable traffic laws and regulations including speed limits. All construction vehicles would comply with the speed limits set for the roads accessing the site.	Contractor

6.2.10 Waste Management

Objective

- Compliance the provisions of the *Protection of the Environment Operations (Waste) Regulation 2014*.
- Maximise reuse/recycling of waste material and minimise waste disposed of to landfill.

Actions

Action/Phase	Responsibility
Pre-construction	
The contractor undertaking the works would detail waste management procedures in a Waste Management Plan (WMP) to be incorporated into the CEMP. The contractor is to assume responsibility for the appropriate disposal of any waste generated. Adequate procedures should be established and detailed in the CEMP, including notification requirements to EPA for incidents that cause material harm to the environment. The WMP would also follow the resource management hierarchy principles embodied in the *Waste Avoidance and Resource Recovery Act 2001*. Namely, to:	Contractor

Action/Phase	Responsibility
– avoid unnecessary resource consumption; – recover resources (including reuse, reprocessing, recycling and energy recovery); and – dispose (as a last resort).	
The Waste Management Plan would also need to be consistent with the *Waste Classification Guidelines* (EPA, 2014 and 2016 addendum) in that all waste removed from the construction sites is to be classified and disposed of appropriately at an appropriate licensed waste disposal facility.	Contractor
Construction	
Any required concrete would be mixed off-site and transported to the construction site. Excess concrete would be removed off-site for recycling.	Contractor
If practicable, surplus excavated materials/fill would be reused onsite as part of rehabilitation and restoration works. Any surplus spoil disposed of in this manner would be seeded to minimise the likelihood of it being transported offsite through wind or water action.	Contractor
Waste receptacles for recyclable and non-recyclable waste are to be provided for workers waste.	Contractor
If any contaminated material is encountered during earthworks, work shall cease, the site secured, and a safe work method statement(s) and appropriate practices shall be implemented. Any contaminated material would be classified first and then stored, transported and disposed of in accordance with EPA requirements at an EPA licensed waste facility.	Contractor
Cleared vegetation (devoid of weeds) would be spread out on site or alternatively disposed off site in accordance with EPA requirements.	Contractor
All equipment should be cleaned of soil and vegetation before being brought to the site to minimise the risk of spreading weeds.	Contractor
Any noxious or controlled weeds must be controlled and disposed of at a landfill site in accordance with EPA requirements and not mixed with soil to be reused on site or elsewhere.	Contractor

6.2.11 Hazards and Risks

Objective

- Prevention/minimisation of hazards and risks during the operation of the Proposal.

Actions

Action/Phase	Responsibility
Construction	
Fuel and lubricants for machinery maintenance are to be stored and managed appropriately.	Contractor
Notification to the EPA in accordance with Part 5.7 of the POEO Act is to be undertaken where a pollution incident occurs in the course of an activity so that material harm to the environment is caused or threatened.	Contractor
Standard occupational health and safety practices would be adhered to during construction and operation.	Contractor
Operation	
Appropriate signage, locked gates and site fencing would be installed around the reservoir sites, as required.	ESC
The transport and handling of all chemicals used in the operation of the chlorination dosing system would be undertaken in accordance with all relevant SafeWork NSW guidelines including the following: – *Code Of Practice: Managing Risks Of Hazardous Chemicals In The Workplace* (SafeWork NSW, August 2019). – *Code Of Practice: Labelling Of Workplace Hazardous Chemicals (*SafeWork NSW, August 2019).	ESC
SafeWork NSW would be notified regarding the storage of dangerous goods at the Nelligen reservoir site, as required.	ESC
Appropriate signage is to be maintained where chemicals are stored during operation of the Nelligen reservoir.	ESC
Safety Data Sheets for chemicals used in the treatment process are to be available on sites at all times.	ESC
All hazardous substances are to be listed in a register together with the relevant Safety Data Sheets and and included in the site Operational Environmental Management Plan. Employees are to have access to this register.	ESC

6.2.12 Visual Amenity

Objective

- Protect the visual amenity of the locality for neighbouring land users and the local community.

Actions

Action/Phase	Responsibility
Construction	
The clearing of vegetation would be kept to the minimum required for the works	Contractor
Construction compounds and areas for the parking of vehicles and storing of equipment would be located in cleared areas wherever possible.	Contractor
Revegetation of disturbed areas to be undertaken as soon as practicable.	Contractor
All waste must to be removed from the work site, which must be left in a clean and tidy condition following completion of the works.	Contractor

6.2.13 Utilities and Infrastructure

Objective

- Prevention/minimisation of impacts to utilities and services infrastructure during the construction works.

Actions

Action/Phase	Responsibility
Pre-construction and Construction	
Utility and service providers would be consulted prior to the commencement of and during construction works in the event that impacts on any utilities and services by the Proposal are likely.	ESC/Contractor
Construction	
SafeWork NSW has publications that provide guidance when working close to electricity infrastructure, including the *Code of Practice – Work near Overhead Power Lines.* The contractor should adhere to the SafeWork NSW guidelines during construction works near overhead power lines.	Contractor
Utilities and services which may be impacted by the Proposal would be accurately located prior to commencement of works using Dial Before You Dig (DBYD) and confirmed by physical location and marking prior to construction.	Contractor

7 Conclusion

Nelligen currently has no municipal water supply system and households rely on rainwater tanks for their potable water supply. Therefore, ESC plans to install a reticulated water supply scheme for the village for integration into the existing North Batemans Bay water supply networks. Stage 1 of the Proposal comprises the construction of two new water supply reservoirs at Nelligen located on Old Nelligen Road and at Bay Ridge, located on Clyde Road North Batemans Bay to provide potable water to the Nelligen township.

The Proposal would potentially cause short term impacts such as increased noise, dust and traffic and a reduction in community amenity for the residents and users of local roads during the construction phase. However, the works are temporary and are able to be managed to minimise impacts. It is anticipated that the Proposal would benefit the local community by improving the quality and reliability of their drinking water.

Investigations into the Aboriginal cultural heritage impacts of the Proposal have been undertaken, including an Aboriginal Cultural Heritage Assessment (ACHA) (see Appendix C). An AHIP would not be required for reservoir construction works as no Aboriginal sites or objects would be impacted by the proposed works.

A biodiversity assessment prepared for the works found that the Proposal would be unlikely to impact any listed threatened species, fauna populations or ecological communities, provided appropriate mitigation measures are implemented.

Given that the works predominantly comprise the construction of above ground reservoirs in previously disturbed sites, adverse environmental impacts potentially associated with the construction and operation of the Proposal are expected to be minimal.

This REF has been prepared in accordance with Sections 5.5 and 5.7 of the *Environmental Planning and Assessment Act 1979* and Clause 171 of the *Environmental Planning and Assessment Regulation 2021.* It provides a true and fair assessment of the Proposal in relation to its likely effects on the environment.

Based on the information in this REF, it is concluded that:

(1) the proposed activity is not likely to have a significant impact on the environment and therefore an Environmental Impact Statement is not required.

(2) the proposed activity is not likely to significantly affect threatened species, populations, ecological communities, or critical habitat. Therefore, a Species Impact Statement (SIS) is not required

(3) the proposed activity is not likely to affect any Commonwealth land, is not being carried out on Commonwealth land, or significantly affect any Matters of National Environmental Significance.

The Proposal is recommended to proceed subject to the implementation of the measures to avoid, minimise or manage environmental impacts listed in this REF.

8 References

Australian Standard *AS2436-2010 Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites.*

DEC, 2006, *Assessing Vibration: A Technical Guide.*

DECCW, 2009, *Interim Construction Noise Guideline.*

DPINR, 2004, *Guideline for the Preparation of Environmental Management Plans.*

Lesryk Australia, 2022, *Flora and Fauna Survey and Assessment, Water Supply and Sewerage Scheme project, Nelligen, NSW.*

New South Wales Archaeology, 2022, *Nelligen Water Supply and Sewerage Scheme Aboriginal Cultural Heritage Assessment Report.*

Public Works Advisory, 2016, *Nelligen Water Supply and Sewerage Strategic Options Report*

Public Works Advisory, 2021, *Nelligen Water Supply and Sewerage Bay Ridge Reservoir and Old Nelligen Road Reservoir Geotechnical Investigation*

Appendix A – Consideration of Clause 171

Clause 171(2) of the EP&A Regulation 2000 indicates, for purposes of Part 5 of the Act, the factors that must be taken into account when consideration is being given to the likely impact of an activity on the environment.

A determining authority is only required to consider the following matters where an EIS has been prepared for a Part 5 activity under the EP&A Act. However, the following information is provided to assist determining authorities in making determinations consistent with those made for an activity requiring preparation of an EIS.

The various factors and findings following environmental assessment are presented below.

(a) the environmental impact on the community

There is the potential for some minor and temporary noise, dust, waste management and traffic impacts during construction works. These impacts would be limited to the immediate vicinity of the works. Given the limited sensitive receptors within the immediately vicinity of the Proposal area and temporary duration of the works, they are not expected to have a significant impact on the local community.

(b) the transformation of the locality,

The proposed construction of the reservoirs would result in a minor transformation of existing undeveloped areas. However, the reservoirs are located in relatively secluded areas. Therefore, the new structures would not result in a significant transformation of the locality.

(c) the environmental impact on the ecosystems of the locality,

No significant impact to threatened species or ecosystems is anticipated.

(d) reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality,

None identified.

(e) the effect on any locality, place or building that has –

(i) aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance, or

(ii) other special value for present or future generations,

The works would not impact on identified Aboriginal or historic heritage objects or other special values.

(f) the impact on the habitat of protected animals within the meaning of the Biodiversity Conservation Act 2016,

Mitigation measures have been proposed to minimise impacts. No significant impact to threatened species is anticipated.

(g) the endangering of a species of animal, plant or other form of life, whether living on land, in water or in the air,

No endangering of threatened species is anticipated.

(h) long-term effects on the environment,

None identified

(i) degradation of the quality of the environment,

Temporary and minor degradation of the quality of the environment during the construction phase which would involve shrubs, immature trees and groundcover vegetation clearing and excavation works. The works would result in some short-term impacts including construction noise and dust during the construction period. Control measures to minimise these impacts would be implemented during construction as part of the contractor's Construction Environmental Management Plan (CEMP).

(j) risk to the safety of the environment,

There are minor potential traffic safety risks to construction staff, residents and visitors to the area during construction of the Proposal. However, control measures to minimise this safety risk would be implemented during construction as part of the contractor's TCP.

(k) reduction in the range of beneficial uses of the environment,

None identified.

(l) pollution of the environment,

There is the potential for some minor and temporary noise and air pollution during the construction works. With the implementation of appropriate mitigation measures during construction there would be no long term or significant pollution of the environment.

(m) environmental problems associated with the disposal of waste,

None identified as minimal waste is predicted. All construction waste would be reused onsite, taken off site for recycling or disposal at a licensed landfill. The Contractor would prepare a Waste Management Plan to ensure waste is managed appropriately during construction works, so as not to cause off-site impacts

(n) increased demands on natural or other resources that are, or are likely to become, in short supply,

None identified.

(o) the cumulative environmental effect with other existing or likely future activities,

None identified.

(p) the impact on coastal processes and coastal hazards, including those under projected climate change conditions.

No impacts anticipated.

(q) applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1.

The proposal is compatible with Strategy 1 and 4 of *the One Community - Eurobodalla Community Strategic Plan 2017 and Planning Priority 8 of the Eurobodalla Local Strategic Planning Statement 2020 – 2040.*

(r) other relevant environmental factors.

None identified.