Revised Review of Environmental Factors (REF)

Proposed Provision of Emergency Overflow Storage Facilities at Sewage Pump Stations

Various Locations in the Shoalhaven Region, NSW

Prepared for
Shoalhaven Water

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1 Proposed Activity

1.1 BACKGROUND

Shoalhaven City Council, through Shoalhaven Water, manages the collection, treatment and distribution of water, along with the collection, treatment and disposal of wastewater back into the environment within the Shoalhaven Local Government Area (LGA).

As part of the infrastructure utilised in undertaking these functions, Shoalhaven City Council maintain and operate a series of sewage pumping stations in order to transfer sewage waste to the treatment plants. At times, failures in the systems occur due to circumstances such as mechanical failure, power outages and the like. Failures at the sewage pump station sites often lead to accidental discharge of untreated sewage waste into the environment.

In order to reduce the risks associated with such accidental discharges, Shoalhaven City Council are planning the provision of emergency storage capacity adjacent to sewage pump stations in order to provide for the emergency storage of untreated sewage. Shoalhaven Water are currently considering the provision of emergency overflow storage capacity at eleven (11) of its sewage pump stations in various locations within townships of Berry, Culburra, Huskisson, St Georges Basin and Sussex Inlet.

A Review of Environmental Factors (REF) was prepared by Cowman Stoddart Pty Ltd in 2015 to assess the environmental impacts associated with these activities, however the proposed activity has not yet been implemented. This revised REF has been undertaken due to the lapse in time since the original REF was undertaken and to address changes in legislation in that timeframe.

1.2 PURPOSE OF THIS REF

As stated in Section 1.1, the purpose of this Review of Environmental Factors (REF) is to provide a revised assessed of the proposed activity that takes into consideration changes in relevant legislation that have occurred since the original assessment was conducted by Cowman Stoddart Pty Ltd (2005). The potential impacts of the project continue to be considered in the context of both the original REF prepared by Cowman Stoddart Pty Ltd December 2015, and this Addendum REF

Shoalhaven City Council (SCC) is the proponent and the determining authority under Part 5 of the *Environmental Planning and Assessment Act 1979 (EP&A Act)*. The environmental assessment of the proposed activity has been undertaken in the context of Clause 228 of the Environmental Planning and Assessment Regulation 2000. In doing so, this Review of Environmental Factors (REF) helps to fulfil the requirements of Section 111 of the Act that SCC examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the proposed activity.

The original REF prepared by GHD (2015) covered the full extent of potential environmental impacts of the proposed activity. This REF Addendum has been prepared in part to address changes in project scope, changes in relevant legislation and to update database searches to inform a revised assessment. The focus of this REF Addendum is revised database searches and assessment of potential impacts to flora and fauna and to Aboriginal heritage.

1.3 LOCATION OF THE STUDY AREA

The proposed activity is located at eleven (11) Sewage Pump Station sites in the Shoalhaven LGA as illustrated in Figure 1, and described further below. The REF Study Area for the purposes of this assessment is defined as the eleven sites as mapped in the Figures below.

Figure 1 REF Study Area - SPS Site Locations

1.3.1 Berry

Berry SPS 5 is located immediately to the south of Victoria Street and east of the newly realigned Princes Highway. The site is surrounded by the Arbour Retirement Complex, and is adjacent to the vehicular accessway known as Pepper Farm Drive, that services the Retirement Complex, as shown in Figure 2 below.

Figure 2 Location of Berry SPS 5

1.3.2 Culburra

Emergency Storage works are proposed at four SPS locations in Culburra- SPS 5, SPS 6, SPS 9 and SPS 10.

(i) Culburra SPS 5

Culburra SPS 5 is located within an unconstructed section of The Strand road reserve between properties known as 51 and 53 Addison Road. There is residential development to the south and east of the site, Curley Bay located to the west, and vegetated lands to the north, as shown in Figure 3 below.

(ii) Culburra SPS 6

Culburra SPS 6 is located to the west of 156 Princes Edward Avenue, as shown in Figure 3 below. The site is undeveloped to the north and south. There is residential development to the east. There is vegetated lands to the west of the site.

(iii) Culburra SPS 9

Culburra SPS 9 is located opposite 42 East Crescent, Culburra Beach, as shown in Figure 3 below. Land to the west of the site is undeveloped, whilst land to the east contains residential dwellings.

(iv) Culburra SPS 10

Culburra SPS 10 is located to the west of the East Crescent road reserve as shown in Figure 3 below. Access is via an all-weather gravel access road. The site is vegetated, and there is some undeveloped land to the north east of the site, and residential dwellings to the south west of the site.

Figure 3 Location of Culburra SPS 5, SPS 6, SPS9 and SPS 10

1.3.3 Huskisson

Huskisson SPS 3 is located to the west of the intersections of Sydney and Bowen Streets, as shown in Figure 4 below. Land to the west and south is undeveloped vegetated land, whilst there is residential development to the north and east.

Figure 4 Location of Huskisson SPS 3

1.3.4 St Georges Basin

Emergency Storage works are proposed at three SPS locations in St Georges Basin- SPS 10, SPS 12, and SPS 13.

(i) St Georges Basin SPS 10

St Georges Basin SPS 10 is located to the north of 184 Loralyn Avenue, as shown In Figure 5. There is residential development to the north and south of the site, vegetated land and St Georges Basin waterway to the west, and vegetated land and residential development to the east.

(ii) St Georges Basin SPS 12

St Georges Basin SPS 12 is located to the north of 157 Walmer Avenue, as shown in Figure 5. The site is in the vicinity of residential development to the north and south, vegetated land and the waterways of St Georges Basin to the west, and vegetated land and residential development to the east.

(iii) St Georges Basin SPS 13

St Georges Basin SPS 13 is located to the south of 104 Greville Avenue, and accessed via Irene Street, as shown in Figure 5 below. The site is surrounded by vegetated land, with some residential development to the north along Greville Avenue. The St Georges Basin waterway is located to the south.

Figure 5 Location of St Georges Basin SPS 10, SPS 12 and SPS 13

1.3.5 Sussex Inlet

Emergency Storage works are proposed at two SPS locations in Sussex Inlet – SPS 1 and SPS 16.

(i) Sussex Inlet SPS 1

Sussex Inlet SPS 1 is located to the north of River Road, between numbers 34 and 36, as shown in Figure 6 below. Vegetated land and St Georges Basin waterway is located to the north. There is residential development to the south, east and west along River Road.

(ii) Sussex Inlet SPS 16

Sussex Inlet SPS 16 is located on Lakeland Avenue in Berrara within a foreshore reserve, as shown in Figure 6 below. The site is vegetated, and Berrara Creek lies to the south. Residential development is located to the north along Lakeland Avenue.

Figure 6 Location of Sussex Inlet SPS 1 and SPS 16

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1.4 PROPOSED ACTIVITY

The proposed activity is to construct emergency overflow infrastructure, connected to a number of sewage pump stations in either in-ground storage tanks or underground pipes. The purpose of this infrastructure is to provide additional capacity of up to 8 hours of gravity flow in the event of a pump station failure, in order to avoid untreated effluent being discharged into the environment.

The proposed works were described in detail by Cowman Stoddart (2015) and provided below. Detailed figures are provided in Appendix A.

1.4.1 Berry SPS 5

The proposal for Berry SPS 5 is to install an in-ground concrete tank having a diameter of 9.05 m, and a depth of approximately 2.3 m, with the finished level of the tank sitting approximate to the current ground level. The system will be vented via the existing vent pipe provided in conjunction with the established sewage pump station. The works are proposed to be connected to the existing SPS via a 3 m length of sewer pipe.

The tank is proposed to be connected to the existing overflow pipe and head wall.

The works are proposed to the west of the existing pump station in the north-western corner of the allotment, and will require the removal of a small number of trees and shrubs which appear to have been planted in conjunction with the establishment of the sewage pump station.

No additional vent shaft is proposed.

1.4.2 Culburra SPS 5

Culburra SPS 5 is on a lot that is partially Crown Land. The site for the proposed storage tank is on an adjacent lot owned by Shoalhaven City Council.

The proposal for Culburra SPS 5 is to install an in-ground concrete tank having a diameter of 7.8m, and a depth of approximately 2.89m, with the finished level of the tank sitting approximate to the current ground level. The tank will be connected to the existing SPS via a sewer pipe with a 300 mm diameter and having a length of approximately 6m.

The works are proposed to the east of the existing pump station and will not require the removal of any significant vegetation, with this being restricted to grass lawn.

No additional vent shaft is proposed.

1.4.3 Culburra SPS 6

The proposal for Culburra SPS 6 is to install an in-ground concrete tank having a diameter of 9.05m, and a depth of approximately 3.4m, with the finished level of the tank sitting approximate to the current ground level. The tank will be connected to the existing SPS via a sewer pipe having a length of approximately 4.5m and a diameter of 225mm.

The works are proposed to the south-east of the existing pump station adjacent the existing internal access road that services the sewage pumping station in the north-western corner of the allotment, and will require the removal of a small number of trees.

No additional vent shaft is proposed.

1.4.4 Culburra SPS 9

The proposal for Culburra SPS 9 is to install an in-ground concrete tank having a diameter of 4.8m, and a depth of approximately 4.0m, with the finished level of the tank sitting approximate to the current ground level. The tank will be connected to the SPS via a sewer pipe having a length of approximately 2.7m.

The works are proposed to the north of the existing pump station on the raised area provided in conjunction with the sewerage pumping station. The proposal will result in the removal of a very small number of trees to enable its siting.

No additional vent shaft is proposed.

1.4.5 Culburra SPS 10

The proposal for Culburra SPS 10 is to install an in-ground concrete tank having a diameter of 7.8m, and a depth of approximately 4.4m, with the finished level of the tank sitting approximate to the current ground level. Connection to the SPS via a sewer pipe with a length of approximately 6.9m and a diameter of 300mm.

The works are proposed to the east of the existing pump station adjacent the constructed access serving the established sewerage pumping station. The proposal will result in the removal of a very small number of trees to enable its siting.

No additional vent pipe is proposed.

1.4.6 Huskisson SPS 3

The proposal for Huskisson and Vincentia SPS 3 is to install a 1.5 m diameter storage pipe having a length of approximately 14.6 m at a depth of approximately 3.9 m, with a soil covering of approximately 2.3 m, along with a 1.05 m manhole. A vent shaft is proposed at the northern end of the storage pipe.

The storage pipe is to be located to the east of the sewage pumping station, between it and Sydney Street.

The proposal will not result in the removal of vegetation as the works are sited on lands that have already been disturbed.

1.4.7 St Georges Basin SPS 10

The proposal for St Georges Basin SPS 10 is to install an in-ground concrete tank having a diameter of 6.0m, and a depth of approximately 3.44m, with the finished level of the tank sitting above the surrounding by approximately 400mm. The tank will be connected to the SPS via a sewer pipe of approximately 18.5 m, a new manhole, and another new section of sewer pipe of approximately 11.9m that will connect to an existing manhole adjacent to the SPS.

The works are proposed to the north east of the existing pump station. The proposal will require the removal of some vegetation to enable the siting of pipes and removal of a very small number of trees to enable siting of the in-ground concrete tank.

No additional vent shaft is proposed.

1.4.8 St Georges Basin SPS 12

St Georges Basin SPS 12 is on a lot that is Crown Land. The site for the proposed storage tank is on adjacent lots owned by Shoalhaven City Council.

The proposal for St Georges Basin SPS 12 is to install an in-ground concrete tank having a diameter of 10.0m, and a depth of approximately 2.85m, with the finished level of the tank sitting approximate to the finished ground level.

There are currently three options being considered for connecting the tank to the SPS. All options have been considered in the impact assessment provided in this REF. The options are as follows:

- Option 1: Via a proposed new overflow main to a new manhole cut into the existing 375mm sewer main to the north of the proposed tank. This option is within Council owned land;
- Option 2: Via a proposed new overflow main to a new manhole cut into the existing 225mm sewer main to the north west of the proposed tank. This option is within Council owned land;
- Option 3: Via a proposed new overflow main to an existing manhole on the existing 375mm sewer main to the north west of the site. This option is within Crown Land and therefore further approvals would be required.

The works are proposed to the east of the existing pump station. The proposal will result in the removal of some vegetation to enable the siting of the pipes and the in-ground concrete tank.

No additional vent shaft is proposed.

1.4.9 St Georges Basin SPS 13

The proposal for St Georges Basin SPS 13 is to install a 1.8m diameter storage pipe having a length of approximately 9.8m and with two access hatches one of which will include an odour filter. The storage pipe will be placed in-ground with a soil covering of approximately 1.1m. the storage pipe will connect to the SPS via two new sections of sewer pipe (of approximately 2m and 3m), along with a new 1.05 m manhole.

The works are proposed to the south east of the existing pump station and will require a small extension of the existing hard stand to the south and south east.

The proposal will result in the removal of some vegetation to enable the siting of the storage pipe.

No additional vent shaft is proposed.

1.4.10 Sussex Inlet SPS 1

The proposal for Sussex Inlet SPS 1 is to install an in-ground concrete tank having a diameter of 6.0m, and a depth of approximately 2.38m, with the finished level of the tank sitting approximate to the current ground level. The tank will be connected to the SPS via a sewer pipe of approximately 16.5 m and a new manhole.

The works are proposed to the south and west of the existing pump station. The proposal will result in the removal of some vegetation to enable the siting of the pipes and the in-ground concrete tank.

No additional vent shaft is proposed.

1.4.11 Sussex Inlet SPS 16

The proposal for Sussex Inlet SPS 16 is to install an in-ground concrete tank having a diameter of 4.0m, and a depth of approximately 2.93m, with the finished level of the tank sitting approximate to the current ground level. The tank will be connected to the SPS via a new vent pipe of 4.0m. A new sewer pipe of approximately 6.3m will connect the in-ground tank with an existing manhole and the existing sewer.

The works are proposed to the west of the existing pump station. The proposal will result in the removal of a small area of existing landscaping to enable the siting of the vent pipe.

The proposed in-ground tank and new sewer pipe will not result in the removal of any vegetation as the land affected is already disturbed.

No additional vent shaft is proposed.

1.5 STAGING OF PROPOSED ACTIVITY

The proposed activity will be undertaken in phases, including the design phase, construction and commissioning.

The construction will be undertaken as follows:

- Vegetation clearance and site mobilisation; Installation and maintenance of erosion and sediment controls during construction;
- Excavation of Land for tanks or pipes;
- Construction of pre-fabricated concrete storage tank or prefabricated pipes;
- Installation of interconnecting fittings;
- Installation of discharge pipe; and
- Re-establish affected site by way of revegetation works and reconstruction of access.

1.6 CONSTRUCTION PERIOD AND WORKING HOURS

The expected total duration of the construction period for each site is anticipated to be approximately 6 weeks.

Work hours will be between 7:00 am and 5:00 pm, Mondays to Fridays. Work on Saturday may be undertaken between the hours of 8:00 am and 1:00 pm depending on the schedule progress and Council's desire to complete the project as quickly as possible.

No work is proposed on Sundays or public holidays.

1.7 PLANT AND EQUIPMENT

Plant and equipment utilised in the construction works include:

- various earthmoving equipment including excavators;
- trucks;
- compactors;
- mobile crane to lift tanks and pipes into place; and
- concrete trucks and concrete pumps.

2 Legislation and planning context

This section describes the planning framework under which the Proposal is assessed and relevant provisions of local, state and commonwealth legislation.

2.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

The NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and its associated regulations provide the framework for assessing environmental impacts and determining planning approvals for developments and activities in NSW. The EP&A Act also establishes State Environmental Planning Policies (SEPPs) and Local Environmental Plans (LEPs) which may include provisions relevant to the Proposal.

Under the EP&A Act, Shoalhaven City Council is classified as a proponent and a determining authority (Part 5 of the Act). A proposed activity can be assessed by a determining authority under Part 5 of the Act if it:

- May be carried out without development consent;
- Is not a prohibited development;
- Is carried out, or approved by a determining authority.

The Proposal does not require development consent under Part 4 of the EP&A Act, and is not classified as state significant infrastructure under 5.1. Therefore, the Proposal has been assessed under Part 5 of the EP&A Act. This REF has been prepared to determine if the Proposal is likely to have a significant impact on the environment. If a determining authority decides an activity is likely to significantly affect the environment, it must prepare an environmental impact statement (EIS). Clause 228 of the EP&A Regulation lists factors that must be taken into account when considering the likely impact of an activity on the environment. Section 5 includes an assessment of these factors for this proposal.

2.2 STATE ENVIRONMENTAL PLANNING POLICIES

State Environmental Planning Policy (Infrastructure) 2007

The aim of the State Environmental Planning Policy (Infrastructure) 2007 is to facilitate the effective delivery of infrastructure across NSW. This SEPP provides for this work to be undertaken without development consent. In circumstances where development consent is not required, the environmental assessment provisions outlined in Part 5 of the Act are required to be complied with. This REF fulfils this requirement.

State Environmental Planning Policy (Coastal Management) 2018

The Coastal Management SEPP gives effect to the objectives of the *Coastal Management Act 2016* from a land use planning perspective, by specifying how development is assessed if it is within the coastal zone. All of the SPS sites, with the exception of Berry SPS 5, are located within the mapped NSW coastal zone to which this SEPP applies.

Table 1 summarises the components of the Coastal SEPP that apply to each of the SPS sites.

Table 1 Coastal SEPP Components that apply to each SPS Site

SPS Site	Coastal Zone	Coastal Wetlands	Littoral Rainforest
Berry SPS 5	No	No	No
Culburra SPS 5	Yes	Yes	No
Culburra SPS 6	Yes	Yes	No
Culburra SPS 9	Yes	Yes	No
Culburra SPS 10	Yes	No	No
Huskisson SPS 3	Yes	Yes	No
St Georges Basin SPS 10	Yes	No	No
St Georges Basin SPS 12	Yes	No	No
St Georges Basin SPS 13	Yes	No	No
Sussex Inlet SPS 1	Yes	Yes	No
Sussex Inlet SPS 16	Yes	No	No

Consideration of the potential impact of the proposed activity on SEPP Coastal Wetlands is provided in Section 4.

State Environmental Planning Policy No.44 – Koala Habitat Protection

The development control provisions within this SEPP apply only to development applications made under Part 4 of the EP&A Act. Therefore this SEPP does not apply.

State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011

The subject site is not mapped as an area covered by this policy.

2.3 SHOALHAVEN LOCAL ENVIRONMENT PLAN 2014

Under the Shoalhaven LEP, the land zonings for the proposed activity at each SPS site are summarised in Table 2.

The proposed activity may have required development consent under the SLEP. However, the provisions of the SEPP Infrastructure prevail over the SLEP and consequently development consent is not required.

Table 2 LEP zoning at each SPS Site

SPS Site	LEP Zoning (SLEP 2014)
Berry SPS 5	SP2 Infrastructure
Culburra SPS 5	E2 Environmental Conservation and R2 Low Density Residential
Culburra SPS 6	RE1 Public Recreation
Culburra SPS 9	R2 Low Density Residential and RE1 Public Recreation
Culburra SPS 10	R3 Medium Density Residential and RE1 Public Recreation
Huskisson SPS 3	E1 National Parks and Nature Reserves and R2 Low Density Residential
St Georges Basin SPS 10	RE1 Public Recreation
St Georges Basin SPS 12	R2 Low Density Residential and RE1 Public Recreation
St Georges Basin SPS 13	RE1 Public Recreation
Sussex Inlet SPS 1	RE1 Public Recreation
Sussex Inlet SPS 16	RE1 Public Recreation

2.4 OTHER NSW LEGISLATION

Heritage Act 1977

The *Heritage Act 1977* was introduced to conserve the environmental heritage of NSW. It defines environmental heritage as places, buildings, works, relics, moveable objects and precincts that have State or local heritage significance. The Act allows for a variety of orders and permits to protect items of environmental heritage, including the listing of items on the State Heritage Register (SHR). Section 5 of this REF considers the impact of the proposed works to heritage and associated items and concludes there will be no significant impact to items of heritage significance.

Protection of the Environment Operations Act 1997 (POEO Act)

The proposals to undertake works associated with sewage pumping stations connected to treatment works would constitute activities associated with sewage treatment. Schedule 1 of the POEO Act includes the following:

> *(1) This clause applies to sewage treatment, meaning the operation of sewage treatment systems (including the treatment works, pumping stations, sewage overflow structures and the reticulation system) that involve the discharge or likely discharge of wastes or by-products to land or waters.*
>
> *(2) The activity to which this clause applies is declared to be a scheduled activity if it has a processing capacity that exceeds:*
>
> *(a) 2,500 persons equivalent, as determined in accordance with guidelines established by an EPA Gazettal notice, or*
>
> *(b) 750 kilolitres per day,*
>
> *whichever is the greater.*

The sewage systems affected by the proposed activity are all currently licenced with the Environment Protection Authority (EPA). Table 3 outlines the relevant Environment Pollution Licences from EPA.

Table 3 Relevant Environment Protection Licences

SPS Site	Sewage Scheme	EPL Number
Berry SPS 5	Berry	EPL 1736
Culburra SPS 5	Northern Shoalhaven Reclaimed Water Management Scheme (REMS)	EPL 2419
Culburra SPS 6		
Culburra SPS 9		
Culburra SPS 10		
Huskisson SPS 3		
St Georges Basin SPS 10		
St Georges Basin SPS 12		
St Georges Basin SPS 13		
Sussex Inlet SPS 1	Sussex Inlet	EPL 3936
Sussex Inlet SPS 16		

As a result, no further approval under the POEO Act is required.

National Parks and Wildlife Act 1974

The Office of Environment and Heritage (OEH) administers the *National Parks and Wildlife Act 1974* (NPW Act). Under section 86 of the Act it is an offence to harm Aboriginal objects or places. Defences against prosecution of this offence include having an Aboriginal Heritage Impact Permit and being able to demonstrate due diligence. All works will be undertaken on existing disturbed sites. Similarly, no known archaeological sites, Aboriginal objects or places would be directly or indirectly impacted by the Proposal. Further discussion of Aboriginal Heritage is included in section 3.3.

The NPW Act also allows for the establishment and management of National Parks and nature reserves and prohibits certain activities within these areas.

One of the SPS sites- Huskisson SPS 3- is immediately adjacent to the boundary of Jervis Bay National Park. None of the other SPS sites are in the immediate vicinity of National Parks or nature reserves.

NSW Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* (BC Act) establishes a framework for protecting threatened species, populations, ecological communities and their habitats in NSW. Schedules 1 and 2 of the BC Act list terrestrial species, populations and ecological communities threatened in NSW. The BC Act replaces the now repealed *Threatened Species Conservation Act 1995*, which was used to assess the impacts of the proposed activity in the original REF by Cowman Stoddart (2015). Hence it is necessary to reconsider potential impacts of the proposed activity on threatened species, populations, ecological communities and their habitats under the BC Act.

Under Section 7.8 of the BC Act, if an activity assed under Part 5 of the EP&A Act is likely to *significantly affect* threatened species – as per Section 7.3 of the BC Act *"Test for determining whether proposed development or activity likely to significantly affect threatened species or ecological communities, or their habitats"* - a Species Impact Statement (SIS) and licence are required. Section 3.3 of this REF provides details of threatened species, populations, ecological communities or habitats within or in the vicinity of the work areas.

Fisheries Management Act 1994

The proposed activity:

- Would not affect declared aquatic reserves;
- Does not involve dredging or reclamation works in 'key fish habitat';
- Would not impact mangroves and marine vegetation;
- Would not involve disturbance to gravel beds where salmon or trout spawn;
- Does not involve the release of live fish;
- Does not involve construction of dams and weirs;
- Would not result in blocking of the passage of fish;
- Would not impact declared threatened species of endangered ecological communities;
- Does not constitute a declared key threatening process;
- Would not use explosives in a watercourse.

Therefore a licence is not required.

Noxious Weeds Act 1993

The purpose of the Noxious Weeds Act 1993 is to identify noxious weeds in respect of which particular control measures need to be taken, to specify those control measures, and to specify the duties of both public and private landholders with respect to the control of noxious weeds.

The proposed activity will include mitigation measures to reduce the potential spread of noxious weeds.

Water Management Act 2000

Local councils are exempt from s.91E(1) of the Act in relation to controlled activities that are carried out in waterfront land.

2.5 COMMONWEALTH LEGISLATION

Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

Under the EPBC Act 1999 activities that are likely to have a significant impact on matters of national environmental significance, actions undertaken on Commonwealth lands, or by the Commonwealth must be assessed and approved. The EPBC Act identifies matters of national environmental significance (MNES) as:

- world heritage properties;
- national heritage properties;
- Ramsar wetlands;
- nationally threatened species and communities;
- migratory species protected under international agreements;
- Commonwealth marine environment;
- Great Barrier Reef Marine Park;
- nuclear actions;
- protection of water resources from coal seam gas development and large coal mining development.

These matters are discussed further in Section 3. The proposed activity IS NOT likely to have a significant impact on any matters of national environmental significance. The proposed activity is therefore not a controlled activity and does not require commonwealth referral.

3 Existing Environment

3.1 TOPOGRAPHY, SOILS AND DRAINAGE

Topography, soils and drainage at each site were described by Cowman and Stoddart (2015). This information was reviewed to check for accuracy and currency, and provided in the sections below.

3.1.1 Berry SPS 5

This site and nearby areas feature relatively level land being sited at approximately RL 10m AHD according to the 1: 25 000 topographic map for “Berry”, to the south of the established Berry urban area.

In the locality, according to the 1:250 000 Geological Series Sheet for “Wollongong”, soils are Permian from the Shoalhaven Group being Berry Formation featuring siltstone, shale and sandstone.

The subject site and adjoining lands do not feature any watercourses or drainage networks.

The site and adjoining lands are mapped by SLEP 2014 as containing Class 5 acid sulfate soils.

3.1.2 Culburra SPS 5

This site and nearby areas feature relatively level land being sited approximately RL 3m AHD according to contours supplied on the plans of the proposal. The site is located on the western edge of the Culburra urban area and to the east of Curleys Bay which is part of the Crookhaven River system.

In the locality, according to the 1:250 000 Geological Series Sheet for “Wollongong”, soils are a combination of Quaternary comprising alluvium, gravel, swamps deposits and sand dunes, and Permian from the Shoalhaven Group, Megalong Conglomerate featuring Wandrawandian Siltstone comprising siltstone, silty sandstone and being pebbly in part.

The site and adjoining lands are mapped by SLEP as containing Class 4 and 5 acid sulfate soils.

3.1.3 Culburra SPS 6

This site and nearby areas feature relatively level land being sited at approximately RL 3m AHD according to contours supplied on the plans of the proposal. The site is located on the western edge of the Culburra urban area and to the east of Curleys Bay which is part of the Crookhaven River system.

In the locality, according to the 1:250 000 Geological Series Sheet for “Wollongong”, soils are a combination of Quaternary comprising alluvium, gravel, swamps deposits and sand dunes, and Permian from the Shoalhaven Group, Megalong Conglomerate featuring Wandrawandian Siltstone comprising siltstone, silty sandstone and being pebbly in part.

The site and adjoining lands are mapped by SLEP as containing Class 4 and 5 acid sulfate soils.

3.1.4 Culburra SPS 9

This site and nearby areas are relatively level being sited at approximately RL 4m AHD according to plans supplied with the proposal.

In the locality, according to the 1:250 000 Geological Series Sheet for “Wollongong”, soils are a combination of Quaternary comprising alluvium, gravel, swamps deposits and sand dunes, and Permian from the Shoalhaven Group, Megalong Conglomerate featuring Wandrawandian Siltstone comprising siltstone, silty sandstone and being pebbly in part.

This site is located to the south of the Culburra urban area and is within the catchment of Lake Wollumboola.

The site and adjoining lands are mapped by SLEP as containing Class 4 and 5 acid sulfate soils.

3.1.5 Culburra SPS 10

This site and nearby areas are relatively level being sited at approximately RL 5m AHD according to plans supplied with the proposal.

In the locality, according to the 1:250 000 Geological Series Sheet for “Wollongong”, soils are a combination of Quaternary comprising alluvium, gravel, swamps deposits and sand dunes, and Permian from the Shoalhaven Group, Megalong Conglomerate featuring Wandrawandian Siltstone comprising siltstone, silty sandstone and being pebbly in part.

This site is located to the south of the Culburra urban area and is within the catchment of Lake Wollumboola.

The site and adjoining lands are mapped by SLEP as containing Class 4 and 5 acid sulfate soils.

3.1.6 Huskisson SPS 3

This site and nearby areas features relatively level land being sited at approximately RL 3.0 m AHD according to plans with the proposal.

In the locality, according to the 1:250 000 Geological Series Sheet for Ulladulla, soils are from the Permian period arising from the Shoalhaven Group, Megalong Conglomerate featuring Wandrawandian Siltstone comprising siltstone, silty sandstone and being pebbly in part.

The subject site and adjoining lands do not feature watercourses or drainage networks.

The site and adjoining lands are mapped by SLEP as containing Class 5 acid sulfate soils.

3.1.7 St Georges Basin SPS 10

This site and nearby areas feature relatively level land being sited at approximately RL 2m AHD according to plans supplied by Council with the proposal.

In the locality, according to the 1:250 000 Geological Series Sheet for Ulladulla, soils are from the Permian period arising from the Shoalhaven Group, Megalong Conglomerate featuring Wandrawandian Siltstone comprising siltstone, silty sandstone and being pebbly in part.

The site is located on the southern edge of the St Georges Basin urban area and is within the catchment of St Georges Basin.

The site and adjoining lands are mapped by SLEP as containing Class 5 acid sulfate soils.

3.1.8 St Georges Basin SPS 12

This site and nearby areas feature relatively level land being sited at approximately RL 2.0m AHD according to plans with the proposal.

In the locality, according to the 1:250 000 Geological Series Sheet for Ulladulla, soils are from the Permian period arising from the Shoalhaven Group, Megalong Conglomerate featuring Wandrawandian Siltstone comprising siltstone, silty sandstone and being pebbly in part.

The site is located on the western edge of the Sanctuary Point urban area and is within the catchment of St Georges Basin.

The site and adjoining lands are mapped by SLEP as containing Class 2 and 5 acid sulfate soils.

3.1.9 St Georges Basin SPS 13

This site and nearby areas feature relatively level land being sited at approximately RL 3m AHD according to plans supplied by Council with the proposal. The site slopes down to the south and will require a small extension of the existing hardstand as part of the proposed works.

In the locality, according to the 1:250 000 Geological Series Sheet for Ulladulla, soils are from the Permian period arising from the Shoalhaven Group, Megalong Conglomerate featuring Wandrawandian Siltstone comprising siltstone, silty sandstone and being pebbly in part.

The site is located on the southern edge of the Sanctuary Point urban area and is within the catchment of St Georges Basin.

The site and adjoining lands are mapped by SLEP as containing Class 5 acid sulfate soils.

3.1.10 Sussex Inlet SPS 1

This site and nearby areas feature relatively level land being sited at approximately RL 1.5m AHD according to plans with the proposal.

In the locality, according to the 1:250 000 Geological Series Sheet for “Ulladulla”, soils are from the Quaternary period comprising alluvium, gravel, swamps deposits and sand dunes.

The site is located on the northern edge of the Sussex Inlet urban area and is within the catchment of St Georges Basin.

The site and adjoining lands are mapped by SLEP as containing Class 2 and 5 acid sulfate soils.

3.1.11 Sussex Inlet SPS 16

This site and nearby areas feature relatively level land being sited at approximately RL 3m AHD according to plans supplied by Council with the proposal.

In the locality, according to the 1:250 000 Geological Series Sheet for Ulladulla, soils are from the Permian period arising from the Shoalhaven Group, Megalong Conglomerate featuring Wandrawandian Siltstone comprising siltstone, silty sandstone and being pebbly in part.

The site is located to the south west of the Berrara urban area and is within the catchment of Berrara Creek.

The site and adjoining lands are mapped by SLEP as containing Class 2 and 5 acid sulfate soils.

3.2 WATER QUALITY AND SOIL ISSUES

3.2.1 Acid Sulfate Soils

Acid Sulfate Soils mapping under the Shoalhaven LEP 2014 identifies lands that are potentially affected by acid sulfate soils. The Acid Sulfate Soil Classification for each SPS site is summarised in Table 4 below.

Table 4 SPS Sites and Acid Sulfate Soil Classification (SLEP 2014)

SPS Site	Acid Sulfate Soil Classification	Comments
Berry SPS 5	Nil	No further assessment required.
Culburra SPS 5	Land immediately to the west of the REF Study Area for this site has been mapped as “High Risk Sediments at 0-1 m”.	It is possible that acid sulfate soils will be disturbed by the proposed activity. An Acid Sulfate Soils Management Plan is required for this site.
Culburra SPS 6	Land to the west of the site (outside the REF Study Area) has been mapped as “Low Risk Sediments at 0-1 m”.	These sediments are unlikely to be disturbed due to the distance between the proposed works and mapped Acid Sulfate Soils Risk. No further assessment required
Culburra SPS 9	Part of the REF Study Area for this site is mapped as containing “Low Risk Sediments at 1-2m”.	It is possible that acid sulfate soils will be disturbed by the proposed activity. An Acid Sulfate Soils Management Plan is required for this site.
Culburra SPS 10	Land to the south west of the site (outside the REF Study Area) has been mapped as “Low Risk Sediments at 1-2 m”.	It is possible that acid sulfate soils will be disturbed by the proposed activity. An Acid Sulfate Soils Management Plan is required for this site.
Huskisson SPS 3	Nil	No further assessment required.
St Georges Basin SPS 10	Nil	No further assessment required.
St Georges Basin SPS 12	The REF Study Area for this site is mapped as “Low Risk Sediments at 1-2 m”.	It is possible that acid sulfate soils will be disturbed by the proposed activity. An Acid Sulfate Soils Management Plan is required for his site.
St Georges Basin SPS 13	Nil	No further assessment required.
Sussex Inlet SPS 1	Land immediately to the north of the REF Study Area for this site has been mapped as “Low Risk Sediments at 0-1 m”.	These sediments are unlikely to be disturbed due to the distance between the proposed works and mapped Acid Sulfate Soils Risk. No further assessment required.
Sussex Inlet SPS 16	Nil	No further assessment required.

3.2.2 Soil Erosion and Sedimentation Control

The proposed activity has the potential to result in soil erosion and sedimentation of nearby waterways due to the required excavation works and stockpiling and removal of soil to enable the proposed storage tanks and pipes to be installed.

Soil erosion and sediment control measures are to be implemented at all SPS sites to ensure that no sediment is exported off-site. Soil and Erosion Control Plans should be prepared for each site, which should include:

- Soil stockpiles being sited clear of any drainage lines;
- The installation of geotextile fabric downslope of disturbed areas;
- Provision of staked hay bales being provided where concentrated flows are likely to occur, and are to remain until all disturbed areas are stabilised; and
- All disturbed areas are to be stabilised as soon as possible following completion of the works.

3.3 FLORA AND FAUNA

3.3.1 Method of Assessment

As this is a desktop assessment only, methods for assessment included:

- Database searches:
  - OEH (2013) Compilation Map: Biometric vegetation types and endangered ecological communities of the Shoalhaven, Eurobodalla and Bega Valley local government areas;
  - OEH Threatened Species Profiles Database;
  - OEH NSW Bionet Atlas (10km buffer, accessed 10th March, 2020);
  - The EPBC Protected Matters Search Tool (10km buffer, accessed 10th March, 2020).
- Literature Review:
  - Review of Environmental Factors- Proposed Provision of Emergency Overflow Storage Facilities at Sewage Pumping Stations (Cowman Stoddart Pty ltd 2015)

A list of threatened flora and fauna within the locality (10km buffer of the study area for each SPS site) was determined from the database searches detailed above. The list of subject species is determined from consideration of this list.

In order to adequately determine the relevant level of assessment to apply to potentially impacted species, analysis of the likelihood of those species occurring within the study area was completed.

Four categories for ‘likelihood of occurrence’ (Table 4) were attributed to species after consideration of criteria such as proximity of NSW Bionet Atlas records and presence or absence of important habitat features on the subject site (based on literature review). This process was completed on an individual species basis.

Species considered further in formal assessments of significance (BC Act, EPBC Act) legislation are those in the ‘Known’ or ‘Potential’ categories and where impacts for the species could reasonably be expected to occur from the proposed activity. Species listed as a ‘low’ or ‘no’ likelihood of occurrence are those for which there is limited or no habitat present within the study area.

Table 5 Likelihood of occurrence criteria

Likelihood Rating	Threatened flora criteria	Threatened fauna criteria
Known	The species was observed within the study area.	The species was observed within the study area during previous field surveys.
Potential	Potential habitat for a species occurs on the site. Adequate field survey would determine if there is a 'high' or 'low' likelihood of occurrence for the species within the study area.	Potential habitat for a species occurs on the site and the species may occasionally utilise that habitat. Species unlikely to be wholly dependent on the habitat present within the study area.
Low	It is unlikely that the species inhabits the study area.	It is unlikely that the species inhabits the study area. If present at the site the species would likely be a transient visitor. The site contains only very common habitat for this species which the species would not rely on for its ongoing local existence.
None/ Unlikely	The habitat within the study area is unsuitable for the species	The habitat within the study area is unsuitable for the species.

3.3.2 Vegetation Communities

Vegetation mapping (OEH 2013) identifies biometric vegetation types and Endangered Ecological Communities (EECs) under the NSW BC Act 2016. Table 6 describes the vegetation types and EECs mapped within the REF study area of each SPS site, as well as the type of vegetation removal proposed at each site.

Table 6 Vegetation Communities and EEC status in the REF Study Area

SPS Site	Biometric Vegetation Type	EEC	Vegetation clearing proposed
Berry SPS 5	Nil	Nil	Removal of a small number of trees and shrubs which appear to have been planted in conjunction with the establishment of the SPS.
Culburra SPS 5	SR575- Mangrove forest in estuaries of the Sydney Basin and South East Corner	Nil	Nil
Culburra SPS 6	SR575- Mangrove forest in estuaries of the Sydney Basin and South East Corner	Swamp oak floodplain forest of the NSW North Coast, Sydney Basin and South East Corner bioregions	Vegetation clearing including tree removal (approx. 92 sqm)
Culburra SPS 9	SR531- Coast Banksia - Coast Wattle dune scrub, Sydney Basin and South East Corner	Nil	Vegetation clearing including tree removal
Culburra SPS 10	Nil	Nil	Vegetation clearing including tree removal
Huskisson SPS 3	SR648- Swamp Mahogany swamp sclerophyll forest on	Swamp sclerophyll forest on coastal floodplains of the NSW North Coast,	Nil

SPS Site	Biometric Vegetation Type	EEC	Vegetation clearing proposed
	coastal lowlands, Sydney Basin and South East Corner	Sydney Basin and South East Corner bioregions	
St Georges Basin SPS 10	Nil	Nil	Vegetation clearing including tree removal
St Georges Basin SPS 12	Nil	Nil	Vegetation clearing including tree removal
St Georges Basin SPS 13	Nil	Nil	Vegetation clearing including tree removal
Sussex Inlet SPS 1	SR648- Swamp Mahogany swamp sclerophyll forest on coastal lowlands, Sydney Basin and South East Corner	Swamp sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions	Vegetation clearing including tree removal
Sussex Inlet SPS 16	Nil	Nil	Nil

As shown in Table 6, vegetation removal is required at Berry SPS 5, Culburra SPS 6, Culburra SPS 9, Culburra SPS 10, St Georges Basin SPS 10, St Georges Basin SPS 12, St Georges Basin SPS 13 and Sussex Inlet SPS 1.

There is no mapped native vegetation in the vicinity of the area to be cleared at the sites for Berry SPS 5, Culburra SPS 10, St Georges Basin SPS 10, St Georges Basin SPS 12, St Georges Basin SPS 13, or Sussex Inlet SPS 16.

There is potential impact on native vegetation at the following sites:

- Culburra SPS 6 – Removal of trees is required at this site in order to construct the proposed storage tank. The whole REF Study Area for this site is mapped as *SR575- Mangrove forest in estuaries of the Sydney Basin and South East Corner.* This vegetation is also identified as the *Swamp oak floodplain forest of the NSW North Coast, Sydney Basin and South East Corner bioregions* EEC.

- Culburra SPS 9 – Removal of a small number of trees, which may form part of the *SR531- Coast Banksia - Coast Wattle dune scrub, Sydney Basin and South East Corner* vegetation type mapped within the REF Study Area for this site. The vegetation at this site has not been identified as an EEC.

- Sussex Inlet SPS 1 – Removal of some vegetation is required at this site. A portion of the REF Study Area for this site has been mapped as *SR648- Swamp Mahogany swamp sclerophyll forest on coastal lowlands, Sydney Basin and South East Corner.* This vegetation has also been identified as the *Swamp sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions* EEC.

In light of the changes in threatened species legislation and impact assessment methods, a test of significance as per s7.3 of the NSW BC Act 2016 was undertaken for both *Swamp oak floodplain forest of the NSW North Coast, Sydney Basin and South East Corner bioregions* EEC and *Swamp*

sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions EEC (see section 5.1.1).

The EPBC Protected Matters search of a 10km radius of the study area identified six listed threatened ecological communities, which are summarised in Table 7.

Table 7 Threatened Ecological Communities identified by EPBC Protected Matters Search for each site

Ecological Community	Commonwealth Status	Type of Presence at each site
Coastal Swamp Oak (Casuarina glauca) Forest of NSW and SE Queensland ecological community	Endangered	Berry SPS 5: Community likely to occur within area Culburra SPS 5: Community likely to occur within area Culburra SPS 6: Community likely to occur within area Culburra SPS 9: Community likely to occur within area Culburra SPS 10: Community likely to occur within area Huskisson SPS 3: Community likely to occur within area St Georges Basin SPS 10: Community likely to occur within area St Georges Basin SPS 12: Community likely to occur within area St Georges Basin SPS 13: Community likely to occur within area Sussex Inlet SPS 1: Community likely to occur within area Sussex Inlet SPS 16: Community likely to occur within area
Illawarra and south coast lowland forest and woodland ecological community	Critically Endangered	Berry SPS 5: Community likely to occur within area Culburra SPS 5: Community likely to occur within area Culburra SPS 6: Community likely to occur within area Culburra SPS 9: Community likely to occur within area Culburra SPS 10: Community likely to occur within area Huskisson SPS 3: Community may occur within area St Georges Basin SPS 10: Community may occur within area St Georges Basin SPS 12: Community may occur

Ecological Community	Commonwealth Status	Type of Presence at each site
		within area St Georges Basin SPS 13: Community may occur within area Sussex Inlet SPS 1: Community likely to occur within area Sussex Inlet SPS 1: Community likely to occur within area
Illawarra-Shoalhaven Subtropical Rainforest of the Sydney Basin Bioregion	Critically Endangered	Berry SPS 5: Community likely to occur within area
Littoral Rainforest and Coastal Vine Thickets of Eastern Australia	Critically Endangered	Culburra SPS 5: Community likely to occur within area Culburra SPS 6: Community likely to occur within area Culburra SPS 9: Community likely to occur within area Culburra SPS 10: Community likely to occur within area Sussex Inlet SPS 1: Community likely to occur within area
Robertson Rainforest in the Sydney Basin Bioregion	Critically Endangered	Berry SPS 5: Community likely to occur within area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Culburra SPS 5: Community likely to occur within area Culburra SPS 6: Community likely to occur within area Culburra SPS 9: Community likely to occur within area Culburra SPS 10: Community likely to occur within area Huskisson SPS 3: Community likely to occur within area St Georges Basin SPS 10: Community likely to occur within area St Georges Basin SPS 12: Community likely to occur within area St Georges Basin SPS 13: Community likely to occur within area Sussex Inlet SPS 1: Community likely to occur within area Sussex Inlet SPS 1: Community likely to occur within area

The potential impacts of the proposed activity on these Threatened Ecological Communities is assessed in Section 5.

3.3.3 Threatened Flora

A total of 20 threatened flora species have been recorded (NSW Bionet Atlas) or are predicted to have habitat (EPBC Act) within 10km of the study area. As detailed in section 5.1.2, it is considered unlikely that any threatened flora species will be impacted by the proposed activity.

3.3.4 Threatened Fauna

A total of 77 threatened fauna species (45 birds, 24 mammals, 3 frogs, 5 reptiles) have been recorded (NSW Bionet Atlas) or are predicted to have habitat (EPBC Act) within 10km of the study area.

Given the requirement for tree removal and vegetation disturbance as part of the proposed activity, tests of significance as per s7.3 of the NSW BC Act 2016 were undertaken for threatened species considered to potentially occur in the REF study area. See Section 5.1.3.

3.4 HERITAGE VALUE

A basic Aboriginal Heritage Information Management System (AHIMS) search conducted on 10th March 2020. Table 8 summarises the number of Aboriginal sites recorded at the REF study area for each SPS site. The AHIMS search reports are provided in Appendix C.

Table 8 Results of AHIMS Basic Search for each SPS Site

SPS Site	AHIMS
Berry SPS 5	1 Aboriginal site
Culburra SPS 5	0 Aboriginal sites
Culburra SPS 6	1 Aboriginal site
Culburra SPS 9	2 Aboriginal sites
Culburra SPS 10	4 Aboriginal sites
Huskisson SPS 3	0 Aboriginal sites
St Georges Basin SPS 10	0 Aboriginal sites
St Georges Basin SPS 12	0 Aboriginal sites
St Georges Basin SPS 13	0 Aboriginal sites
Sussex Inlet SPS 1	6 Aboriginal sites
Sussex Inlet SPS 16	0 Aboriginal sites

The proposed activity constitutes a low impact activity in accordance with the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales. This is because the proposed activity is maintenance of an existing utility on or under land that has been previously disturbed.

The National Parks and Wildlife Regulation 2009 (the Regulation), under Clause 80B describes defences of carrying out certain low impact activities:

(1) It is a defence to a prosecution for an offence under section 86(2) of the Act, if the defendant establishes that the act or omission concerned:

(a) was maintenance work of the following kind on land that has been disturbed: (i) maintenance of existing roads, fire and other trails and tracks, (ii) maintenance of existing utilities and other similar services (such as above or below ground electrical infrastructure, water or sewage pipelines).

The Regulation defines the following as “land that has been disturbed”:

(2) For the purpose of this clause, land is disturbed if it has been the subject of human activity that has changed the land surface, being changes that remain clear and observable.

Note: Examples of activities that may have disturbed land includes the following: (a) soil ploughing; (b) construction of rural infrastructure (such as dams and fences); (c) construction of roads, trails and tracks; (d) clearing of vegetation; (f) construction or installation of utilities and other similar services (such as above or below ground electrical infrastructure, water or sewage pipeline, storm water drainage, and other similar infrastructure; (h) construction of earth works associated with anything referred to in paragraphs (a)-(g).

As the proposed activity is considered a low impact activity, no further assessment is required.

4 Consultation

4.1 CONSULTATION METHODS

Consultation requirements with other government authorities are specified by Part 2 Division 1 of the Infrastructure SEPP.

The Draft REF document was placed on public exhibition on Council's website for a period of 3 weeks, from 15th April to 6th May 2020. A notice was placed in the South Coast Register and the Milton Ulladulla Times on 15th April and 22nd April to notify the local community of the public exhibition period.

Shoalhaven Water notified the following stakeholders of the public exhibition period by email:

- NSW Crown Lands;
- NSW National Parks and Wildlife Service;
- NSW Department of Planning, Industry and Environment (Environment, Energy and Science).

A letter was sent by Council to directly impacted properties to inform them of the public exhibition and invite them to make a submission (letter template in Appendix E).

Other consultation requirements of the Infrastructure SEPP do not apply as the proposed activity:

- Would not impact local heritage items;
- Would not be undertaken adjacent to a marine park declared under the Marine Parks Act 1997;
- Would not be undertaken adjacent to an aquatic reserve declared under the Fisheries Management Act 1994;
- Would not be undertaken in the foreshore area within the meaning of the Sydney Harbour Foreshore Authority Act 1998; and
- Does not comprise a fixed or floating structure in or over navigable waters.

4.2 STAKEHOLDER AND COMMUNITY FEEDBACK

A representative from Crown Lands noted that whilst they did not have any comment on the REF itself, they wished to raise the issue of two of the Sewage Pump Stations – Culburra SPS 9 and St Georges Basin SPS 12- being on Crown Land without the required authorisation. The representative suggested that Council seek to identify all water and sewer stations in the LGA that are located on Crown Land, and which devolve to Council management- and possibly place them under a separate licence with possible acquisition.

A representative from Department of Planning, Industry and Environment had no comments on the content of the Draft REF.

A representative from NSW Environment Protection Authority provided comments in relation to the relevant Environment Protection Licence conditions to adhere to, the requirement for a sediment and erosion control plan to include a procedure to ensure that all feasible and reasonable controls are implemented prior to rain events, and to note that consideration needs to be given to noise and waste management. In response to these comments, Shoalhaven Water noted that these details are provided in the original REF, and that the scope of this Addendum was to address changes in relevant legislation

that had occurred since 2015, and to conduct revised database searches, particularly in relation to biodiversity and Aboriginal heritage.

Four local residents- two from the same property in Sussex Inlet, one from Culburra and one from Sanctuary Point- made submissions regarding the following issues:

1. Confirmation of the exact location of the proposed structures in respect of their property;
2. Potential visual impacts of the structure from their property;
3. Concerns regarding potential odour from the proposed structures;
4. Concern at the proximity of a proposed manhole to their property;
5. Concern regarding potential encroachment of earthworks on their property;
6. Concern regarding potential increased surface flows and localised flooding on property in heavy rain;
7. Concern regarding removal of a small tree from their property
8. General issues concerning the background of the project and community concerns raised at the time of the original REF.

In all cases, Council's project manager spoke directly with the resident to address their concerns. These are documented in a detailed Stakeholder Comments Database. One resident expressed satisfaction with the response received and had no further objection to the proposal. One resident maintained that despite mitigation measures put in place to alleviate visual impacts of the proposed structure adjacent to his property, that he still had concerns regarding visual impacts and impacts on property value, and wished to raise these with Council's senior management. He has since contacted Shoalhaven Water's Planning and Development Manager, and a plan for softening visual impacts by use of screening vegetation is being discussed. One resident was satisfied with the response received to her submission, but maintained she was more disappointed with the location of the pump station itself.

A further response received was via email, but with no contact name or other details provided. The email outlined general concerns about the project, including the use of Crown land, unnecessary use of public funds for emergency structures, land and habitat disturbance, potential carbon dioxide emissions, visual impacts on adjacent properties, potential health hazards and unnecessary noise and disruption to residents. It is the general consensus in Council's project team that relevant environmental matters have been adequately addressed by the original REF document and this Addendum.

5 Assessment of Environmental Impacts

In circumstances where development consent is not required, the environmental assessment provisions outlined in Part 5 (Environmental Assessment) of the EP&A Act are required to be complied with. Part 5 requires Council to examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposed activity. As a minimum the following must be addressed:

- Section 7.3 of the *Biodiversity Conservation (BC) Act 2016*;
- Clause 228 of the EP&A Regulation; and
- Matters of NES under the *EPBC Act*.

5.1 SECTION 7.3 OF THE BIODIVERSITY CONSERVATION (BC) ACT 2016

5.1.1 Affected Endangered Ecological Communities (EECs)

Two Endangered Ecological Communities mapped by OEH (2013) within the REF Study Area have the potential to be impacted by the proposed activity:

(i) *Swamp oak floodplain forest of the NSW North Coast, Sydney Basin and South East Corner bioregions*

This EEC comprises *SR575- Mangrove forest in estuaries of the Sydney Basin and South East Corner.* This EEC occurs at Culburra SPS 6, where it is proposed to clear approximately 92 square metres of vegetation, including trees, in order to construct the proposed storage tank. Additional potential impacts such as vegetation disturbance and modification may occur in order to allow construction of the new sewer main.

In the absence of field survey for this REF, a conservative approach has been taken, and a test of significance as per s7.3 of the *NSW BC Act 2016* has been undertaken to assess all potential impacts of the proposed activity on this EEC. The test of significance assumes that vegetation clearing and disturbance *may* comprise this EEC, however it concluded that the proposed activity does not constitute a significant impact to this EEC under the NSW BC Act. See Appendix D.

Mitigation measures to reduce potential impacts have been outlined in Section 6.

(ii) *Swamp sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions*

This EEC comprises *SR648- Swamp Mahogany swamp sclerophyll forest on coastal lowlands, Sydney Basin and South East Corner.* This EEC occurs in the vicinity of Sussex Inlet SPS 1. Although some vegetation clearing is required to construct the proposed storage tank at this site, the area where the vegetation clearing is to occur has not been mapped as native vegetation. In the limits of a desktop REF, a conservative approach was taken to assess potential impacts on this EEC. The assumption has been made that this native vegetation may constitute the EEC, and that the proposed activity at this site has the potential to impact on the EEC. As such a test of significance as per s7.3 of the *NSW BC Act*

2016 has been undertaken to assess all potential impacts of the proposed activity on this EEC. The test of significance assumes that vegetation clearing and disturbance *may* comprise this EEC, however it concluded that the proposed activity does not constitute a significant impact to this EEC under the NSW BC Act. See Appendix D.

Mitigation measures to reduce potential impacts have been outlined in Section 6.

5.1.2 Affected Threatened Flora

As discussed in Section 3.3.3, twenty (20) species of threatened flora have been recorded within 10km of the study area. Table 9 outlines the records of threatened flora species within 1km of the REF Study Area for each of the SPS sites.

Table 9 Record of Threatened Flora within 1km of each SPS Site

SPS Site	Threatened Flora Records within 1km of site	Location
Berry SPS 5	Magenta Lilly Pilly (*Syzygium paniculatum*)	1 record 840m to the north west of the site
Culburra SPS 5	Nil	
Culburra SPS 6	Magenta Lilly Pilly (*Syzygium paniculatum*)	1 record 640m to the east of the site
Culburra SPS 9	Nil	
Culburra SPS 10	Magenta Lilly Pilly (*Syzygium paniculatum*)	1 record 590m to the north of the site
Huskisson SPS 3	Nil	
St Georges Basin SPS 10	Magenta Lilly Pilly (*Syzygium paniculatum*)	3 records 320m to the east of the site
	Biconvex Paperbark (*Melaleuca biconvexa*)	2 records 320m to the east of the site and 1 record 560m to the north west of the site
	Narrow-leafed Wilsonia (*Wilsonia backhousei*)	1 record 450 m to the south of the site
St Georges Basin SPS 12	Nil	
St Georges Basin SPS 13	Nil	
Sussex Inlet SPS 1	Narrow-leafed Wilsonia (*Wilsonia backhousei*)	1 record 810m to the south west of the site and 1 record 930m to the south of the site
Sussex Inlet SPS 16	Nil	Nil

For the purposes of considering potential impacts to threatened flora species, it is assumed that they have a low likelihood of occurrence, based on the absence of NSW Bionet Atlas records in the immediate vicinity of the REF Study Area for each SPS site.

Threatened flora are not likely to be impacted by the proposal. As such, Tests of Significance under the BC Act and an address of Significant Impact Criteria (EPBC Act) are not required for threatened flora.

5.1.3 Affected Threatened Fauna

A total of 87 threatened fauna species (56 birds, 20 mammals, 3 frogs, 6 reptiles and 2 Fish) have been recorded within 10km of the REF study area.

Table 10 outlines the records of threatened fauna species within 1km of the REF Study Area for each of the SPS sites and an assessment of potential impact to each species by the proposed activity at each site.

Tests of significance as per s7.3 of the NSW BC Act 2016 have been undertaken to assess all potential impacts of the proposed activity on the species that are highlighted in Table 10 (see Appendix D). The tests of significance concluded that the proposed activity does not constitute a significant impact under the NSW BC Act.

Table 10 Record of Threatened Fauna within 1km of each SPS Site and Potential Impact Assessment

SPS Site	Threatened Fauna Records within 1km of site	Location	Potential Impact
Berry SPS 5	Gang-gang Cockatoo (*Callocephalon fimbriatum*)	1 record 810m to the north of the site 1 record 840m to the north west of the site 1 record 630m to the south west of the site	Negligible- (i) The proposed activity involves clearing only a small number of trees at this site (ii) There is available habitat for these species in the locality
	Grey-headed Flying-fox (*Pteropus poliocephalus*)	11 records ~750m east of the site 1 record 550m to the north west of the site 1 record 930m to the south west of the site	
	Eastern Coastal Free-tailed Bat (*Micronomus norfolkensis*)	1 record 750m east of the site	
	Large Bent-winged Bat (*Miniopterus orianae oceanensis*)	1 record 750m east of the site	
Culburra SPS 5	Grey-headed Flying-fox (*Pteropus poliocephalus*)	2 records 630 m to the north of the site	Negligible- (i) The proposed activity involves clearing of groundcover species only (ii) There is available habitat for these species in the locality
	Southern Brown Bandicoot (eastern) (*Isoodon obesulus obesulus)*	2 records 600m to the south east of the site	
	Eastern False Pipistrelle *(Falsistrellus tasmaniensis)*	1 record 520 m to the south of the site	
	Greater Broad-nosed Bat (*Scoteanax rueppellii*)	1 record 520 m to the south of the site	
	Koala *(Phascolarctos cinereus)*	1 record 840m to the north west of the site	
	Large Bent-winged Bat (*Miniopterus orianae oceanensis*)	1 record 520 m to the south of the site	
	Masked Owl *(Tyto novaehollandiae)*	1 record 940m to the north of the site	
	Leatherback Turtle *(Dermochelys coriacea)*	1 record 550m to the east of the site	Low- (i) There is potential impact to this species due to clearing of ground cover (ii) The impact is likely to be low due to the lack

SPS Site	Threatened Fauna Records within 1km of site	Location	Potential Impact
			of records and availability of other suitable habitat nearby
Culburra SPS 6	Southern Brown Bandicoot (eastern) (*Isoodon obesulus obesulus)*	2 records 800m to the north east of the site 1 record 250m to the south east of the site	Negligible- (i) The proposed activity involves clearing of a small area of vegetation to allow for the proposed storage tank (ii) There is available habitat for this species in the locality
	Square-tailed Kite *(Lophoictinia isura)*	1 record 350m to the south of the site 1 record 880m to the south east of the site	
	Eastern False Pipistrelle *(Falsistrellus tasmaniensis)*	1 record 400m to the north of the site	
	Greater Broad-nosed Bat *(Scoteanax rueppellii)*	1 record 400m to the north of the site	
	Large Bent-winged Bat *(Miniopterus orianae oceanensis)*	1 record 400m to the north of the site	
	Eastern Osprey *(Pandion cristatus)*	1 record 350m to the south west of the site	
	Little Eagle *(Hieraaetus morphnoides)*	1 record 990m to the south east of the site	
	Pied Oystercatcher *(Haematopus longirostris)*	1 record 700m to the south west of the site	
	Green and Golden Bell Frog *(Litoria aurea)*	1 record 870m to the south west of the site 1 record 920m to the south east of the site	Low- (i) There is potential impact to this species due to clearing of ground cover (ii) The impact is likely to be low due to the lack of records and availability of other suitable habitat nearby
Culburra SPS 9	Beach Stone-curlew *(Esacus magnirostris)*	4 records ~ 800m to the south east of the site	Negligible- (i) The proposed activity involves clearing of a small area of vegetation to allow for the proposed storage tank (ii) There is available habitat for this species in the locality
	Pied Oystercatcher *(Haematopus longirostris)*	4 records ~ 900m to the south east of the site	
	Eastern Osprey (*Pandion cristatus*)	2 records 270m to the south of the site	

SPS Site	Threatened Fauna Records within 1km of site	Location	Potential Impact
	Green and Golden Bell Frog *(Litoria aurea)*	8 records 80-100m from site- to the south and south west of site 1 record 890m to the south east of the site	Low- (i) There is potential impact to this species due to clearing of ground cover (ii) The impact is likely to be low due to the availability of other suitable habitat nearby
Culburra SPS 10	Eastern Osprey (*Pandion cristatus*)	2 records 750m to the south of the site 1 record 780m to the north west of the site	Negligible- (i) The proposed activity involves clearing of a small area of vegetation to allow for the proposed storage tank (ii) There is available habitat for these species in the locality
	Little Eagle (*Hieraaetus morphnoides*)	1 record 400m to the north east of the site	
	Square-tailed Kite *(Lophoictinia isura)*	1 record 400m to the north east of the site	
	Green and Golden Bell Frog *(Litoria aurea)*	1 record 30m to the north of the site 1 record 300m to the south west of the site 7 records ~500m to the south east of the site 1 record 500m to the east of the site	Low- (i) There is potential impact to this species due to clearing of ground cover (ii) The impact is likely to be low due to the availability of other suitable habitat nearby
Huskisson SPS 3	Grey-headed Flying-fox (*Pteropus poliocephalus*)	1 record 300m to the north east of the site 1 record 370m to the north of the site 1 record 700m to the north west of the site 1 record 860m to the west of the site 1 record 330m to the south east of the site	Negligible- (i) The proposed activity does not involve any vegetation clearing. (ii) There is available habitat for this species in the locality
	Yellow-bellied Glider *(Petaurus australis)*	1 record 400m to the north of the site 1 record 530m to the north west of the site 2 records 860m to the west of the site	
	Southern Brown Bandicoot (eastern) *(Isoodon obesulus obesulus)*	2 records 330m to the east of the site	
	Eastern Coastal Free-tailed Bat *(Micronomus norfolkensis)*	1 record 250m to the north of the site	
	Eastern False Pipistrelle *(Falsistrellus tasmaniensis)*	1 record 330m to the east of the site	

SPS Site	Threatened Fauna Records within 1km of site	Location	Potential Impact
St Georges Basin SPS 10	Yellow-bellied Glider *(Petaurus australis)*	12 records ~ 440m to the east of the site 1 record 900m to the north east of the site 2 records 990m to the west of the site	Negligible- (i) The proposed activity involves clearing of a small area of vegetation to allow for the proposed storage tank (ii) There is available habitat for these species in the locality
	Grey-headed Flying-fox (*Pteropus poliocephalus*)	3 records ~ 440m to the east of the site 1 record 900m to the north of the site	
	Large Bent-winged Bat *(Miniopterus orianae oceanensis)*	3 records ~ 440m to the east of the site	
	Eastern False Pipistrelle *(Falsistrellus tasmaniensis)*	2 records ~ 440m to the east of the site	
	Eastern Coastal Free-tailed Bat *(Micronomus norfolkensis)*	1 record ~450m to the north of the site	
	Little Lorikeet (*Glossopsitta pusilla)*	1 record 220m to the east of the site	
St Georges Basin SPS 12	Grey-headed Flying-fox (*Pteropus poliocephalus*)	1 record 150m to the north of the site 3 records 710m to the north east of the site 2 records 430m to the south of the site	Negligible- (i) The proposed activity involves clearing of a small area of vegetation to allow for the proposed storage tank (ii) There is available habitat for these species in the locality
	Square-tailed Kite *(Lophoictinia isura)*	1 record 140m to the west of the site 1 record 730m to the east of the site	
St Georges Basin SPS 13	Grey-headed Flying-fox (*Pteropus poliocephalus*)	1 record 280m to the north of the site 1 record 540m to the west of the site	Negligible- (i) The proposed activity involves clearing of a small area of vegetation to allow for the proposed storage tank (ii) There is available habitat for these species in the locality
	Square-tailed Kite *(Lophoictinia isura)*	2 records 800m to the north of the site	
Sussex Inlet SPS 1	Grey-headed Flying-fox (*Pteropus poliocephalus*)	1 record 280m to the north of the site 1 record 540m to the west of the site	Negligible- (i) The proposed activity involves clearing of a small area of vegetation to allow for the proposed storage tank (ii) There is available habitat for these species in the locality
	Spotted-tailed Quoll *(Dasyurus maculatus)*	1 record 240m to the south of the site	
	Yellow-bellied Glider *(Petaurus australis)*	2 records 800m to the south west of the site	

SPS Site	Threatened Fauna Records within 1km of site	Location	Potential Impact
Sussex Inlet SPS 16	Greater Glider *(Petauroides Volans)*	3 records 550m to the north of the site	Negligible- (i) The proposed activity involves clearing only a small number of trees at this site (ii) There is available habitat for these species in the locality
	Powerful Owl *(Ninox strenua)*	3 records 600m to the north of the site	
	Spotted-tailed Quoll (*Dasyurus maculatus*)	1 record 460m to the east of the site	

5.2 CLAUSE 228(2) MATTERS OF CONSIDERATION

Clause 228 Matters of Consideration are outlined in Table 11.

Table 11 Consideration of Clause 228

Does the proposal:	Assessment	Reason
(a) Have any environmental impact on a community?	Positive	The proposed activity would benefit the community, as the emergency storage infrastructure will reduce the risks associated with accidental discharges of untreated wastewater to the environment.
(b) Cause any transformation of a locality?	Negligible	There is expected to be a minor impact on the visual amenity of the sites for the duration of construction.
(c) Have any environmental impact on the ecosystem of the locality?	Negligible	The threatened species assessment provided in Section 5.1 concludes that the proposed activity would not have a significant impact upon endangered ecological communities or threatened fauna or flora.
(d) Cause a dimunition of the aesthetic, recreational, scientific or other environmental quality or value of a locality?	Positive	The proposed activity would benefit the locality, as the emergency storage infrastructure will reduce the risks associated with accidental discharges of untreated wastewater to the environment.
(e) Have any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations?	Negligible	There are no items in the vicinity of the site on the State Heritage Register. The site is not within an Aboriginal Place declared under the National Parks and Wildlife Act 1974. In accordance with the NSW OEH Due Diligence Code of Practice, as the proposed activity is low impact, it is unlikely to disturb an Aboriginal object or place, and therefore does not require an Aboriginal Heritage Impact Permit.
(f) Have any impact on the habitat of protected fauna (within the meaning of the National Parks and Wildlife Act 1974)?	Negligible	The threatened species assessment provided in Section 5.1 concludes that the proposed activity will not have a significant impact on protected fauna or habitats.
(g) Cause any endangering of any species of animal, plant or other form of life whether living on land in water or in the air?	Negligible	The threatened species assessment provided in Section 5.1 concludes that the proposed activity will not have a significant impact on threatened fauna or habitats.
(h) Have any long term effects on the environment?	Negligible	The proposed activity will be short term and environmental mitigation measures will be put in place to prevent any effects on the environment. Following completion, the proposed activity will result in a reduction in accidental discharge of untreated wastewater to the environment.
(i) Cause any degradation of the quality of the environment?	Negligible	The proposed activity will be short term and environmental mitigation measures will be put in place to prevent any effects on the environment. Following completion, the proposed activity will reduce the accidental discharge of untreated wastewater to the

Does the proposal:	Assessment	Reason
		environment.
(j) Cause any risk to the safety of the environment?	Negligible	The proposed activity will be short term and environmental mitigation measures will be put in place to prevent any effects on the environment.
(k) Cause any reduction in the range of beneficial uses of the environment?	Negligible	The proposed activity will be short term and environmental mitigation measures will be put in place to prevent any effects on the environment.
(l) Cause any pollution of the environment?	Negligible	The proposal will involve a temporary and local increase in noise. However this will be short term, and hours of operation will be standard hours. Completion of the proposed activity would reduce risk of pollution of the environment.
(m) Have any environmental problems associated with the disposal of waste?	Negligible	All waste will be disposed of in accordance with Shoalhaven Water's waste management policy.
(n) Cause any increased demand on resources (natural or otherwise) which are, or are likely to become, in short supply?	Negligible	The proposed activity would not lead to any increase demands on resources to an extent that they become in short supply.
(o) Have any cumulative environmental effect with other existing or likely future activities?	Negligible	There are no cumulative environmental effects associated with the proposed activity.
(p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions?	Negligible	The site of the proposed activity is within the coastal zone, however it is unlikely to have any impact on coastal processes.

5.3 MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

Under the EPBC Act, consideration of matters of national environmental significance (MNES) is required to determine whether the proposed activity should be referred to the Commonwealth Department of the Environment and Energy. Table 12 provides a summary of how MNES have been considered.

Table 12 Consideration of Matters of National Environmental Significance and Commonwealth Land

MNES	Potential Impacts
Any impact on a World Heritage property?	Nil, there are no World Heritage properties located in the vicinity of the proposed activity.
Any impact on a National heritage place?	Nil, there are no National heritage places located in the vicinity of the proposed activity.
Any impact on any wetlands of international importance?	Nil, there are no wetlands of international importance located in the vicinity of the proposed activity.
Any impact on a Commonwealth listed threatened species or ecological communities?	Nil, there are no impacts to Commonwealth listed threatened species or ecological communities.
Any impacts on a Commonwealth listed migratory species?	Nil, there are no impacts to migratory species.
Any impact on a Commonwealth marine area?	Nil, there are no impacts to marine areas.
Any impact on the Great Barrier Reef Marine Park?	Nil, the proposed activity is not within the Great Barrier Marine Park.
Does the proposed activity involve a nuclear action (including uranium mines)?	Nil, the proposed activity does not involve a nuclear action.
Does the proposed activity involve a water resource, in relation to coal seam gas development and large coal mining development?	Nil, the proposed activity does not involve a water resource in relation to coal activities.
Is the proposed activity likely to have a significant impact on the environment on Commonwealth land?	Nil, there are no impacts to Commonwealth land.

6 Mitigation Measures

Potential Impact	Mitigation Measures
Clearing/ disturbance of native vegetation, including Endangered Ecological Communities – *(i) Swamp oak floodplain forest of the NSW North Coast, Sydney Basin and South East Corner bioregions* *(j) Swamp sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions*	• Any areas of native vegetation that must be cleared and/or disturbed are to be minimised as much as possible. These areas are to be demarcated prior to construction to avoid any unnecessary vegetation disturbance. • All stockpile areas are to be located outside of native vegetation in cleared/ previously disturbed areas. • A Vegetation Management Plan is required to effectively plan and implement rehabilitation measures for each site. • As part of the site induction process, provide all site personnel with information on the biodiversity values of the study area for each site, including threatened species, no-go areas and responsibilities under relevant environmental legislation.
Threatened fauna habitat removal and disturbance including tree removal	• Qualified fauna experts are required to conduct pre-clearing surveys prior to tree removal. Any trees with hollows are to be checked for native fauna prior to being removed. If any fauna is found, works will stop and WIRES will be contacted. Refer to any Council specific policy requirements for hollow bearing trees and amend mitigation measures accordingly. • As part of the site induction process, provide all site personnel with information on the biodiversity values of the study area, including threatened species, no-go areas and responsibilities under relevant environmental legislation. • If any Green and Golden Bell Frogs are found in the study area prior to or during construction works, works should cease and an appropriate management plan and impact assessment should be completed. • Construction machinery should be washed prior to entering and leaving site to ensure weed propagules are not transported.
Soil and water quality impacts: • Soil and runoff contamination from spillage of oil, grease and chemicals; • Exposure of contamination; • Soil compaction in areas immediately surrounding construction zones.	• Implement the Soil and Water Management Plan for the site, including the proposed sediment control measures as identified in Figure 2. • Prepare and implement an Acid Sulfate Soils Management Plan for the following sites: - Culburra SPS 5 - Culburra SPS 9 - Culburra SPS 10 - St Georges Basin SPS 12 • Install sediment and erosion control devices around work sites and manage stockpiles in accordance with the NSW Government's 'Blue Book' (4th Edition) (Landcom, 2004). These devices would be inspected regularly including after rainfall to ensure their effectiveness. Any damage to

Potential Impact	Mitigation Measures
	erosion and sedimentation controls are to be rectified immediately; • Cease work if areas of suspected contamination are identified. Areas of suspected contamination would be cordoned off and the environmental representative would be contacted for advice; • Equipment, plant and materials are to be placed in designated lay-down areas; • Remove any erosion control devices as part of final clean-up after work is complete. This would include removing any sediment which has been trapped by erosion control devices, and restoring as close as possible to pre-existing conditions; • Stabilise any areas disturbed by work (including designated laydown, access and parking areas), following construction; • If necessary, revegetate disturbed areas as per Vegetation Management Plan.
Aboriginal heritage impacts: • Potential disturbance of unforeseen Aboriginal objects or items of Aboriginal heritage significance	• If unforeseen Aboriginal objects are uncovered during development, or items or places suspected of being of Aboriginal heritage significance, work should cease and Shoalhaven City Council notified. In consultation with Council, an archaeologist, the OEH and the NLALC should also be contacted for further direction prior to recommencement of construction activities. If human remains are found, work should cease, the site should be secured and the NSW Police and the OEH should be notified.

7 Conclusion

The proposed activity will provide emergency overflow storage facilities at a number of sewage pump stations, in order to reduce accidental discharge of untreated wastewater to the environment in periods of high flow.

The proposed activity is unlikely to have a significant impact on the environment for the following reasons:

- An assessment of the statutory matters of consideration reveals no potential adverse impacts.
- All identified potential impacts are addressed by the proposed mitigation measures;
- The assessments conducted under Section 7.3 of the *NSW Biodiversity Conservation Act 2016* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 2000* indicate that the proposed activity is unlikely to have a significant effect on threatened species, populations or ecological communities.

8 Determination

This Review of Environmental Factors has assessed the likely environmental impacts of a proposal by Shoalhaven Water for construction of emergency storage facilities at eleven sewage pump stations in the Local Government Area.

Shoalhaven Water has considered the potential environmental effects of the proposal and the effectiveness and feasibility of measures for reducing or preventing detrimental effects. It is determined that:

1. The proposed mitigation measures will be adopted and implemented;
2. Implementation of these mitigation measures will reduce the potential environmental impact of the proposed activity;
3. An Environmental Impact Statement is not required for the proposed works if all mitigation measures in this REF are implemented by Shoalhaven City Council.

Robert Horner
Acting Director
Shoalhaven Water - Shoalhaven City Council, Date: 2 June 2020

This REF has been prepared by:

Dr Emma McIntyre
Senior Environmental Scientist
Environmental Mapping and Planning (EMAP) Consulting, Date: 2nd April 2020

References

Cowman Stoddart Pty Ltd (2015) Review of Environmental Factors for Proposed Provision of Emergency Overflow Storage Facilities at Sewage Pumping Stations- Various Locations at Berry, Culburra, Huskisson, St Georges Basin and Sussex Inlet. Prepared for Shoalhaven City Council, December 2015.

DoEE (2018) Protected Matters Search Tool. Department of the Environment and Energy, Australian Government, Canberra. Accessed March 2020.

OEH (2018). BioNet Atlas of NSW Wildlife. Office of Environment and Heritage, Sydney. Accessed March 2020.

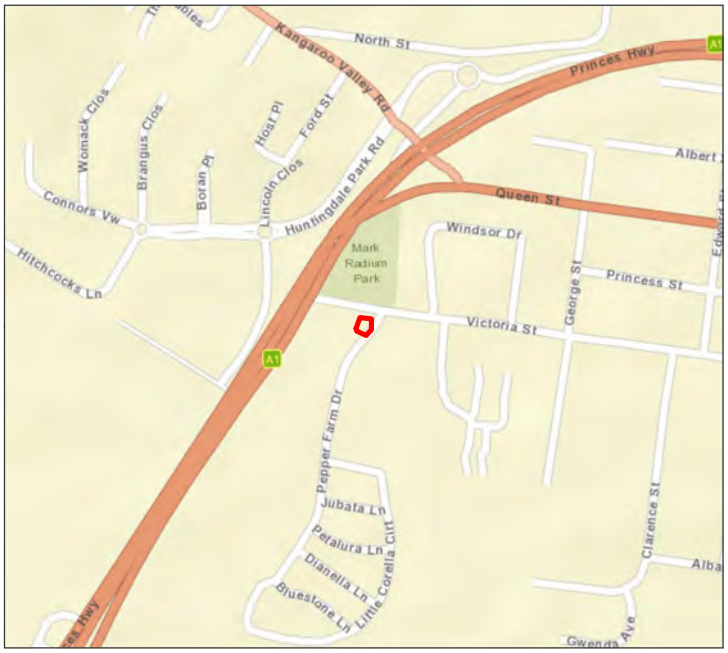
OEH (2013) Compilation map: Biometric vegetation types and endangered ecological communities of the Shoalhaven, Eurobodalla & Bega Valley local government areas. A living map. Version 2.0. Technical Report. NSW Office of Environment & Heritage, Queanbeyan.

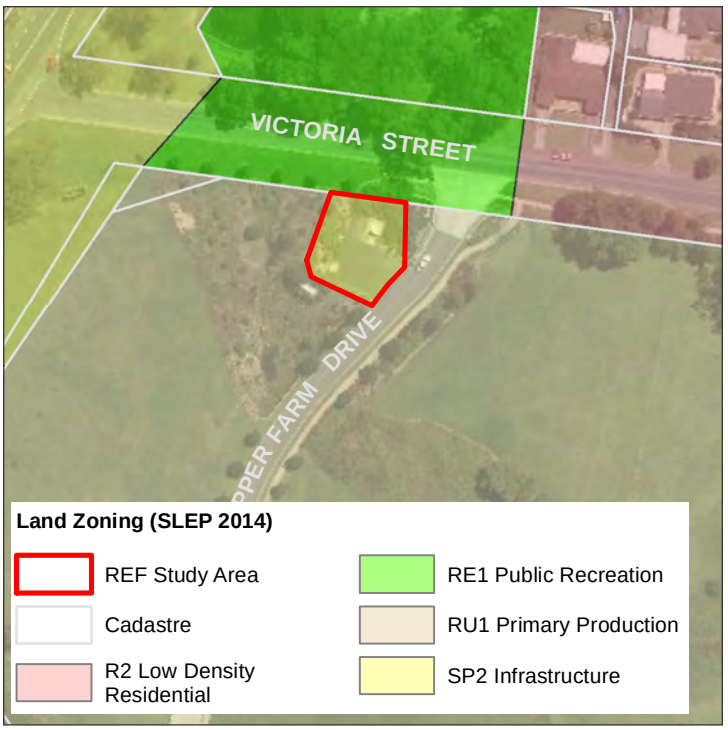
Shoalhaven City Council's State of the Environment Web Mapping. Available from: http://maps2.shoalhaven.nsw.gov.au/soemaps/

Appendix A:

FIGURES

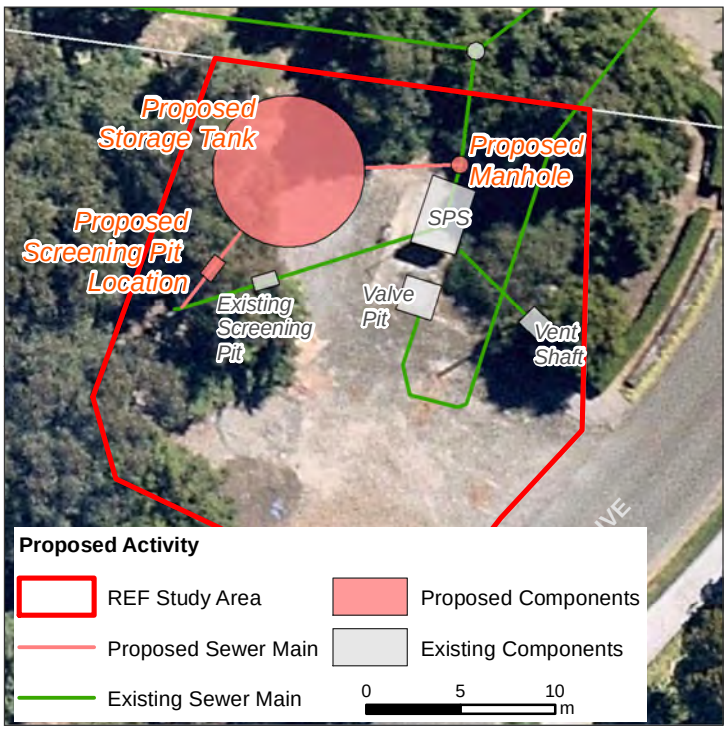
Berry SPS 5


North St
Princes Hwy
Kangaroo Valley Rd
Womack Clos
Brangus Clos
Host Pl
Ford St
Boran Pl
Lincoln Clos
Huntingdale Park Rd
Albert
Connors Vw
Queen St
Windsor Dr
Hitchcocks Ln
Mark Radium Park
George St
Princess St
Victoria St
A1
Pepper Farm Dr
Jubata Ln
Petalura Ln
Dianella Ln
Bluestone Ln
Little Corella Cirt
Clarence St
Gwenda Ave


VICTORIA STREET
PEPPER FARM DRIVE
Land Zoning (SLEP 2014)
REF Study Area
Cadastre
R2 Low Density Residential
RE1 Public Recreation
RU1 Primary Production
SP2 Infrastructure


Drainage (NSW 1:25,000 topo)
REF Study Area
Watercourse
Waterway


VICTORIA STREET
PEPPER FARM DRIVE
Acid Sulfate Soils Risk (SLEP 2014)
REF Study Area
Cadastre


Proposed Storage Tank
Proposed Manhole
Proposed Screening Pit Location
SPS
Valve Pit
Existing Screening Pit
Vent Shaft
Proposed Activity
REF Study Area
Proposed Sewer Main
Existing Sewer Main
Proposed Components
Existing Components
0
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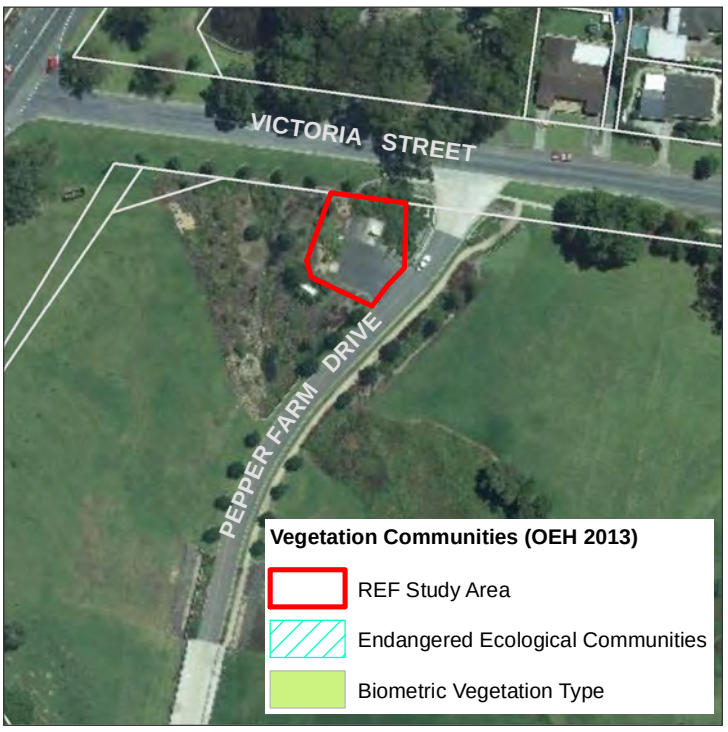
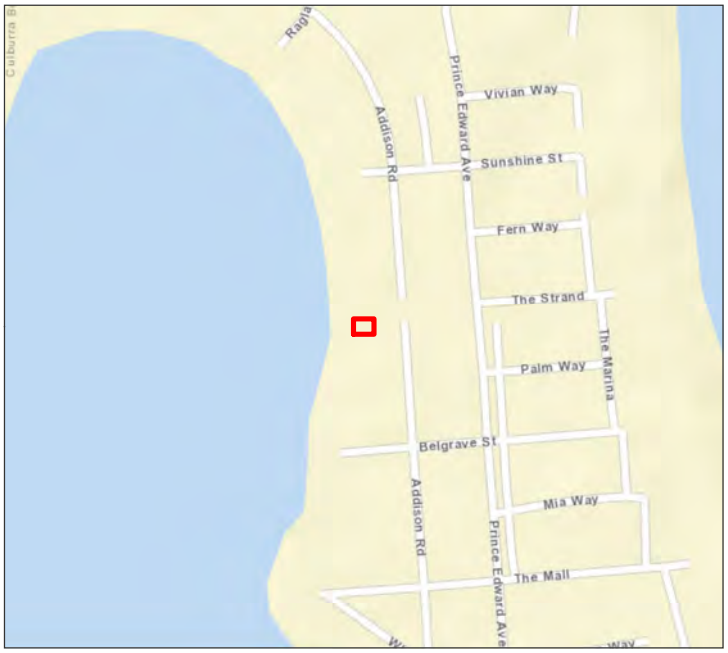
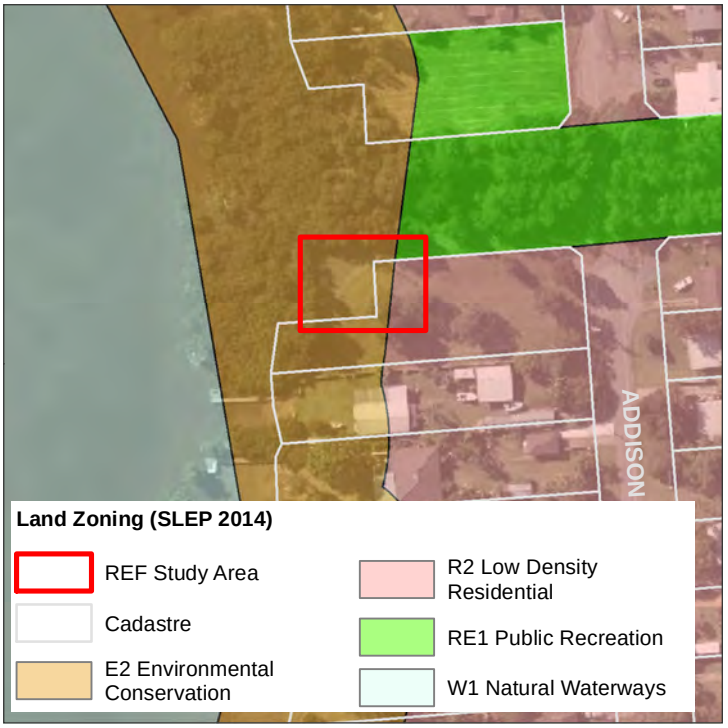
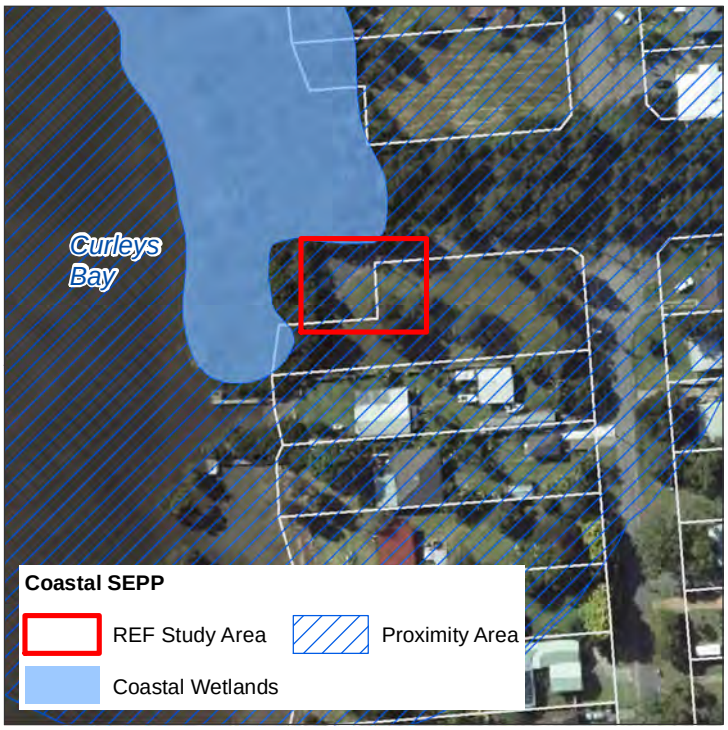
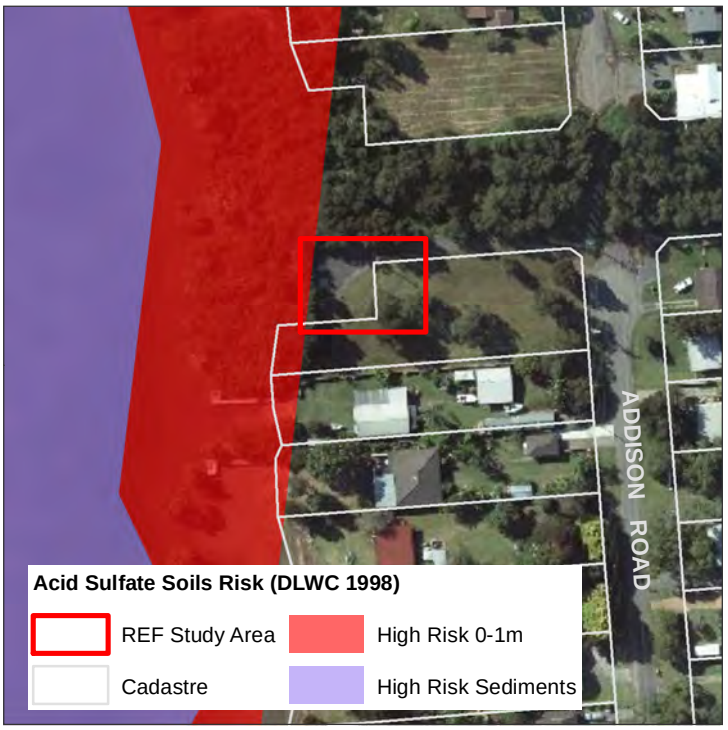

VICTORIA STREET
PEPPER FARM DRIVE
Vegetation Communities (OEH 2013)
REF Study Area
Endangered Ecological Communities
Biometric Vegetation Type

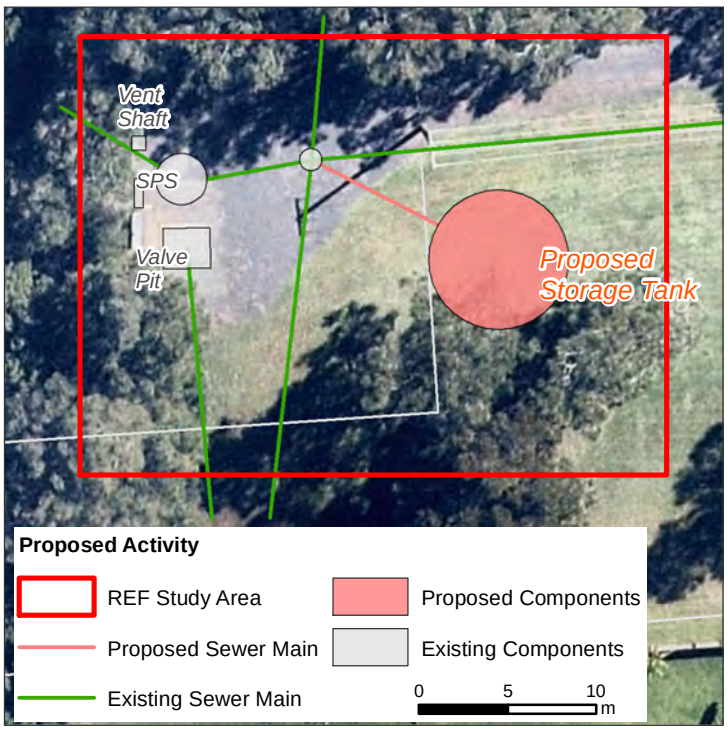
Culburra SPS 5



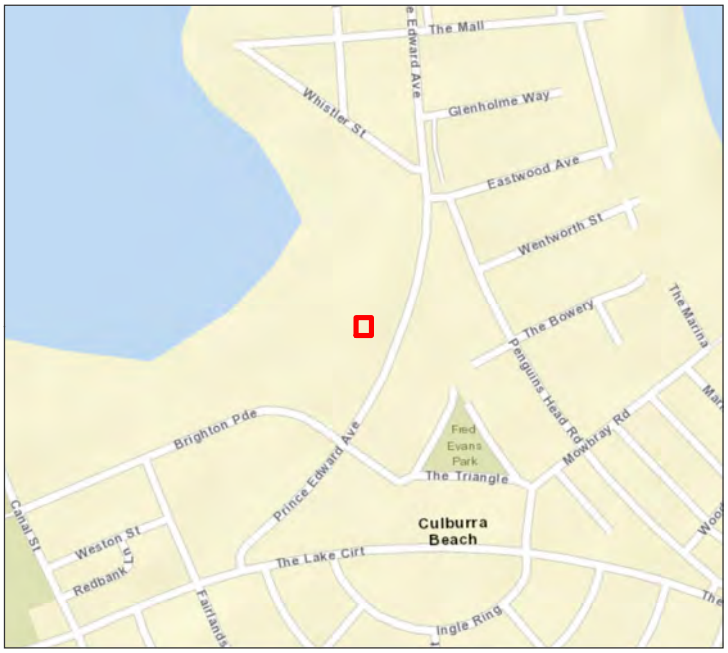


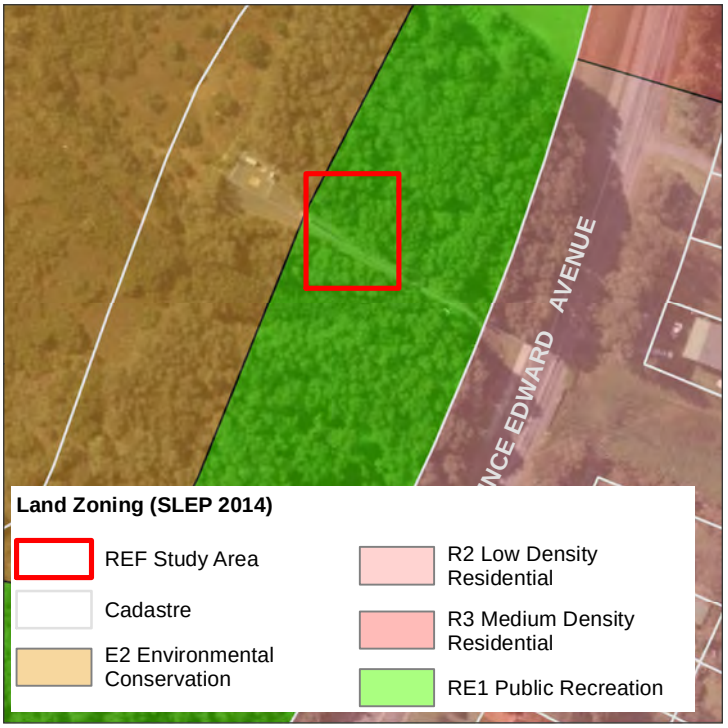


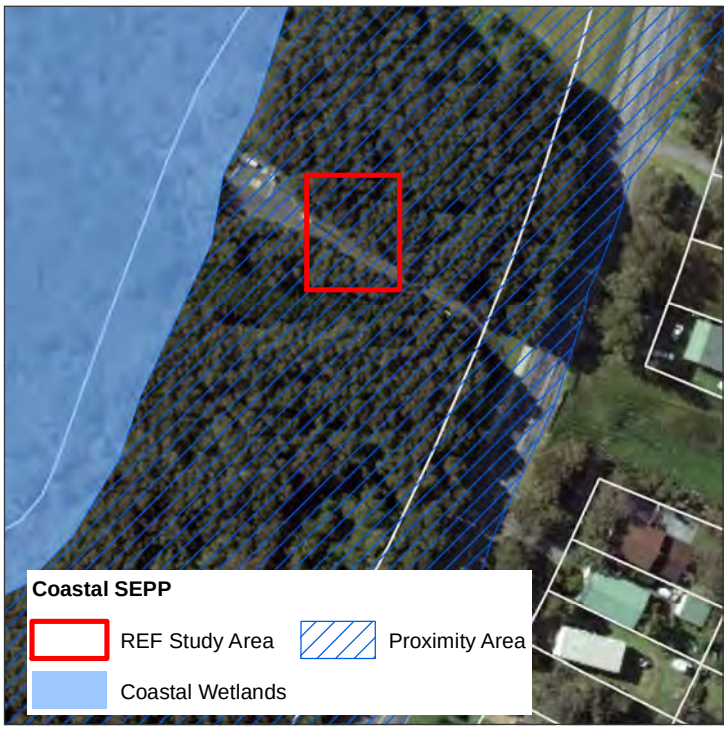


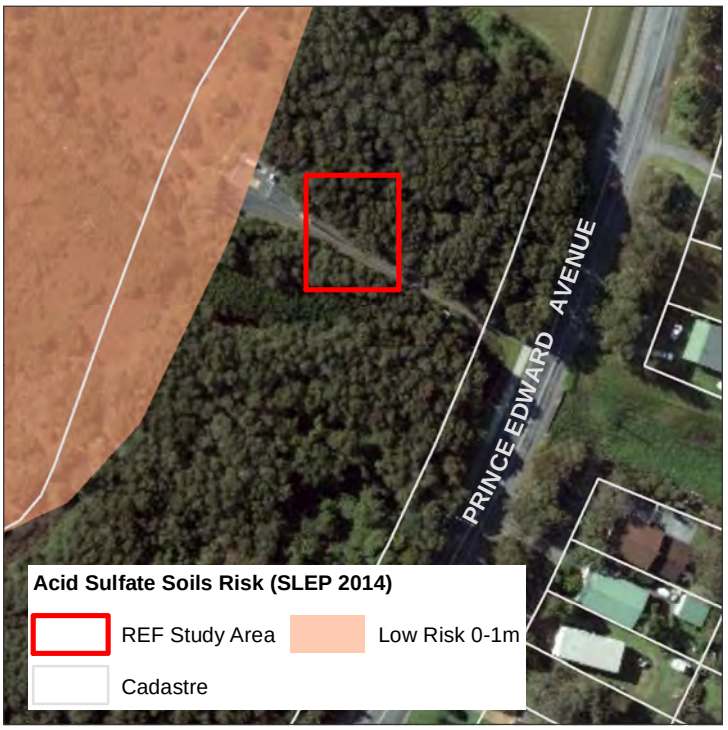


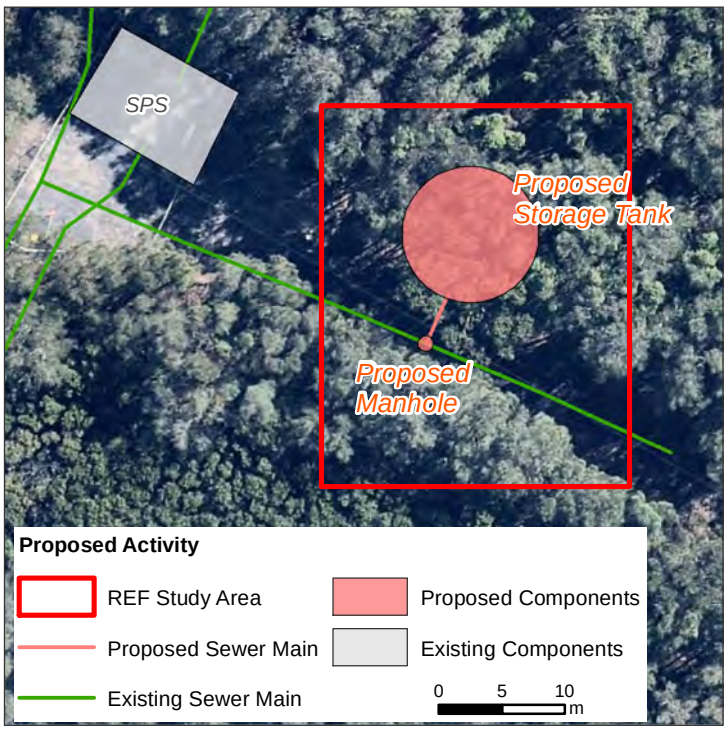
Culburra SPS 6

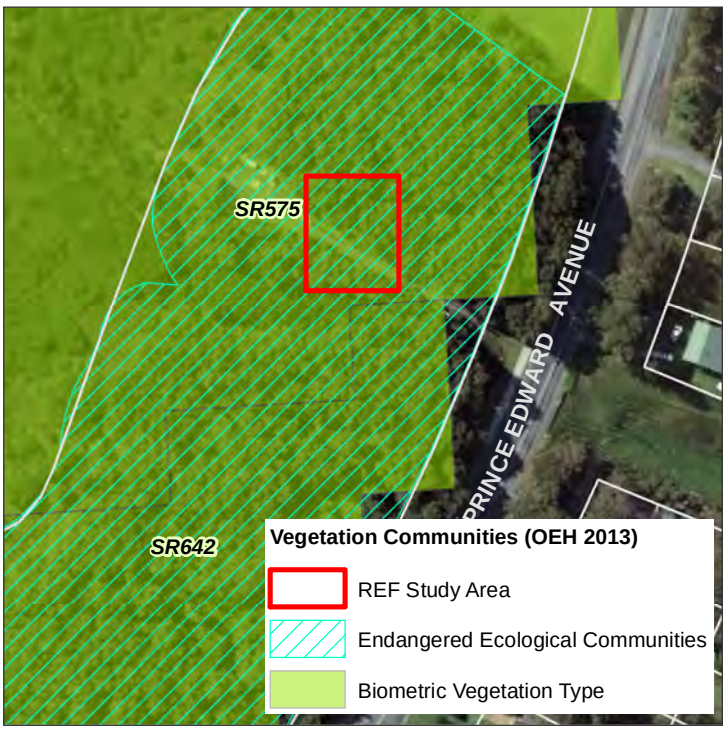




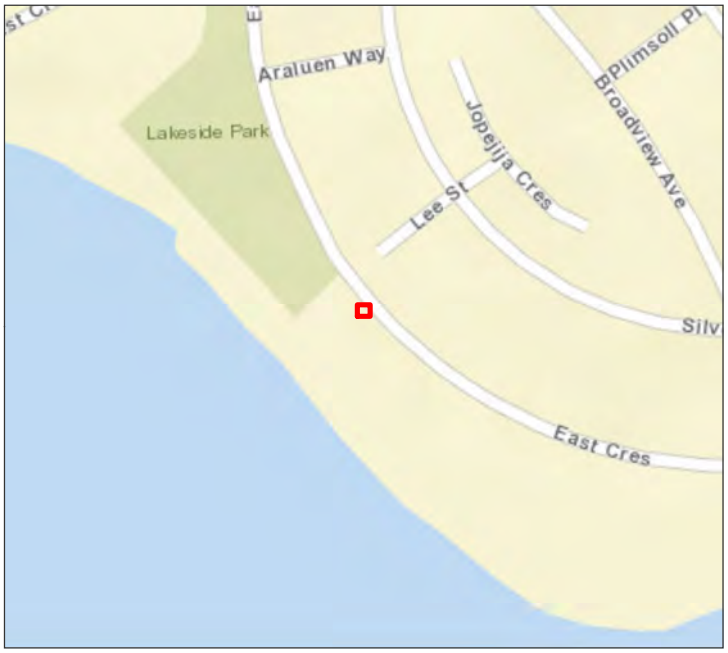


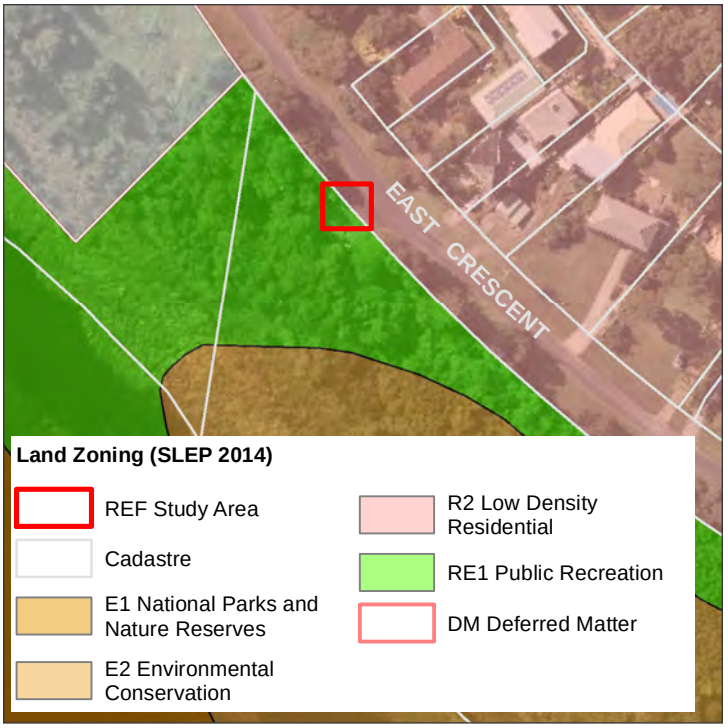


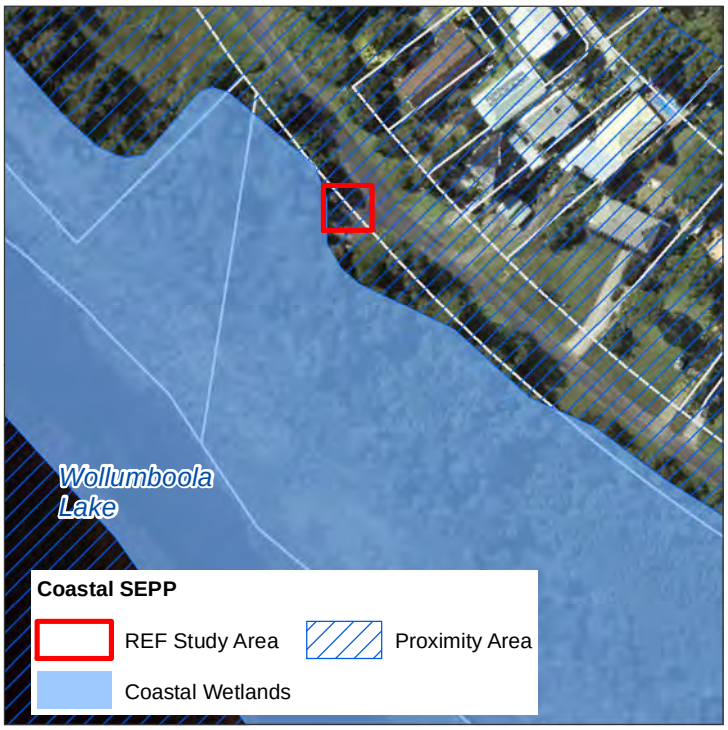


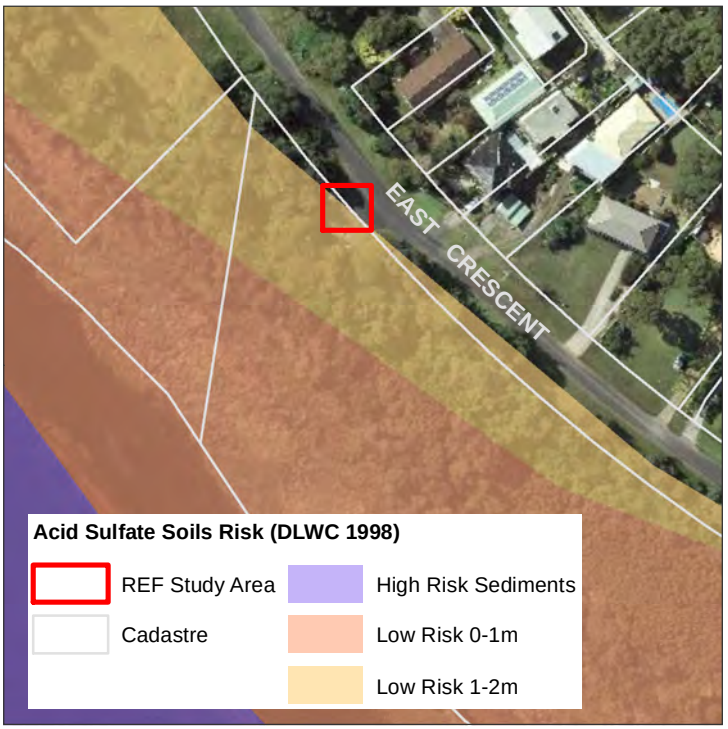


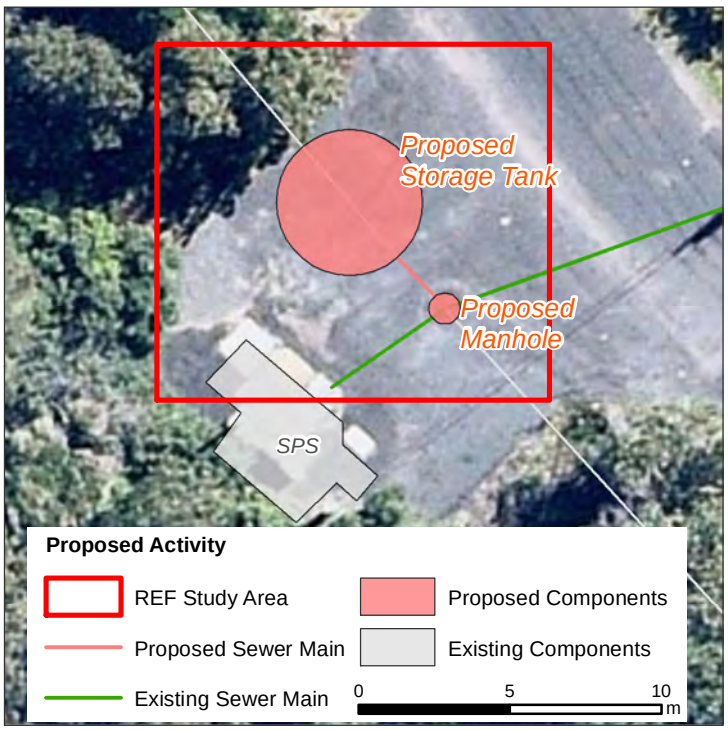
Culburra SPS 9

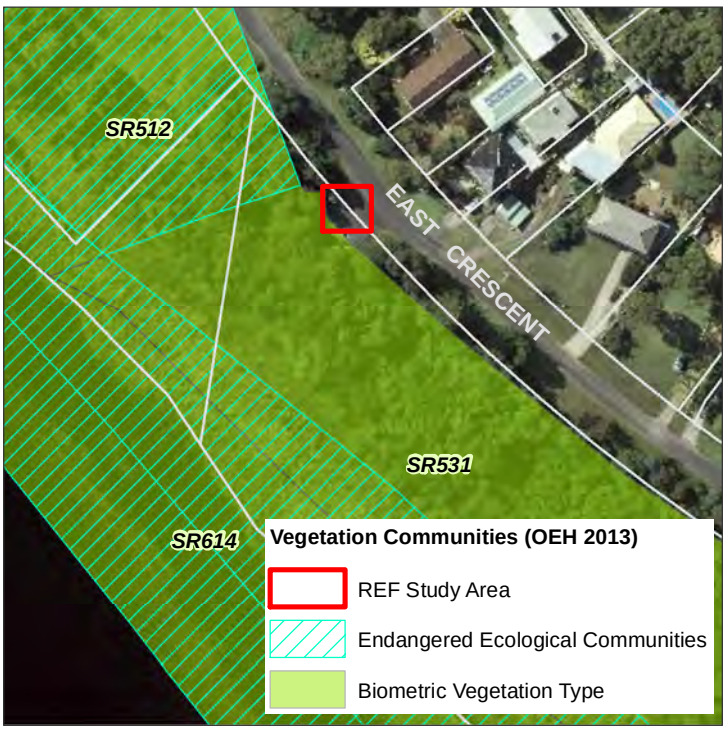




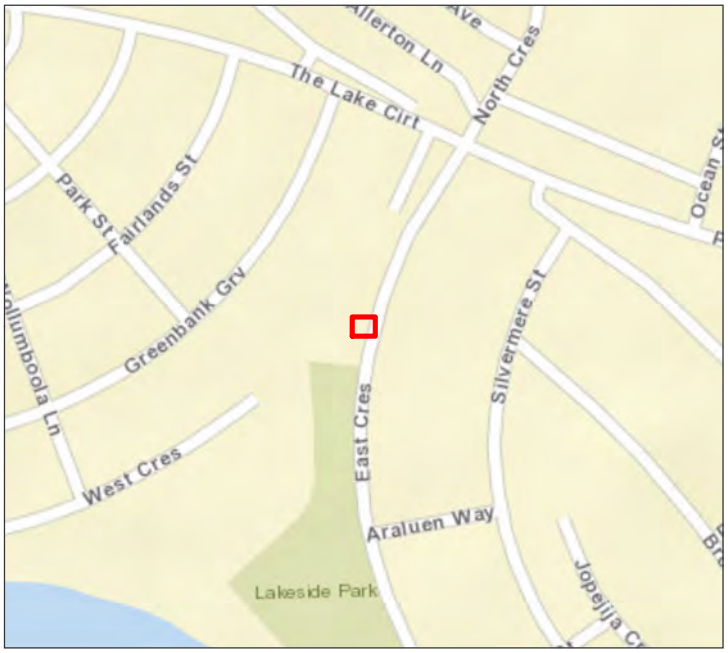


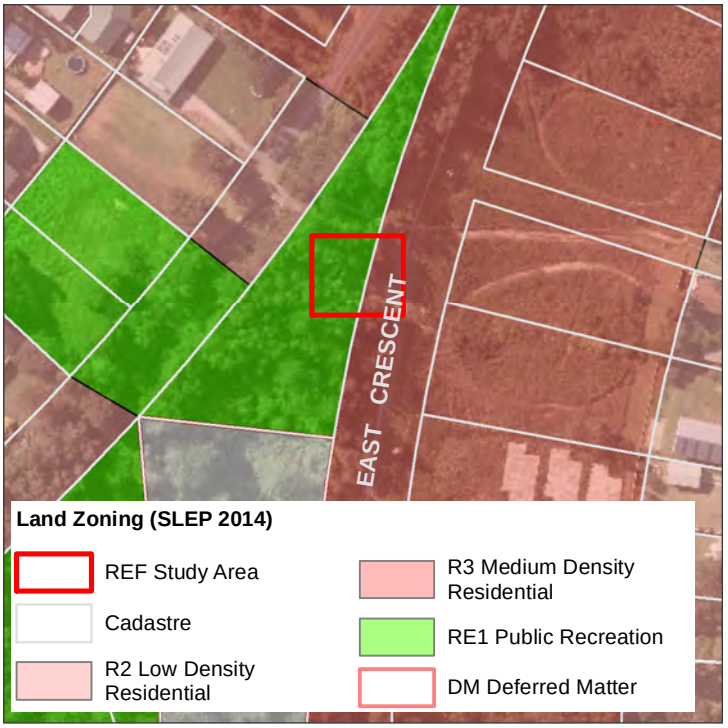


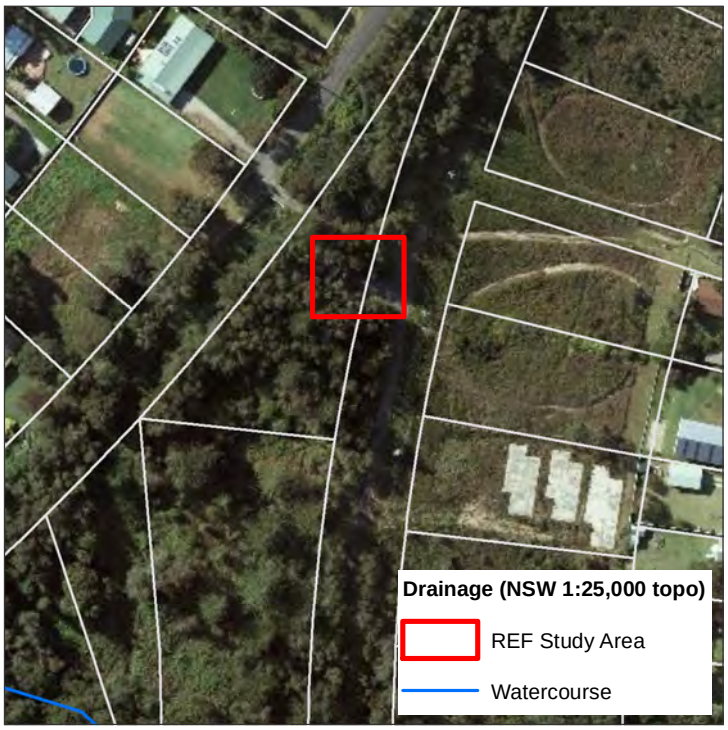


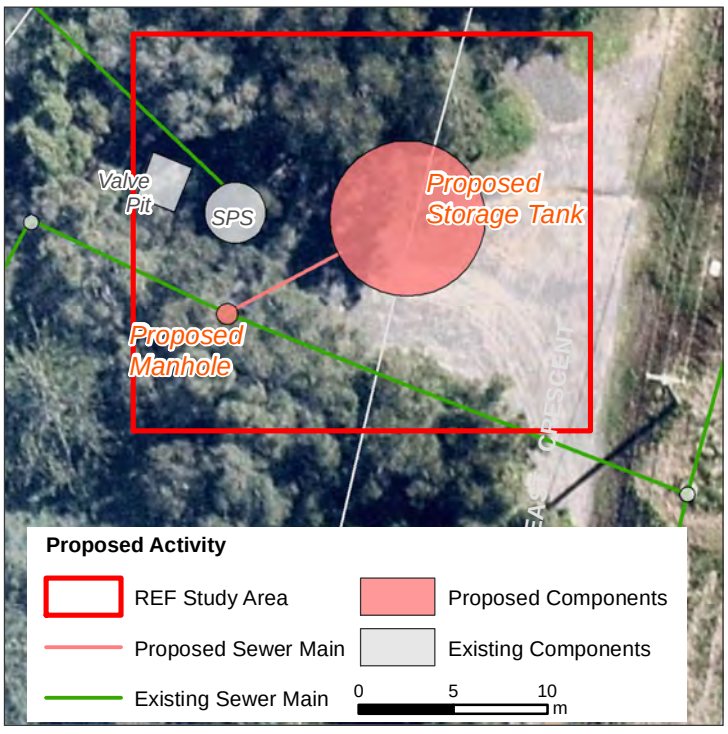


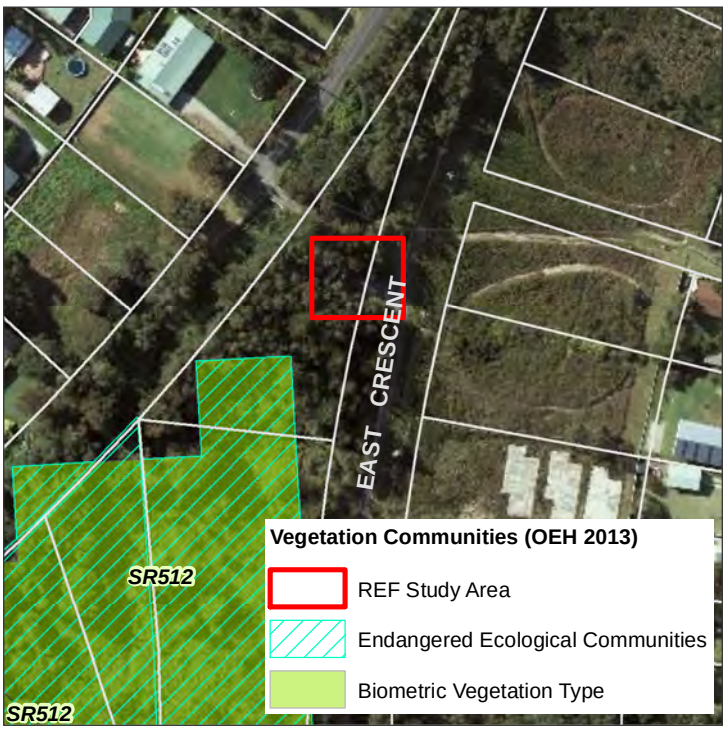
Culburra SPS 10



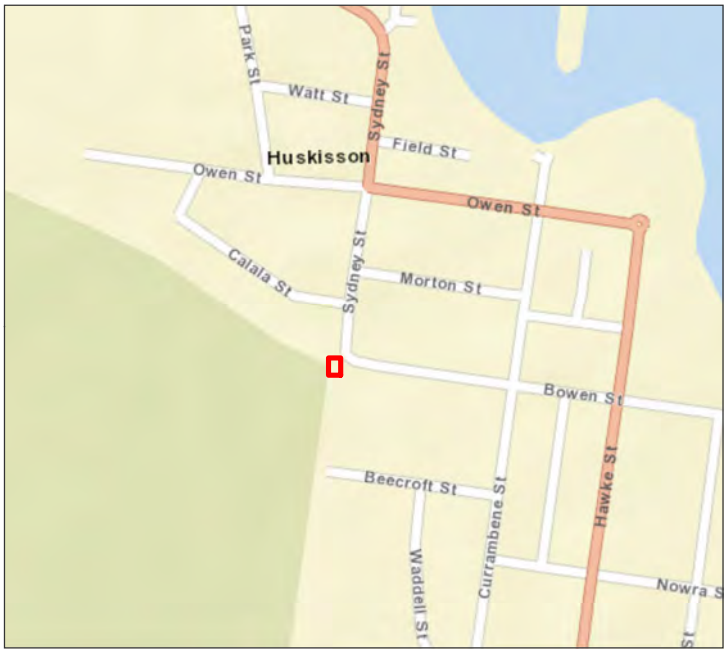


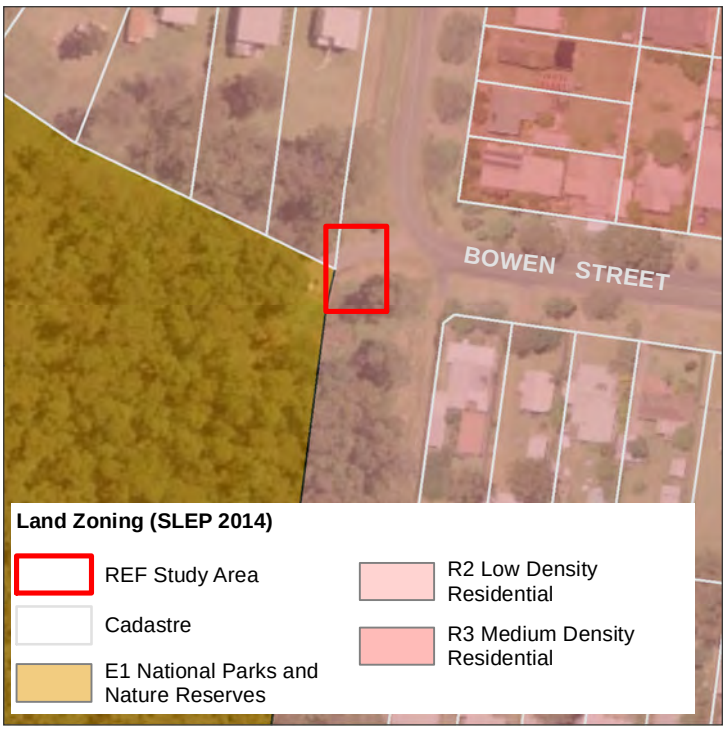


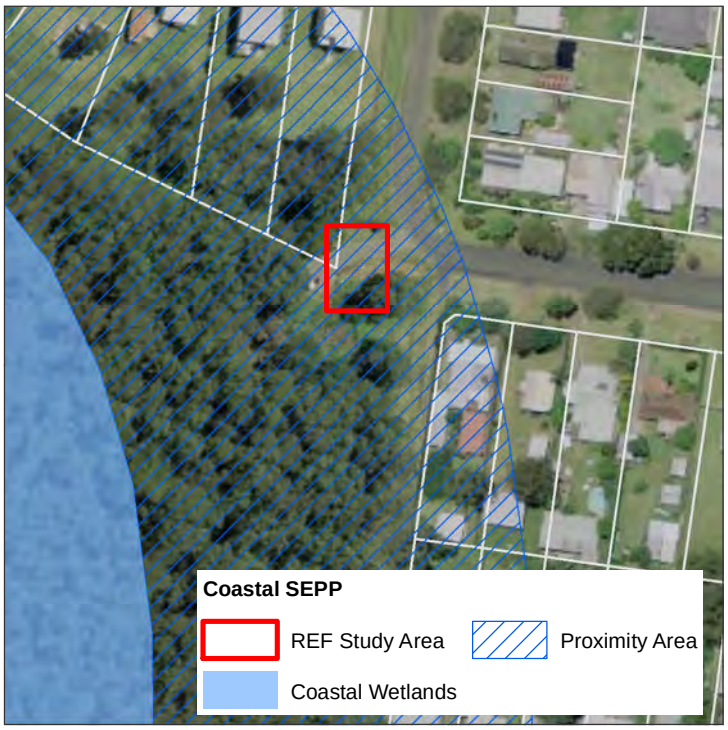


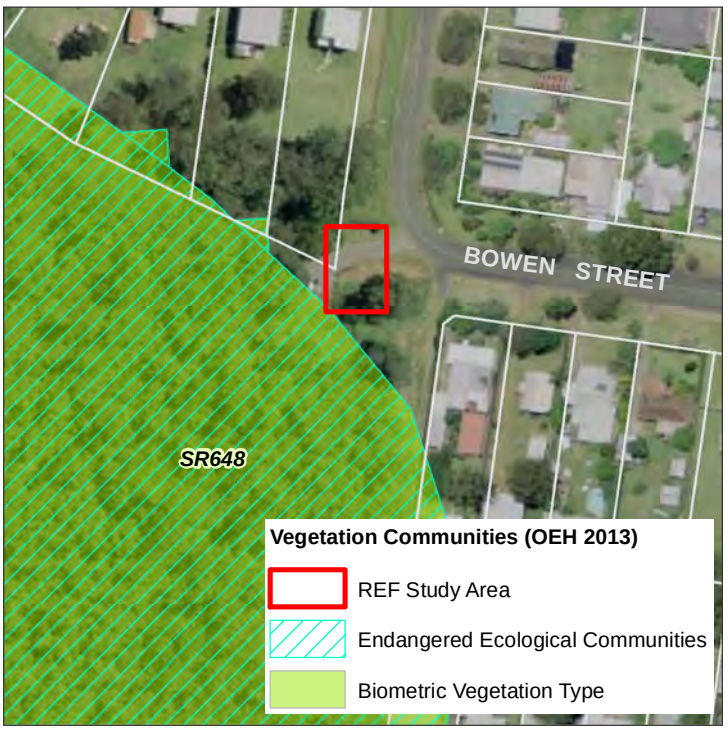


Huskisson SPS 3

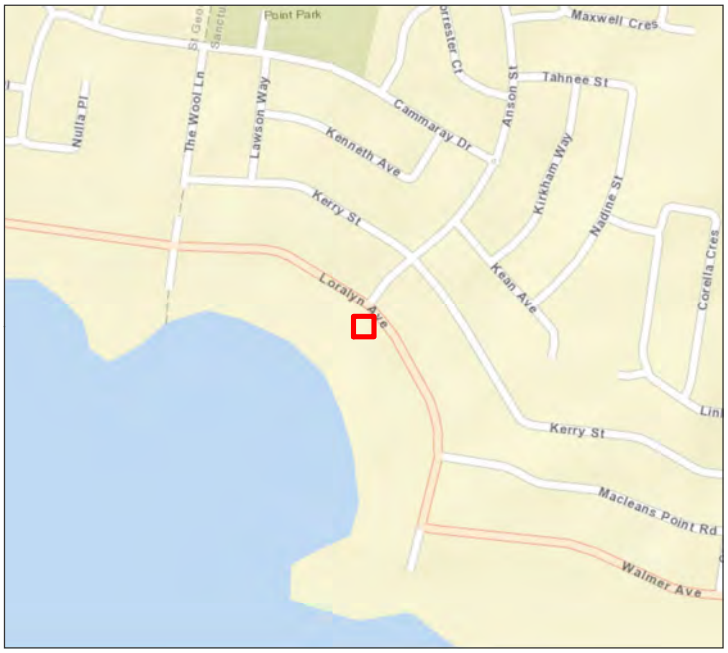


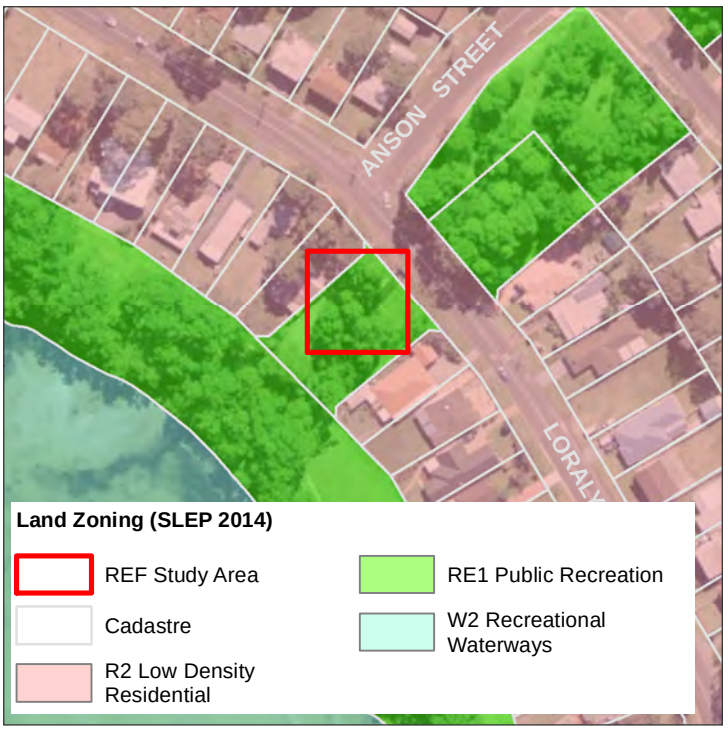


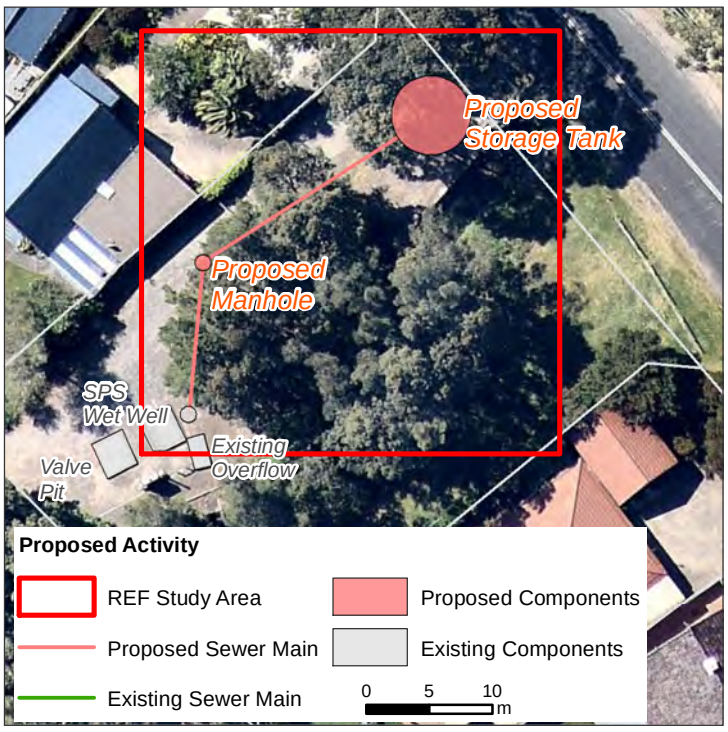


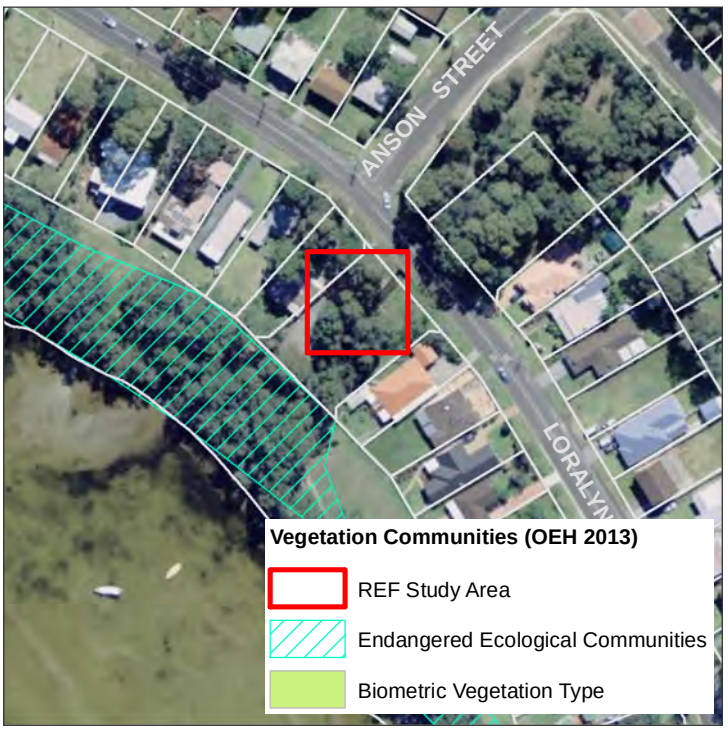


St Georges Basin SPS 10

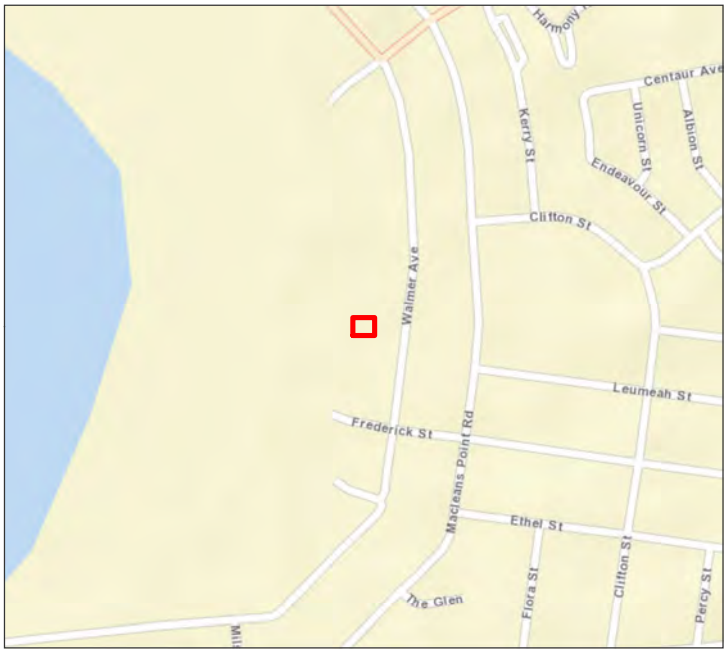


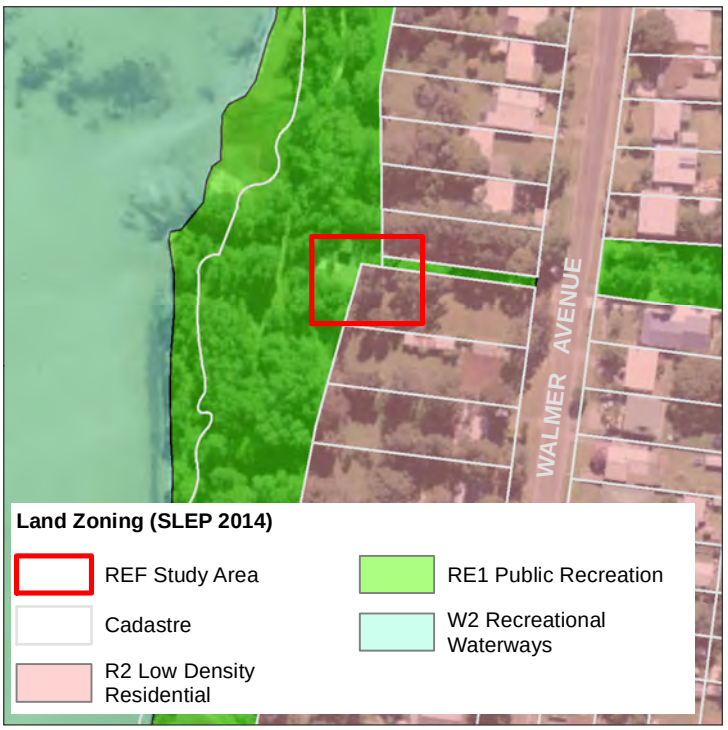


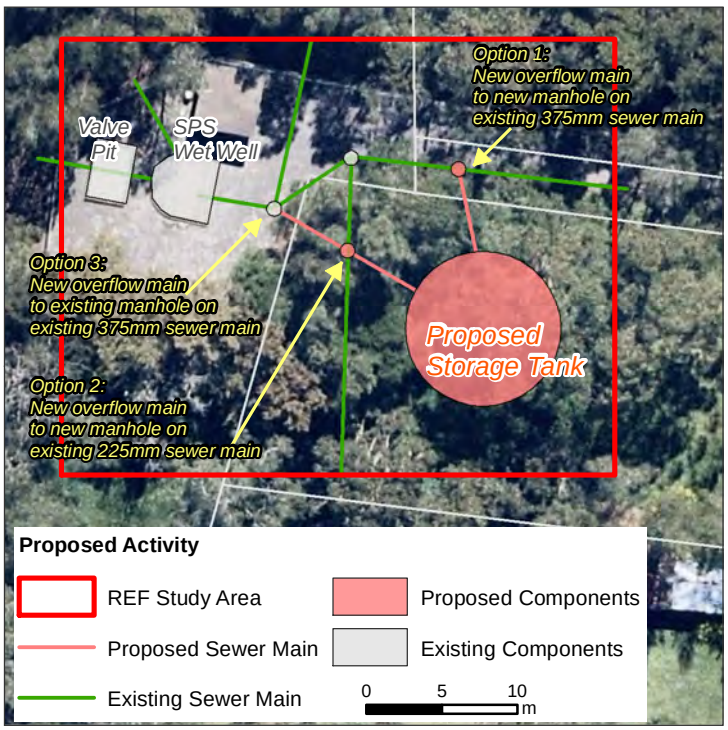




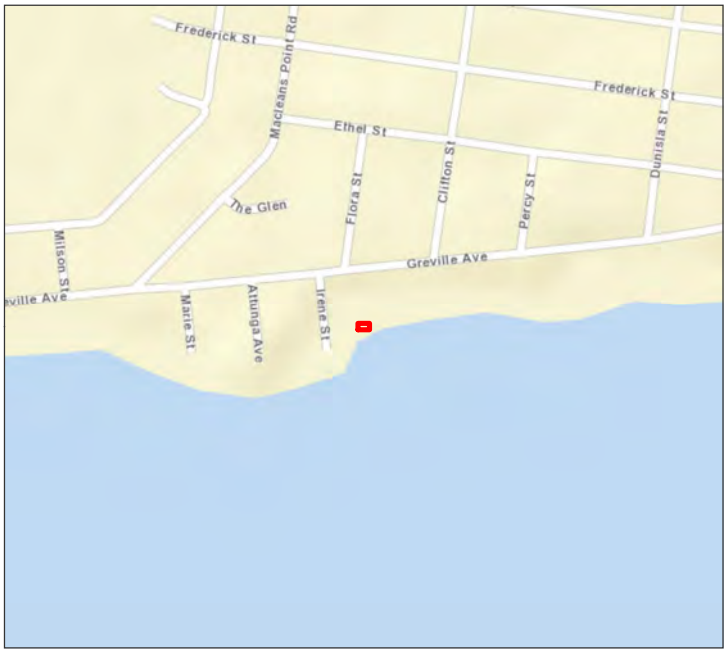
St Georges Basin SPS 12

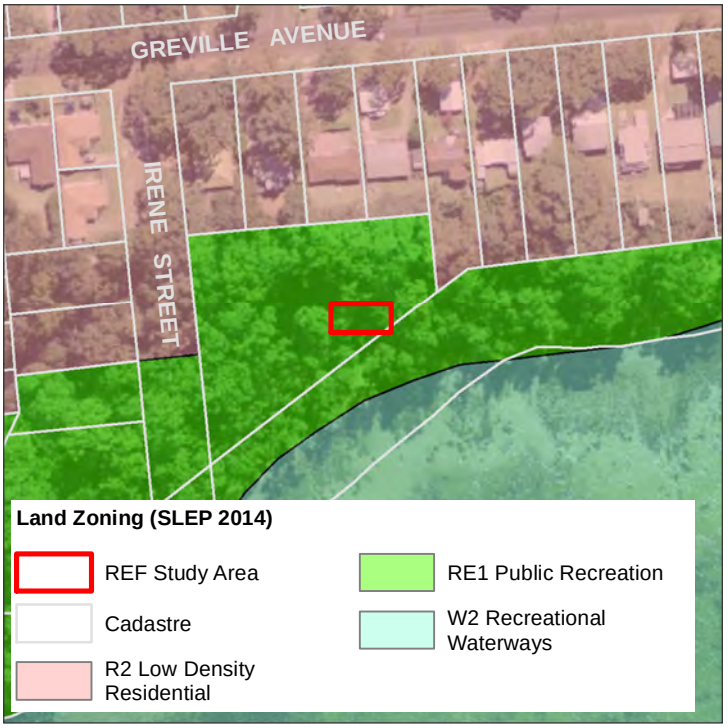


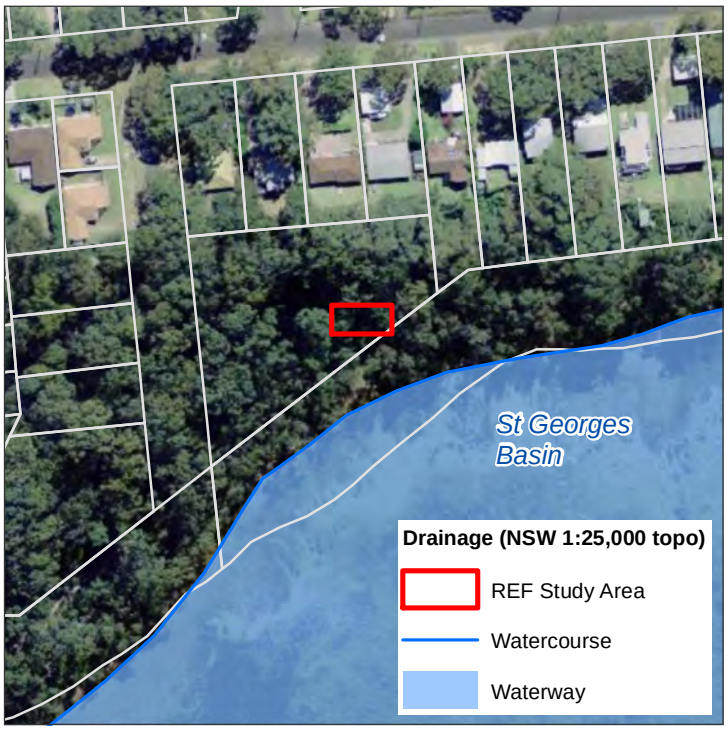


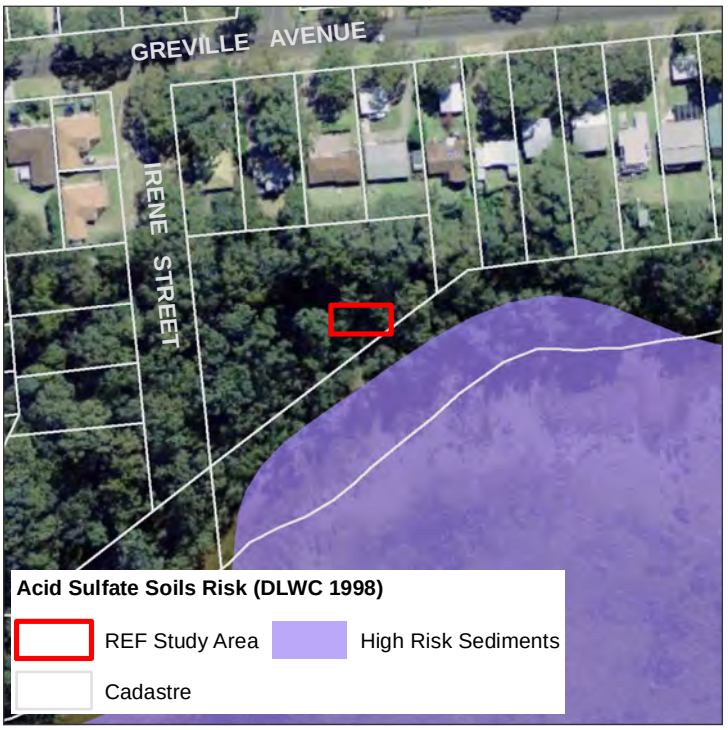


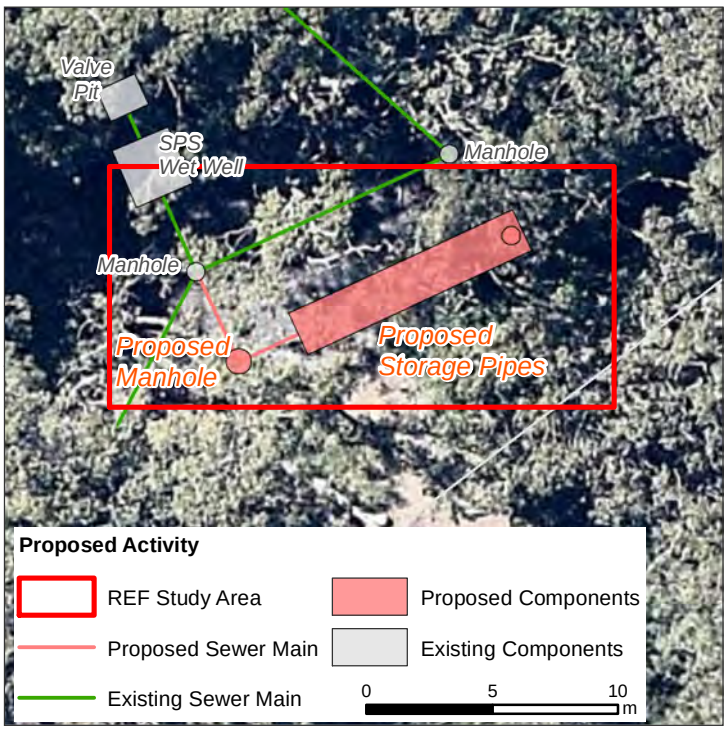
St Georges Basin SPS 13

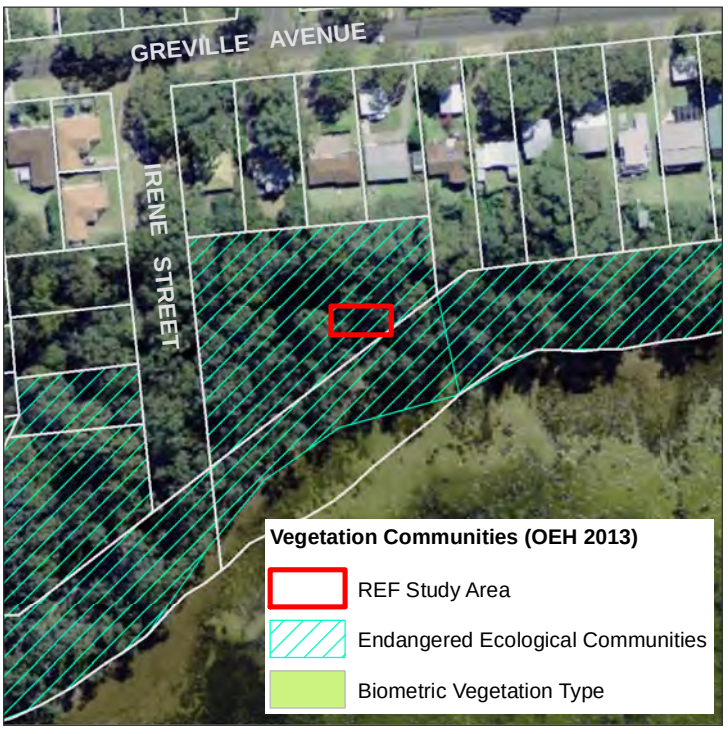




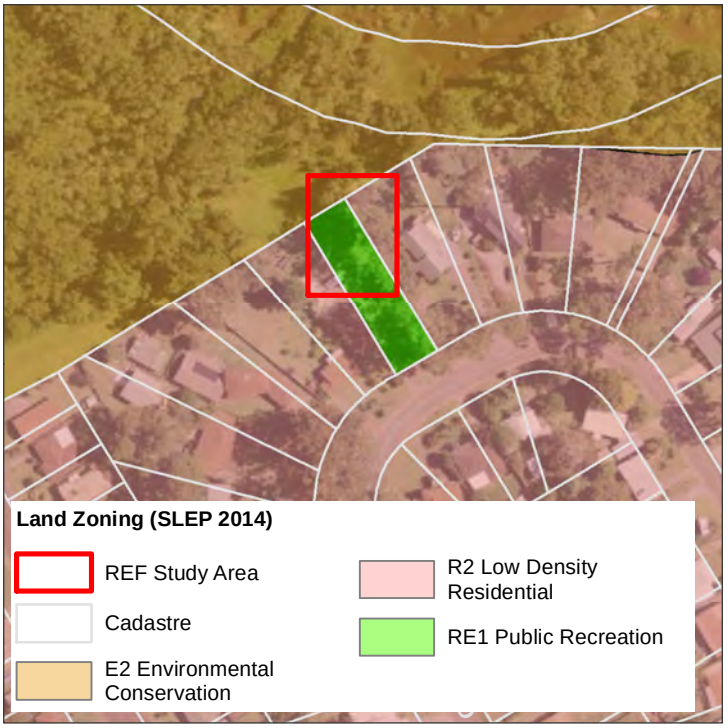


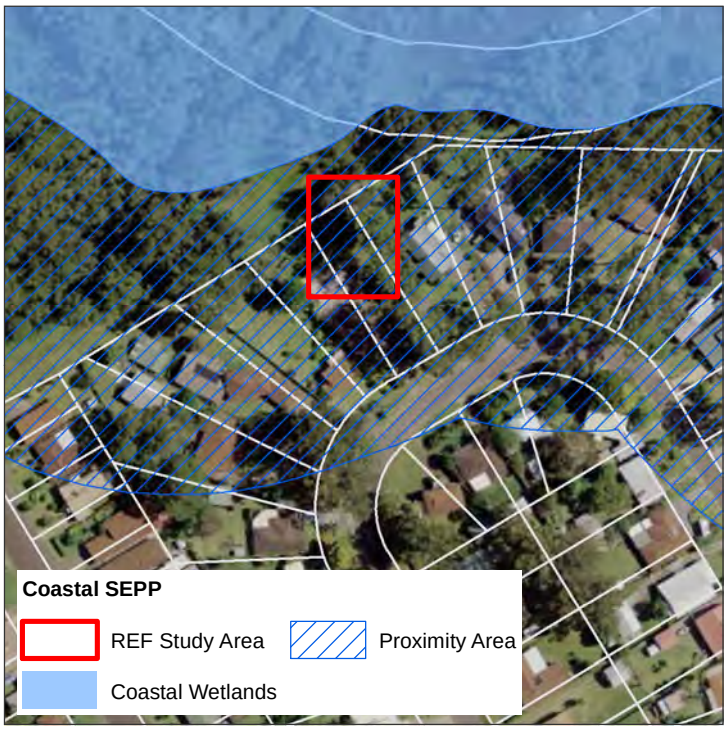


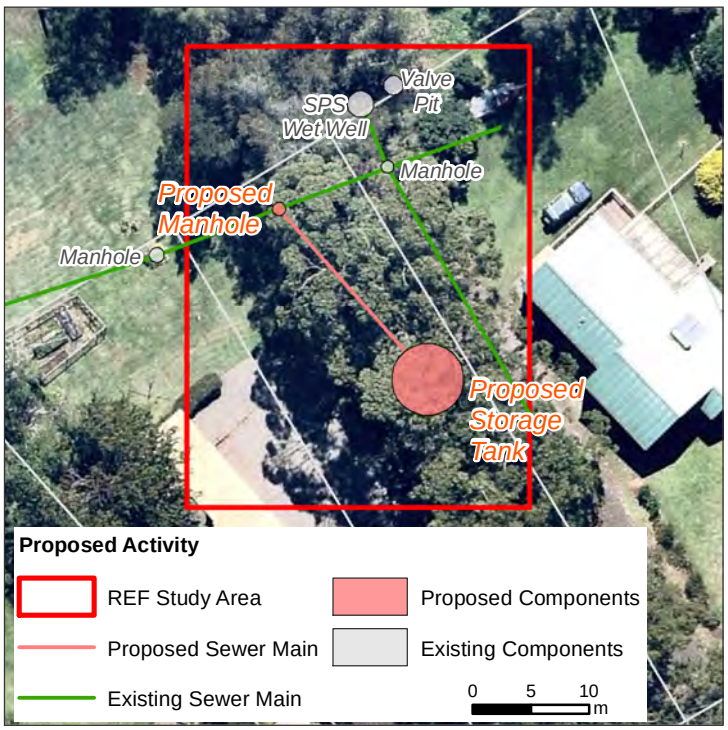


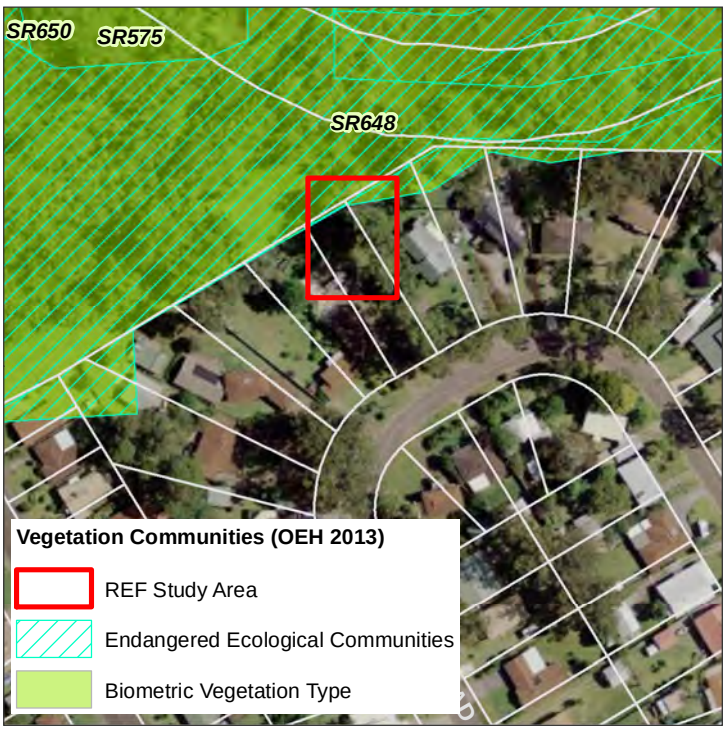


Sussex Inlet SPS 1

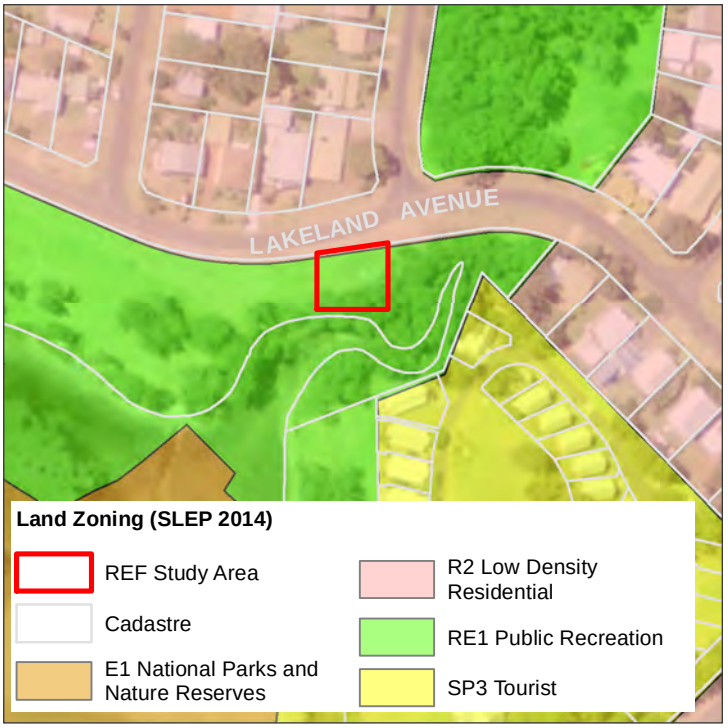


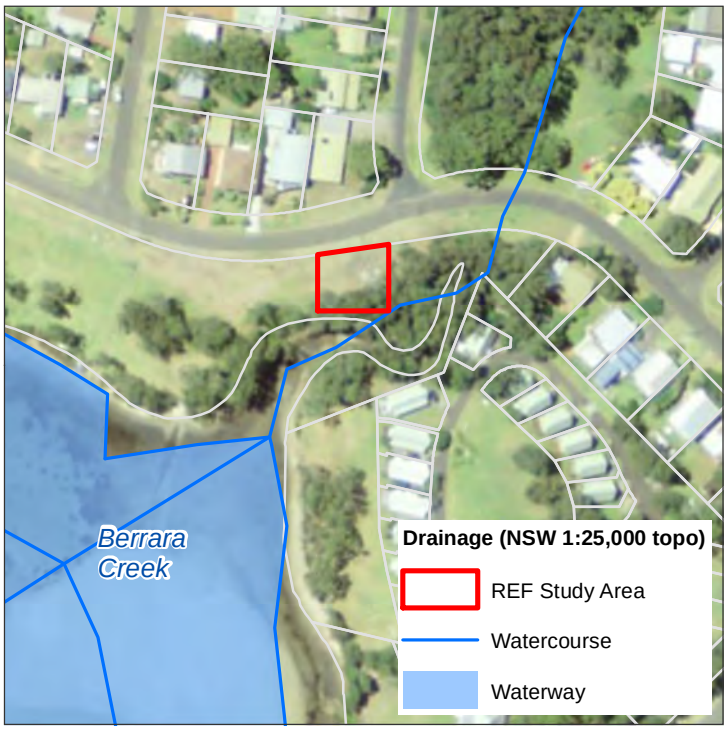


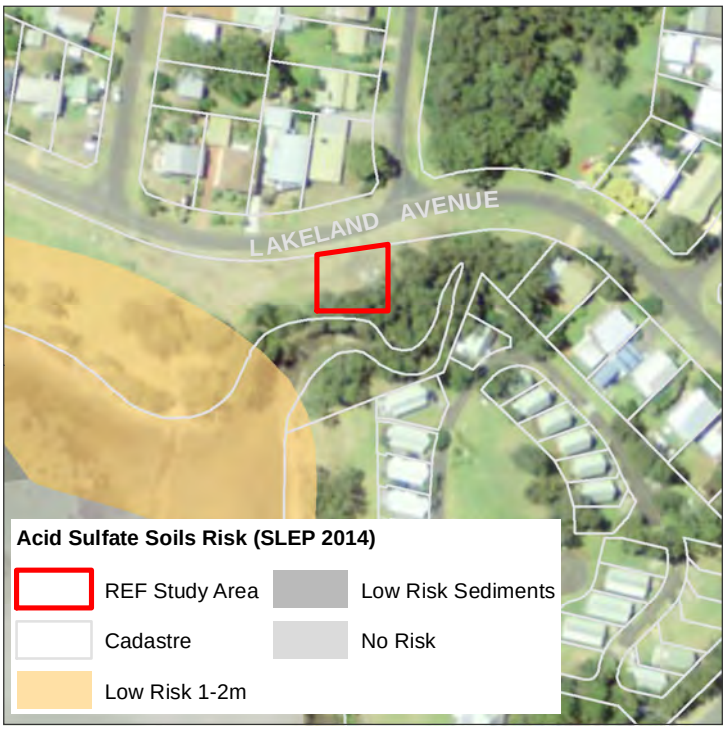


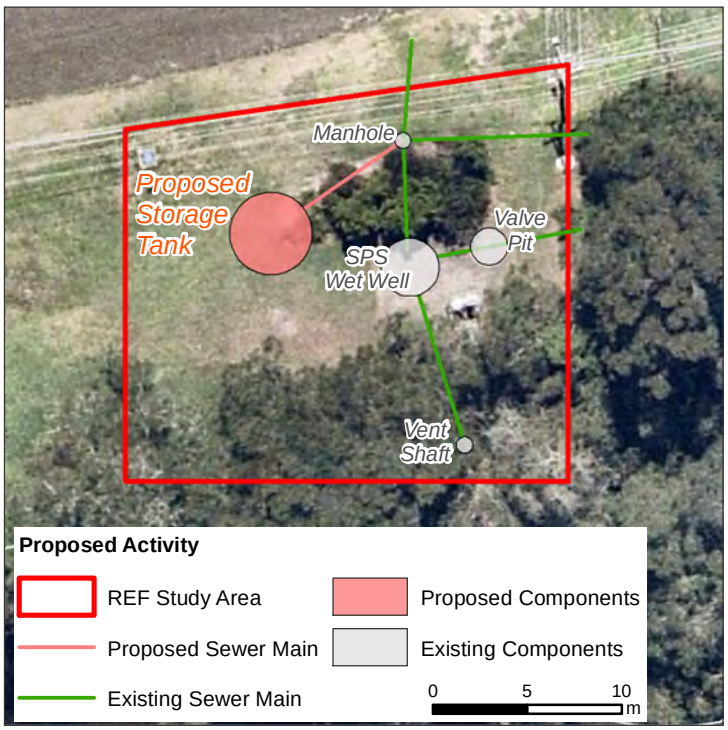


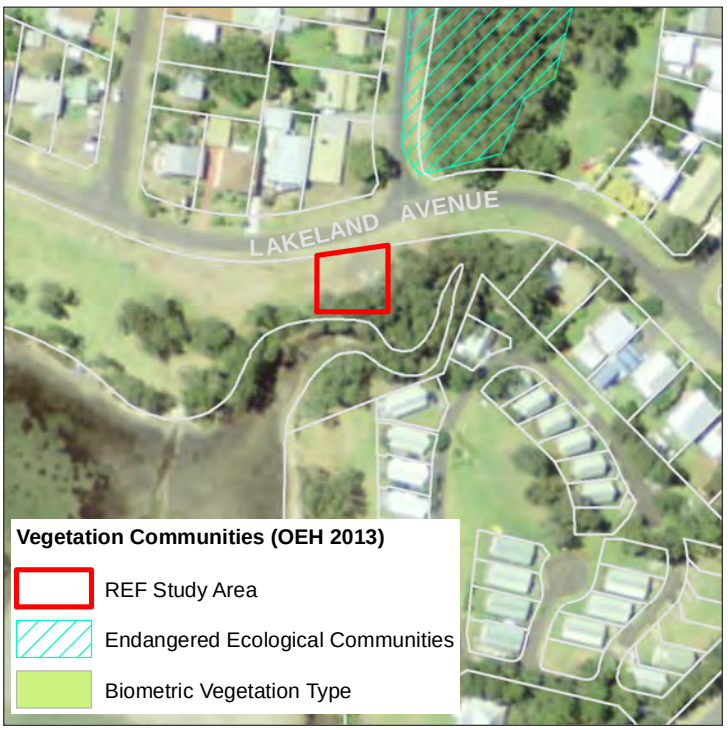
Sussex Inlet SPS 16











Appendix B:

AHIMS

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : Berry5

Client Service ID : 490249

Emma Mcintyre

24 Hunter Street
BALGOWNIE New South Wales 2519

Attention: Emma Mcintyre

Email: emma@emapconsulting.com.au

Date: 10 March 2020

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -34.7773, 150.6838 - Lat, Long To : -34.7754, 150.6868 with a Buffer of 50 meters, conducted by Emma Mcintyre on 10 March 2020.

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

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : Culburra5

Client Service ID : 492673

Emma Mcintyre

Date: 22 March 2020

24 Hunter Street
BALGOWNIE New South Wales 2519

Attention: Emma Mcintyre

Email: emma@emapconsulting.com.au

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -34.9194, 150.7583 - Lat, Long To : -34.9175, 150.7613 with a Buffer of 50 meters, conducted by Emma Mcintyre on 22 March 2020.

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

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : Culburra6

Client Service ID : 490243

Emma Mcintyre

24 Hunter Street
BALGOWNIE New South Wales 2519

Attention: Emma Mcintyre

Email: emma@emapconsulting.com.au

Date: 10 March 2020

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -34.9309, 150.7553 - Lat, Long To : -34.923, 150.7678 with a Buffer of 50 meters, conducted by Emma Mcintyre on 10 March 2020.

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

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : Culb9

Client Service ID : 490251

Emma Mcintyre

24 Hunter Street
BALGOWNIE New South Wales 2519

Attention: Emma Mcintyre

Email: emma@emapconsulting.com.au

Date: 10 March 2020

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -34.9392, 150.7667 - Lat, Long To : -34.9365, 150.7711 with a Buffer of 50 meters, conducted by Emma Mcintyre on 10 March 2020.

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

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : Culb10

Client Service ID : 490244

Emma Mcintyre

24 Hunter Street
BALGOWNIE New South Wales 2519

Attention: Emma Mcintyre

Email: emma@emapconsulting.com.au

Date: 10 March 2020

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -34.9361, 150.7642 - Lat, Long To : -34.9309, 150.7724 with a Buffer of 50 meters, conducted by Emma Mcintyre on 10 March 2020.

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

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : Huski3

Client Service ID : 490250

Emma Mcintyre

24 Hunter Street
BALGOWNIE New South Wales 2519

Attention: Emma Mcintyre

Email: emma@emapconsulting.com.au

Date: 10 March 2020

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -35.0423, 150.6656 - Lat, Long To : -35.0391, 150.6706 with a Buffer of 50 meters, conducted by Emma Mcintyre on 10 March 2020.

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

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : SGB10

Client Service ID : 490247

Emma Mcintyre

24 Hunter Street
BALGOWNIE New South Wales 2519

Attention: Emma Mcintyre

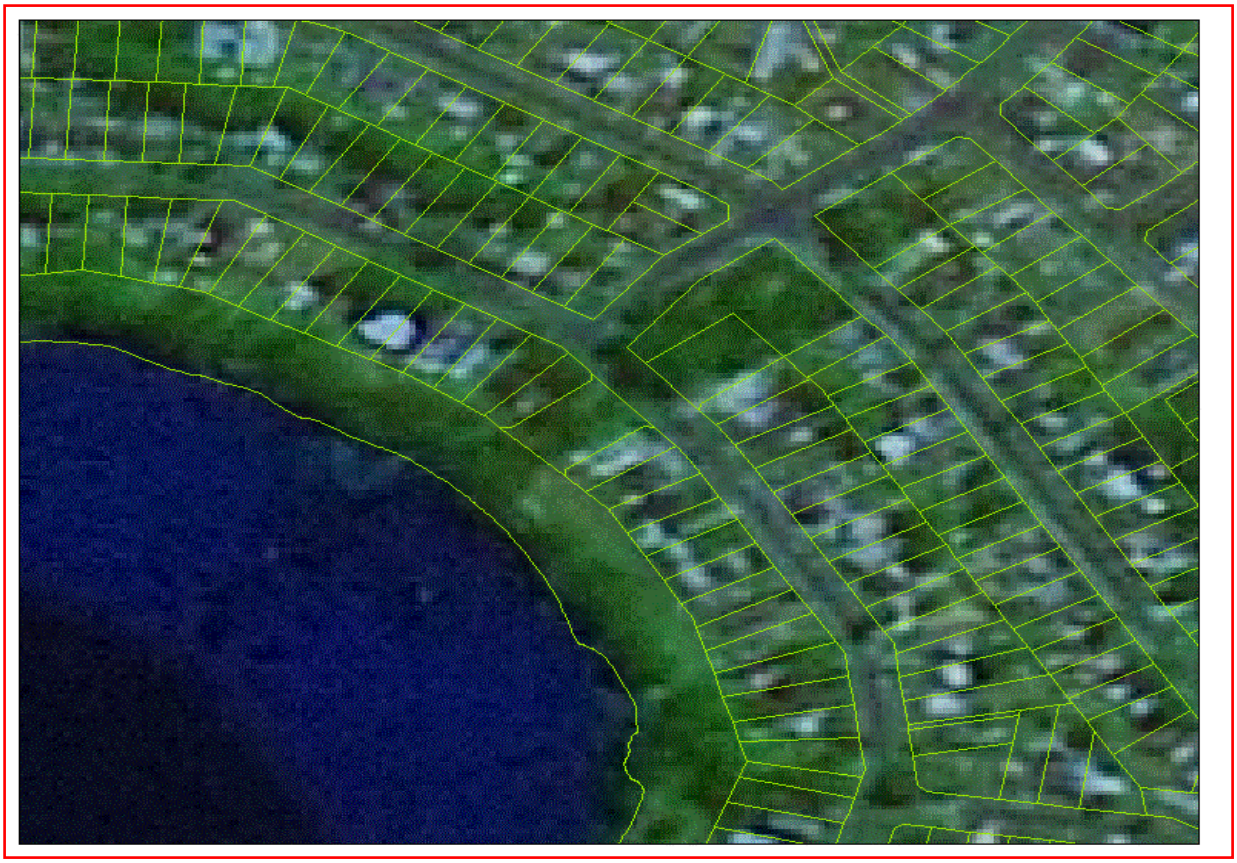
Email: emma@emapconsulting.com.au

Date: 10 March 2020

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -35.1013, 150.6105 - Lat, Long To : -35.0987, 150.6146 with a Buffer of 50 meters, conducted by Emma Mcintyre on 10 March 2020.

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



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : SGB12

Client Service ID : 492674

Date: 22 March 2020

Emma Mcintyre

24 Hunter Street
BALGOWNIE New South Wales 2519

Attention: Emma Mcintyre

Email: emma@emapconsulting.com.au

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -35.1111, 150.6199 - Lat, Long To : -35.1087, 150.6238 with a Buffer of 50 meters, conducted by Emma Mcintyre on 22 March 2020.

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

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : SGB13

Client Service ID : 490248

Emma Mcintyre

24 Hunter Street
BALGOWNIE New South Wales 2519

Attention: Emma Mcintyre

Email: emma@emapconsulting.com.au

Date: 10 March 2020

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -35.1172, 150.6221 - Lat, Long To : -35.1145, 150.6264 with a Buffer of 50 meters, conducted by Emma Mcintyre on 10 March 2020.

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

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : Suss1

Client Service ID : 490245

Emma Mcintyre

24 Hunter Street
BALGOWNIE New South Wales 2519

Attention: Emma Mcintyre

Email: emma@emapconsulting.com.au

Date: 10 March 2020

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -35.1476, 150.5864 - Lat, Long To : -35.1426, 150.5942 with a Buffer of 50 meters, conducted by Emma Mcintyre on 10 March 2020.

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

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : Suss16

Client Service ID : 490246

Emma Mcintyre

24 Hunter Street
BALGOWNIE New South Wales 2519

Attention: Emma Mcintyre

Email: emma@emapconsulting.com.au

Date: 10 March 2020

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -35.207, 150.545 - Lat, Long To : -35.2033, 150.5508 with a Buffer of 50 meters, conducted by Emma Mcintyre on 10 March 2020.

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

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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

Appendix C:

THREATENED SPECIES TABLES

C-1 Threatened Flora Records within 10km of the SPS sites

(CE = Critically Endangered, E = Endangered, V = Vulnerable)

Scientific Name	Common Name	BC Act Status	EPBC Act Status
Banksia vincentia		E	CE
Calochilus pulchellus	Pretty Beard Orchid	E	
Cryptostylis hunteriana	Leafless Tongue Orchid	V	V
Daphnandra johnsonii	Illawarra Socketwood	E	E
Distichlis distichophylla	Australian Saltgrass	E	
Eucalyptus sturgissiana	Ettrema Mallee	V	
Galium australe	Tangled Bedstraw	E	
Genoplesium baueri	Bauer's Midge Orchid	E	E
Melaleuca biconvexa	Biconvex Paperbark	V	V
Prasophyllum affine	Jervis Bay Leek Orchid	E	E
Prostanthera densa	Villous Mint-bush	V	V
Pterostylis ventricosa		E	
Rhizanthella slateri	Eastern Australian Underground Orchid	V	E
Rhodamnia rubescens	Scrub Turpentine	E	
Solanum celatum		E	
Syzygium paniculatum	Magenta Lilly Pilly	E	V
Triplarina nowraensis	Nowra Heath Myrtle	E	E
Wilsonia backhousei	Narrow-leafed Wilsonia	V	
Wilsonia rotundifolia	Round-leafed Wilsonia	E	
Zieria granulata	Illawarra Zieria	E	E

C-2 Threatened Fauna Records within 10km of the SPS sites

(CE = Critically Endangered, E = Endangered, V = Vulnerable, P = Protected, M = Migratory)

Scientific Name	Common Name	BC Act Status	EPBC Act Status
BIRDS			
Anthochaera phrygia	Regent Honeyeater	E	CE
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V	-
Botaurus poiciloptilus	Australasian Bittern	E	E
Calidris alba	Sanderling	V	M
Calidris canutus	Red Knot	P	E,M
Calidris ferruginea	Curlew Sandpiper	E	CE,M
Calidris tenuirostris	Great Knot	V	CE,M
Callocephalon fimbriatum	Gang-gang Cockatoo	V	-
Calyptorhynchus lathami	Glossy Black-Cockatoo	V	-
Charadrius leschenaultii	Greater Sand-plover	V	V,M
Charadrius mongolus	Lesser Sand-plover	V	E,M
Daphoenositta chrysoptera	Varied Sittella	V	-
Dasyornis brachypterus	Eastern Bristlebird	E	E
Diomedea gibsoni	Gibson's Albatross	V	V
Epthianura albifrons	White-fronted Chat	V	-
Esacus magnirostris	Beach Stone-curlew	E	-
Glossopsitta pusilla	Little Lorikeet	V	-
Haematopus fuliginosus	Sooty Oystercatcher	V	-
Haematopus longirostris	Pied Oystercatcher	E	-
Haliaeetus leucogaster	White-bellied Sea-Eagle	V	M
Hieraaetus morphnoides	Little Eagle	V	-
Ixobrychus flavicollis	Black Bittern	V	-
Lathamus discolor	Swift Parrot	E	CE
Limosa limosa	Black-tailed Godwit	V	M
Lophoictinia isura	Square-tailed Kite	V	-
Macronectes giganteus	Southern Giant Petrel	E	E
Macronectes halli	Northern Giant-Petrel	V	V
Neophema pulchella	Turquoise Parrot	V	-
Ninox connivens	Barking Owl	V	-
Ninox strenua	Powerful Owl	V	-
Numenius madagascariensis	Eastern Curlew	P	CE,M
Onychoprion fuscata	Sooty Tern	V	-
Pachycephala olivacea	Olive Whistler	V	-
Pandion cristatus	Eastern Osprey	V	-
Petroica boodang	Scarlet Robin	V	-
Petroica rodinogaster	Pink Robin	V	-
Pezoporus wallicus wallicus	Eastern Ground Parrot	V	-
Rostratula australis	Australian Painted Snipe	E	E
Stagonopleura guttata	Diamond Firetail	V	-
Sternula albifrons	Little Tern	E	M
Thalassarche melanophris	Black-browed Albatross	V	V
Thinornis rubricollis	Hooded Plover	E	V
Tyto novaehollandiae	Masked Owl	V	-

Scientific Name	Common Name	BC Act Status	EPBC Act Status
Tyto tenebricosa	Sooty Owl	V	-
Xenus cinereus	Terek Sandpiper	V	M
MAMMALS			
Arctocephalus forsteri	New Zealand Fur-seal	V	-
Arctocephalus pusillus doriferus	Australian Fur-seal	V	-
Cercartetus nanus	Eastern Pygmy-possum	V	-
Chalinolobus dwyeri	Large-eared Pied Bat	V	V
Dasyurus maculatus	Spotted-tailed Quoll	V	E
Dugong dugon	Dugong	E	-
Eubalaena australis	Southern Right Whale	E	E
Falsistrellus tasmaniensis	Eastern False Pipistrelle	V	-
Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern)	E	E
Megaptera novaeangliae	Humpback Whale	V	V
Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	V	-
Miniopterus orianae oceanensis	Large Bent-winged Bat	V	-
Myotis macropus	Southern Myotis	V	-
Petauroides volans	Greater Glider	E	V
Petaurus australis	Yellow-bellied Glider	V	-
Petaurus norfolcensis	Squirrel Glider	V	-
Phascolarctos cinereus	Koala	V	V
Potorous tridactylus	Long-nosed Potoroo	V	V
Pseudomys gracilicaudatus	Eastern Chestnut Mouse	V	-
Pseudomys novaehollandiae	New Holland Mouse	P	V
Pteropus poliocephalus	Grey-headed Flying-fox	V	V
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V	-
Scoteanax rueppellii	Greater Broad-nosed Bat	V	-
Sminthopsis leucopus	White-footed Dunnart	V	-
Megaptera novaeangliae	Humpback Whale	V	V
Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	V	-
Miniopterus orianae oceanensis	Large Bent-winged Bat	V	-
Myotis macropus	Southern Myotis	V	-
AMPHIBIANS			
Heleioporus australiacus	Giant Burrowing Frog	V	V
Litoria aurea	Green and Golden Bell Frog	E	V
Litoria littlejohni	Littlejohn's Tree Frog	V	V
REPTILES			
Caretta caretta	Loggerhead Turtle	E	E
Chelonia mydas	Green Turtle	V	V
Dermochelys coriacea	Leatherback Turtle	E	E
Eretmochelys imbricata	Hawksbill Turtle	P	V
Hoplocephalus bungaroides	Broad-headed Snake	E	V

Appendix D:

TESTS OF SIGNIFICANCE (NSW BC ACT)

Tests of Significance as per Section 7.3 of the *NSW Biodiversity Conservation Act (2016)* have been conducted for the following:

(a) Endangered Ecological Communities:

- Swamp sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions
- Swamp oak floodplain forest of the NSW North Coast, Sydney Basin and South East Corner bioregions

(b) Threatened Fauna:

Frogs:	Green and Golden Bell Frog	*Litoria aurea*
Reptiles:	Loggerhead Turtle	*Caretta caretta*

Test of Significance (s7.3 of the NSW BC Act 2016)	
Endangered Ecological Community:	**Swamp sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions**
a. in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,	N/A- not a threatened species.
b. in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity: i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.	The Swamp sclerophyll forest EEC has been mapped by OEH (2013) in the northern section of the REF Study Area for Sussex Inlet SPS 1. It is therefore possible that the vegetation to be cleared for construction of the proposed storage tank at this site, although not within the mapped EEC, may constitute the EEC. In the absence of field survey, the assumption has been made that this is the case. As well as vegetation clearing, additional potential impacts such as vegetation disturbance and modification may occur within the mapped REF study area. Despite potential direct and indirect impacts anticipated on this EEC, the proposed activity is unlikely to have an adverse effect on the extent of the EEC such that its local occurrence is likely to be placed at risk of extinction. Further, the proposed activity will not substantially or adversely modify the composition of the EEC such that its local occurrence is likely to be placed at risk of extinction.
c. in relation to the habitat of a threatened species or ecological community: i. the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and ii. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and iii. the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,	In the absence of a field survey to determine the exact extent of this EEC in the REF study for Sussex Inlet SPS 1, it is assumed that the vegetation to be cleared constitutes up to 50sqm for construction of the proposed storage tank. This figure is based on the analysis of the area to be cleared or disturbed, as per Nearmap imagery. The proposed activity is small in area and therefore it is unlikely that the EEC will become fragmented or isolated from other areas of habitat. It is unlikely that the habitat to be removed or disturbed as part of the proposed activity is important to the long-term survival of this EEC in the locality, due to its extent in nearby areas.
d. whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),	The proposed activity is unlikely to have any adverse impacts on any declared areas of outstanding biodiversity value. This has been confirmed by accessing and analysing the “Area of Outstanding Biodiversity register” on the DPIE website, accessed March 2020.

Test of Significance (s7.3 of the NSW BC Act 2016)	
Endangered Ecological Community:	**Swamp sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions**
e. whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.	The proposed activity may constitute "Clearing of native vegetation" which is identified as a Key Threatening process in Schedule 4 of the BC Act. Mitigation measures outlined in Section 6 will minimise the area of this EEC and any other native vegetation that is to be cleared as part of the proposed activity. Further, it is anticipated that following construction, any areas of this EEC that have been either directly or indirectly impacted by the proposed activity will be regenerated as per the Vegetation Management Plan.
Conclusion	In light of the consideration of the above factors, the proposed activity is unlikely to have a "significant impact" on **Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions EEC** as a result of the proposed activity. A Significant Impact Statement is not required.

Test of Significance (s7.3 of the NSW BC Act 2016)	
Endangered Ecological Community:	**Swamp oak floodplain forest of the NSW North Coast, Sydney Basin and South East Corner bioregions**
a. in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,	N/A- not a threatened species.
b. in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity: i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.	The Swamp Oak Floodplain Forest EEC has been mapped by OEH (2013) across the whole REF study area for Culburra SPS 6. As well as vegetation clearing for the proposed storage tank at this site, additional potential impacts such as vegetation disturbance and modification may occur within the mapped REF study area. Despite potential direct and indirect impacts anticipated on this EEC, the proposed activity is unlikely to have an adverse effect on the extent of the EEC such that its local occurrence is likely to be placed at risk of extinction. Further, the proposed activity will not substantially or adversely modify the composition of the EEC such that its local occurrence is likely to be placed at risk of extinction.
c. in relation to the habitat of a threatened species or ecological community: i. the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and ii. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and iii. the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,	In the absence of a field survey to confirm the exact extent of this EEC in the REF study for Culburra SPS 6, it is assumed that the vegetation to be cleared constitutes up to 80sqm for construction of the proposed storage tank. This figure is based on the analysis of the area to be cleared or disturbed, as per Nearmap imagery. The proposed activity is small in area and therefore it is unlikely that the EEC will become fragmented or isolated from other areas of habitat. It is unlikely that the habitat to be removed or disturbed as part of the proposed activity is important to the long-term survival of this EEC in the locality, due to its extent in nearby areas.
d. whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),	The proposed activity is unlikely to have any adverse impacts on any declared areas of outstanding biodiversity value. This has been confirmed by accessing and analysing the “Area of Outstanding Biodiversity register” on the DPIE website, accessed March 2020.
e. whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.	The proposed activity may constitute “Clearing of native vegetation” which is identified as a Key Threatening process in Schedule 4 of the BC Act. Mitigation measures outlined in Section 6 will minimise the area of this EEC and any other native vegetation that is to be cleared as part of the proposed activity.

Test of Significance (s7.3 of the NSW BC Act 2016)	
Endangered Ecological Community:	**Swamp oak floodplain forest of the NSW North Coast, Sydney Basin and South East Corner bioregions**
	Further, it is anticipated that following construction, any areas of this EEC that have been either directly or indirectly impacted by the proposed activity will be regenerated as per the Vegetation Management Plan.
Conclusion	In light of the consideration of the above factors, the proposed activity is unlikely to have a "significant impact" on **Swamp oak floodplain forest of the NSW North Coast, Sydney Basin and South East Corner bioregions EEC** as a result of the proposed activity. A Significant Impact Statement is not required.

Test of Significance (s7.3 of the NSW BC Act 2016)	
Threatened Fauna: **Frogs**	Green and Golden Bell Frog - *Litoria aurea*
a. in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,	The proposed activity includes potential habitat clearing and disturbance for the Green and Golden Bell Frog. Mitigation measures outlined in Section 6 will assist to avoid and minimise any potential impacts on this species. The proposed activity is not likely to have an adverse effect on the life cycle of these species such that a viable population of these species is likely to be placed at risk of extinction.
b. in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity: i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.	N/A – not an EEC
c. in relation to the habitat of a threatened species or ecological community: i. the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and ii. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and iii. the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,	In the absence of a field survey to determine the exact extent of the potential habitat that exists in the REF study, it is estimated that up to 0.11 ha of potential fauna habitat may be removed, modified or disturbed as a result of the proposed activity. The proposed activity is small in area and therefore it is unlikely that habitat for this species will become fragmented or isolated from other areas of habitat. It is unlikely that the habitat to be removed or disturbed as part of the proposed activity is important to the long-term survival of this species in the locality, due to its extent in nearby areas.
d. whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),	The proposed activity is unlikely to have any adverse impacts on any declared areas of outstanding biodiversity value. This has been confirmed by accessing and analysing the “Area of Outstanding Biodiversity register” on the DPIE website, accessed March 2020.
e. whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.	The proposed activity may constitute “Clearing of native vegetation” which is identified as a Key Threatening process in Schedule 4 of the BC Act. Mitigation measures outlined in Section 6 will minimise the area of fauna habitat that is to be cleared or modified as part of the proposed activity. Further, it is anticipated that following construction, any habitat that has been either directly or indirectly impacted by the proposed activity

Test of Significance (s7.3 of the NSW BC Act 2016)	
Threatened Fauna: **Frogs**	Green and Golden Bell Frog - *Litoria aurea*
	will be regenerated as per the recommended Vegetation Management Plan.
Conclusion	In light of the consideration of the above factors, the proposed activity is unlikely to have a "significant impact" on Green and Golden Bell Frog as a result of the proposed activity. A Significant Impact Statement is not required.

Test of Significance (s7.3 of the NSW BC Act 2016)	
Threatened Fauna: **Reptiles**	Leatherback Turtle - *Dermochelys coriacea*
a. in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.	The proposed activity includes potential habitat disturbance for the Leatherback Turtle. Mitigation measures outlined in Section 6 will assist to avoid and minimise any potential impacts on this species. The proposed activity is not likely to have an adverse effect on the life cycle of these species such that a viable population of these species is likely to be placed at risk of extinction.
b. in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity: i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.	N/A – not an EEC
c. in relation to the habitat of a threatened species or ecological community: i. the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and ii. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and iii. the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the	In the absence of a field survey to determine the exact extent of the potential habitat that exists in the REF study, it is estimated that up to 0.11 ha of potential fauna habitat may be removed, modified or disturbed as a result of the proposed activity. The proposed activity is small in area and therefore it is unlikely that habitat for this species will become fragmented or isolated from other areas of habitat. It is unlikely that the habitat to be removed or disturbed as part of the proposed activity is important to the long-term survival of this species in the locality, due to its

Test of Significance (s7.3 of the NSW BC Act 2016)	
Threatened Fauna: **Reptiles**	Leatherback Turtle - *Dermochelys coriacea*
locality,	extent in nearby areas.
d. whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),	The proposed activity is unlikely to have any adverse impacts on any declared areas of outstanding biodiversity value. This has been confirmed by accessing and analysing the "Area of Outstanding Biodiversity register" on the DPIE website, accessed March 2020.
e. whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.	The proposed activity may constitute "Clearing of native vegetation" which is identified as a Key Threatening process in Schedule 4 of the BC Act. Mitigation measures outlined in Section 6 will minimise the area of fauna habitat that is to be cleared or modified as part of the proposed activity. Further, it is anticipated that following construction, any habitat that has been either directly or indirectly impacted by the proposed activity will be regenerated as per the Vegetation Management Plan.
Conclusion	In light of the consideration of the above factors, the proposed activity is unlikely to have a "significant impact" on Leatherback Turtle as a result of the proposed activity. A Significant Impact Statement is not required.

Appendix E:

STAKEHOLDER CONSULTATION LETTER

STAKEHOLDER AND COMMUNITY CONSULTATION LETTER - Template

Dear <CONTACT NAME>

RE: Review of Environmental Factors – Proposed Provision of Emergency Storage Facilities at Sewage Pump Stations

Shoalhaven City Council, through Shoalhaven Water, manages the collection, treatment and distribution of water, along with the collection, treatment and disposal of wastewater back into the environment.

As part of the infrastructure utilised in undertaking these functions, Shoalhaven City Council maintain and operate a series of sewage pumping stations in order to transfer sewage waste to the treatment plants. At times, failures in the systems occur due to circumstances such as mechanical failure, power outages and the like. Failures at the sewage pump station sites can lead to accidental discharge of untreated sewage waste into the environment.

In order to reduce the risks associated with such accidental discharges, Shoalhaven City Council are planning the provision of emergency storage capacity adjacent to sewage pump stations in order to provide for the emergency storage of untreated sewage. Shoalhaven Water are currently considering the provision of emergency overflow storage capacity at eleven (11) of its sewage pump stations as follows:

- Berry SPS 5 is located immediately to the south of Victoria Street and east of the newly realigned Princes Highway;
- Culburra SPS 5 is located within an unconstructed section of The Strand road reserve between properties known as 51 and 53 Addison Road;
- Culburra SPS 6 is located to the west of 156 Princes Edward Avenue;
- Culburra SPS 9 is located opposite 42 East Crescent, Culburra Beach;
- Culburra SPS 10 is located to the west of the East Crescent at Culburra Beach;
- Huskisson SPS 3 is located to the west of the intersections of Sydney and Bowen Streets;
- St Georges Basin SPS 10 is located to the north of 184 Loralyn Avenue;
- St Georges Basin SPS 12 is located to the north of 157 Walmer Avenue;
- St Georges Basin SPS 13 is located to the south of 104 Greville Avenue, and accessed via Irene Street;
- Sussex Inlet SPS 1 is located to the north of River Road, between numbers 34 and 36; and
- Sussex Inlet SPS 16 is located on Lakeland Avenue in Berrara within a foreshore reserve.

Shoalhaven City Council is both the proponent and the determining authority for the proposed activity under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). As such, a Review of Environmental Factors (REF) has been undertaken to fulfil Council's obligations for environmental assessment of the proposed activity.

As part of Council's measures to reduce impacts of this project on the local community, we invite <ORGANISATION_NAME>/<LANDHOLDER_NAME> to review the Review of Environmental Factors on our website at <URL> during the exhibition period, which will be <NUMBER> weeks from <DATE>.

Please provide comment on the REF document to Council's Project Manager, <PROJECT_MANAGER> by <END_DATE> using contact details below:

<PROJECT_MANAGER_NAME>
<POSTAL ADDRESS>
<EMAIL>
<PHONE>

Yours faithfully

NAME and SIGN