Riverine Park: Review of Environmental Factors - Stage 1

Arncliffe Aurora Football Club

[redacted]

DOCUMENT TRACKING

Project Name	Riverine Park Review of Environmental Factors – Stage 1

[redacted]

ACKNOWLEDGEMENTS

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Template 2.8.1

Contents

List of Figures

Abbreviations

Abbreviation	Description
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
ASS	Acid Sulphate Soils
BAM	Biodiversity Assessment Method
BC Act	Biodiversity Conservation Act 2016
BDAR	Biodiversity Development Assessment Report
Biosecurity Act	*Biosecurity Act 2015*
CEMP	Construction Environmental Management Plan
DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
DLWC	Department Land and Water Conservation
DPI	Department of Primary Industries
ELA	[redacted]
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	Environmental Planning & Assessment Regulation, 2021
EPA	Environment Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
Heritage Act	*Heritage Act 1977*
ICNG	Interim Construction Noise Guidelines
LGA	Local Government Area
MNES	Matters of National Environmental Significance
NHL	National Heritage List
NPW Act	*National Parks and Wildlife Act 1974*
NPWS	National Parks and Wildlife Service
NSW	New South Wales
NSW DCEEWW	New South Wales Department of Climate Change, Energy, the Environment, and Water
PASS	Potential Acid Sulfate Soils
PCT	Plant Community Type
POEO Act	*Protection of the Environment Operations Act 1997*
PPE	Personal Protective Equipment
REF	Review of Environmental Factors
SDS	Safety Data Sheet
SHR	State Heritage Register
TEC	Threatened Ecological Community
TfNSW	Transport for NSW

Abbreviation	Description
TISEPP	*State Environmental Planning Policy (Transport and Infrastructure) 2021*
WIRES	NSW Wildlife Information, Rescue and Education Service Inc
WM Act	*Water Management Act 2000*

1. Introduction

[redacted] Pty Ltd (ELA) has been engaged by Arncliffe Aurora Football Club (Arncliffe Aurora FC) to undertake a Review of Environmental Factors (REF) under Part 5 of the NSW *Environmental Planning and Assessment* Act *1979* (EP&A Act) on behalf of Bayside Council (Council) to identify and assess the environmental impacts of the proposed Stage 1 works at Riverine Park, 201B West Botany Street, Arncliffe (Figure 1) (Part Lot 100 DP 1228008).

The objective is to upgrade the existing derelict club house to enable ongoing use of the playing fields within Riverine Park. The clubhouse sits to the east of two soccer fields, which are currently used by Arncliffe Aurora FC for training sessions. The upgrade of the club house is required to facilitate the current use and expansion of use for the existing playing fields. The existing building will be upgraded to include new change rooms, showers, toilets including accessible toilets, canteen facilities, club house facilities and storage facilities. The scope of work includes the removal of the existing internal fixtures and damaged external features, exterior paving, replacement of roofing, eaves and soffits, new windows, lighting and fit out of the interior of the existing club house. The Stage 1 building works will be contained within the existing building footprint and fields. To support the Stage 1 building works, a new connection will be constructed linking to the sewer at Eve Street Arncliffe. This connection will require excavation from the building directly northwest across the existing playing fields.

Riverine Park is currently underused and is vulnerable to misuse by vandals who have inflicted damage on the exiting clubhouse building (Bayside Council, 2024). The works will facilitate the use of existing parklands.

The REF assesses the potential environmental impacts of the proposed works in accordance with Clause 171 of the *EP&A Regulation 2022* and outlined impact mitigation measures to be undertaken, in line with Bayside Council's policies and procedures.

2. Project Details

Background	
Location	Former Soccer Club House Riverine Park 210B West Botany St Arncliffe NSW 2205 Part Lot 100 DP1228008
Project and site description	The club house is located within Riverine Park, Banksia NSW (Figure 1), to the west of the Sydney Airport. The area is within crown land with Bayside Council as the responsible Land Manager. Bayside Council has granted a licence over the land to Arncliffe Aurora FC for 21 years under Section 47 of the Local Government Act. Riverine Park is a currently minimally used sporting and recreational facility with two soccer fields, two baseball/softball diamonds, and a combined rugby union/ cricket oval.

Background	
	Riverine Park is subject to a Long-Term Site Management Plan (LTSMP) (Edison, 2020) due to historic land use causing contamination. Works within Riverine Park are required to comply with the LTSMP. Parts of Riverine Park are considered a Public Safety Area (PSA) (Figure 2), a designated area of land at the end of an airport runway, as outlined in the National airports safeguarding framework (DITRDC, 2012). The proposed works include: • Upgrade of the existing building, while retaining the same footprint. • New pavement surrounding building. • Removal of up to 14 cocos palm trees immediately adjacent to the clubhouse. • Landscaping including planting of replacement palms. • Installation of a sewer main to connect into existing infrastructure in Eve Street. • Installation of field lighting. The scope is to remove all internal fixtures, all outside paving, replace roofing and upgrade all areas that are damaged and in poor condition inside and around the clubhouse. The works will enable safe and accessible facilities. The trees to be removed are required to be removed due to shallow roots creating uneven walking surfaces and some palms leaning on the clubhouse. Council tree officers have approved the 14 Cocos Palms for removal. The footprint of the building will remain the same. The interiors will be upgraded to include new change rooms, toilets, canteen, club house facilities, storage facilities, and accessible toilets. The external walls will be changed to have new doors and access points. Lighting will be installed around the two existing fields. The sewer will run northwest from the building to Eve Street, across existing disused playing fields and the Barton Park Driving Range.
Land zoning	Open Space and Special Uses (Figure 3)
Land ownership	Crown land. Bayside Council is the responsible Land Manager.
Approval Pathway	The EP&A Act is the principal planning legislation for NSW. It provides a framework for the overall environmental planning and assessment of proposals. Part 5 of the EP&A Act specifies the environmental impact assessment requirements for activities undertaken by or on behalf of public authorities that are permissible without development consent. The proposal comprises the refurbishment of the existing clubhouse to include amenities including toilets and change rooms, canteen facilities and storage areas and upgrading the existing paving around the clubhouse to provide for safe access. Division 12, Section 2.73 Clauses 3.a.iv, 3.a.vi and 3.a.vii of the *State Environmental Planning Policy (Transport and Infrastructure) 2021* allows for these works to be undertaken by or on behalf of a public authority without consent on land owned or controlled by the public authority. It is therefore concluded that Part 5 is the appropriate approval pathway.
Timeframe	The timing will be determined by the contractor. However, where possible, construction hours will be held in accordance with the Department of Environment and Climate Change (DECC) (2009) Guidelines: • 7 am – 6 pm Monday to Friday • 8 am – 1 pm Saturdays • No work on Sunday or public holidays Works will commence late 2024 pending approval.

Background	
Work Equipment and Machinery	The works equipment and machinery would be determined by the construction contractor but are expected to be typical small-medium sized trucks, excavators, hand-held power tools, concrete saw, generator and other.
Alternatives	Currently, the building is no longer in use and is derelict. The building has been subject to vandalism and other anti-social behaviour (Bayside Council, 2024). The options considered would include: • Do nothing. • Demolish the building. • Upgrade the existing building. Option 1- Do nothing. This option is not sustainable and continues the ongoing destruction of the building and encourages anti-social behaviour. The park will continue to be underused. The local community will be further alienated from the site with ongoing community safety concerns. Option 2- Demolish the building. This option would remove the existing building and require a replacement building to enable ongoing use of the existing playing fields. This option would require more funding and would require additional works to comply with the LTSMP. Option 3- Upgrade the existing building. The proposed upgrade will make use of existing foundations and footprints and allow for the increased use of the existing playing fields. The level of use would decrease anti-social behaviour. The proposed works will enhance open spaces to growing communities within the local government area (LGA) and encourage people to be more physically and socially active, which will improve health outcomes and enhance overall liveability of the district. Minimal excavations are expected, minimising the risk from the capped landfill on site. This option complies with the Draft Riverine Park Masterplan which identifies the building for renovations to provide support to both the sporting needs and the general needs of the community (Bayside Council, 2024).

3. Statutory and Planning Context

Name	Relevance to the Project
Commonwealth	
Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)	The EPBC Act protects Matters of National Environmental Significance (MNES), such as threatened species and ecological communities, migratory species (protected under international agreements), and National Heritage places (among others). An action that may or is likely to have a significant impact on MNES should be referred to the Commonwealth to determine whether it is a Controlled Action that requires approval from the Commonwealth. A protected matters search was conducted using a 5 km buffer around the study area. Two (2) threatened fauna MNES entities *Pteropus poliocephalus* (Grey-headed Flying-fox) and *Litoria aurea* (Green and Golden Bell Frog) were identified as having the potential to occur within the study area. An Assessment of Significance was prepared for these species using the Significant Impact Criteria and concluded that the proposed action is unlikely to result in a significant impact to these species (Appendix G). A Referral to the Commonwealth is not recommended.
Airports Act 1996	The *Airports Act 1996* (Airports Act) protects and supports the development of civil aviation in Australia, through the establishment of systems for regulation which balance the interests of airport users and the general community. This regulation identifies Sydney (Kingsford -Smith) Airport as a core regulated airport. The Airports Act outlines the prescribed airspace and identifies the controlled activities in relation to prescribed airspace. Part 12, Divisions 3 and 4 of the Airports Act identify prescribed airspace and activities that are considered a controlled action under the Airports Act to protect the prescribed airspace. The clubhouse and lighting sits below the prescribed airspace for Sydney Airport (Figure 4). Construction activities such as crane use may intrude into prescribed airspace and be considered a controlled activity. Any intrusion required during construction will be less than 3 months in duration and considered a “short term” intrusion. The application to conduct the controlled activity must be submitted for approval to Sydney Airport a minimum of 28 days prior to commencement of the activity. While dust emissions can be considered a controlled activity, the proposed mitigation measures for the works would ensure dust levels are minimised and will not exceed the maximum levels.
Airport (Protection of Airspace) Regulations 1996	The Airport Regulations protect the airspace in the vicinity of airports from obstructions that could pose hazards to aircraft during take-off, landing and general flight operations. The Regulations consider height restrictions to ensure air safeguards. As the site area is below the prescribed airspace (Figure 4) for the Sydney Airport, the Proposal is required to adhere to the Regulations. Any activity that is likely to intrude on the prescribed airspace will require a controlled activity permit. The clubhouse and lighting structures will not intrude in the prescribed airspace; however it is possible, that a crane or similar use will be a controlled activity. Given any crane use for the Proposal will be for less that 3-months, the works are considered to be a short-term controlled activity under the Regulation. An application for approval of the controlled activity must be given at least 28 days before the intended commencement date of the activity. The airport -operator must give written notice of the application and invite submissions from a. CASA

Name	Relevance to the Project
	b. Airservices Australia. The need for the Controlled Activity permit and conditions pertaining to the permit will be determined by the height of the crane required for the proposed activities. Should crane use have the potential to intrude into the prescribed airspace, an application for a permit will be submitted and crane operations will be conducted in accordance with the permit.
National Airports Safeguarding Framework	The *National Airports Safeguarding Framework* (NASF) is designed to enhance the current and future safety, viability and growth of aviation operations by supporting and enhancing: • the implementation of best practice in relation to land use assessment and decision making in the vicinity of airports, • assurance of community safety and amenity near airports, • better understanding and recognition of aviation safety requirements and aircraft noise impacts in land use and planning decisions • prevision of greater certainty and clarity for developers and land owners • improvements to regulatory certainty and efficiency • the publication and dissemination of information on best practice in land use and related planning that supports the safe and efficient operation of airports. Under the NASF, Public Safety Areas (PSAs) are a designated area of land at the end of an airport runway within which development may be restricted in order to control the number of people on the ground at risk of injury or death in the event of an aircraft accident on take-off or landing. The majority of the study area is just outside the identified PSA for Sydney Airport as shown in Figure 2. Lighting on the secondary field falls under the PSA for Sydney Airport. The playing fields are considered ongoing use and are not new development under Guideline I. The lighting complies with the requirements in Guideline E. No restrictions are therefore anticipated for the Proposal.
State	
NSW *Biodiversity Conservation Act 2016* (BC Act)	The BC Act seeks to conserve biological diversity at bioregional and State scales; to maintain the diversity and quality of ecosystems and enhance their capacity to adapt to change and provide for the needs of future generations. The Act also aims to assess the extinction risk of species and ecological communities and identify key threatening processes through an independent and rigorous scientific process; and to establish a framework to avoid, minimise and offset the impacts of proposed development and land use change on biodiversity. Section 7.3 of the Act requires proponents of activities subject to Part 5 of the EP&A Act to determine whether they will have a significant impact on threatened species. The test for a significant impact is described in section 7.3 of the Act. A significant impact also occurs if the activity is carried out in an area of outstanding biodiversity value. If a significant impact is likely to occur, the proponent of the activity must prepare a Species Impact Statement (SIS) in accordance with section 7.20 or a Biodiversity Development Assessment Report (BDAR). A Likelihood of Occurrence assessment has been completed (Appendix E). It was concluded that six (6) threatened fauna species have the potential to be impacted by the proposed works. These species include *Litoria aurea* (Green and Golden Bell Frog), *Pteropus poliocephalus* (Grey-headed Flying-fox), *Miniopterus australis* (Little Bent-winged Bat), *Miniopterus orianae oceanensis* (Large Bent-winged Bat), *Myotis macropus* (Southern Myotis), and *Saccolaimus flaviventris* (Yellow-bellied Sheath-tail Bat). Tests of Significance under the BC Act were undertaken for these species and are presented in Appendix F. It was determined that a significant impact is unlikely to result from the

Name	Relevance to the Project
	proposed works and the preparation of a Species Impact Statement (SIS) or Biodiversity Development Assessment Report (BDAR) is not recommended. Safeguard measures will be in place to minimise the impacts on threatened flora and fauna that may occur within the Study area as outlined in Section 6.
NSW *Biosecurity Act 2015* (BS Act).	The BS Act repealed the *Noxious Weeds Act 1993* and provides a framework for the prevention, elimination and minimisation of biosecurity risks posed by a biosecurity matter, dealing with a biosecurity matter, carriers and potential carriers, and other activities that involve biosecurity matter. Mitigation measures outlined in Section 6 would allow the works to meet the objectives of this Act, which are to: • Prevent the establishment of new significant weeds • Restrict the spread of existing significant weeds • Provide for the monitoring of and reporting on the management of significant weeds.
NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and *Environmental Planning and Assessment Regulation 2021*	The EP&A Act is the principal planning legislation for NSW. It provides a framework for the overall environmental planning and assessment of proposals. As Council is the proponent, the works are to be assessed as 'development permissible without consent' under Part 5 of the EP&A Act. Accordingly, Council must satisfy Sections 5.5 and 5.6 of that Act by examining, and taking into account to the fullest extent possible, all matters which are likely to affect the environment. Additionally, the EP&A Regulation, clause 171 refers to 18 factors for consideration as part of an environmental assessment. These have been addressed in Section 5.
NSW *Fisheries Management Act 1994* (FM Act)	The FM Act provides for the protection, conservation and recovery of threatened species defined under the Act. It also makes provisions for the management of threats to threatened species, populations and ecological communities defined under the Act, as well as the protection of fish and fish habitat in general. The closest identified waterway to the proposed works is the Cooks River, approximately 270 m to the west of the Study Area. Muddy Creek and Cooks River are mapped as Key Fish Habitat (KFH) by NSW Fisheries. The proposed works do not involve harm to marine vegetation, dredging, reclamation or obstruction of fish passage. Therefore, a permit or consultation under the FM Act is not required.
NSW *Water Management Act 2000* (WM Act)	The WM Act aims to provide for the sustainable and integrated management of water resources for NSW. The Act requires developments on waterfront land to be ecologically sustainable and recognises the benefits of aquatic ecosystems to agriculture, fisheries, and recreation. The WM Act is administered by the NSW Department of Climate Change, Energy, the Environment and Water (NSW DECCEW) and establishes an approval regime for activities within waterfront land, defined as the land 40 m from the highest bank of a river, lake or estuary. A Controlled Activity Approval (CAA) is typically required for work within waterfront land. Section 91E of the Act creates an offence for carrying out a controlled activity within waterfront land without approval. However, according to Section 41 of the Water Management (General) Regulation 2018, a public authority is exempt from Section 91E (1) of the Act. Therefore, Council does not need to obtain a CAA from NSW DECCEW as part of these works.
NSW *National Parks and Wildlife Act 1974* (NPW Act)	The NPW Act is administered by the Director-General of the National Parks and Wildlife Services, who is responsible for the control and management of all national parks, historic sites, nature reserves, and Aboriginal areas (among others). The main aim of the

Name	Relevance to the Project
	Act is to conserve the natural and cultural heritage of NSW. The Act aims to conserve the natural and cultural heritage of NSW. Where works will disturb Aboriginal objects, an Aboriginal Heritage Impact Permit (AHIP) is required. A requirement of Clause 16 of the Infrastructure SEPP is for consultation with the National Parks and Wildlife Service (NPWS) where the proposed works occur on or adjacent to National Parks Estate. The proposed works are not within or adjacent to national park and therefore consultation is not required. There are no previously recorded Aboriginal sites or objects within the study area. The study area has been highly modified by land clearance and historic development, indicating there is a low potential for intact subsurface archaeological deposits to be present.
NSW *Coastal Management Act 2016* (CM Act)	The objectives of the CM Act are to manage the coastal environment of NSW in a manner consistent with the principles of ecologically sustainable development for the social, cultural, and economic well-being of the people of the State. Part 2 of the CM Act identifies objectives relating to four coastal zones. The proximity of these zones are shown in Figure 5. The works would not impact on the biophysical, hydrological, or ecological integrity of the closest coastal wetland or the quantity or quality of surface water and groundwater flows to and from that coastal wetland if mitigation measures in Section 6 are implemented effectively.
NSW *Heritage Act 1977* (Heritage Act)	The Heritage Act provides protection of the environmental heritage of the State which includes places, buildings, works, relics, movable objects or precincts that are of State or local heritage significance. The NSW State Heritage Register (SHR) is the statutory register under Part 3A of the Heritage Act. Listing on the SHR means that any proposed works or alterations (unless exempted) to listed items must be approved by the Heritage Council or its delegates under section 60 of the Act. There are no State or locally listed heritage items within the study area. No further assessment will be required.
NSW *Protection of the Environmental Operations Act 1997* (POEO Act)	The POEO Act is the key environmental protection and pollution statute. The POEO Act is administered by the NSW Department of Environment, Energy Science and establishes a licensing regime for waste, air, water, and pollution. Relevant sections of the Act are listed below: • Part 5.3 Water Pollution • Part 5.4 Air Pollution • Part 5.5 Noise Pollution • Part 5.6 Land Pollution and Waste. Any work potentially resulting in pollution must comply with the POEO Act. No licences have been identified as being required, including an Environmental Protection Licence. This assessment has included site specific management recommendations that have been outlined in Sections 4 and 6 of this REF.
Planning Instruments	
The National Airport Safeguarding Framework 2012	The National Airports Safeguarding Framework is a national land use planning framework that aims to: • Improve community amenity by minimising aircraft noise-sensitive developments near airports. • Improve safety outcomes by ensuring aviation safety requirements are recognised in land use planning decisions through guidelines being adopted by jurisdictions on various safety-related issues. The Framework consists of 9 guidelines relating to aircraft noise, windshear and turbulence, wildlife strikes, wind turbines, lighting distractions, protected airspace,

Name	Relevance to the Project
	communication equipment, helicopter landing sites and public safety areas at the end of runways. The majority of the study area is just outside the identified PSA for Sydney Airport as showing in Figure 2. Lighting on the secondary field falls under the PSA for Sydney Airport. The playing fields are considered ongoing use and are not new development under Guideline I. The lighting complies with the requirements in Guideline E.
State Environmental Planning Policy (Transport and Infrastructure) 2021 (T&I SEPP)	The aim of the T&I SEPP is to facilitate the effective delivery of infrastructure across NSW by identifying whether certain types of infrastructure require consent, can be carried out without consent or are exempt development. Pursuant to clause 65 of the T&I SEPP, development for the purpose of parks and other public reserves may be carried out by or on behalf of a public authority without consent on any land. Such works include: *a- development for any of the following purposes—* *i- roads, pedestrian pathways, cycleways, single storey car parks, ticketing facilities, viewing platforms and pedestrian bridges,* *ii- recreation areas and recreation facilities (outdoor), but not including grandstands,* *iii- visitor information centres, information boards and other information facilities,* *iv- lighting, if light spill and artificial sky glow is minimised in accordance with the Lighting for Roads and Public Spaces Standard,* *v- landscaping, including landscape structures or features (such as artwork) and irrigation systems,* *vi- amenities for people using the reserve, including toilets and change rooms,* *vii- food preparation and related facilities for people using the reserve,* *viii- maintenance depots,* *ix- portable lifeguard towers,* *b- environmental management works,* *c- demolition of buildings (other than any building that is, or is part of, a State or local heritage item or is within a heritage conservation area).* Part 2 of the T&I SEPP contains provisions for public authorities to consult with other agencies prior to the commencement of development.
State Environmental Planning Policy (Biodiversity and Conservation) 2021 (B&C SEPP)	The aim of the B&C SEPP is to protect and manage our natural environment to help support the community's health and wellbeing, economic security and cultural identity. The B&C SEPP applies to the Study Area. No native vegetation is being removed as part of the proposal.
State Environmental Planning Policy (Resilience and Hazards) 2021 (R&H SEPP)	The aim of Chapter 2 Coastal Management of the R&H SEPP is to promote an integrated and co-ordinated approach to land use planning in the coastal zone in a manner consistent with the objects of the Coastal Management Act 2016, including the management objectives for each coastal management area, by— a) managing development in the coastal zone and protecting the environmental assets of the coast, and

Name	Relevance to the Project
	b) establishing a framework for land use planning to guide decision-making in the coastal zone, and c) mapping the 4 coastal management areas that comprise the NSW coastal zone for the purpose of the definitions in the Coastal Management Act 2016. The Study Area is not within a Coastal Wetland or Coastal Use Area (Figure 5). The Proposal will follow the requirements outline in the R&H SEPP.
State Environmental Planning Policy (Precincts-Eastern Harbour City) 2021 (Eastern Harbour SEPP)	The Eastern Harbour SEPP consolidated multiple SEPPs and Sydney Regional Environmental Plans over the eastern sections of Sydney. This included the Sydney Regional Environmental Plan No. 33 – Cooks Cove 2004, which was transferred into Chapter 6 of the Eastern Harbour SEPP. Chapter 6 of the Eastern Harbour SEPP aims are: a) to establish planning principles for the development of land that promote the ecologically sustainable use of the Cooks Cove site, and b) to rezone land at Cooks Cove to encourage trade and technology uses, and to attract global-reach businesses which strengthen Sydney's international competitiveness, and c) to capitalise on the physical proximity of the Cooks Cove site to Sydney International Airport and Port Botany to create trade-focussed development, and d) to facilitate master planning strategies that will promote the orderly development of public open space and trade and technology land uses, and e) to identify appropriate development form and capacity for the Cooks Cove site, and f) to provide open space for a range of recreational uses, and g) to provide for good public access through the Cooks Cove site and along the Cooks River foreshores, and h) to enhance the Botany Bay to Homebush Bay regional cycleway and pedestrian/cycle network, and i) to protect environmentally significant wetlands and the habitat of the endangered Green and Golden Bell Frog, and j) to establish vegetated riparian areas along the Cooks River and Muddy Creek foreshores, and k) to provide vegetated riparian buffers around the Marsh Street, Eve Street, Spring Creek and Landing Lights wetlands. The proposal supports aims f and g by providing facilities that will support public use of the Riverine Park Precinct. The site is mapped for Open Space use under this SEPP. The proposal supports the Open Space zone objective of: a) To provide for active sporting and recreational land uses and club facilities. The proposal is allowed with consent under the Eastern Harbour SEPP. Section 6.13 of the Eastern City SEPP requires consent to consider the master plan for the area. Bayside Council is in the process of drafting a Master Plan for Riverine Park. The proposal is consistent with the draft Master Plan, which identifies the subject site and an existing amenity building for refurbishment. The proposal is consistent with the scope of the draft master plan. The clubhouse floor space is approximately 1000m^2 and meets the requirements of section 6.14 of the Eastern Harbour SEPP.

Name	Relevance to the Project
	Section 6.15 of the Eastern Harbour SEPP defines the height of buildings within the Cooks Cove Zone. The clubhouse is a single storey building and will not have any additional storeys added. The proposal is consistent with Section 6.15 of the SEPP. Section 6.16 of the Eastern Harbour SEPP details the Environmental Management plans required for development within the Cooks Cove zone. A Green and Golden Bell Frog management plan has been developed for the proposal and is included in Appendix H. A soil and water management plan will be developed for the works prior to the construction phase. Section 6.17 requires consideration of the stormwater management measures which are required to be an improvement to the quality of the stormwater entering Muddy Creek and the Cooks River and water usage will be minimised. No additional stormwater impacts are predicted. Stormwater from the site will be managed during construction using the soil and water management plan to be developed for the site as part of the construction environmental management plan. During operations, the refurbished clubhouse is expected to minimise water use through the use of recycled water where possible for toilet flushing and similar, and installation of water efficient fittings and fixtures. Stormwater infrastructure such as guttering and downpipes will be repaired and replaced on the clubhouse, improving the control and quality of the stormwater. Section 6.18 requires consideration of the impact on flood prone land. No additional impacts are expected due to the footprint remaining the same. Section 6.19 does not apply – there is no existing plan of management for the area. Section 6.20 requires any development to be consult with Sydney Airports Corporation Limited. Bayside Council and Arncliffe Aurora FC will undertake the consultation. Section 6.21 identifies the heritage protection required within the Cooks Cove Zone. This are addressed in Section 4. Section 6.22 identifies the likelihood of acid sulphate soils in the Cooks Cove Zone and requires an acid sulphate management plan if more than one tonne of soil is to be disturbed. Minimal soil disturbance is proposed with the clubhouse not being extended. Soil disturbance is anticipated in the installation of the sewer main and lighting. An acid sulphate management plan for the works will be developed as part of the CEMP for the works. Section 6.23 and 6.24 are not applicable to the proposal. Section 6.25 applies to the sewer main portion of the proposal. The proposal is required for the purpose of a recreation facility and may be carried out without development consent. The Proposal meets the requirements of the Eastern Harbour SEPP.
Bayside West Precinct Plan 2018	This Plan sets out strategic land use and infrastructure planning to guide the future transformation of the Bayside West Precincts. The Plan will inform future changes to the planning controls to enable the rezoning of the Arncliffe and Banksia Precincts. The Bayside West Precinct identifies the importance of open space that is accessible, functional and adaptable to different stages of life for local residents. The proposed works align with the future planning for the Precinct.
Riverine Park Masterplan 2024 – Draft for exhibition (Draft Masterplan) (Bayside Council, 2024)	The Draft Masterplan has been developed by Bayside Council to provide a plan for Riverine Park and its periphery open space to thrive as a symbol of progress and adaptability, transforming formerly neglected spaces into thriving, vibrant, beloved, activated environments. The Key Design considerations applicable to the proposal are: • Provision of an all-inclusive play space and amenities. • Upgraded park furniture, pavements, structures and park amenity.

Name	Relevance to the Project
	• Increase usage and flexibility of existing underutilised amenities, facilities and civil assets. • Increase usage and upgrade sporting and recreation, facilities to meet the needs of the growing community. The Draft Masterplan identifies the subject site as a 'Dilapidated amenity building'. The Draft Masterplan identifies the building as having been constructed in the late 1990s and subject to vandalism and lack of use. The building's structure remains sound and intact. The Draft Masterplan further states that the central location provides significant advantages to spectators and sporting groups. The Draft Masterplan further identifies the subject site as a site for refurbishment of the amenities. The subject site is in the active recreation zone and any replacement plantings will be undertaken in accordance with the planting selection identified in the Draft Masterplan.

4. Impact Assessment

Environmental Factor	Description	Negative Impact
Noise	The proposed works are situated close to the Sydney International Airport. The main source of existing noise in the study area would typically be from recreational activities in the Riverine Park and the aircrafts landing and taking off. The construction works would temporarily increase the noise level in the immediate area. The closest sensitive receivers are the residences adjacent to the Riverine Park. The closest houses are approximately 40 m to the northwest along Eve Street. Noise impacts are therefore expected to be minimal due to the mitigation measures that will be in place. The impact is not expected to be significant or long-term and would be typical of urban construction. Noise impacts would be mitigated by restricting workdays to 7:00 am - 6:00 pm on weekdays and 8:00 am - 1:00 pm on Saturdays, with no work on Sundays or public holidays. There is no long-term negative impact on noise or vibration levels expected from operation of the works.	☐ n/a ☒ Low ☐ Medium ☐ High
Air	The works area is located in close proximity to areas that are primarily utilised for residential activities to the east and west, in proximity to the Sydney Airport. The existing air quality is considered to be typical of a Sydney suburban area. The study is located in close proximity to the following streets: • W Botany St • Firmstone Gardens • Eve St • M5 East Motorway The elderly and children are considered to be the most at risk of adverse air quality impacts of the proposed works. Sensitive receivers within proximity to the works include, but are not limited to: • St Dominic Savio School Local residents, particularly those located within the streets mentioned above, as well as residents located within streets that provide access for construction vehicles to the proposed construction sites and local businesses, particularly those located near the proposed construction vehicle access points, will be sensitive to air quality impacts from the works.	☐ n/a ☒ Low ☐ Medium ☐ High
Water	The closest identified waterways are Cooks River and Muddy Creek, approximately 270 m east of the Proposal. The site is flat, with no significant waterways running through the site. All dirty water should be contained on the site, with no run-off towards the watercourse. Clean water should be diverted around the works and appropriate erosion and sediment control measures be implemented. The site is not mapped as a flood risk as shown in Figure 6. The potential for pollution of stormwater as a result of the works is considered minimal if mitigation measures are followed, such as	☐ n/a ☒ Low ☐ Medium ☐ High

Environmental Factor	Description	Negative Impact
	ceasing work and packing up the site when there is a high rainfall event expected. Both Cooks River and Muddy Creek are considered key fish habitat (KFH) by NSW Fisheries. The Proposal will not impact the waterways.	
Visual	Consultation with Sydney airport regarding the heights is required. Consultation with Sydney airport can be conducted by Arncliffe Aurora FC. Should works require a crane or similar equipment, an application to Sydney airport can be lodged to obtain a permit to operate these items. The proposed works will alter the visual landscape and amenity of the area as it involves the construction of the extension of the amenities block. As the works will facilitate long-term higher amenity public recreation use, the visual impact on the community is anticipated to be positive. The works will predominantly be undertaken within the existing amenity areas. As such, the nature of land use will not change.	☐ n/a ☒ Low ☐ Medium ☐ High
Traffic	It is not anticipated that significant impacts to traffic will result from the construction phase of this proposal as the number of vehicle movements would be minimal. It is not anticipated that road closures of any kind will be required for site deliveries as the local road network will only be minimally and temporarily impacted. Additionally, the current road traffic volumes within the surrounding road network are relatively low.	☐ n/a ☒ Low ☐ Medium ☐ High
European Heritage	There will be negligible impacts to the non-Aboriginal heritage. There are five heritage items within 500 metres of the study area, however the proposed works are minor and are consistent with the current use of the area as a place of recreation. The proposed works will not have any direct (physical) or indirect (visual) impacts on the significance of the listed heritage items.	☒ n/a ☐ Low ☐ Medium ☐ High
Aboriginal Heritage	The proposed works will not impact upon any known Aboriginal sites or objects and no Aboriginal sites are located in the study area. The study area has been previously modified by land clearance, historic land use as a sewerage farm and more recently due to reclamation works to extend Sydney International Airport. The works will be undertaken in existing areas of disturbance indicating there is a low potential for intact subsurface archaeological deposits to be impacted by the works.	☒ n/a ☐ Low ☐ Medium ☐ High
Flora and Fauna	**Desktop Assessment** A review of relevant literature, databases and aerial photography pertaining to the ecology and environmental features of the entire extent of the study area and surrounding area, and existing vegetation mapping was conducted in May 2024 to identify records of threatened species, populations and communities and their potential habitat. This included: • BioNet (NSW Atlas of Wildlife) database search (5 km) for threatened species, populations and ecological communities listed under the BC Act (NSW DCCEEW 2024a) • *Environment Protection and Biodiversity Conservation* 1999 (EPBC) Act Protected Matters Search Tool (Protected	☐ n/a ☒ Low ☐ Medium ☐ High

Environmental Factor	Description	Negative Impact

Matters Search Tool – DCCEEW) for threatened and migratory species, populations and ecological communities listed under the Commonwealth EPBC Act (DCCEEW 2024a)

- NSW Threatened Species Profile Database (NSW DCCEEW 2024b)
- Previous vegetation mapping under the State Vegetation Type Map (SVTM) (NSW DCCEEW 2024c)
- Plant Community Types (PCTs) information under BioNet Vegetation Classification (NSW DCCEEW 2024d)
- Relevant Geographic Information System (GIS) datasets including soils, geology and drainage (NSW DCCEEW 2024e).
- Review of relevant planning instruments, documentation, and information relating to biodiversity values (NSW DCCEEW 2024f) and potential threatened species habitat.
- Aerial photography (including Google Earth) of the study area and surrounds were also used to investigate the extent of vegetation cover and landscape features.
- National Flying-Fox Monitoring Viewer (DCCEEWb)

Biodiversity Values Map

The study area is not mapped under the Biodiversity Values map (BV map) (Figure 7) (NSW DCCEEW 2024f), however there are areas in the vicinity that are mapped on the BV Map. These areas are identified as 'Wetlands' under the Resilience and Hazards SEPP 2021.

Vegetation Communities

The desktop assessment using the State Vegetation Type mapping (SVTM) (NSW DCCEEW 2024c) and a review of recent aerial imagery of the study area identified no previously mapped Plant Community Types (PCTs) within the study area (Figure 8). The study area is disconnected from other patches of mapped native vegetation within the locality (Figure 8). The closest patch of previously mapped native vegetation is PCT3963 *Estuarine Reedland*, approximately 20 m to the northwest of the sewer main portion of the study area (NSW DCCEEW 2024c). The review of recent aerial imagery indicates that the study area currently contains 14 planted palm trees which are located immediately adjacent to the existing building, and exotic grass. Bayside Council Tree Services confirmed the palm trees to be *Syagrus* sp. (Cocos palm) (Appendix D). The 14 Cocos palms will be removed as part of the proposed works (Appendix D).

A search for Threatened Ecological Communities (TEC) using the Protected Matters Search Tool (PMST) and NSW Atlas of Wildlife (BioNet) returned a list of 11 TECs that are either known, likely or potentially occurring within a 5 km radius of the study area (Figure 9). These are tabulated in Appendix D. The study area is located within in the buffer area of the Towra Point Nature Reserve which is a Wetland of International Importance (RAMSAR wetland) (DCCEEW 2024a).

A review of the historic aerial imagery, SVTM mapping and site history has identified that no TECs are present within the study area. The study area comprises an old land fill site that have been subject to a

Environmental Factor	Description	Negative Impact

history of high levels of soil disturbance, contains no mapped PCT or other remnant native vegetation. A likelihood of occurrence table has been prepared for threatened TECs likely to occur within a 5 km radius of the study area (Appendix E).

Flora

A search for threatened flora species using the Protected Matters Search Tool (PMST) and NSW Atlas of Wildlife (BioNet) returned a list of 25 threatened flora species that are either known, likely or potentially occurring within a 5 km radius of the study area (Figure 9). These are tabulated in Appendix D. There have been no threatened flora species previously recorded in BioNet within the study area (NSW DCCEEW 2024a).

It should be noted that the result of the EPBC PMST is a list of species based on habitat modelling rather than field observations. As such, only nine threatened flora species are captured in Figure 9.

There are BioNet records of *Syzygium paniculatum* (Magenta Lilly Pilly) approximately 500 m to the southwest of the study area, and *Tetratheca juncea* (Black-eyed Susan) 1.5 km from the study area.

It is highly unlikely that either of these flora species as well as any of the other seven species occur within the study area given that the study area has a history of high levels of disturbance and is an old land fill site, contains no PCTs, and has previously been subjected to high levels of soil disturbance. Given the use of study area to manage landfill, there would be no native soil seedbank that could contain seed for these threatened species.

Fauna

A search for threatened fauna and migratory species using the PMST and BioNet searches returned a list of 105 threatened fauna species either known, likely or predicted to occur within 5 km of the study area. These are tabulated in Appendix D. However, no threatened species have previously been recorded within the study area (Figure 9) (NSW DCCEEW 2024a). As previously noted, the result of the PMST is a list of species based on habitat modelling rather than field observations. As such, only 37 fauna species are captured in Figure 9.

Of the 105 threatened fauna and migratory species previously recorded within a 5 km radius of the study area, six are considered likely to occur in the study area:

- *Litoria aurea* (Green and Golden Bell Frog)
- *Pteropus poliocephalus* (Grey-headed Flying-fox)
- *Miniopterus australis* (Little Bent-winged Bat)
- *Miniopterus orianae oceanensis* (Large Bent-winged Bat)
- *Myotis macropus* (Southern Myotis)
- *Saccolaimus flaviventris* (Yellow-bellied Sheath-tail Bat)

Targeted surveys have not been conducted for any of the six (6) species considered likely to occur within the study area. An assessment of potential habitat features, species ecology and recent

Environmental Factor	Description	Negative Impact
	records has been used to determine how each species may utilise the study area. **Green and Golden Bell Frog** There are 671 previous records of *Litoria aurea* (Green and Golden Bell Frog) (GGBF) within 5km of the study area. These individuals form part of the Arncliffe Key Population of the Lower Cooks River (DEC 2005). The study area does not contain any suitable breeding habitat for the GGBF. However, there are areas of potential breeding habitat for the GGBF within the adjacent wetlands and ponds, including the adjacent Landing Lights, and Eve Street wetlands and associated ponds located approximately 500 m to the southwest and 400 m to the northwest of the study area respectively (Figure 1). These wetlands have previously been recorded as being used by GGBF. This species utilises a variety of habitats for breeding including wetlands, swamps, dams, ponds, lakes or slow-flowing streams however they predominantly prefer those with sedges and rushes (NSW DCCEEW 2024b). The GGBF also requires nearby vegetation such as long grass for foraging. Individual GGBF may utilise the study area as occasional movement habitat when dispersing from nearby wetlands and ponds. The study may be utilised by GGBF individuals between one or two times per year, for up to two days, when moving between breeding and non-breeding habitat in the area. The study area may also provide marginal foraging habitat in the form of long grass, at least on occasions. A GGBF management plan (MP) which outlines all the necessary management actions needed to minimise potential harm to any GGBF has been prepared by ELA for the study area (ELA 2024). In addition to the implementation of the MP, mitigation measures have been recommended in Section 6 to further minimise risk of incidental harm. **Grey-headed Flying-fox** There are 894 previous records of this species within 5km of the study area (Figure 9). The GHFF predominately feeds on fruit and blossoms of *Ficus* spp., and myrtaceous species but they can also utilise introduced plants such as Cocos palm found in urban environments (NSW DCCEEW 2024b). There are no known flying fox camps within the study area (DCCEEW 2024b). The nearest Nationally Important Camp is located approximately 3 km northwest of the study area, in Wolli Creek. GHFF are highly mobile and can travel up to 20 km when foraging. The study area contains marginal foraging habitat) in the form of 14 planted Cocos palms. Given the proximity of this camp to the study area, it is likely that this species utilises the planted Cocos Palms within the study area as occasional supplementary foraging habitat. The existing trees within the study does not provide permanent roosting habitat in the form of a camp. **Microchiropteran bats**	

Environmental Factor	Description	Negative Impact
	Four threatened microbats were considered likely to occur within the study area: • Large Bent-winged bat predominately uses caves for roosting habitat but can also utilise buildings and other human-made structures (NSW DCCEEW 2024b). This species typically forages in forested areas above the treetops. • Southern Myotis utilises a variety of roosting habitats including caves, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage. This species forage over streams and pools, catching insects and small fish. • Yellow-bellied Sheath-tail Bat typically uses tree hollows and buildings as roosting habitat but are also known to utilise mammal burrows in treeless areas. Yellow-bellied Sheath-tail Bat forages in open and forested areas, flying fast and high over the forest canopy, or low in areas of less vegetation (NSW DCCEEW 2024b). • While there are no previous records of *Miniopterus australis* (Little Bent-winged Bat) within the study area or in the vicinity, this species utilises similar roosting and foraging habitats to these microbat species. Therefore, the existing derelict building may also contain potential roosting habitat for this species. The existing derelict building within the study area may provide occasional roosting habitat for these species. The four microbat species are also assumed to be able to use the area immediately surrounding the building for foraging, at least on occasion. These microbat species may forage on insects that congregate around light fixtures in the vicinity of the existing building or around the canopy of the exotic vegetation. However, it should be noted that there is no potential breeding habitat present within the study area for these microbat species. Prior to any vegetation removal and construction works, a qualified ecologist should conduct a pre-clearance survey to determine the presence of any microbats roosting within the study area. If roosts are found, a management strategy for the microbat species will be developed to manage impacts on roosting individuals. Tests of Significance were undertaken in Appendix F, under the BC Act for the following species: • *Litoria aurea* (Green and Golden Bell Frog) • *Pteropus poliocephalus* (Grey-headed Flying Fox) • *Miniopterus australis* (Little Bent-winged Bat) • *Miniopterus orianae oceanensis* (Large Bent-winged Bat) • *Myotis macropus* (Southern Myotis) • *Saccolaimus flaviventris* (Yellow-bellied Sheath-tail Bat) The application of the tests of significance determined that a significant impact is unlikely to occur on any of the species identified above.	

Environmental Factor	Description	Negative Impact
	Assessments of Significance were conducted in Appendix G, under the EPBC Act for the following species: • *Litoria aurea* (Green and Golden Bell Frog) • *Pteropus poliocephalus* (Grey-headed Flying Fox) The application of the significant impact criteria concluded that a significant impact to these species is unlikely to occur as a result of the proposed action.	
Geology, Soils and Erosion	The site is located within disturbed terrain know as level plain to hummocky terrain, extensively disturbed by human activity, including complete disturbance, removal or burial of soil (Figure 10). The soil consists of turfed fill areas commonly capped with up to 40 cm of sandy loam or up to 60 cm of compacted clay over fill or waste materials (Figure 11). As the study area is heavily modified and contaminated due to past uses the impacts associated to soil and geology are primarily associated to the disturbance and poor management of soils. The Proposal has been designed to minimise excavation and soil disturbance. Minor soil disturbance will occur during the removal of the Cocos Palms and removal of the paving. Excavations required for the sewer main will be to a depth of 60 cm and will be contained within the capping or historic landfill levels of the site. An erosion and sediment control plan should be developed for the site to mitigate these activities. Acid Sulfate Soils are not mapped on the site (Figure 12). Based on previous analysis during contamination assessments (Edison, 2020), Potential Acid Sulfate Soils occur in natural sediments underlying fill at the site. No disturbance of these sediments will occur as a result of the Proposal.	☐ n/a ☒ Low ☐ Medium ☐ High
Priority Weeds	Mitigation measures outlined in Section 6 would allow the works to meet the objectives of the BS Act, which are to: • Prevent the establishment of new significant weeds • Restrict the spread of existing significant weeds	☐ n/a ☒ Low ☐ Medium ☐ High
Contamination	The site is located in extensively disturbed area and sits on an old land fill. The subject site has had a series of contamination related investigations undertaken and is subject to a Long-term Site Management Plan (LTSMP) (Edison, 2020). The site has also been subject to a Site Audit Statement (Enviroview, 2020). The LTSMP (Edison, 2020) identifies management measures that must be implemented in order to satisfy the objective of the LTSMP. The LTSMP management measures relevant to the proposal include: • Reduce leachate generation in the waste mass without affecting the rate of landfill-gas production and migration. Measures should be implemented to improve site stormwater drainage. • Ensure that adequate soil cover and grass cover are maintained to prevent potential human contact with buried waste material and impacted cover soils.	☐ n/a ☒ Low ☐ Medium ☐ High

Environmental Factor	Description	Negative Impact
	• Implement measures to monitor and manage potential landfill-gas (and associated trace compounds) accumulation in buildings and buried service conduits. • Implement a robust process for the management of maintenance and upgrade works to the site. • Implement a programme of ongoing environmental monitoring. Leachate impacts will be minimised by the repair and/or replacement of the existing stormwater measures on the building to direct and contain stormwater flow from the building. Soil cover will be maintained during construction with existing hardstand areas being used for the site compound. Where soil is exposed through the removal and replacement of the existing paving, mitigation measures to minimise contact with soils will be applied. Previous investigations within the subject site for soil vapour monitoring (Edison, 2021a) have been reviewed. Edison (2021a) determined that the building did not appear to be significantly impacted with Hazardous ground gases or VOCs. Works which may involve the penetration of the ground slabs should be considered to present an ignition/explosion risk. No works are proposed that will penetrate the ground slabs of the building. Works in and around the building will need to be undertaken in accordance with processes outlined in Section 7.5 of the LTSMP (Edison, 2020). Section 7.5 of the LTSMP requires a project specific risk assessment, s project-specific Work Health and Safety Plan, a Hot Works risk assessment and overview process all endorsed by the nominated CEnvP. These works will identify the risks and appropriate mitigation measures once excavations are fixed and defined. The same section of the LTSMP requires a structural engineer to ensure the integrity of the structure will be restored. The Remediation Action Plan (RAP) for the site has requested an engineered capping layer across the Area C. If this has been undertaken, the excavations are likely to be restricted to the capping layer. If the RAP has not been completed, the topsoil is not considered capping and ranges from 0.2 to 0.8m thick. No boreholes have been provided for the raise area around the clubhouse. The thickness of the topsoil layer is unknown in this area. The Project Site specific risk management plan will assess the unknowns, consider the excavation depths and work methods to manage the risk. Excavations for the installation of the sewer main are required across Area C. Excavations are expected to be up to a depth of 0.6 m. The LTSMP requires a Project Site specific risk management plan be developed to assess the unknowns, consider the excavation depths and work methods to manage the risk. The Site Audit Statement, completed by James Davis of Enviroview in August 2020 concludes that with the Long Term Site Management Plan (Edison, 2020) the site is suitable for use as a Park, recreational open space, playing field. Additional potential environmental impacts associated with the proposed works that relate to the risk of pollution of soil from	

Environmental Factor	Description	Negative Impact
	chemical spills (e.g. fuel or oil from machinery). Safeguards have been provided to address and mitigate impacts associated with the potential for chemical spills during construction.	
Waste and Hazardous Materials	A Report on Hazardous Materials has been undertaken by Edison for Bayside Council in 2020 (Edison, 2020). No asbestos has been found outside the building, however, prior to work commencement, the inside building (currently closed) must be checked for asbestos materials. Excavation required for the sewer main and installation of the field lighting may require the interception and excavation of the landfill waste. This work will require a project-specific risk assessment to be prepared and approved by the Council- nominated representative with input from the nominated Certified Environmental Practitioner prior to the excavation works. The PSRA and the management plan will be amended to the LTSMP. The management plan will include: • A clear definition of the works to be undertaken • Project-specific risk assessment • Isolation of the work areas by secure fencing and signage • Gas-monitoring programme during the works involving monitoring of combustible gas concentrations at multiple locations (in/adjacent to excavation, excavator cabin and points around the site) • Provisions for water management including seepage into excavations, run-off and rainwater management. Any waste-contact water is to be collected and disposed of off-site to an appropriately licenced liquid waste facility • Requirement that excavated waste materials that cannot be reinstated be lawfully disposed of off-site • Requirement that excavated waste materials be stockpiled on appropriate plastic or geofabric to prevent contamination of the site surface • Odour management measures including covering of materials and use of odour suppressants • Provision for supervision by an appropriately qualified environmental consultant • Requirement that cover soil and grass cover be reinstated at the conclusion of works. Given the excavations may disturb asbestos waste, all works are to be undertaken by an appropriately licenced asbestos remover. An asbestos management plan should be developed for the site as part of the project specific risk management plan. Any waste to be disposed of off-site will be appropriately classified using the *NSW EPA Waste Classification Guidelines.*	☐ n/a ☒ Low ☐ Medium ☐ High
Socio-Economic Consideration	Minimal disruption to the community will occur due to the restricted use of the facility. The proposed works will have a temporary, negative impact on the affected roads, the residents who use the road and footpaths regularly, as well as intermittent users, resulting from	☐ n/a ☒ Low ☐ Medium ☐ High

Environmental Factor	Description	Negative Impact
	traffic management delays and noise, air quality, and visual amenity impacts. Impact on pedestrian traffic can also occur, with potential of trip hazards as construction sites potentially have tripping hazards present in many forms such as power tool cords, protruding existing services pits, and scattered debris, equipment and materials (e.g., removed existing fence posts/sections) and uneven surface. The proposed works are likely to have a minor but long term positive socio-economic impact, with benefits resulting from the upgrade in the amenity block.	
Cumulative	Clause 171(2) of the EPA&A Regulations requires that cumulative impacts of the proposed works with other existing or planned future activities are considered. Given the small scale of works proposed, the current highly modified nature of the site and mitigation measures in Section 6, any environmental impacts are considered minor.	☐ n/a ☒ Low ☐ Medium ☐ High

4.1. Aboriginal Heritage

4.1.1. Existing Environment

The following section regarding Aboriginal heritage has been conducted in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (hereafter referred to as 'CoP') (DECCW 2010).

This due diligence process aims to determine whether Aboriginal objects will be harmed by the proposed works, as required under Part 6 of the NPW Act. The CoP sets out the reasonable and practicable steps which individuals and organisations need to take to:

- Identify whether or not Aboriginal objects are, or are likely to be, present in an area;
- Determine whether or not their activities are likely to harm Aboriginal objects (if present); and,
- Determine whether an Aboriginal Heritage Impact Permit (AHIP) from Heritage NSW or further assessment is required

The methodology of this Aboriginal heritage due diligence assessment included the following tasks:

- Undertake a search of the AHIMS register maintained by Heritage NSW to establish if there are any previously recorded Aboriginal objects or places within the study area;
- Undertake a search of the NSW State Heritage Inventory, the Australian Heritage Database and the Bayside Local Environmental Plan (LEP) 2021 Schedule 5 (Environmental Heritage) in order to determine if there are any sites of Aboriginal significance or sensitivity located within the study area.
- Undertake a desktop review of relevant previous archaeological assessments to understand the local archaeological context.

- Review historic aerial photographs to determine past last use and any historic disturbances to the study area and review landform features to assess whether there are likely to be areas of Aboriginal archaeological potential.
- Provide advice about whether Aboriginal objects or places are likely to exist within the study area and recommend mitigation measures.

Consultation with Aboriginal people was not undertaken as part of this assessment. The Local Aboriginal Land Council and other stakeholder groups can provide a cultural assessment for the area if required.

4.1.1.1. Heritage Database Search

Searches of the Australian Heritage Database, the Bayside Council LEP 2021 and the State Heritage Inventory were conducted on the 23rd of April 2024 to determine if any places of archaeological significance are located within the study area.

No Aboriginal archaeological sites or heritage items were recorded on these databases as being within the study area.

4.1.1.2. AHIMS Search

An extensive search of the AHIMS database, which is maintained by Heritage NSW and regulated under Section 90Q of the NPW Act, was conducted on the 23rd of April 2024 to identify if any registered Aboriginal sites were present within, or adjacent to, the study area (Appendix C). The AHIMS search represents 5km around the study area and was conducted within the following coordinates: GDA Zone 56, Eastings 324691, Northings 6237661. The search resulted in the identification of 29 Aboriginal sites within the vicinity of the study area (Figure 13).

No Aboriginal sites have previously been recorded within the study area.

4.1.1.3. Ethnographic Context

Aboriginal people have occupied Australia for at least 40,000 years (Attenbrow 2010). The earliest calibrated date for an occupation site within the eastern coastal strip of the Sydney Basin is 10,700 BP at Discovery Point, indicating Aboriginal people have occupied the Sydney Basin Region for at least 10,000 years (JMcD CHM 2005). Whilst ethnographic records and oral histories can inform our understanding of the traditional Aboriginal groups that occupied various regions in Australia, this knowledge is often hindered by the ethnocentric bias of early settlers and therefore may not always be entirely accurate.

When the British First Fleet arrived in 1788, the Sydney region was home to numerous Aboriginal communities that had been living there for thousands of years. Current estimates suggest there may have been 3000-5000 Aboriginal people living in the Sydney region at that time. Captain Cook and later British colonists recorded some of their language and place names, observed and recorded their observations regarding the Aboriginal communities, including their physical appearance, tools, clothing, camps and shelters, diet, their ceremonies, and their items of material culture. In addition, many artists recorded individuals and the activities of groups of people. As the British colony expanded, Aboriginal populations were pushed out of their country leading to a loss of traditional ways of life (Attenbrow 2010).

The study area is part of the traditional lands occupied by the Kameygal or Gameygal who were so called for their close proximity to Botany Bay which is known as Kamay (Attenbrow 2010). Other readings suggest the area may have been occupied by the Bideegal/ Bidjigal or Bediagal people who Watkin Tench described as a group living on the peninsula at the head of Botany Bay and chiefly on the north arm near the Cooks River (Mulvaney and White 1987). The Bidjigal are a coastal clan and thrived off the natural resources provided by the ocean and harbour, such as fish, shellfish, animals and plants. The Cooks River was an important waterway to the Bidjigal, and evidence of its long-term use by Aboriginal communities stretches back at least 4,500 years (Irish 2017). The Cooks River landscape has a strong spiritual significance to the Bidjigal, with ceremonial and burial places evident along the Cooks River (Irish 2017). The proximity of Bidjigal lands to Botany Bay meant the Bidjigal were among the first Aboriginal clans to experience the devastating impacts of European invasion on local populations, culture and knowledge.

4.1.1.4. Previous Archaeological Assessments

AECOM, 2018. *F6 Extension Stage 1 from New M5 Motorway at Arncliffe to President Avenue at Kogarah*. Prepared for TransportNSW.

This report was prepared by AECOM for the NSW Roads and Maritime Services to assess the potential cumulative impacts to Aboriginal heritage associated with the construction of the F6 Extension Stage 1. The underground tunnel section of the new M5 motorway starts 600 m north of the study area and continues southwards.

An initial desktop assessment identified 63 sites stretching across southern Sydney from Marrickville to Sylvania in the south; none of these sites fall within a 1km radius of the study area. The most common sites were rock shelters, accounting for 35% of the identified sites. Middens were also widespread, accounting for a further 30% of sites. Other sites included burials, art sites, artefact scatters, Potential Archaeological Deposits (PADs) and resource gathering sites. Given the highly developed nature of the area, possible areas of low disturbance such as golf courses and parks were identified for further inspection. Pedestrian assessment and consultation with the community assessed these areas as having low archaeological potential and determined no Aboriginal cultural heritage would be impacted by the proposed motorway extension.

AECOM, 2015. WestConnex New M5 Aboriginal Heritage Technical Working Paper. Prepared for NSW Roads and Maritime Services.

AECOM were engaged by the NSW Roads and Maritime Services to develop an Aboriginal heritage technical paper for the New M5 stage of WestConnex. The M5 development footprint is, at its closest point, 500 m from the study area. A search of the AHIMS database identified 17 registered sites in the vicinity of the M5 project area. This included 11 rock shelters, three artefact sites, two middens and one PAD. A site survey was then conducted, in which five sandstone overhangs were identified as PADs and were, as a precautionary measure, registered with AHIMS.

No sites were proposed to be impacted by the construction works. One site, SR-OVRH-1, was located within the vibration zone of tunnel blasting activities and as such, it was agreed that blasting in that area would be minimised to ensure vibrations would not impact the area.

Jo McDonald Cultural Heritage Management, 2011. *Aboriginal Heritage Assessment – Discovery Point Stage 1: Project Application.* Prepared for Discovery Point Pty Ltd.

Jo McDonald Cultural Heritage Management were engaged by Discovery Point Pty Ltd to develop an Aboriginal Heritage Assessment for the Discovery Point Precinct. The site is 1.5 km from the study area and has previously been subject to several Aboriginal heritage studies (JMcD CHM 2000, 2005a, 2006). Geotechnical and previous archaeological excavations in 2004 demonstrated high levels of disturbance, however Aboriginal objects on part of this site have been dated to 10,700 BP (years before present). This is the earliest date for an occupation site in the eastern coastal strip of the Sydney Basin and a rare example of Aboriginal occupation in an estuarine landscape throughout the Holocene (JMcD CHM 2005a). This site remains in the Tempe House SHR Conservation Precinct close to the Princess Highway and approximately 60 m to the Cooks River. The assessment found that despite being subjected to high levels of disturbance, the site retained high archaeological significance and represented an intact archaeological feature, with evidence of several low intensity periods of occupation.

4.1.2. Landscape Assessment

The due diligence Code of Practice as set out in the Office of Environment and Heritage's *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010) states that archaeologically sensitive landscapes can include areas:

- within 200 m of waters, or
- located within a sand dune system, or
- located on a ridge top, ridge line or headland, or
- located within 200 m below or above a cliff face, or
- within 20 m of or in a cave, rock shelter, or a cave mouth and is on land that is not disturbed land

The Due Diligence Code of Practice (DECCW 2010a:18) defines disturbed land as areas that have any land that:

"Has been the subject of a human activity that has changed the land's surface, being changes that remain clear and observable. Examples include ploughing, construction of rural infrastructure (such as dams and fences), construction of roads, trails and tracks (including fire trails and tracks and walking tracks), clearing vegetation, construction of buildings and the erection of other structures, construction or installation of utilities and other similar services (such as above or below ground electrical infrastructure, water or sewerage pipelines, stormwater drainage and other similar infrastructure) and construction of earthworks" (DECCW 2010).

The soil landscape profile has been classified as "Disturbed Terrain", predominately characterised by artificial fill, dredged estuarine sand and mud, as well as demolition rubble, household and industrial waste.

4.1.3. Impact Assessment and Mitigation Measures

A visual inspection has not been undertaken as part of this assessment. The desktop assessment has determined there are no previously recorded Aboriginal sites within or adjacent to the study area (Figure 13) and the proposed works will not impact upon any known Aboriginal sites or objects. The study area has previously been highly modified by land clearance, historic land use as a sewerage farm and more

recently due to the reclamation works to extent the Sydney International Airport. The works will be undertaken within the existing areas of disturbance, indicating there is a low potential for intact subsurface archaeological deposits to be impacted by the proposed works.

As such, works can proceed with caution and no further investigation is required. A standard unexpected finds policy should be implemented as a mitigation measure (Table 1).

Table 1: Mitigation Measures for Aboriginal Heritage

Potential Impact	Mitigation Measures
Discovery of unexpected Aboriginal objects	• Brief all contractors undertaking works on site on the protection of Aboriginal heritage objects under the NPW Act, and the penalties for damage to these items. • If an item (or suspected item) of Aboriginal heritage significance is discovered, cease works in the immediate vicinity of the find and fence off the area with suitable markers (star pickets, flagging or barrier mesh). Notify the project manager and engage an archaeologist to assess the finds. If they are found to be Aboriginal objects, Heritage NSW must be notified under Section 89A of the NPW, and appropriate management sought. Depending on the proposed works in relation to the finds, further assessment and an AHIP may be required. Works may not recommence unless council has provided written approval to do so.
Discovery of human remains	• Stop work if human remains are found and contact NSW Police. If remains are suspected to be Aboriginal, Heritage NSW must be notified as well.

4.2. Historical Heritage

4.2.1. Existing Environment

4.2.1.1. Arncliffe and surrounding area

The suburb of Arncliffe has undergone drastic changes since blueprints for the original town of Wincanton were put forward in 1861. Originally proposed by Rueben Hannam as the town of Wincanton, the area instead adopted the name Arncliffe (Saunders 1967). By the 1880s, Arncliffe was a well-known village on the fringe of Sydney town and the towns proximity to Wolli Creek, Muddy Creek and the Cooks River provided a reliable water supply and supported localised agricultural practices, such as market gardening, dairy farming and fruit orchards (Saunders 1967).

4.2.1.2. The Study Area

The study area comprises two lands plots originally granted to Benjamin Eve and W.G Massingham. By 1890, the land was resumed by the government for the "purposes of sewerage to the western suburbs" (Parish Map of St George 1886). This coincided with the construction of the Botany Sewerage Farm on land immediately to the east, which had been previously resumed by the government in 1882. Between 1895 and 1899, the Southern and Western Suburbs Ocean Outfall Sewer (SWOOS) was constructed for the disposal of sewage from much of Southern Sydney (Sydney Water 2020). It stretched from Marrickville to Rockdale. The sewage from this system flowed to a sewage farm located at present-day Barton Park (Figure 14) (Sydney Water 2020). Sewerage works were operational until 1916 when the farm was shut down.

Early historical aerial imagery from 1947 shows the study area prior to the rerouting of the Cooks River for the extension of Sydney International Airport (Figure 15). The SWOOS can be seen in the north, and the study area can be seen as converted from mangroves to disturbed land. Historical articles from the St George Call (Kogarah) in 1931 record the decision by Alderman Barton to convert the study area and its surrounds into "*Barton Park, under the scheme of this council, with 25 cricket pitches".* These pitches can be seen in Figure 15. In the decades between 1931 and the gazetting of Barton Park in 1977, the area was subjected to major earthworks related to reclamation and the rerouting of the Cooks River (Figure 16).

4.2.1.3. Local, State, and Heritage Registers

Searches of the Australian Heritage Database, the Bayside LEP 2021 and the State Heritage Inventory were undertaken on the 18th of April 2024 to determine if any places of historic archaeological significance were located within the study area or its vicinity.

No heritage items were listed as being within the study area. Five (5) local heritage items, two (2) of which are also listed on the State Heritage Register, were identified as being within the 500 m of the study area (Figure 17). The heritage significance of these items is discussed in Table 4 below.

Table 2: Heritage Items within the vicinity of the study area

Heritage item	Listing	Address / distance from study area	Significance
Federation Cottage	Bayside LEP 2021 Item No. 12	115 m north-west of the study area	Local
Former hospital for women	Bayside LEP Item No. 151	215 m north-west of the study area	Local
Arncliffe Market Garden	Bayside LEP 2021 Item No. 172 State Heritage Register Item No. 01395	470 m south-west of the study area	Local State
Kyeemagh Market Gardens	Bayside LEP Item No. 1259 State Heritage Register Item No. 01393	520 m south of the study area	Local State
Western Outfall Main Sewer	Bayside LEP Item No. 132	150 m north of the study area	Local

Table 3: Heritage Significance of heritage items within the vicinity of the study area

Item Name	Statement of Significance
'Federation Cottage' LEP Item No. 12	The house originally called Deeside, at 9 Brennans Road, Arncliffe, is historically significant as part of the development of commuter suburbs in the Rockdale area. The house is aesthetically significant as a large late Federation detached cottage built in the Rockdale area that makes a significant contribution to the streetscape of Brennans Road.
'Former Hospital for Women' LEP No. 151	The house, once named "Maryville", is historically significant as part of the development of the settlement of West Botany which began to consolidate at the end of the nineteenth

Item Name	Statement of Significance
	century. It is a single storey Victorian dwelling, the only remaining from a group of similar Victorian dwellings fronting West Botany Street, contributing to the history and character of the street, and representative of its former use as a place associated with women's health and its association with Nurse Pryor.
'Arncliffe Market Gardens' Bayside LEP Item No. 172; SHR Listing No. 01395	The West Botany Street Market Gardens are of high significance for their association with the Chinese community and their demonstration of a continuous pattern of land usage since the late nineteenth century. They are one of only three such surviving market gardens in the Inner Sydney region and one of few similar surviving examples in the Sydney Metropolitan Region. The Market Gardens are of State significance as one of only three surviving operational market gardens in the Sydney metropolitan region in largely their original form and still employing traditional cultivation practices. The site is of significance for its association with the Chinese, German, Irish and Cornish communities and for its demonstration of a continuing pattern of land usage since the mid-19th century. The site is of further significance as containing the only surviving 19th century market gardener's packing shed in the Sydney metropolitan region. The site has some significance through its relationship with the adjoining wetlands and as the former home of the Gweagal people who occupied the site prior to European settlement.
'Kyeemagh Market Gardens' SHR Listing No. 01393; LEP Item No. 01393	The Kyeemagh Market Gardens are of high significance for their association with the Chinese community and their demonstration of a continuing pattern of land use from the late nineteenth century to the present. Market gardens such as these were once typical in the Rockdale Municipality but are now becoming increasingly rare. The site has some significance through its relationship with the adjoining wetlands and as the former home of the Gweagal people who occupied the site prior to European settlement. The Occupation Road Market Gardens are of State significance as one of only five surviving market gardens in the Sydney metropolitan region, in largely their original form and still employing traditional cultivation practices. The site is of significance for its association with the Chinese, German, Irish and Cornish communities and for its demonstration of a continuing pattern of land usage since the mid-19th century. The site is of further significance as containing three of five surviving 19th century market gardener's cottages in the Sydney metropolitan region and the only such cottages still attached to working market gardens. The Occupation Road market gardens are of sufficient scale and bordered by undeveloped lands to provide vistas of market gardening activity of high integrity with few visual intrusions to compromise a picture that has existed for 150 years. The effect is heightened by other sensory stimulation such as the aroma of fresh cut herbs, fertiliser and farm noises. The patterning of four lots, with major plots, and subsidiary beds divided by a hierarchy of drainage channels provides a strong visual landscape. The patterning at various scales and the mosaic of alternating crops results in both a pleasing effect and demonstration of the process of market gardening. The current use of the place is consistent with its significance and contributing to the continuity of use of the property. The scale of the property, the working largely by hand, the 'making do' and recycling of fabric and general air of under-resourced functionality are essential aspects of the property's significance. Modern intrusions, notably motor cars and electricity are acceptable changes that have been adopted as opportunity has risen. The Occupation Road Market Garden has some local significance for its associations, notably -Irish and Cornish market gardeners in the mid-19th century - William Goode, the first owner to also work as a market gardener and reside on the site. Goode is likely to have been responsible for erecting at least the cottages on the site - Hop Lee, Sun On Lee and Sun Shing Wah Chinese market gardeners of the early 20th century

Item Name	Statement of Significance
	- the Tasker family, who owned and operated Lots 2,3 & 4 from 1932 until 1968. The Tasker family were amongst the last German immigrants to take up market gardening in the Rockdale area - John Stirling, who purchased the gardens in 1846 and continued to operate them until 1851 - The Metropolitan Sewerage, Drainage Board, who continued to operate the gardens throughout the 1930s and 1940s, as part of the final stages of operation of the Botany-Rockdale sewage farm.
'Western Outfall Main Sewer' SHR Listing No. 01647	The Valda Avenue, Arncliffe to SWSOOS Merging Chamber section of the original Western Outfall Main Sewer is of historical and technical significance. Historically, it is an original section of one of Sydney's oldest main sewers, built in the 1890s to end the discharge of sewage into Sydney Harbour. Its flow originally terminated at the former Botany Sewage Farm (which was one of only two known large scale sewage farms built in Australia during the 19th century), with which it has close temporal and locational associations. Technically, the three brick barrels, which are encased in concrete, are an excellent example of the oviform brick construction method of the time, which have provided continuous service for over 100 years.

4.2.2. Impact Assessment and Mitigation Measures

There are no heritage items within the study area. Five (5) heritage items are located within 500m of the study area (Figure 17). The proposed works are considered minor and are consistent with the current land use as a place of recreation. The proposed works are consistent with the protection of the heritage item's significant values for the following reasons:

- The proposed works are concerned with the renovations of the Riverine Park clubhouse, as well as lighting installation.
- The study area is located at least 100 metres away from the curtilage of any of the heritage items and is not considered to maintain heritage significance or archaeological potential in itself.
- As a result of the proposed works, no significant structures will be obscured or impacted, no views will be changed, no significant fabric will be removed or impacted, and archaeological material is unlikely to occur in this location due to the large-scale earthworks associated with reclamation.
- The proposed works are consistent with maintaining the attributes of the adjacent heritage items and their Local/State heritage values. The heritage values of these sites are largely associated with their aesthetic contributions to the streetscape, or their representative value (the Market Gardens and Sewerage Pipe).

The proposed works will not have any direct (physical) or indirect (visual) impacts on the significance of the listed heritage items. No further assessment will be required.

Table 3 Mitigation measures for historic heritage

Potential Impacts	Mitigation Measures
Impacts to Heritage items	Brief all contractors regarding their obligations under the Heritage Act for unexpected finds. • Should any unexpected historical archaeology be uncovered during any future excavation works, adhere to the following procedure:

Potential Impacts	Mitigation Measures
	○ Stop all work in the immediate area of the item and notify the Project Manager. ○ Establish a 'no-go zone' around the item. Use high visibility fencing, where practical. Inform all site personnel about the no-go zone. ○ No work is to be undertaken within this zone until further investigations are completed. ○ Engage a suitably qualified and experienced Archaeologist to assess the finds. ○ Notify the Heritage Council if the finds are of local or state significance. Additional approvals will be required before works can recommence on site (s146 permit).

5. Clause 171 Consideration

In accordance with Part 5 of the EP&A Act the factors cited in Section 171 (2) of the *Environmental Planning and Assessment Regulation 2021* have been considered as follows:

Clause 171 EP&A Regulation	REF findings
Factor A: the environmental impact on a community	There are not expected to be any adverse environmental impacts on the community. Noise and other impacts associated with the demolition and construction works would be temporary and mitigation measures have been provided in Section 6. Council would notify adjacent residential houses prior to works commencing and only conduct works within standard working hours in accordance with mitigation measures outlined in this REF. Traffic management measures will be implemented during works to ensure minimal disruption to local traffic. The proposed works will result in a positive impact on the community through providing a safe and usable public open space and recreational facility
Factor B: the transformation of a locality	The site is highly modified. No significant transformation of locality is likely as part of the works. The proposed works involve the upgrade of an outdated building in an area which has previously been modified for safety issues. Vegetation removal will be minimised where possible. The works undertaken will only affect the visual and functional transformation of the locality temporarily during construction.
Factor C: the environmental impact on the ecosystems of the locality	The impact on the ecosystem is likely to be minimal due to the highly disturbed area. A maximum of seven trees will be removed as part of the proposal. The impacts will be limited to the footprint of the works. Due to the highly disturbed area and the proximity to the wetlands, it is unlikely for threatened species to use the planted vegetation as habitat due to the busy area. Impacts on ecosystems are anticipated to be non-significant if the recommended measures outlined in Section 6 are followed.
Factor D: reduction of the aesthetic, recreational, scientific, or other environmental quality or value of the locality	Temporary changes in aesthetics and amenity are expected during the construction with the upgrade of the Amenity block. The works will likely restrict access to the areas of the block impacted during construction. Visual impacts may include fencing and signage. The works involve the demolition of outdated buildings and construction of recreational facilities in an area that has predominantly been previously modified. Impacts on threatened ecological communities and species have been considered and mitigated. Therefore, temporary impacts to aesthetic values would be confined to construction and would be short term. No substantial long-term impacts to the environment are anticipated.
Factor E: effects on a locality, place or building that has – a) aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance, or b) other special value for present or future generations	The works will not have a significant impact on areas of aesthetic, anthropological, archaeological, architectural, cultural, historic, scientific, or social significance. No other special value for present or future generations has been identified. Construction works may have a temporary reduction of the aesthetic values of the locality, however once works are completed, the aesthetic values of the locality would be restored. The proposed works will not affect any known historical or Aboriginal objects, provided the recommended mitigation measures are implemented.

Clause 171 EP&A Regulation	REF findings
Factor F: the impact on the habitat of protected animals, within the meaning of the *Biodiversity Conservation Act 2016*	The proposed works will occur within an already disturbed area, the building may serve as bat habitat, however, construction will only happen after an ecologist surveyed the area. Whilst the proposal is unlikely to impact threatened fauna, all native mammals, birds, reptiles and amphibians and many species of native plants are protected in NSW, even if they are not threatened species (BC Act and Schedules 5 and 6 of the BC Regulation). As such mitigation measures should be implemented in accordance with Section 6. The impact assessment on threatened fauna has been addressed and mitigated. The impact, if any, will not be significant. In addition, the impact resulting from the loss of general fauna habitat as a result of vegetation disturbance is not likely to result in the loss or reduction in the viability of more common fauna species.
Factor G: the endangering of a species of animal, plant, or other form of life, whether living on land, in water or in the air	As part of the works two palm trees have been identified for removal. These trees are not classified as threatened at either state or commonwealth level, moreover, the removal of the trees is related to safety concerns. The trees do have the potential to provide habitat for animals. Mitigation measures to avoid and minimise the impact from the removal of these trees are outlined in Section 6. Further, Riverine Park is not mapped as Key Fish Habitat (KFH) by NSW Fisheries. Sediment controls and mitigation measures outlined in Section 6 would prevent indirect impacts by the works. No permit requirements for this work are required under the FM Act.
Factor H: long-term effects on the environment	The Proposal will not result in long-term impact if mitigation procedures are followed. Maintenance following the completion of the works will be infrequent. The works will have a long-term positive impact on the community through providing a safe and usable recreational facility. Moreover, the Proposal will not affect key fish habitats, with the disturbance footprint comprising of the existing building and trees in close proximity. Disturbance is not expected to reach the creeks.
Factor I: degradation of the quality of the environment,	No significant impacts to the quality of the environment were found. No degradation to the quality of the environment should occur if mitigation measures are adhered to.
Factor J: risk to the safety of the environment,	A low risk to the environment is associated with the works. Potential for contamination is possible if the relevant management plans and mitigation measures are not adhered to. There is a small potential for sedimentation from stockpiles during construction of the works. The risk to the environment is considered minimal if the prescribed mitigation measures are adopted
Factor K: reduction in the range of beneficial uses of the environment,	No reduction in the range of beneficial uses of the environment will result as part of the works. The works will not limit or modify any uses of the environment.
Factor L: pollution of the environment,	No pollution of the environment is proposed or likely. The risk is minimal if the appropriate mitigation measures are followed.
Factor M: environmental problems associated with the disposal of waste	Waste will be classified in accordance with the NSW EPA Waste classification guidelines. Where possible, reuse of waste, on site or off site will be considered in accordance with the *Waste Avoidance and Resource Recovery Act 2001* (WARR Act). As a last resort, would be taken offsite and disposed of at a suitably licensed facility. With mitigation measures, the risks are minimal and mitigation measures have been recommended in Section 6. All waste is to be taken offsite and disposed of appropriately or as stipulated in the relevant remediation plan.
Factor N: environmental problems associated with the disposal of waste	No resources that would be used as part of these works are, or likely to become, in short supply because common products would be used.

Clause 171 EP&A Regulation	REF findings
Factor O: the cumulative environmental effect with other existing or likely future activities,	Minimal cumulative environmental effect is likely as a result of the works.
Factor P: the impact on coastal processes and coastal hazards, including those under projected climate change conditions,	There are no impacts on coastal processes or hazards that will result as part of the works.
Factor Q: applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1	The proposed works are in accordance with the Bayside West Precinct Plan 2018 and the Bayside Community Strategic Plan 2018-2030.
Factor R: other relevant environmental factors	The works are minor in nature and considered thoroughly in this REF.

6. Safeguards

Category	Measures
Noise	• Develop a noise mitigation plan that also specifically considers the impact of any noise on adjoining properties outside of the hours specified in Section 2 works. • Consider scheduling noisy activities for the least sensitive times of the day such as mid-morning or mid-afternoon. • Vehicles and machinery should not be left idling when not in use. • Equipment, machinery and vehicles should be regularly maintained (documented). • All machinery and equipment to be used will comply with the relevant Australian standard for noise attenuation (e.g., have noise mufflers and be well maintained). • Well planned site layout to ensure where practical that noisy plant and machinery and overnight parking locations are located away from nearby residences with reversing also minimised in these locations. • Organise earthmoving and ground impacting operations so as not to occur in the same time period. • Community consultation and notification is undertaken for potentially noise and vibration affected residences detailing timing of noisy activities. • Mechanism to provide noise complaints using signage and usage of a complaints register with relevant triggers for noise monitoring if required. • Where possible, avoid the simultaneous operation of two or more noisy plant items in close vicinity to sensitive noise receivers. • Where possible, orientate equipment such that offensive noise carries away from potential receivers. • Works to only take place between Monday to Friday 7:00 am to 6:00 pm and 8:00 am – 1:00 pm on Saturdays. • Engines and equipment used intermittently are to be throttled or shut down when not required. • Avoid the use of radios or stereos outdoors where neighbours can be affected. • Avoid shouting and minimise talking loudly and slamming vehicle doors. • Keep truck drivers informed of designated vehicle routes, parking locations, acceptable delivery hours or other relevant practices (for example, minimising the use of engine brakes, and no extended periods of engine idling). • Provide information to neighbours before and during construction through media such as letterbox drops, meetings or individual contact. In some areas, the proponent will need to provide notification in languages other than English. A website could also be established for the Proposal to provide information. Neighbouring residents are to be notified before works commence and if there are to be any significant noise impacts or noise anticipated outside the proposed work hours. • Use alternatives to diesel and petrol engines and pneumatic units, such as hydraulic or electric controlled units where feasible and reasonable. Where there is no electricity supply, use an electrical generator located away from residences. • Examine different types of machines that perform the same function and compare the noise level data to select the least noisy machine. For example, rubber-wheeled tractors can be less noisy than steel tracked tractors. • Operate plants in a quiet and efficient manner. • Regularly inspect and maintain equipment to ensure it is in good working order including mufflers. • Place as much distance as possible between the plant or equipment and residences and other sensitive land uses.

Category	Measures
	• Restrict areas in which mobile plant can operate so that it is away from residences and other sensitive land uses at particular times. • In all circumstances, the requirements of the relevant Occupational Health and Safety legislation must be complied with. For information on replacing audible warning alarms on a mobile plant with less annoying alternatives. • Use temporary site buildings and materials stockpiles as noise barriers. • Schedule deliveries to nominated hours only. • Reduce the line-of-sight noise transmission to residences or other sensitive land uses using temporary barriers. • Implement all feasible and reasonable measures to address the source of the complaint.
Air	• Works must be stopped during high wind periods. • Employ dust suppression techniques if conditions are dry or windy and there is dust emitting from excavation areas. • Engines and equipment must be regularly inspected to ascertain that fitted emission controls are operating efficiently. • Engines and equipment must be maintained in accordance with manufacturer's specifications to ensure that it is in a proper and efficient condition. • Cover all loads when transporting material on or off the study area. • Cover all stockpiles and locate where protected from the wind. • Areas of impact to be stripped progressively and only where it is necessary for works to occur. • Do not have engines or equipment running while not in use. • Minimise use of machinery to required activity only. • Areas of completed earthworks shall be progressively rehabilitated and fenced off as soon as practicable to prevent further erosion. • Do not have engines or equipment running while not in use. • Minimise site movements. • Locate stockpiles away from sensitive receptors where possible. • Cover or water stockpiles that are not used for extended periods and keep moist to minimise transmission of dust. • Erect shade cloth surrounding excavation works to suppress dust • Rehabilitate construction sites following completion of the works. • On site burning of any kind is not permitted
Visual	• During the work period, the site should be maintained in a neat and tidy condition. • Site no-go zones should be visually cordoned off to prevent accidental access. • Ensure all access restrictions are removed following construction. • Ensure the extension is sympathetic to the existing amenities building with similar roof lines, awnings and materials used. • Contain all work within the boundaries designated on the design plans.
Traffic	• During works, the site will be secured by temporary fencing and signage to prevent unauthorised access. • Position vehicles, materials and equipment to minimise impacts to public access and parking. • Traffic Management Plan will be developed and implemented prior to the commencement of any construction works to ensure that traffic disruptions are mitigated, designated entry and exit points, the best routes for heavy vehicles to access site, signage showing site entry (including a contact method for the site supervisor), a traffic controller when required, and community notification of detours and closures through signage. • Maintain a complaint register as part of the Traffic Management Plan. • If road closures required, undertake consultation, in accordance with Section 138 of the Roads Act, with TfNSW on classified Roads. • Notify nearby businesses and sensitive receivers and give opportunity to comment on temporary road closures prior to commencement of construction.

Category	Measures
	• Undertake early community engagement, early notification / advertisement of construction period through both local and regional channels to avoid traffic delays. • Consultation with residents regarding access, closures and work scheduling prior to works commencing.

Flora/Fauna	• Follow the Riverine Park Precinct- Green and Golden Bell Frog Management Plan (ELA, 2024)
	• Prior to trees removal, an arborist report should be prepared.
	• Replacement planting of more appropriate species such as *Livistona australis, Washingtonia robusta* or *Wodyetia bifucata* is required.
	• Prior to vegetation removal, suitably qualified ecologist conducts a pre-clearance survey to identify any key habitat features or the presence of any fauna within buildings and surroundings to recognise if bats or other fauna are present and determine whether a Microbat Management Plan is required to exclude them. Clearing of the vegetation will be required to be undertaken within one month of the pre-clearance survey.
	• Works should not start until September to allow bats to wake up and re-locate if present.
	• A suitably qualified ecologist will be required to supervise the clearance of any vegetation containing habitat features and relocate inhabiting fauna. The ecologist will direct staff on the safest methods for clearance to minimise the risk the injury or mortality of fauna. The ecologist will be responsible for relocating fauna to suitable retained habitat on site, or if injured to a veterinary clinic or wildlife carer (e.g., WIRES).
	• Prior to demolition of the interior of the clubhouse, an ecologist conducts a pre-clearance survey to determine the presence of bats roosting in the amenities building.
	• Associated earthworks should not occur during periods of extreme rainfall to minimise sedimentation and erosion affecting the adjacent GGBF habitat.
	• Council staff are to undertake a pre-works briefing advising of sensitive areas and relevant safeguards for these areas.
	• Works must be stopped if any previously undiscovered threatened species or communities are discovered during works. An assessment of the impact and any required approvals must be obtained. Works must not recommence until Council has provided written approval to do so.
	• Ensure the site-specific CEMP includes instructions for dealing with orphaned or injured native animals and ensure the CEMP includes the contact details for the NSW Wildlife Information, Rescue and Education Service Inc (WIRES).
	• Remove priority weeds using best management practices (including appropriate controls to prevent impacts to threatened species) prior to removal of native vegetation. Remove weed propagules offsite.
	• Bag and remove all weed propagules offsite, preferably the same day and dispose of at designated green waste facility.
	• Adhere to the Arrive Clean, Leave Clean guidelines (DotE, 2015) at all times (https://www.environment.gov.au/system/files/resources/773abcad-39a8-469f-8d97-23e359576db6/files/arrive-clean-leave-clean.pdf). Especially:
	  ○ Wash down equipment and vehicles prior to entering the site, to manage the introduction and spread of pathogens. Pay particular attention to cleaning mud flaps and tyres.
	  ○ Thoroughly clean all equipment of soil and vegetation debris prior to entry into the site.
	  ○ Use a solution of 70% ethanol or methylated spirits in 30% water for wash down and equipment cleaning to effectively disinfect areas.
	  ○ Wash down on a hard, well-drained surface, for example a road, and on ramps if possible.
	  ○ Machinery and equipment must also be cleaned when leaving site.
	• Wash down protocols are required to control multiple impacts including, pathogens, weeds and contaminated soils. The CEMP should develop a single wash down process that addresses the requirements of all three potential environmental impacts.

Aboriginal Heritage	• Brief all contractors undertaking works on site on the protection of Aboriginal heritage objects under the NPW Act, and the penalties for damage to these items.

Category	Measures
	• If an item (or suspected item) of Aboriginal heritage significance is discovered, cease works in the immediate vicinity of the find and fence off the area with suitable markers (star pickets, flagging or barrier mesh). Notify the project manager and engage an archaeologist to assess the finds. If they are found to be Aboriginal objects, Heritage NSW must be notified under Section 89A of the NPW, and appropriate management sought. Depending on the proposed works in relation to the finds, further assessment and an AHIP may be required. Works may not recommence unless council has provided written approval to do so. • Stop work if human remains are found and contact NSW Police. If remains are suspected to be Aboriginal, Heritage NSW must be notified as well.
Historic Heritage	• Should any unexpected historical archaeology be uncovered during any future excavation works, adhere to the following procedure: o Stop all work in the immediate area of the item and notify the Project Manager. o Establish a 'no-go zone' around the item. Use high visibility fencing, where practical. Inform all site personnel about the no-go zone. o No work is to be undertaken within this zone until further investigations are completed. o Engage a suitably qualified and experienced Archaeologist to assess the finds. o Notify the Heritage Council if the finds are of local or state significance. Additional approvals will be required before works can recommence on site (s146 permit).
Soil and Erosion	• Prepare a CEMP prior to any construction works to address measures to be adopted to minimise impacts on the environment as a result of the construction works, including sediment erosion and sedimentation. • Prepare a Sediment and Erosion Control Plan • Install soil and erosion control measures such as sediment fencing prior to on-ground works. • Inspect soil and erosion controls regularly (weekly), and more frequently during rain periods to ensure structures are in proper working order. • Prior to forecast heavy rain, cease work and remove accumulated material from sediment controls. • Schedule the major drainage and earthworks outside of predicted heavy rain periods. • Stop work during and following heavy rainfall to reduce risk of mobilising sediment. • Inspect erosion controls regularly (daily during workdays) and after rainfall. Fix damaged controls immediately. Remove accumulated sediment or waste material from the sediment controls regularly and dispose of at a licensed waste facility. • Bare areas should be mulched, using on-site native vegetation if removed, following clearance works to prevent erosion or soil damage. Alternatively, erosion prone areas, when not in use, may be covered with biodegradable weed matting or similar product. • Monitor sedimentation down slope of excavated areas. • Leave erosion and sediment controls in place until after the works are completed. • Utilise piled foundations that will not bring natural sediments to the surface. • Do not undertaken any activities that involve the extraction of groundwater. • Do not excavate natural sediments. • Treatment of disturbed soils. • Develop and implement a Potential Acid Sulfate Soil (PASS) Management Plan for the works as part of the CEMP.
Contamination	• An unexpected finds protocol should be made for the site and included in the Construction Environmental Management plan outlining the reporting process for contaminated soils, wastes or other materials found on site. • Store all chemicals (e.g. fuel, oil) in appropriate bunding/storage systems within the approved storage facility. • Ensure appropriate spill kits are carried with the equipment. • All hazardous material to be disposed of at a licenced waste facility.

Category	Measures

	• Contractor should sweep site prior to commencement inspection for syringes etc. Unexpected finds protocol should be in place and adhered to.
	• Undertake a project-specific risk assessment and seek input from the nominated CEnvP prior to the implementation and commencement of the works.
	• Undertake a gas-monitoring programme during the works as per the LTSMP.
	• Ensure that water management provisions include seepage, run-off and rainwater management. Any waste-contact water is to be collected and disposed of off-site to an appropriately licenced liquid waste facility.
	• Ensure that any excavated waste materials are lawfully disposed of off-site.
	• Ensure that excavated waste materials are stockpiled on appropriate plastic or geo-fabric to prevent contamination of the site surface.
	• Odour management measures are implemented including covering materials and use of odour suppressants.
	• Provision for supervision by an appropriately qualified environmental consultant specialising in contaminated site.
	• Ensure no soil remains exposed at the conclusion of the works.
	• Ensure no damage to pavements and floors slabs. Any works that may breach floors or walls of buildings should be reviewed by an appropriately qualified structural engineer to ensure the design maintains the integrity of the structure.
	• Develop a project-specific work health and safety plan to be endorsed by the nominated CEnvP which limits the potential for exposure to the contaminants which may be present in soils, fill, groundwater and vapour.
	• Any spark producing activity or any naked flame use is considered hot works and must have a detailed project-specific safety plan prepared for this work to be approved by council.
	• Ensure that the proposal and its safety measures are added to the LTSMP.
	• Develop a Project Specific risk management plan and project specific work health and safety plan that includes:
	  ○ A clear definition of the works to be undertaken
	  ○ Project-specific risk assessment
	  ○ Isolation of the work areas by secure fencing and signage
	  ○ Gas-monitoring programme during the works involving monitoring of combustible gas concentrations at multiple locations (in/adjacent to excavation, excavator cabin and points around the site)
	  ○ Provisions for water management including seepage into excavations, run-off and rainwater management. Any waste-contact water is to be collected and disposed of off-site to an appropriately licenced liquid waste facility
	  ○ Requirement that excavated waste materials that cannon be reinstated be lawfully disposed of off-site
	  ○ Requirement that excavated waste materials be stockpiled on appropriate plastic or geofabric to prevent contamination of the site surface
	  ○ Odour management measures including covering of materials and use of odour suppressants
	  ○ Provision for supervision by an appropriately qualified environmental consultant
	  ○ Requirement that cover soil and grass cover be reinstated at the conclusion of works.
	• Given the excavations may disturb asbestos waste, all works are to be undertaken by an appropriately licenced asbestos remover. An asbestos management plan should be developed for the site as part of the project specific risk management plan.
	• Any waste to be disposed off-site will be appropriately classified using the *NSW EPA Waste Classification Guidelines.*

Water	• Install erosion and sediment controls around remediation works area to prevent mobilisation of contaminated soils into adjacent aquatic habitats.

Category	Measures
	• Store all chemicals (e.g., fuel, oil) offsite. If required to be stored onsite, store chemicals in appropriate bunding/storage systems, outside of the wetlands and only for short periods. Ensure appropriate spill kits, are present onsite (and staff trained in its use). Any chemicals and fuels are to be stored in a bunded area at least 50 m from any waterway or drainage line. • Ensure all equipment is in good working order. • Carry associated Safety Data Sheets (SDS) for all chemicals. • Limit the use of fuel, chemicals and herbicides near sensitive areas. • All water should be contained on the site, with no run-off towards the watercourse. • When high rainfall events are expected, cease work on activities likely to contaminate stormwater. • Adequate procedures will be established and detailed in the CEMP, including notification requirements to the EPA, for incidents that cause material harm to the environment. • A site-specific spill management plan will be prepared and include the following requirements: • Refuelling of machinery to be undertaken in a dedicated area within the construction compound appropriately protected as outlined in the Spill Management Plan. • Follow product labels and directions for use. • Ensure safety data sheets are available for all substances present on-site. • Ensure fire extinguisher is on-site. • To control substance leak: o Conduct prestart checks. o Do not operate plant if leak is detected. o Inform Project Manager if leak, spill or escape occurs. o Equipment, machinery and vehicles should be regularly maintained (and documented). o Workers will be trained in the spill management plan and the use of the spill kits. • A rehabilitation plan should be prepared for all areas disturbed by construction works proposal and would include the following: o Ensure areas disturbed during construction (including laydown areas and ancillary sites) are stabilised progressively during construction and restored back to original condition or re-vegetated with appropriate species (native in native dominated areas) as soon as practical. • Include monitoring to meet clear targets, regarding vegetation establishment and stabilisation of bare areas of soil.
Waste	• Waste to be minimised in accordance with the WARR Act. • Consider the application of the NSW Resource Recovery orders to any wastes generated. • Construction staff are to be briefed on their responsibility for the removal of their general waste. • All contaminated waste must be disposed of in accordance with EPA guidelines. • Provide appropriate receptacles to store all general waste, empty immediately at the completion of works. Consideration must be given to the source separation of recyclable and re-usable materials. • Implement a Waste Management Plan on site. • Implement a Hazardous materials removal plan on site. • Ensure waste tracking occurs for asbestos and synthetic mineral fibre wastes. • Consider resource management options for the Project against a hierarchy of the following order embodied in the *Waste Avoidance and Resource Recovery Act 2001*: o Avoid unnecessary resource consumption; o Consider reuse of wastes under the Resource Recovery orders. o As a last resort, classify all wastes and excess spoil in accordance with the Waste Classification Guidelines (DECC, 2009) prior to disposal and transported to a licensed waste disposal facility.

Category	Measures
	• Remove all waste from the site on completion of the works. • Upon completion of waste disposal, retain all original weighbridge / disposal receipts issued by the receiving waste facility in a waste register as evidence of proper disposal. • Ensure an adequate number of bins are placed at the site for workers and that all litter is placed in these bins. Ensure work areas of the project site are kept clean and free of litter, including cigarette butts, at all times. • Ensure that water management provisions include seepage, run-off and rainwater management. Any waste-contact water is to be collected and disposed off-site to an appropriately licenced liquid waste facility. • Ensure that any excavated waste materials are lawfully disposed of off-site. • Ensure that excavated waste materials are stockpiled on appropriate plastic or geo-fabric to prevent contamination of the site surface. • Given the excavations may disturb asbestos waste, all works are to be undertaken by an appropriately licenced asbestos remover. An asbestos management plan should be developed for the site as part of the project specific risk management plan. • Any waste to be disposed off-site will be appropriately classified using the *NSW EPA Waste Classification Guidelines.*

7. Conclusion

The proposal for refurbishment of the existing clubhouse located in Riverine Park has been assessed for environmental impacts under Division 5.1, Part 5 of the EP&A act. This REF has identified and assessed the potential environmental impacts of the proposal at the Riverine Park, Arncliffe NSW. The long-term operational impacts of the proposed works are expected to be positive, as it will provide improved social infrastructure, deliver high quality open space, and provide social connection as well as increasing safety of the building and surrounds.

Riverine Park is a predominately disturbed environment, located in an urban area near Sydney Airport. The proposal is limited to works around the existing clubhouse building and will not extend the existing footprint of the clubhouse.

The impacts to the surrounding ecosystem are expected to be negligible provided that erosion and sediment controls are implemented and maintained for the duration of works. The proposed works are within a predominantly disturbed environment, comprising road pavement and road verges comprised of exotic lawn, planted exotic and native shrubs and trees.

Environmental impacts associated with the Proposal would generally be limited to noise, dust and erosion impacts. Appropriate mitigation measures to be undertaken both during the detailed design stage and during construction have been recommended to ensure such impacts are minimised. This includes the recommendation for the following management plans:

- CEMP
- Sediment and Erosion Plan
- Traffic Management Plan
- Unexpected finds plan
- Hot Works Plan
- Project Specific Work Health and Safety Plan

- Project Specific Risk assessment
- Waste Management Plan
- Gas Monitoring Plan
- Crane Operation Permit from Sydney Airport
- Pre-clearance Fauna Survey
- Asbestos management plan
- Green and Golden Bell Frog Management Plan
- Potential Acid Sulfate Soils management plan.

The CEMP is typically provided separately and prior to the construction commencement to allow for design finalisation and construction contractor input.

This REF has considered and assessed these impacts in accordance with clause 171 of the EP&A Regulation and the requirements of the EPBC Act. Based on the assessment contained in this REF, it is considered that the proposal is not likely to have a significant impact upon the environment or any threatened species, populations or communities. Accordingly, an Environmental impact Statement (EIS) is not recommended.

The Proposal has also taken into account the principles of ecologically sustainable development and the objects of the EP&A Act. The proposal would be delivered to the maximum benefit for the community, and minimise any adverse impacts on the environment. Currently, the club house is closed to the public due to safety, the works will improve safety for the public. The Proposal is therefore considered justified and in the public interest.

8. References

AECOM, 2015. *WestConnex New M5 Aboriginal Heritage Technical Working Paper*. Prepared for NSW Roads and Maritime Services.

AECOM, 2018. *F6 Extension Stage 1 from New M5 Motorway at Arncliffe to President Avenue at Kogarah*. Prepared for Transport NSW.

Attenbrow V. 2010, Sydney's Aboriginal Past – Investigating the archaeological and historical records, University of New South Wales, Sydney.

Australian Heritage Database, accessed online 18 April 2024 https://www.environment.gov.au/cgi-bin/ahdb/search.pl.

Bayside Local Environment Plan 2021, accessed online 21 July 2021 https://legislation.nsw.gov.au/view/pdf/asmade/epi-2021-498.

Bayside Council, 2018. *Asset Condition Report*. *B05803-Riverine Park Club house and Change*. Regular inspection.

Bayside Council, 2018a. *Bayside 2030. Community Strategic Plan 2018-2030*.

Bayside Council 2021. *Bayside Council Environmental Assessment under Environmental Planning & Assessment Act 1979*.

Bayside Council 2024. *Draft Riverine Park Masterplan.* Accessed online 9 June 2024. https://haveyoursay.bayside.nsw.gov.au/riverine-park-masterplan

Commonwealth Department of Infrastructure, Transport, Regional Development and Communications (DITRDC) (2012). *The National Airports Safeguarding Framework*.

Department of the Environment, DOE. (2015). *Arrive Clean, Leave Clean* (Guidelines to help prevent the spread of invasive plant diseases and weeds threatening our native plants, animals and ecosystems) (Australia, Australian Government, Department of the Environment). Canberra.

Department of Environment and Climate Change NSW (2009). *Interim Construction Noise Guideline*

Department of Environment, Climate Change and Water (2006). *Cooks River Water Quality and River Flow Objectives.* Accessed 15/6/2021 from https://www.environment.nsw.gov.au/ieo/CooksRiver/report-02.htm

Department of Climate Change, Energy, the Environment, and Water (NSW DCCEEW) 2024a. NSW BioNet: Atlas of NSW Wildlife online search tool. Available: http://www.bionet.nsw.gov.au/. (Accessed April 2024)

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024a. Protected Matters Search Tool [online]. Available: https://www.dcceew.gov.au/environment/epbc/protected-matters-search-tool. (Accessed May 2024)

Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW) 2024b. Species Profile and Threats (SPRAT) Database. Available: http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl. (Accessed May 2024)

Department of Climate Change, Energy, the Environment, and Water (NSW DCCEEW) 2024c. NSW State Vegetation Type Map. Available: https://datasets.seed.nsw.gov.au/dataset/nsw-state-vegetation-type-map (Accessed April 2024)

Department of Climate Change, Energy, the Environment, and Water (NSW DCCEEW) 2024d. BioNet Vegetation Classification. Available: https://www.environment.nsw.gov.au/NSWVCA20Prapp/default.aspx (Accessed May 2024)

Department of Climate Change, Energy, the Environment, and Water (NSW DCCEEW) 2024e. eSpade Web App. Available: https://www.environment.nsw.gov.au/eSpade2Webapp# (Accessed May 2024)

Department of Climate Change, Energy, the Environment, and Water (NSW DCCEEW) 2024f. Biodiversity Values Map and Threshold Tool (online). Available: https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap. (Accessed April 2024)

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024b. National Flying-fox monitoring viewer. Retrieved from National Flying-fox monitoring viewer (environment.gov.au)

Department of Environment and Conservation (DEC) 2005. Draft Recovery Plan for the Green and Golden Bell Frog (Litoria aurea). Hurstville, NSW. Available: https://www.environment.nsw.gov.au/resources/nature/recoveryplangreengoldbellfrogdraft.pdf

Department of Environment, Water, Heritage and the Arts (DEWHA) 2009. Significant impact guidelines for the vulnerable green and golden bell frog *(Litoria aurea)* (Australia, Department of Environment, Water, Heritage and the Arts). Canberra, ACT. Available: https://www.dcceew.gov.au/environment/epbc/publications/significant-impact-guidelines-vulnerable-green-and-golden-bell-frog-litoria-aurea

Department of Agriculture, Water and the Environment (DAWE) 2021. National Recovery Plan for the Grey-headed Flying-fox '*Pteropus poliocephalus'*. Department of Agriculture, Water and the Environment, Canberra, March.CC BT 4.0. Available: https://www.dcceew.gov.au/environment/biodiversity/threatened/recovery-plans

Department of Environment, Climate Change and Water, 2010a*. Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales*.

[redacted] 2024. *Riverine Park, 201B West botany Street – Green and Golden Bell Frog Management Plan.* Prepared for Arncliffe Aurora Football Club.

Edison, 2021a. *Report on building Sub-Slab Soil Vapour Monitoring: Former Ilinden Soccer Club, Riverine Park, Arncliffe, New South Wales.* Prepared for Bayside Council.

Edison, 2021b. *Report on Hazardous Materials Audit: Former Ilinden Soccer Club*, Riverine Park, Arncliffe New South Wales. Prepared for Bayside Council.

Edison, 2020. *Long-Term Site Management Plan, Recreational/Open-Space Land Use, Barton Park, New South Wales*. Prepared for Bayside Council.

Enviroview, 2020. *Site Audit Statement no. 0301-1818.* Prepared for Bayside Council.

eSpade, *Disturbed Terrain,* accessed online 29 April 2024, https://www.environment.nsw.gov.au/Salis5app/resources/spade/reports/9130xx.pdf.

Google 2024. *Street View.* (Accessed March 2024)

Irish, P., 2017. *Aboriginal History Along the Cooks River.* Prepared for the Cooks River Alliance.

Jo McDonald Cultural Heritage Management Pty Ltd 2011 *Discovery Point Stage 6: Project Application Heritage Impact Statement.* Prepared for Discovery Point Pty Ltd.

Mulvaney, D.J & White, P, 1987. Australians to 1788. Fairfax, Syme & Weldon Associates, Broadway NSW.

NSW State Heritage Inventory, accessed online 18 April 2024 https://www.environment.nsw.gov.au/topics/heritage/search-heritage-databases/state-heritage-inventory.

Saunders, V., 1967. *The Village of Arncliffe.* St George Historical Society; accessed online 30 April 2024 http://stgeorgehistsoc.org.au/the-village-of-arncliffe/.

Sydney Water, 2020. *The history of Sydney Water: A timeline*, accessed online 28 April 2024, https://www.sydneywater.com.au/content/dam/sydneywater/documents/education/sydney-water-timeline.pdf.

The St George Call (Kogarah NSW), 1931. *Mayor's Minute. Rockdale's Progress,* accessed online 30 April 2024, https://trove.nla.gov.au/newspaper/article/232201638?searchTerm=%22barton%20park%22.

Appendix A Figures and Mapping

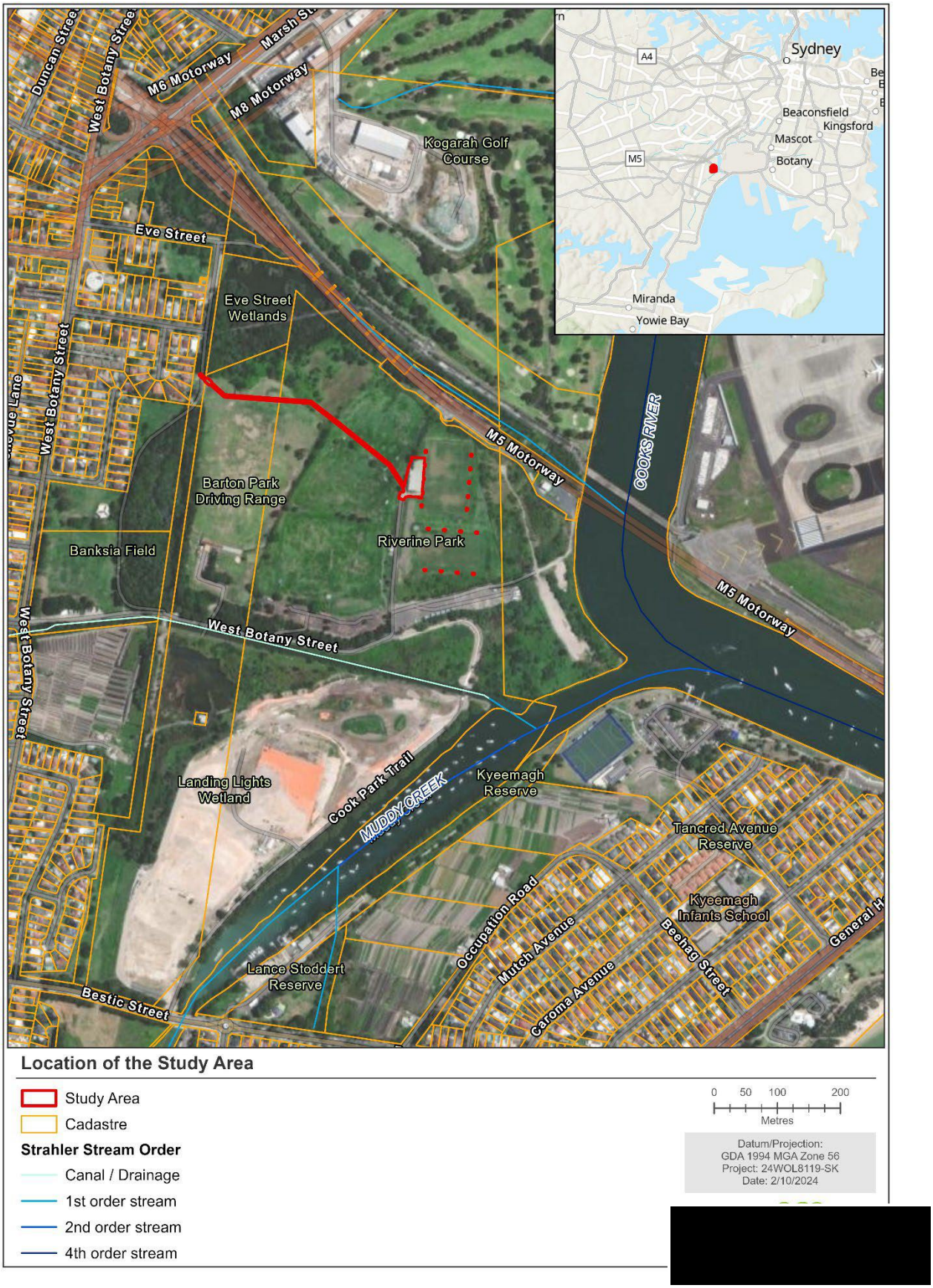

Figure 1: Location of the Study Area

Figure 2: Study Area in Relation to the Sydney Airport PSA

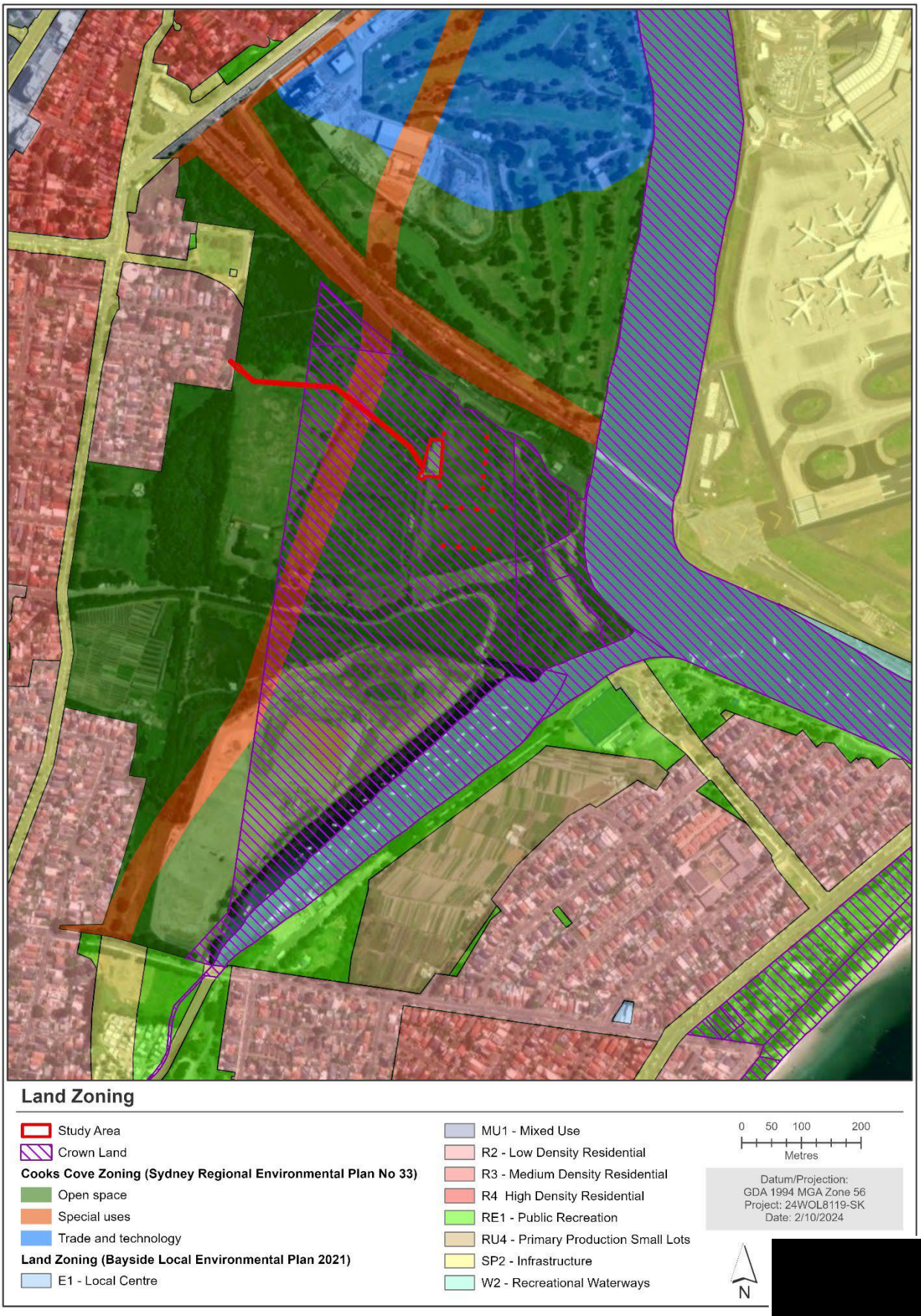

Figure 3: Land Zoning

Figure 4: Study Area in Relation to Sydney Airport Obstacle Limitation Surfaces

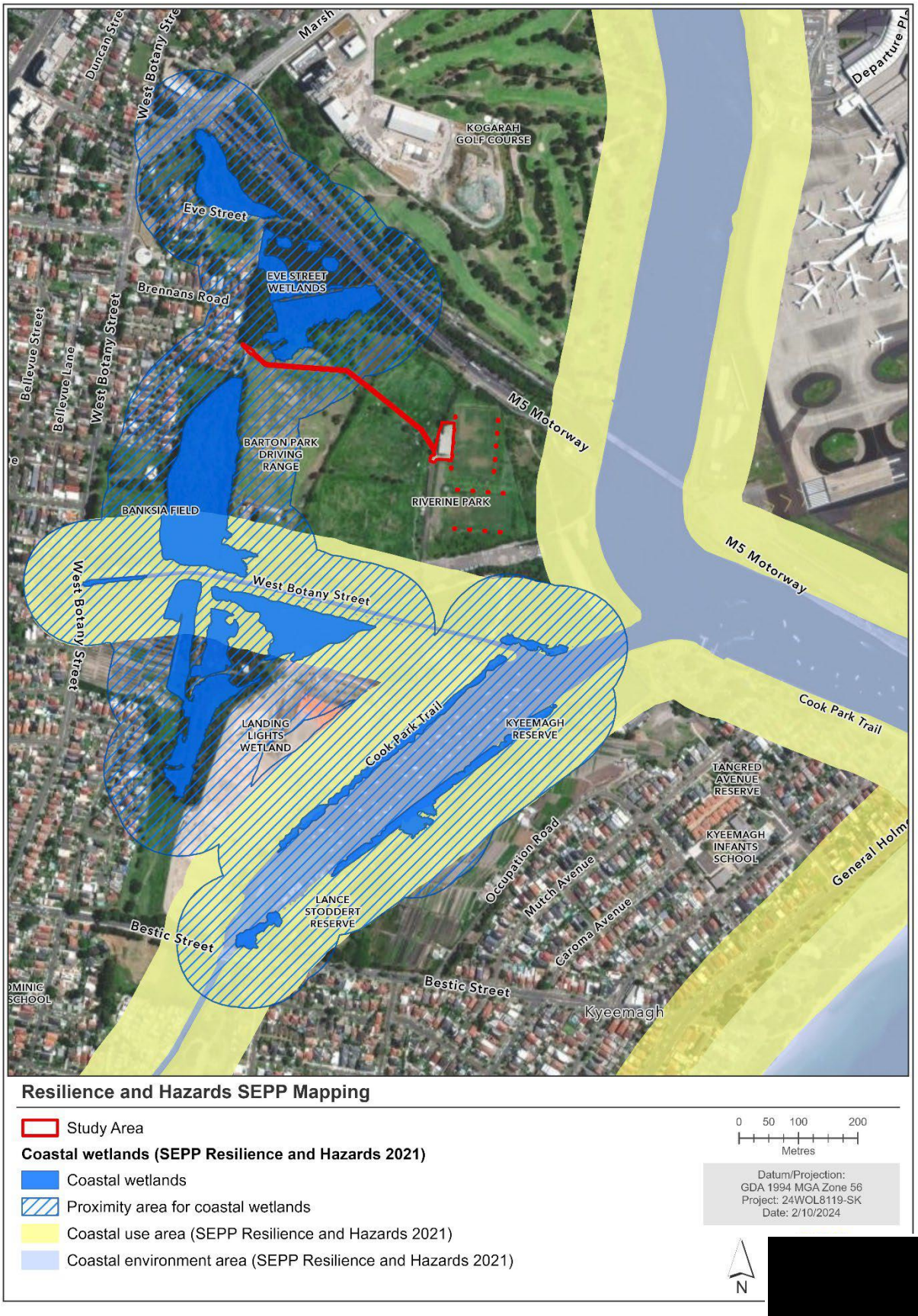

Figure 5: Resilience and Hazards SEPP Mapping

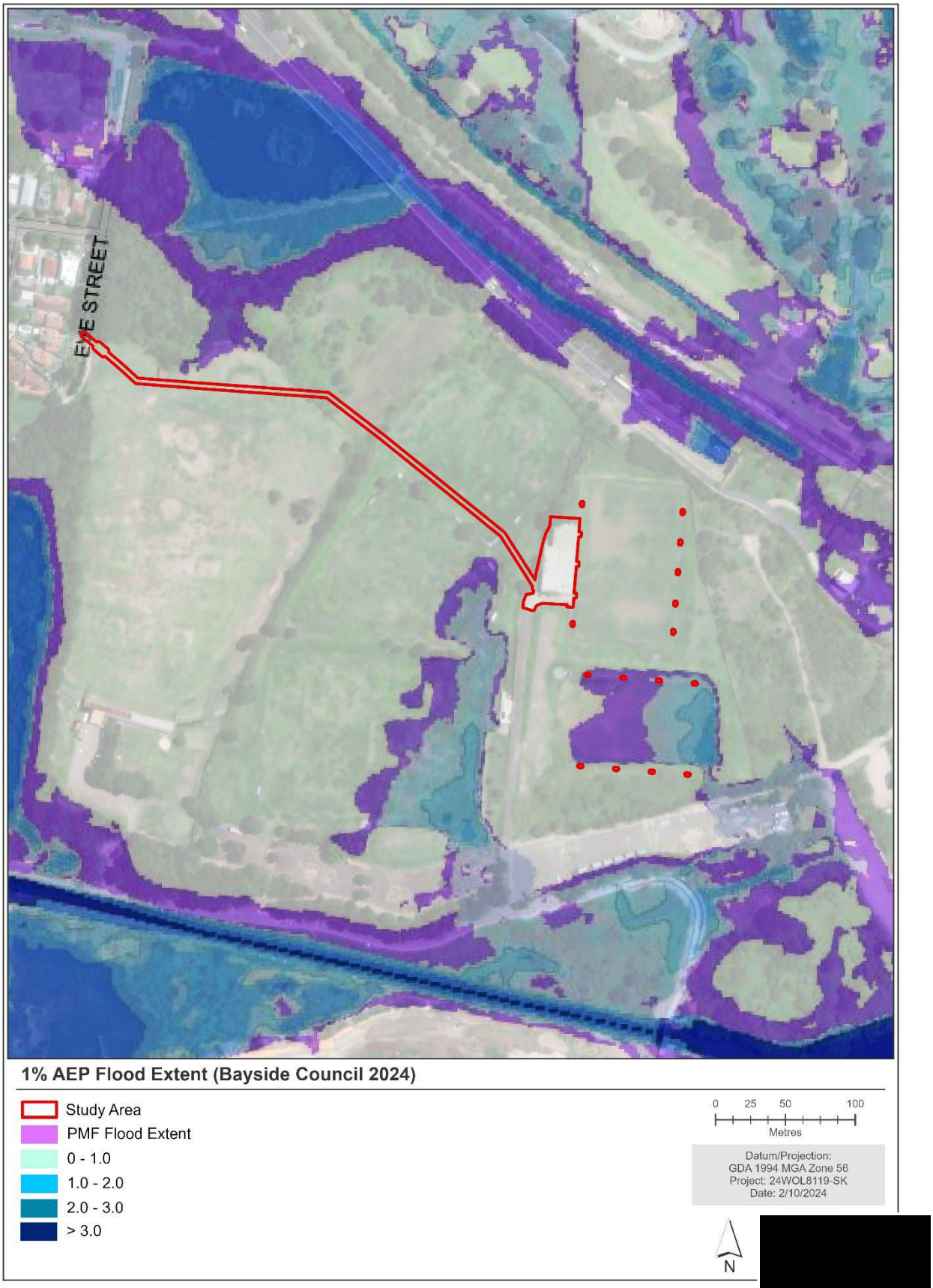

Figure 6: Flood Risk

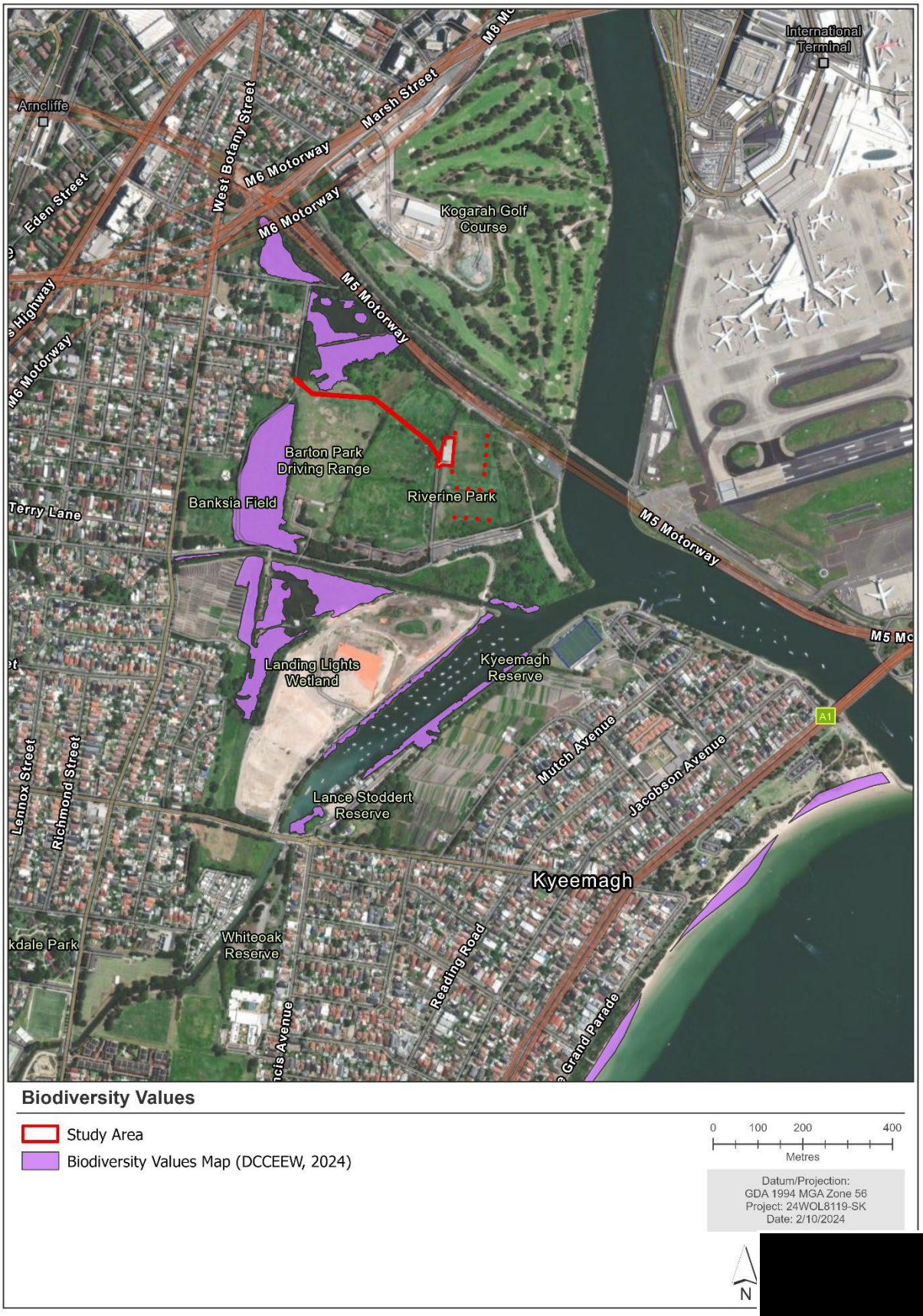

Figure 7: Biodiversity Values map (NSW DCCEEW 2024f)

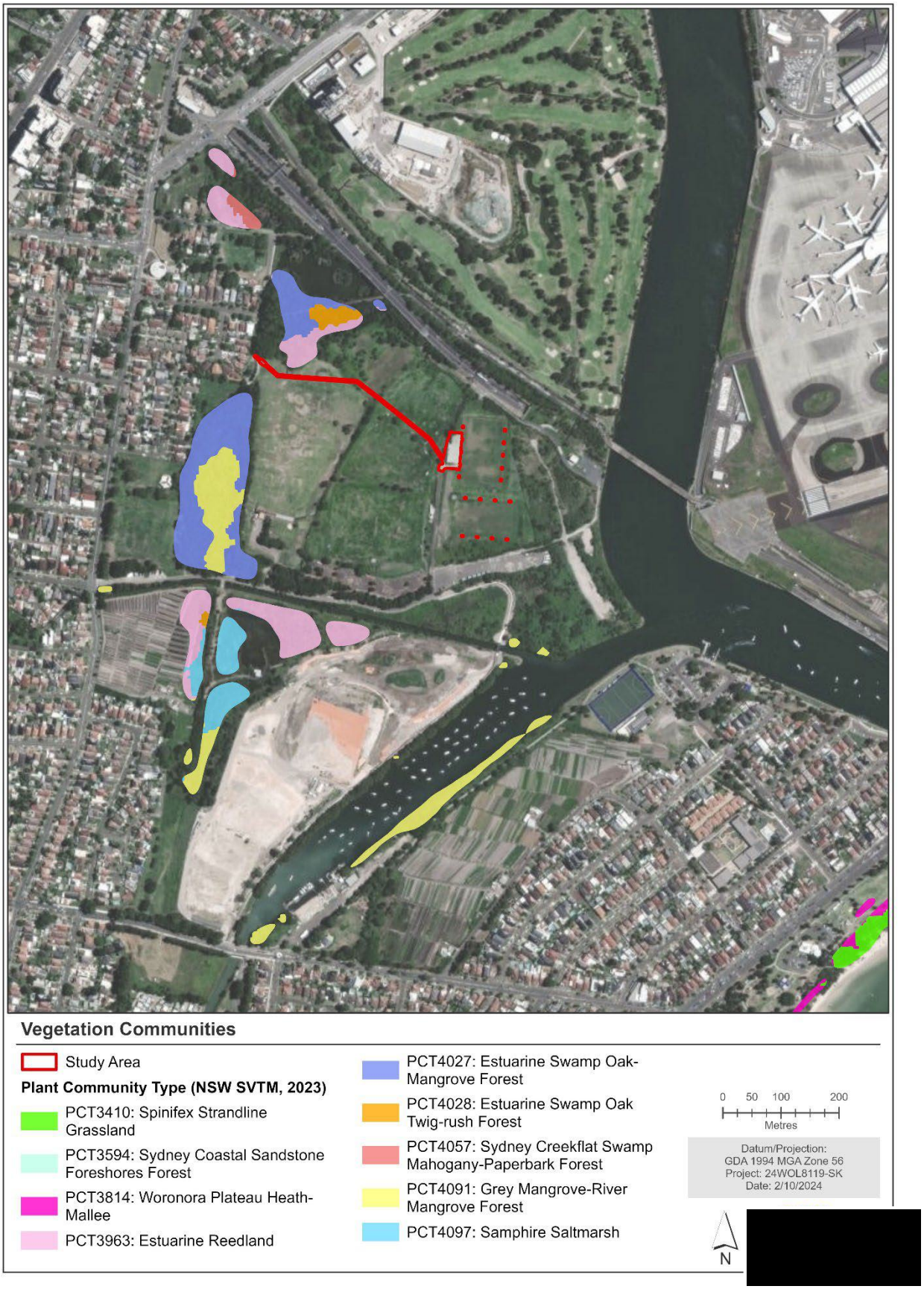

Figure 8: Plant Community Types (PCT) within the vicinity of the study area (NSW DCCEEW 2024c)

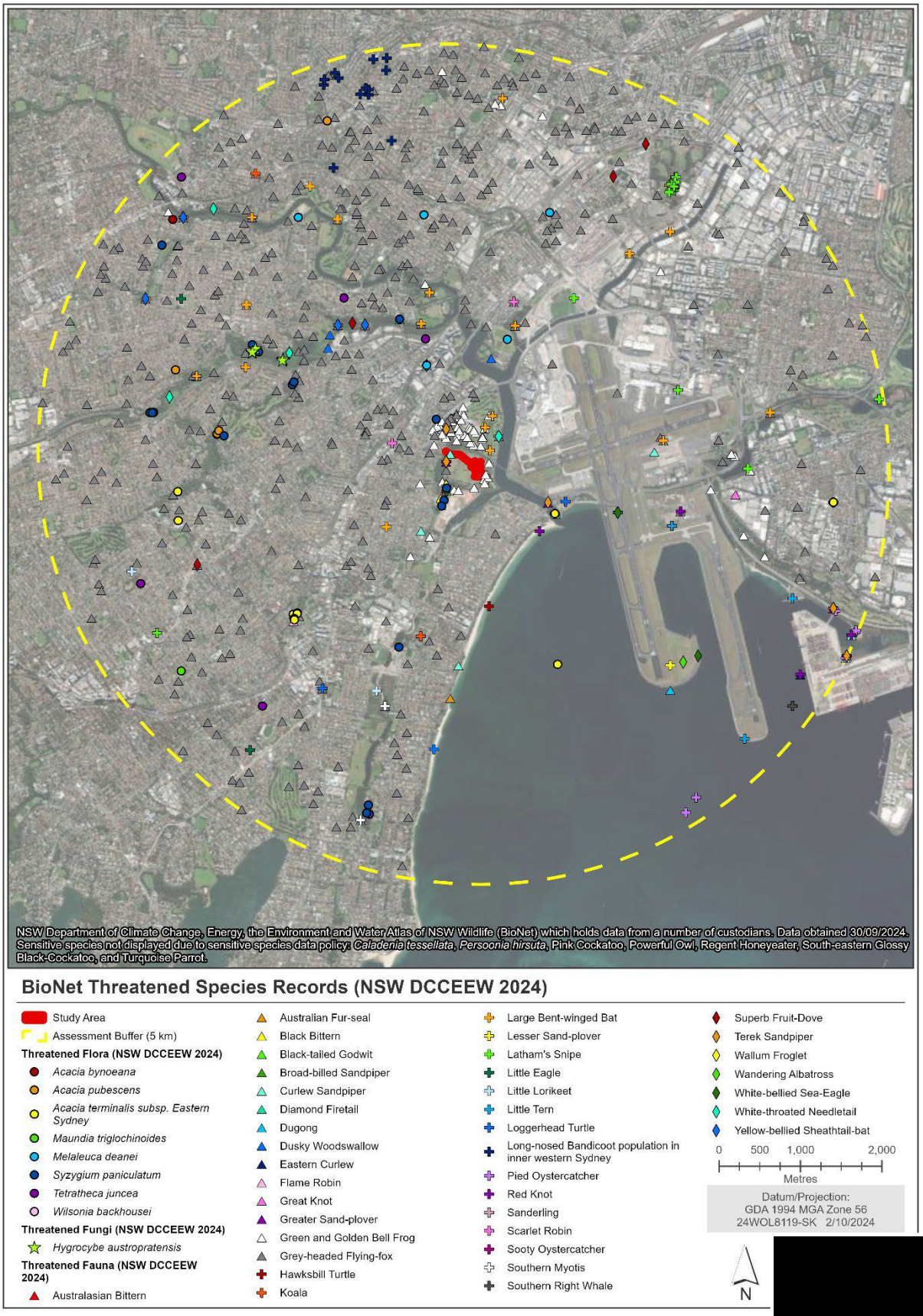

Figure 9: Threatened species records within a 5 km radius of the study area (NSW DCCEEW 2024a)

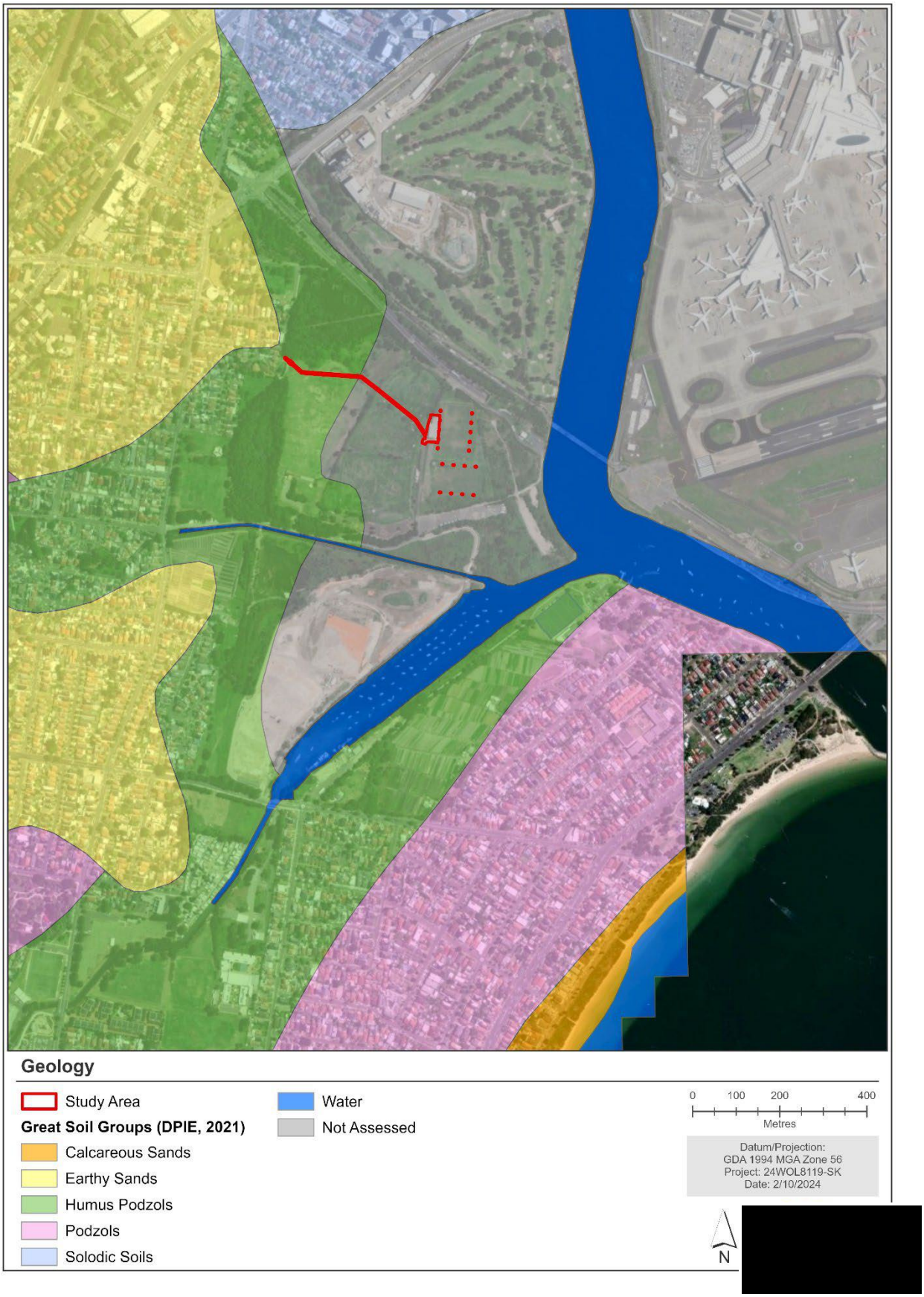

Figure 10: Geology

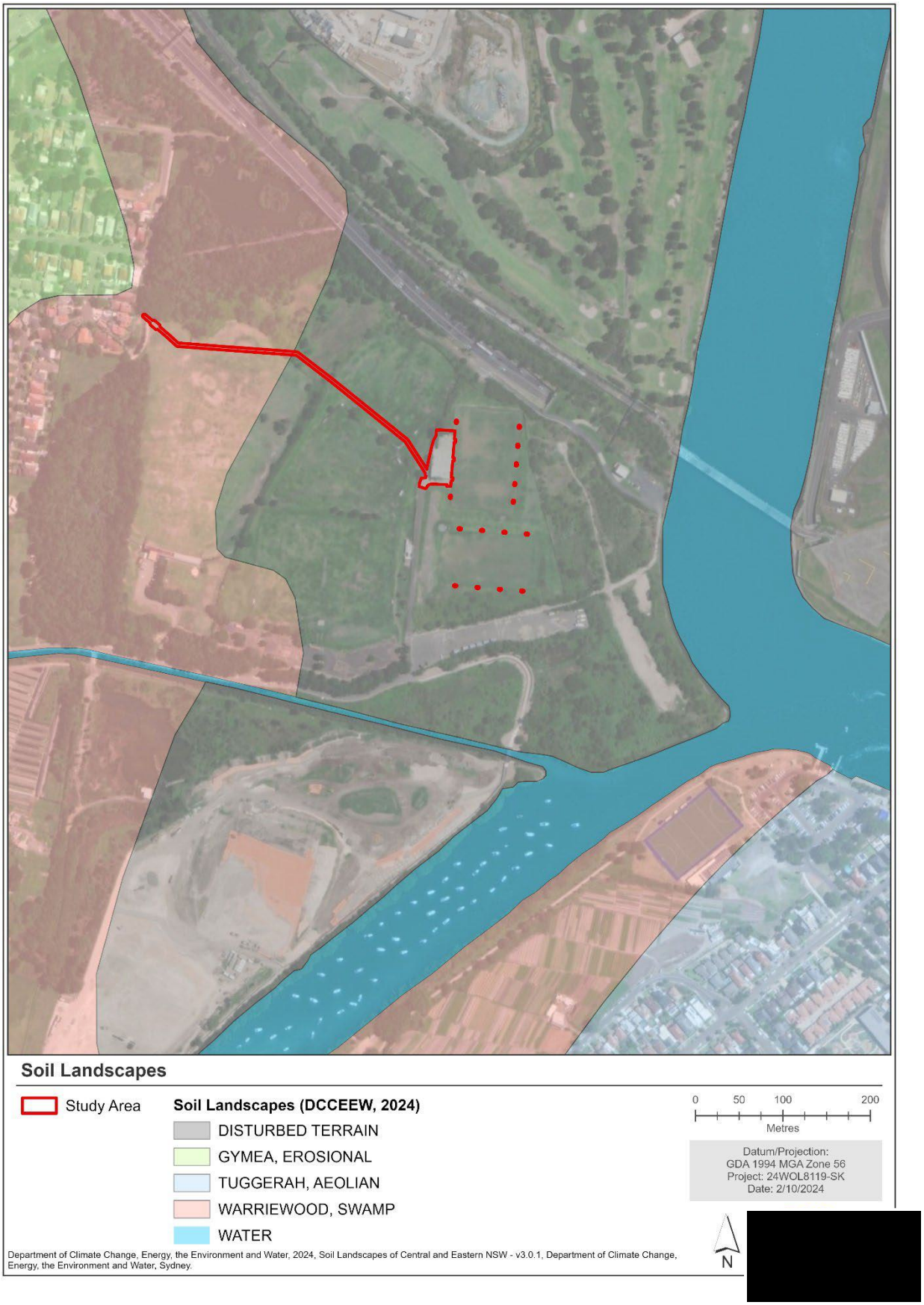

Figure 11: Soil Landscapes

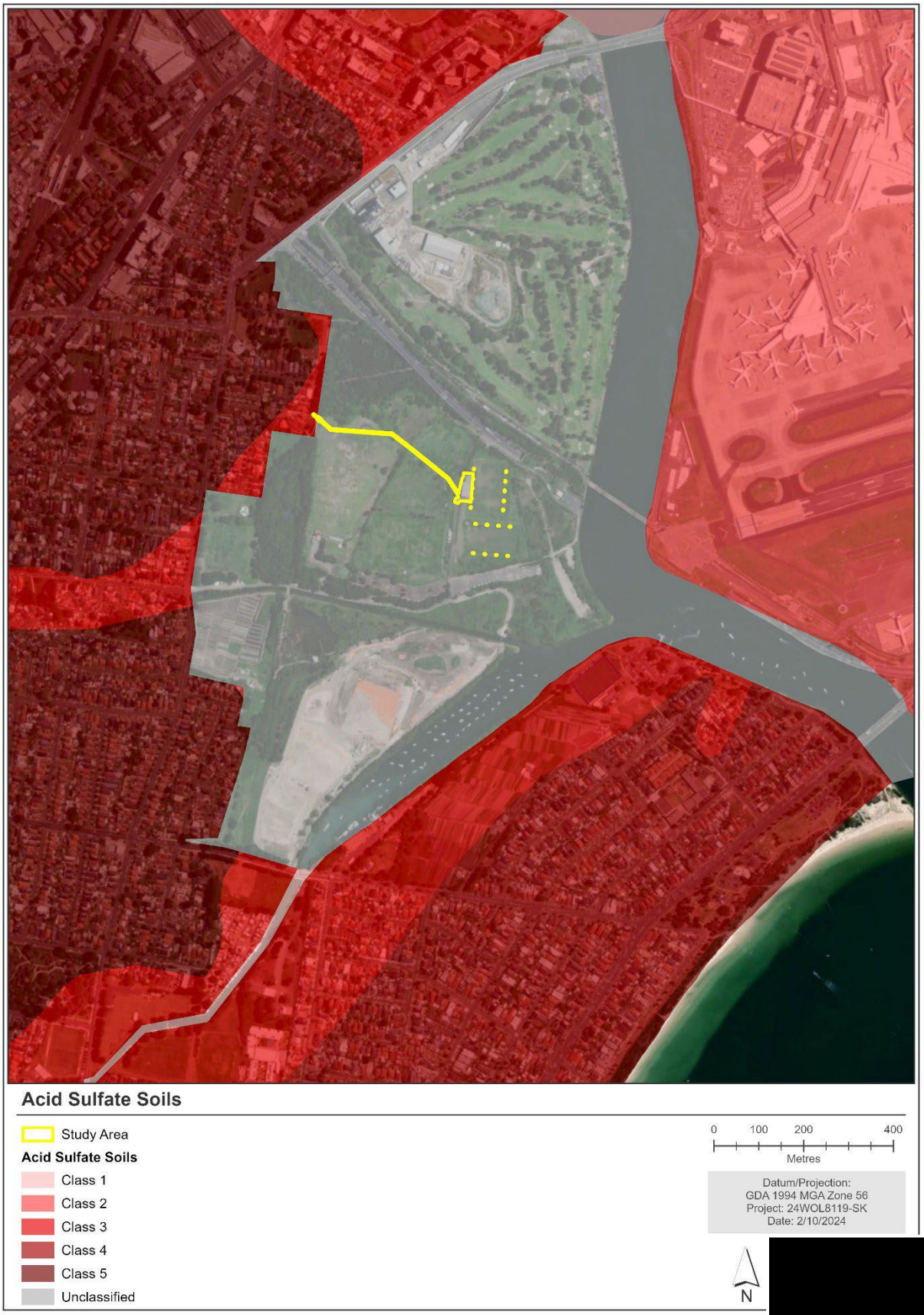

Figure 12: Acid Sulfate Soils

Figure 13: AHIMS sites within the vicinity of the study area

Figure 14: St George Parish Map c.1890 (Source: NSW Land and Registry Services Parish Maps n.d.)

Figure 15: 1947 Historical Aerial Imagery of study area (Source: NSW Spatial Services)

Figure 16: 1961 Historical Aerial Imagery of study area (Source: NSW Spatial Services)

Figure 17: Heritage listings within proximity of the study area

Appendix B Proposed Works

146 WEST BOTANY STREET ARNCLIFFE NSW 2205

PROPOSED UPGRADE TO SPORTING FACILITIES

PART 5 CONCEPT LANDSCAPE PLAN

DRAWING REGISTER

DRAWING NUMBER	DRAWING TITLE	SCALE
1/4	COVER SHEET	N/A
2/4	CONCEPT LANDSCAPE PLAN	1:500
3/4	SECTION ELEVATIONS	1:200
4/4	PERSPECTIVE IMAGES	N/A

[redacted]

Rev	Description	Date	App'd
A	PART 5 APPLICATION	18/07/2024	SB

Project
PROPOSED UPGRADE TO SPORTING FACILITIES
Client
ARNCLIFFE AURORA

146 WEST BOTANY STREET
ARNCLIFFE NSW 2205

Drawing Title
COVER SHEET

Scale
@A1

Drawn
SB

Project Number
2023.014

Drawing Number
1/4

Revision
A


SANDSTONE SEATING/ RETAINING


6 METRE HIGH MESH FENCE


1 METRE HIGH MESH FENCE


DUG-OUT

Rev	Description	Date	App'd
A	PART 5 APPLICATION	18/07/2024	SB

[redacted]

Project
PROPOSED UPGRADE TO SPORTING FACILITIES

Client
ARNCLIFFE AURORA

146 WEST BOTANY STREET
ARNCLIFFE NSW 2205

Drawing Title
CONCEPT LANDSCAPE PLAN

Scale
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Drawn
SB

Project Number
2023.014

Drawing Number
2/4

Revision
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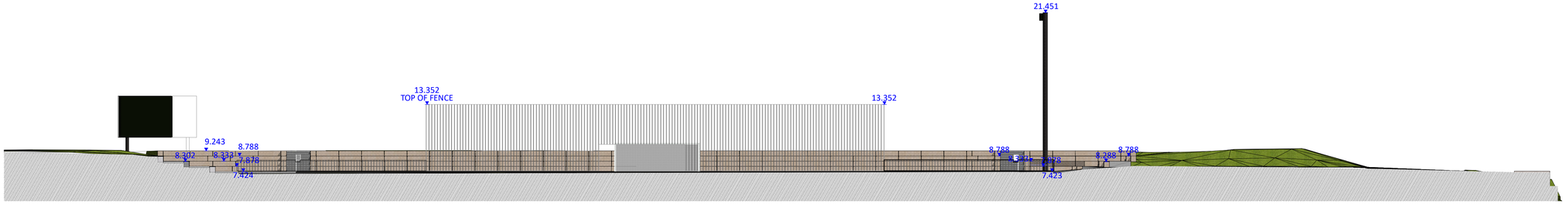
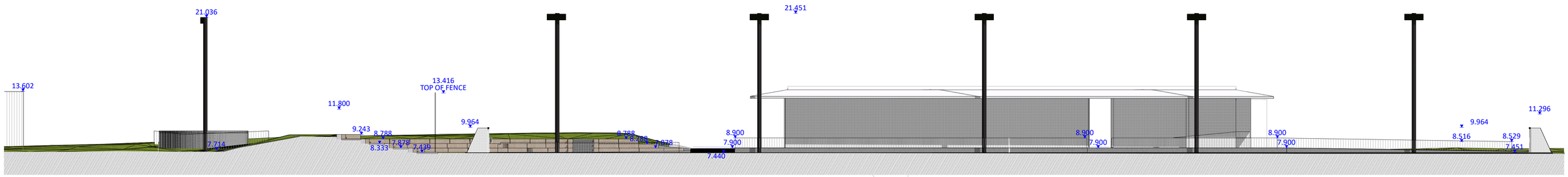


NORTH/ SOUTH ELEVATION AA 1:200



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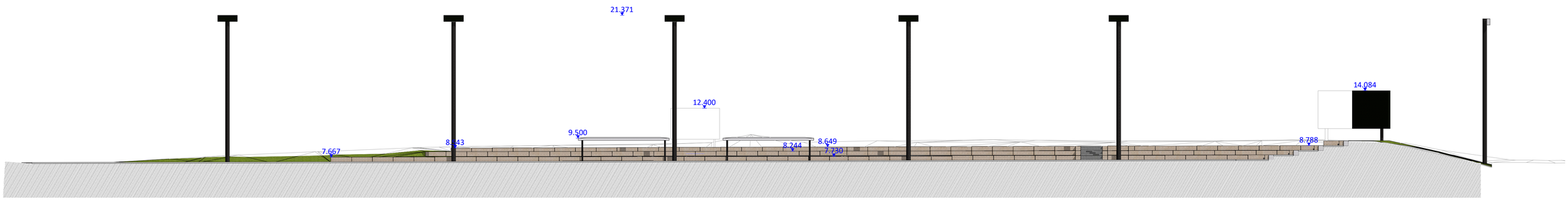

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Rev	Description	Date	App'd
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[redacted]

Project
PROPOSED UPGRADE TO SPORTING FACILITIES
Client
ARNCLIFFE AURORA

146 WEST BOTANY STREET
ARNCLIFFE NSW 2205

Drawing Title
SECTION ELEVATIONS

Scale
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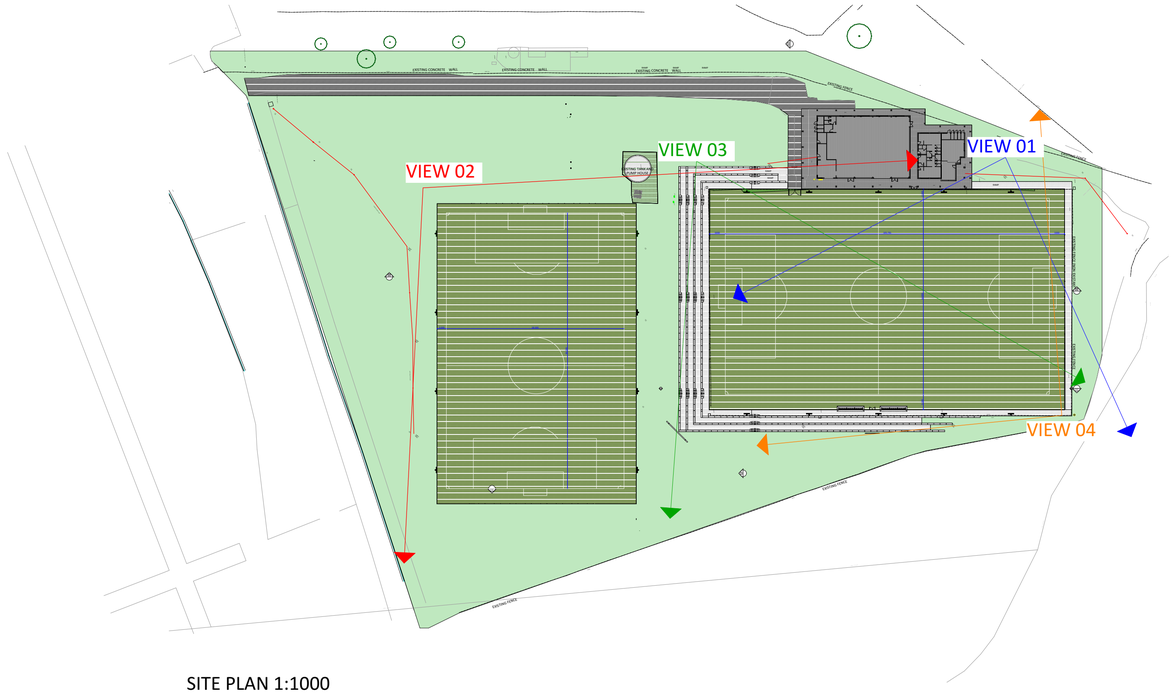
Drawn
SB

Project Number
2023.014

Drawing Number
3/4

Revision
A



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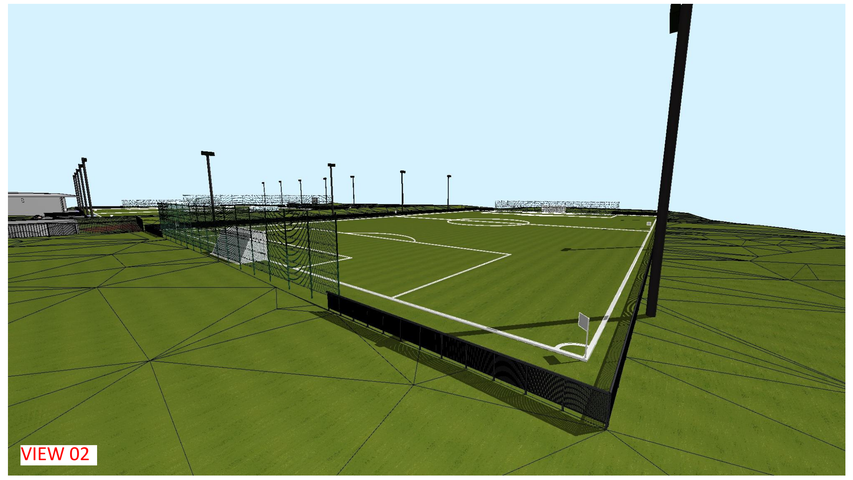
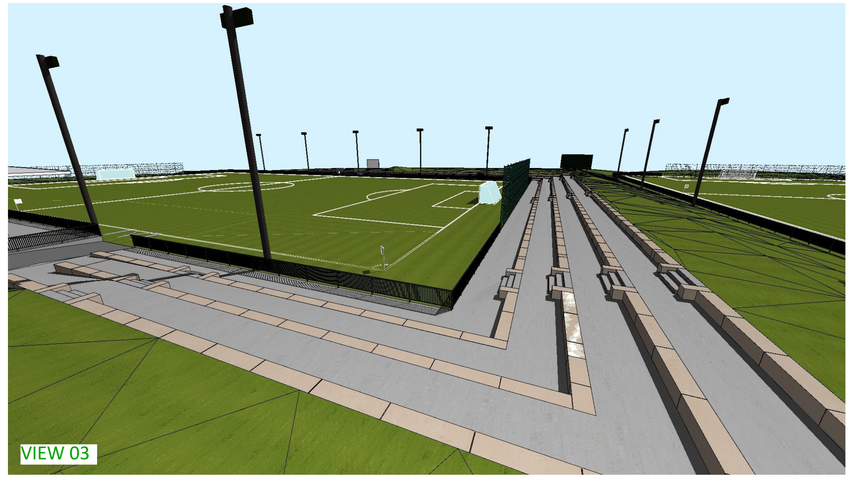
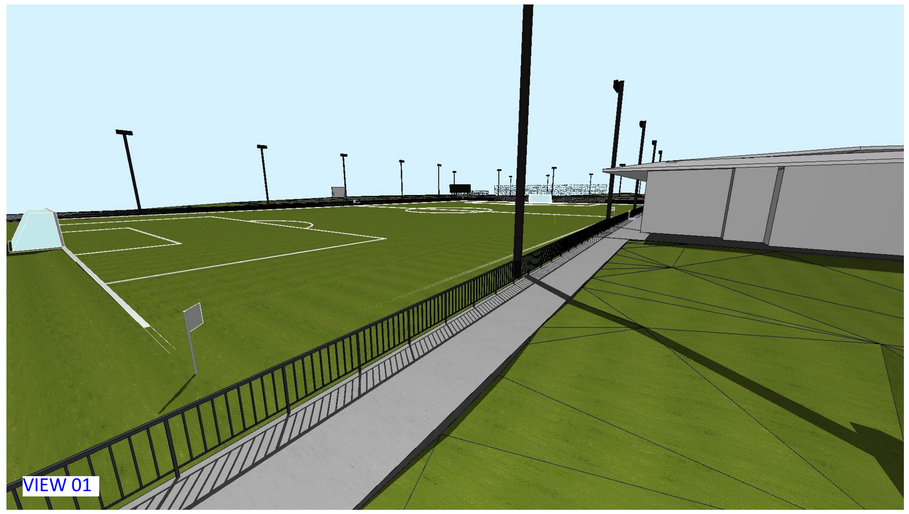
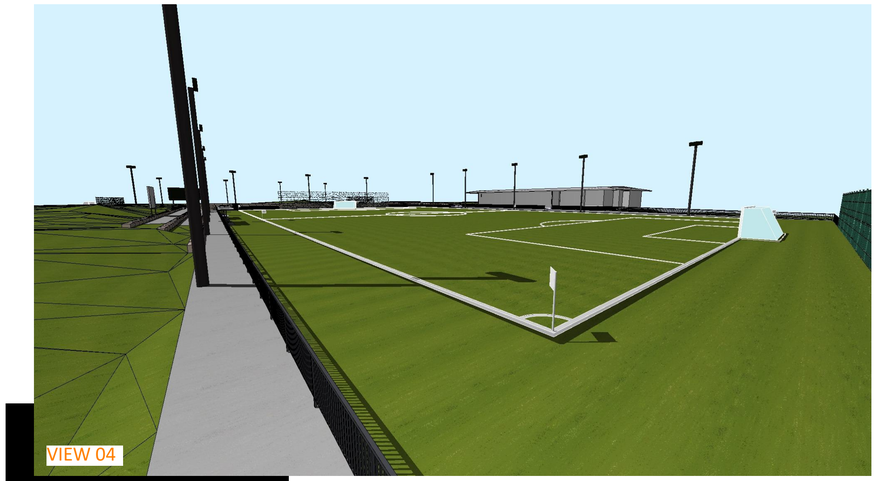








Rev	Description	Date	App'd
A	PART 5 APPLICATION	18/07/2024	SB

Project
PROPOSED UPGRADE TO SPORTING FACILITIES
Client
ARNCLIFFE AURORA

146 WEST BOTANY STREET
ARNCLIFFE NSW 2205

Drawing Title
PERSPECTIVE IMAGES

Scale
1:1000@A1

Drawn
SB

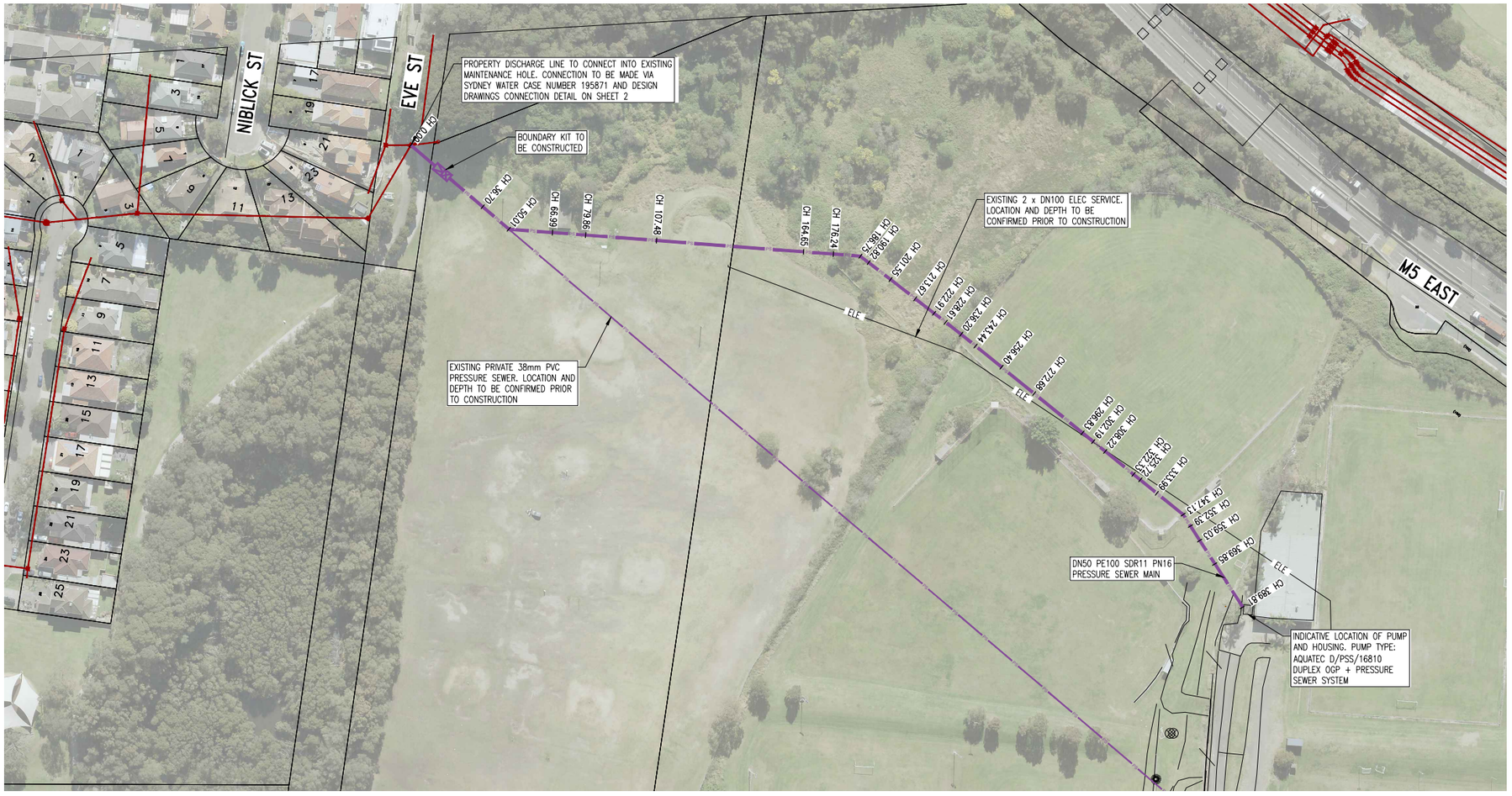
Project Number
2023.014

Drawing Number
4/4

Revision
A

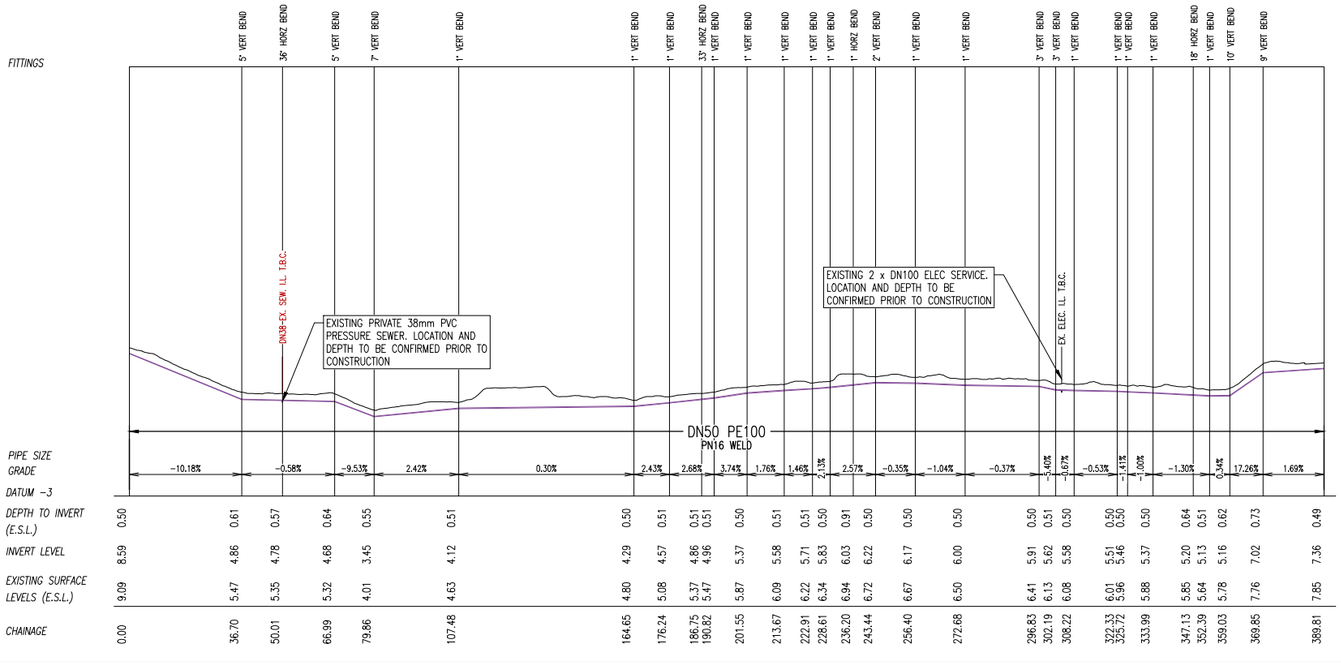
A1F

DEVELOPER CONTRACT PLAN



PRESSURE SEWER PLAN

SCALE 1:1000



0 5 10 15 20 25 METRES

0 5 10 20 30 40 50 100 METRES

UTILITIES		
TYPE	DATE	REF.
EXIST SEWER:	11/11/21	(HYDRA)
EX PRES SEW: PS	18/11/21	(DSGN)
PROP. PRES SEW: PS	18/11/21	(DSGN)
EXIST WATER: W	11/11/21	(HYDRA)
EXIST ELEC: ELE	11/11/21	(DBYD)

GENERAL SEWER NOTES :

1. WATER SERVICE COORDINATOR & DESIGNER:
   CARDNO (NSW/ACT) PTY LTD
   GROUND LEVEL, 16 BURELLI ST
   WOLLONGONG NSW 2500
   PH: (02) 4228 4133

   DEVELOPER:
   _____
   _____
   _____
   PH: _____
2. THE PROPOSED WORKS DETAILED HEREON TO BE CONSTRUCTED IN ACCORDANCE WITH THE WSAA SEWERAGE CODE OF AUSTRALIA WSA02−2002−2.2 SYDNEY WATER EDITION 1 VERSION 4 & SYDNEY WATER DEEMED TO COMPLY DRAWINGS. THE CONTRACTOR TO HAVE A COPY OF DOCUMENTS ON SITE AT ALL TIMES.
3. THE MINIMUM NUMBER OF COMPACTION TESTS COMPLETED TO SATISFY SECTION 22 OF THE SEWERAGE CODE OF AUSTRALIA SYDNEY WATER EDITION ARE:
   PIPE EMBEDMENT ZONE: − 8
   TRENCH FILL ZONE: NON TRAFFICABLE − 4
   FILL ZONE: TRAFFICABLE − 4
   WITHIN 300mm OF M.S/M.H − 0

   NUMBER OF TESTS TO BE VERIFIED BY AN ACCREDITED FIELD TESTER, NUMBERS PROVIDED ABOVE TO BE USED AS A GUIDE ONLY.
4. ALL STRUCTURES TO BE CONSTRUCTED TO PROPOSED FINISHED SURFACE LEVELS.
5. SERVICES SHOWN ARE INDICATIVE ONLY. CURRENT SERVICES SEARCH AND SITE CHECK OF ALL EXISTING SERVICES WILL BE NECESSARY PRIOR TO COMMENCEMENT OF THE WORK AND APPROPRIATE PROCEDURES AND PRECAUTIONS NEED TO BE TAKEN WHEN WORKING WITHIN CLOSE PROXIMITY OF SERVICES. THE CONTRACTOR MUST HAVE A COPY OF THE DOCUMENTS ON SITE AT ALL TIMES.
6. ALL LEVELS ELECTRONICALLY GENERATED. NO LEVEL BOOK AVAILABLE.
7. PIPES CONCRETE ENCASED SHOWN ACCORDINGLY:
8. CONCRETE ENCASEMENT TO BE 12U
9. AREAS HATCHED THUS NOT DRAINED.
10. DENOTES PVC−U PROPERTY CONNECTION SEWER FOR SINGLE PROPERTIES (REFER TO DTC−2120 FOR DETAILS)
11. PROPERTY JUNCTIONS TO BE INSERTED 1.0m FROM DOWNSTREAM PROPERTY BOUNDARY UNLESS NOTED OTHERWISE.
12. THE CONTRACTOR TO VERIFY THE INVERT LEVELS OF THE RECEIVING SEWERS AS NECESSARY PRIOR TO ANY WORKS.
13. THE CONTRACTOR TO SUBMIT A SAFE WORK PLAN TO THE WATER SERVICING COORDINATOR FOR APPROVAL PRIOR TO COMMENCING THE WORKS.
14. THE CONTRACTOR TO SUBMIT A CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP) TO THE WATER SERVICING COORDINATOR FOR APPROVAL PRIOR TO COMMENCING THE WORKS.
15. THE CONTRACTOR TO OBTAIN ALL AUTHORITY APPROVALS AND PAY FOR ANY NECESSARY PERMITS PRIOR TO COMMENCEMENT OF ANY WORKS.
16. THE CONTRACTOR TO VERIFY EXACT LOCATION OF ALL EXISTING SERVICES WITH RELEVANT AUTHORITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION AND REPORT ANY DISCREPANCIES TO THE PROJECT MANAGER. ANY DAMAGE TO EXISTING SERVICES TO BE RECTIFIED AT THE CONTRACTOR'S EXPENSE.
17. THE CONTRACTOR IS TO CARRY OUT ALL NECESSARY GEOTECHNICAL INVESTIGATIONS TO UNDERTAKE THE WORKS DETAILED IN THIS DRAWING SET.
18. PRIOR TO COMMENCEMENT OF WORK, 2 WORKING DAYS NOTICE SHALL BE GIVEN TO SYDNEY WATER.
19. THE NOMINATED CONSTRUCTION COMPANY MUST HAVE AN ACCREDITED/APPROVED PERSON ONSITE AT ALL TIMES DURING CONSTRUCTION.
20. THE CONTRACTOR IS TO PROVIDE TEST REPORTS TO THE WATER SERVICING COORDINATOR TO SYDNEY WATER STANDARDS PRIOR TO THE PRE CONNECTION.
21. THE CONTRACTOR TO PROVIDE DETAILED WORK AS CONSTRUCTED, CERTIFIED BY A REGISTERED SURVEYOR, OF THE FOLLOWING:
    21.1. STRUCTURE LOCATION (EASTING AND NORTHING OR UPDATED TIES)
    21.2. SEWER INVERT LEVELS
    21.3. STRUCTURE SURFACE LEVELS
    21.4. CONCRETE ENCASEMENT EXTENTS
    21.5. JUNCTIONS CHAINAGES (MEASURE FROM DOWNSTREAM STRUCTURE)

ENVIRONMENTAL NOTES :

E1. CONSTRUCTION SHALL COMPLY WITH ALL REQUIREMENTS AS DETAILED IN THE REVIEW OF ENVIRONMENTAL FACTORS (REF) AND THE ENVIRONMENTAL MANAGEMENT PLAN (EMP)

E2. AREAS DOWNSLOPE OF CONSTRUCTION ACTIVITY TO BE ADEQUATELY PROTECTED FROM SEDIMENT POLLUTION ETC. SILT TRAP DEVICES TO BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY, EFFECTIVELY MAINTAINED AND ARE TO BE REMOVED ONLY AFTER THE AREA HAS BEEN SATISFACTORILY REVEGETATED OR RESTORED.

E3. ALL STORMWATER GRATES, OPEN CHANNELS, SWALES, TABLE DRAINS, GULLIES ETC. DOWNSLOPE OF CONSTRUCTION ACTIVITY TO BE ADEQUATELY PROTECTED BY STRAWBALES WRAPPED IN GEOTEXTILE FABRIC OR GEOTEXTILE FENCE.

E4. THE EXTENT OF CLEARING OF VEGETATION TO BE KEPT TO AN ABSOLUTE MINIMUM NECESSARY TO EFFECT THE WORKS.

E5. ALL SURFACE LITTER, BRANCHES AND LEAVES TO BE MULCHED AND STOCKPILED SEPARATELY. AFTER COMPLETION MULCH TO BE RE−SPREAD OVER VEGETATED AREAS TO ASSIST WITH REGENERATION.

WORK AS CONSTRUCTED CERTIFICATION	
DEVELOPER	
W.S.C.	
CONSTRUCTOR COMPLETED	
W.A.C. PREPARED	
DESIGNER	

I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS

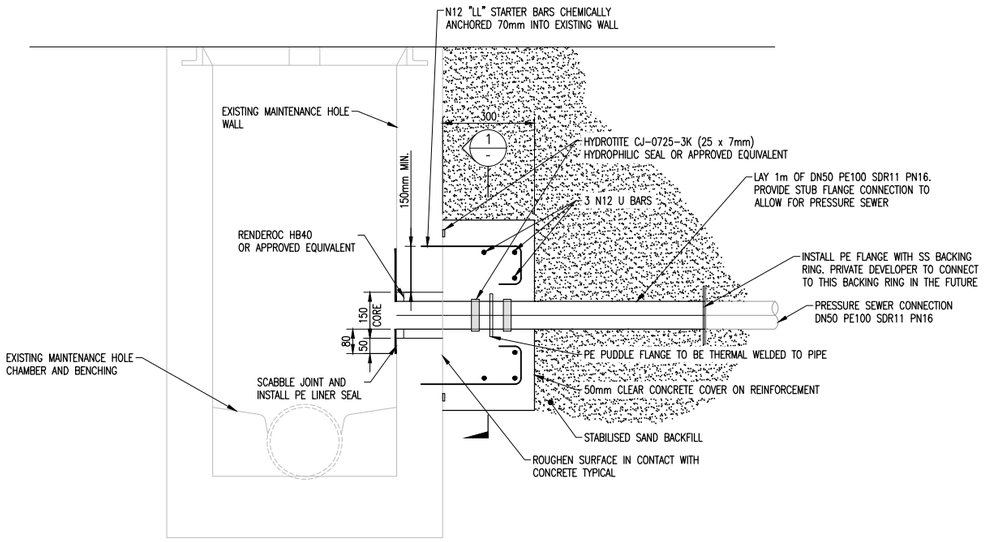
Sydney WATER — SYDNEY WATER CORPORATION

CASE195871WW | SHT 1 OF 2 SHTS

SYDNEY WATER CORPORATION

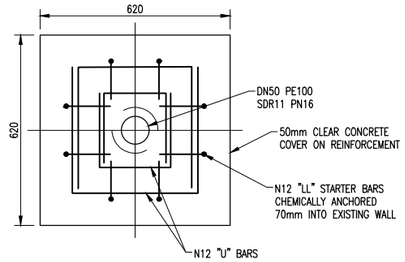
FOR DETAILS OF SERVICES SEE SHEET 1

PLAN DRAWN DATE: 09/02/2022 VERSION: 1 SHEET 1 OF 2 SHEETS



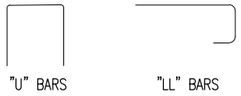
PE PIPE PENETRATION DETAIL WITH PE LINER

NOT TO SCALE

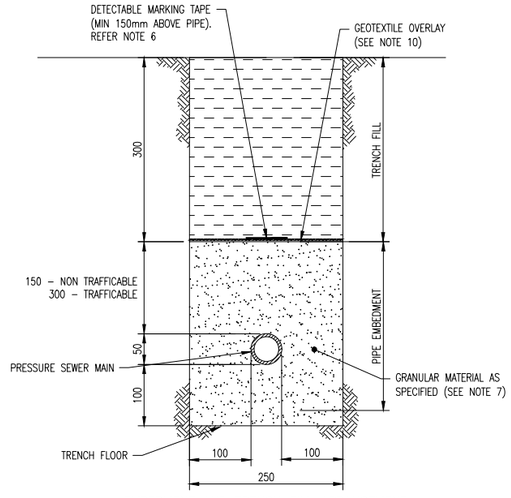


SECTION 01

SCALE 1:10



BAR SHAPES



EMBEDMENT AND TRENCH FILL ARRANGEMENT

SCALE 1:5

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED.
2. BEDDING

   DESIGNER TO SPECIFY SPECIAL BEDDING TO SUIT CONDITIONS IF TRENCH FLOOR HAS:
   - IRREGULAR OUTCROPS OF ROCK.
   - ALLOWABLE BEARING PRESSURE OF <50kPA, (SEE SEW-1200) OR
   - BEEN DISTURBED BY UNCONTROLLED GROUND WATER.
3. KEEP SIDES OF EXCAVATION VERTICAL TO AT LEAST 150 ABOVE PIPE.
4. FOR PRIVATE PROPERTY MINIMUM COVER MAY BE REDUCED TO 300 WITH MECHANICAL PROTECTION WHEN IN ROCK.
5. ALTERNATE TRENCHING TECHNIQUES E.G. NARROW TRENCHING USING "DITCHWITCH" TYPE EXCAVATORS SHALL BE SUBMITTED TO WATER AGENCY FOR CONSIDERATION AND ACCEPTANCE. PROPOSALS SHOULD ADDRESS THE METHOD OF COMPACTION OF THE EMBEDMENT SUPPORT ZONE.
6. MATERIAL AND PRODUCT TO BE IN ACCORDANCE WITH SYDNEY WATERS EPS500 ACCEPTABLE PRODUCT SPECIFICATIONS. DETECTABLE MARKING TAPE WITH SS316 TRACER WIRE MIN 150mm ABOVE TOP OF PIPE.
7. MAXIMUM AGGREGATE SIZE 7mm.
8. PLACEMENT OF EMBEDMENT, TRENCHFILL & COMPACTION TO MEET THE REQUIREMENTS OF WSA 02 PART 3.
9. PIPE TO BE DN50 PE100 SDR 11 PN16.
10. GEOTEXTILE OVERLAY IS REQUIRED FOR COARSE AGGREGATE EMBEDMENT ≥ 5mm

    LAY GEOTEXTILE FILTER FABRIC AGAINST TRENCH FLOOR AND WALLS SUCH THAT IT FULLY ENCASES THE EMBEDMENT.
    - PRESS FILTER FABRIC INTO THE VOIDS BEFORE INSTALLING EMBEDMENT TO PREVENT FABRIC TEARING.
    - PROVIDE A MINIMUM OF 250 OVERLAP AT ALL FILTER FABRIC JOINTS

WORK AS CONSTRUCTED CERTIFICATION	SYDNEY WATER CORPORATION
DEVELOPER	Sydney WATER
W.S.C.	
CONSTRUCTOR	CASE195871WW | SHT 2 OF 2 SHTS.
COMPLETED	
W.A.C. PREPARED	
DESIGNER	SYDNEY WATER CORPORATION
I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS	FOR DETAILS OF SERVICES SEE SHEET 1

PLAN DRAWN DATE: 09/02/2022 VERSION: 1 SHEET 2 OF 2 SHEETS

Appendix C AHIMS Search Results

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : 24WOL8119
Client Service ID : 886081

Eco Logical Australia - Newcastle
Level 7, Suite 28 and 29, 19 Bolton St
Newcastle New South Wales 2300
Attention: Chloe Verman

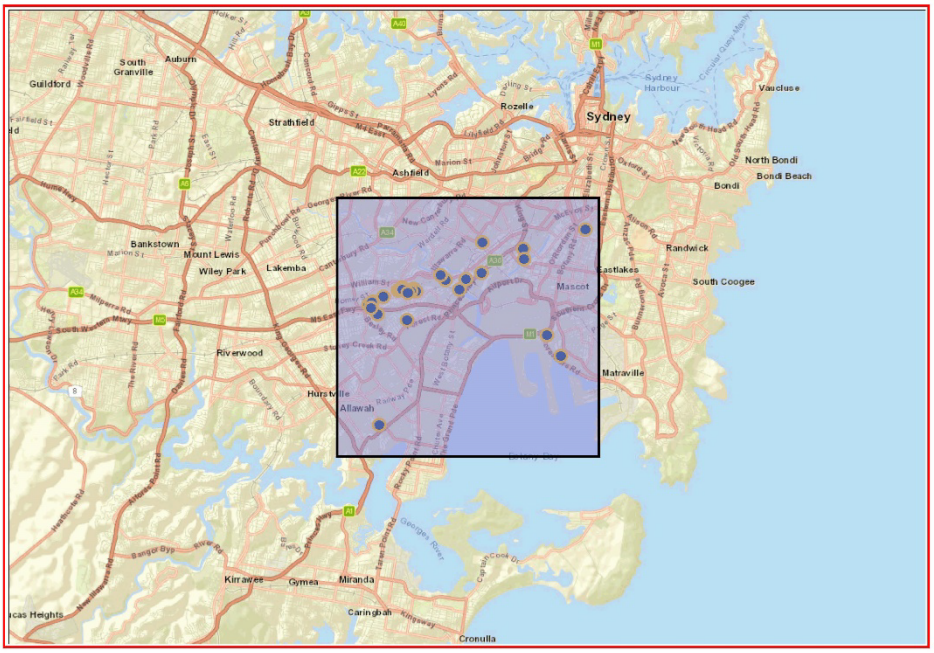
Email: chloe.verman@ecoaus.com.au

Date: 23 April 2024

Dear Sir or Madam:

AHIMS Web Service search for the following area at Datum :GDA, Zone : 56, Eastings : 324691.0 - 334691.0, Northings : 6237661.0 - 6247661.0 with a Buffer of 0 meters, conducted by Chloe Verman on 23 April 2024.

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



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

29	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)

Extensive search - Site list report

Your Ref/PO Number : 24WOL8119
Client Service ID : 886103

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-6-1648	Bibby Street;Carlton;	AGD	56	326215	6238528	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	**Recorders**	ASRSYS					**Permits**		
45-6-3699	WC-OVRH-2	GDA	56	326969	6244040	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Mr.Geordie Oakes,AECOM Australia Pty Ltd - Sydney					**Permits**		
45-6-4017	728-750 Princes Highway Artefact	GDA	56	330202	6244796	Open site	Valid	Artefact : -		
	Contact	**Recorders**	GML Heritage Pty Ltd - Surry Hills,Ms.Sophie Jennings					**Permits**	4916	
45-6-2566	Wolli Creek 2.1	AGD	56	326960	6243880	Closed site	Valid	Artefact : -	Shelter with Deposit	
	Contact	**Recorders**	Tranby College					**Permits**		
45-6-2568	Wolli Creek	AGD	56	327010	6244000	Closed site	Valid	Artefact : -	Shelter with Deposit	
	Contact	**Recorders**	Tranby College					**Permits**		
45-6-2974	Fairview Street - Arncliffe	GDA	56	327332	6242879	Open site	Valid	Artefact : 18		102314
	Contact	**Recorders**	Mr.Steve Brown,Mr.Paul Irish,Coast History & Heritage					**Permits**		
45-6-3700	WC-OVRH-4	GDA	56	327571	6244109	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Mr.Geordie Oakes,AECOM Australia Pty Ltd - Sydney					**Permits**		
45-6-2737	Tempe House 1	AGD	56	329230	6243930	Open site	Partially Destroyed	Artefact : -, Potential Archaeological Deposit (PAD) : -		99680,100447, 102150,10345 2
	Contact	**Recorders**	Doctor Jo McDonald					**Permits**	2016,2209,3767	
45-6-2671	Wolli Creek 3	AGD	56	327550	6243825	Open site	Valid	Artefact : 3		
	Contact	**Recorders**	Michael Guider					**Permits**		
45-6-0629	Buoy;Botany Shell Midden;	GDA	56	333325	6241560	Open site	Valid	Artefact : -, Shell : -, Burial : -	Burial/s,Midden,Shelter with Deposit	
	Contact	**Recorders**	ASRSYS,Mr.Paul Irish,Coast History & Heritage					**Permits**		
45-6-2414	Wolli Creek 1.6;	AGD	56	326280	6243580	Closed site	Valid	Artefact : -	Shelter with Deposit	1452
	Contact	**Recorders**	Tranby College					**Permits**		
45-6-3701	WC-OVRH-3	GDA	56	327472	6244023	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Mr.Geordie Oakes,AECOM Australia Pty Ltd - Sydney					**Permits**		
45-6-2415	Wolli Creek 1.4;	AGD	56	325740	6243270	Closed site	Valid	Artefact : -	Shelter with Deposit	1452
	Contact	**Recorders**	Tranby College					**Permits**		

Report generated by AHIMS Web Service on 23/04/2024 for Chloe Verman for the following area at Datum :GDA, Zone : 56, Eastings : 324691.0 - 334691.0, Northings : 6237661.0 - 6247661.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 29

This information is not guaranteed to be free from error omission. Heritage NSW and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 24WOL8119
Client Service ID : 886103

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-6-2564	Wolli Creek 2.5	AGD	56	327250	6243760	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	
	Contact	**Recorders**	Tranby College					**Permits**		
45-6-2417	Wolli Creek 1.2;	AGD	56	325880	6243400	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	1452
	Contact	**Recorders**	Tranby College					**Permits**		
45-6-3944	New Green Square School	GDA	56	334204	6246587	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact Metropolitan Local Aboriginal	**Recorders**	Strata Archaeology,AMAC Group P/L,AMAC Group P/L,Mr.Benjamin Streat					**Permits**	4809	
45-6-1496	Shea's Creek	AGD	56	331697	6245597	Open site	Not a Site	Shell : -, Artefact : -	Midden	30,591,940
	Contact	**Recorders**	ASRSYS					**Permits**		
45-6-2547	Nanny Goat Hill 1;NGH 1;	AGD	56	328700	6244300	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	**Recorders**	Michael Guider					**Permits**		
45-6-2654	Fraser Park PAD	AGD	56	330100	6245800	Open site	Valid	Potential Archaeological Deposit (PAD) : -		98669,104256, 104257
	Contact	**Recorders**	Navin Officer Heritage Consultants Pty Ltd					**Permits**	1639	
45-6-2565	Wolli Creek 2.4	AGD	56	327010	6243900	Closed site	Valid	Artefact : -	Shelter with Deposit	
	Contact	**Recorders**	Tranby College					**Permits**		
45-6-2418	Wolli Creek 1.1;	AGD	56	325880	6243400	Closed site	Valid	Artefact : -	Shelter with Deposit	1452
	Contact	**Recorders**	Tranby College					**Permits**		
45-6-3697	SR-OVRH-1	GDA	56	326178	6243095	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Mr.Geordie Oakes,AECOM Australia Pty Ltd - Sydney					**Permits**		
45-6-4111	2-4 Hale PAD01	GDA	56	332770	6242382	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Artefact Heritage and Environment - Pyrmont,Mr.Gareth Holes					**Permits**		
45-6-0751	Shea's Creek Dugong	GDA	56	331839	6245378	Open site	Destroyed	Aboriginal Resource and Gathering : -, Non-Human Bone and Organic Material : -, Artefact : -	Open Camp Site	
	Contact	**Recorders**	ASRSYS,AECOM Australia Pty Ltd - Sydney,Mr.Luke Kirkwood					**Permits**		
45-6-0615	Undercliffe Road	AGD	56	328500	6244500	Closed site	Valid	Shell : -, Artefact : -, Art (Pigment or Engraved) : -	Midden,Shelter with Art	99514
	Contact	**Recorders**	Ms.Bronwyn Conyers,D Burns					**Permits**		

Report generated by AHIMS Web Service on 23/04/2024 for Chloe Verman for the following area at Datum :GDA, Zone : 56, Eastings : 324691.0 - 334691.0, Northings : 6237661.0 - 6247661.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 29

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 24WOL8119
Client Service ID : 886103

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-6-2567	Wolli Creek	AGD	56	327250	6243760	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	
	Contact	**Recorders**	Tranby College					**Permits**		
45-6-2416	Wolli Creek 1.3;	AGD	56	325840	6243370	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	1452
	Contact	**Recorders**	Tranby College					**Permits**		
45-6-2198	View Street	AGD	56	329500	6244350	Open site	Valid	Shell : -, Artefact : -	Midden	
	Contact	**Recorders**	Michael Guider,Michael Guider					**Permits**	1330,1331	
45-6-3698	WC-OVR11-1	GDA	56	325918	6243345	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Mr.Geordie Oakes,AECOM Australia Pty Ltd - Sydney					**Permits**		

** Site Status
Valid - The site has been recorded and accepted onto the system as valid
Destroyed The site has been completely impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There is nothing left of the site on the ground but proponents should proceed with caution.
Partially Destroyed - The site has been only partially impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There might be parts or sections of the original site still present on the ground
Not a site - The site has been originally entered and accepted onto AHIMS as a valid site but after further investigations it was decided it is NOT an aboriginal site. Impact of this type of site does not require permit but Heritage NSW should be notified

Report generated by AHIMS Web Service on 23/04/2024 for Chloe Verman for the following area at Datum :GDA, Zone : 56, Eastings : 324691.0 - 334691.0, Northings : 6237661.0 - 6247661.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 29

Appendix D Council Tree Services

[redacted]

"I have no issues for the removal of all 14 Cocos Palms surrounding the building.

Please include replacement planting into the design, preferably to keep the 'palm' theme but use more appropriate species such as Livistonia australis, Washingtonia robusta or Wodyetia bifucata (or similar)"

[redacted]

Appendix E Biodiversity Appendices

E1 Likelihood of Occurrence Assessment

An assessment of likelihood of occurrence was made for threatened and migratory species identified from the database search. Five terms for the likelihood of occurrence of species are used in this report. This assessment was based on database or other records, presence or absence of suitable habitat, features of the proposal site, results of the site inspection and professional judgement. Some Migratory or Marine species identified from the Commonwealth database search have been excluded from the assessment, due to lack of habitat. The terms for likelihood of occurrence are defined below:

- "known" = the species was or has been observed on the site
- "likely" = a medium to high probability that a species uses the site
- "potential" = suitable habitat for a species occurs on the site, but there is insufficient information to categorise the species as likely to occur, or unlikely to occur
- "unlikely" = a very low to low probability that a species uses the site
- "no" = habitat on site and in the vicinity is unsuitable for the species.

A test of significance was conducted for threatened species or ecological communities that were identified within the development footprint through the desktop assessment or had a higher likelihood of occurring and were not identified during the desktop assessment. It is noted that some threatened fauna species that are highly mobile, wide ranging and vagrant may use portions of the study area intermittently for foraging. For these fauna species, the habitat present and likely to be impacted is not considered to be important to the threatened species, particularly in relation to the amount of similar habitat remaining in the surrounding landscape. As such, a test of significance in reference to State or Commonwealth legislation was not considered necessary.

The records column refers to the number of records occurring within 5 km of the study area, as provided by the Atlas of NSW Wildlife (BioNet) and Protected Matters Search Tool database search.

Information provided in the habitat associations' column has primarily been extracted (and modified) from the Commonwealth Species Profile and Threats Database and the NSW Threatened Species Profiles.

Table 4: Likelihood of occurrence table, and requirement of impact assessment, for threatened ecological communities recorded or predicted to occur within 5 km of study area.

Threatened Ecological Community	BC Act Status	EPBC Act Status	Distribution/ Habitat	Likelihood of Occurrence	Impact Assessment Required
Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion/Castlereagh Scribbly Gum Woodland in the Sydney Basin Bioregion (NSW)	V2	E	Occurs primarily in the Castlereagh area. Typically a low woodland occurring at low elevations of up to 80 m above sea level. The ecological community occurs primarily on Tertiary sands and gravels of the Hawkesbury Nepean.	No – this community was not identified during the desktop assessment.	No
Coast Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community/ Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner bioregions (NSW)	E3	E	Occurs from central Queensland to southern NSW. Occurs in coastal catchments, mostly at elevations of less than 20 m above sea level typically within 30 km of the coast. Found on unconsolidated sediments, including alluvium deposits, or peaty soils. Typically found where groundwater is saline or brackish but can occur in areas where groundwater is relatively fresh.	No – this community was not identified during the desktop assessment.	No
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland/ Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions (NSW)	E3	E	Coastal Sclerophyll Swamp Forest often has a layered canopy, dominated by melaleucas and/or *Eucalyptus robusta*. Occurs east of the Great Dividing Range from central Queensland to southern NSW. Typically occurs in low-lying coastal alluvial areas with minimal relief, such as swamps, floodplain pockets, depressions, alluvial flats, back-barrier flats, fans, terraces, and behind fore-dunes. Most commonly occurs below 20 m above sea level on hydric soils that may comprise of sand, silt, clays and organic matter.	No - this community was not identified during the desktop assessment.	No
Coastal Upland Swamps in the Sydney Basin Bioregion	E3	E	Occurs within the eastern part of Sydney. Community occurs primarily on poorly permeable sandstone plateaux in the low relief headwater valleys of streams and on sandstone benches with abundant seepage moisture. Soils are generally acidic and vary from yellow or grey mineral sandy loams with a shallow organic horizon to highly organic spongy black peats with pallid subsoils. Majority of swamps occur at elevations of 200-450 m above sea level.	No - this community was not identified during the desktop assessment.	No
Cooks River/Castlereagh Ironbark Forest of the Sydney Basin Bioregion	E3	CE	Majority found in the Castlereagh area of Sydney. The community occurs as an open forest to low woodland on clay-rich soils derived from predominantly	No – this community was not identified during the desktop assessment.	No

Threatened Ecological Community	BC Act Status	EPBC Act Status	Distribution/ Habitat	Likelihood of Occurrence	Impact Assessment Required
			Tertiary alluvium and on Wianamatta Shale derived soils below 100 m above sea level.		
Eastern Suburbs Banksia Scrub of the Sydney Region	E4B	CE	Community on nutrient poor sand deposits in the eastern and south eastern suburbs of Sydney. It has a structural form predominately of sclerophyllous heath or scrub occasionally with small areas of woodland or low forest.	No – this community was not identified during the desktop assessment.	No
Posidonia australis seagrass meadows of the Manning-Hawkesbury ecoregion	-	E	Aquatic community occurring within sheltered environments of permanently open estuaries. Typically occurs in subtidal waters at depths ranging from less than 1 m to 10 m on sand and silty mud substrate. Salinity is similar to marine levels.	No – this community was not identified during the desktop assessment.	No
River-flat Eucalypt Forest on coastal floodplains of southern New South Wales and eastern Victoria/ River-flat eucalypt forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions (NSW)	E3	CE	Found along the coast from south-east Victoria up to Newcastle, NSW. Generally, a tall, open forest to woodland typically occurring below 50 m above sea level. Found on alluvial landforms related to coastal river floodplains and associated sites where transient water accumulates, including floodplains, river-banks, riparian zones, lake foreshores and creek lines. Soils include silts, clay and sandy loams, gravel and cobbles.	No - this community was not identified during the desktop assessment.	No
Shale Sandstone Transition Forest of the Sydney Basin Bioregion	E4B	CE	Found to the west of Sydney in transitional zones between shale and sandstone substrates. Typically, it occurs at elevations less than 200 m above sea level on soils that are primarily derived from shale substrates and thus tend to have a clay texture, but also have some influence from weathered sandstone substrates. The vegetation of the ecological community is forest or woodland with an overstorey dominated by various Eucalypt species and an understorey comprising of sclerophyll shrubs, grasses and herbs.	No - this community was not identified during the desktop assessment.	No
Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion	-	E	The ecological community varies from a tall open forest to woodland depending on aspect, soil depth and conditions, and previous disturbance. It typically occurs in areas of high rainfall at elevations between 650 m and 1050 m above sea level on basalt and basalt-like substrates in, or adjacent to, the Sydney Basin Bioregion.	No - this community was not identified during the desktop assessment.	No

Threatened Ecological Community	BC Act Status	EPBC Act Status	Distribution/ Habitat	Likelihood of Occurrence	Impact Assessment Required
Western Sydney Dry Rainforest and Moist Woodland on Shale	E3	CE	The ecological community varies from a low closed rainforest, typically in lower slopes and gullies, to a more open moist woodland form on upper slopes and disturbed sites. It is confined to sheltered slopes and gullies on steeply sloping, rugged topography mostly in the Cumberland Plain sub-region and generally limited to elevations below 300 m above sea level on clay soils derived from Wianamatta Group shales.	No - this community was not identified during the desktop assessment.	No

Table 5: Likelihood of occurrence table, and requirement of impact assessment, for threatened fauna species recorded or predicted to occur within 5 km of study area.

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
Amphibians							
Heleioporus australiacus	Giant Burrowing Frog	V	V	Heath, woodland and open dry sclerophyll forest on a variety of soil types except those that are clay based.	0	No – preferred habitat in the form of heath, woodland and open forest adjacent to watercourses was not identified within development footprint. There are no records within a 5 km radius of the development footprint.	No
Litoria aurea	**Green and Golden Bell Frog**	**E**	**V**	**This species can utilise a variety of natural and human-made waterbodies such as coastal swamps, marshes, lakes, other estuary wetlands, riverine floodplain wetlands, stormwater detention basins, farm dams, bunded areas, drains, ditches, and other structures capable of storing water. Permanent swamps and ponds with established fringing vegetation (e.g. Typha sp. and spikerushes–**	**671**	**Likely – marginal dispersal and foraging habitat present within the study area. There is potential habitat present adjacent to the study area within the Landing**	**Yes**

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
				Eleocharis sp.) adjacent to open grassland areas for foraging and free from predatory fish such as Mosquito Fish (*Gambusia holbrooki*).		**Lights and Eve street wetlands .**	
Crinia tinnula	Wallum Froglet	V	-	Associated with acidic swamps on coastal sand plains, occurring in sedgelands and wet heathlands. Some populations occur along drainage lines within other vegetation communities and disturbed areas. Can occasionally be found in swamp sclerophyll forests.	1	No – the study area does not contain nor is it in proximity to any acidic swamps or drainage lines.	No
Birds							
Anthochaera phrygia	Regent Honeyeater	E4A	CE	Eucalypt woodland and open forest, wooded farmland and urban areas with mature eucalypts often containing Box – Ironbark, and riparian forests of *Casuarina cunninghamiana* (River Oak).	0	No – this species forages on eucalypt woodland and open forest. There is no habitat present for this species as the study area is comprised of hardstand surfaces, exotic grass and Cocos Palms.	No
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V	-	Widespread in NSW from coast to inland including the western slopes of the Great Dividing Range and farther west. Species have also been recorded in southern and southwestern Australia. Woodlands and dry open sclerophyll forest, usually eucalypts and mallee associations. Also have recordings in shrub and heathlands and various modified habitats, including regenerating forests. In western NSW, this species is primarily associated with River Red Gum/Black Box/Coolabah open forest/woodland and associated with larger river/creek systems.	2	No – this species requires woodland trees with bark or stumps for nesting. It forages over the tree canopy or over water. There is no such habitat available for this species within the study are which consist of planted Cocos palms, exotic grass and hardstand surfaces.	No
Ardenna grisea	Sooty Shearwater	-	V	Pelagic species. Breeds on islands off NSW from Montague Island to Broughton Island. Present off	0	No – the Sooty Shearwater nest in	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
				eastern NSW mainly October-February. Islands, offshore.		burrows, tussock grassland or forests, or on rock crevices on the costal slopes, and cliff tops and ridges. The study area does not contain such nesting habitat. Being a pelagic species, it mainly forages in the open ocean and only occasionally inshore. There are no records within a 5 km radius of the development footprint.	
Arenaria interpres	Ruddy Turnstone	-	V	Summer migrant. Tidal reefs and pools; pebbly, shelly and sandy shores; mudflats; inland shallow waters; sewage ponds, saltfields; ploughed ground. The Ruddy Turnstone does not breed in Australia.	0	No –There is no suitable foraging habitat such as mudflats, foreshores or rocky platforms present within the study area. The study area consists of hardstand surfaces, exotic grass and planted exotic vegetation and there are no local records.	No
Botaurus poiciloptilus	Australasian Bittern	E1	E	Permanent freshwater wetlands with tall, dense vegetation, particularly *Typha* spp. (bullrushes) and *Eleocharis* spp. (spikerushes).	1	Unlikely – This species forages and nests in wetlands which are densely vegetated with tall rushes and sedges. The preferred habitat is not present within the study area. While there is	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
						potential habitat present adjacent to the study area within the Landing Lights and Eve Street wetlands there is only 1 previous record of this species within a 5 km radius of the study area.	
Calidris acuminata	Sharp-tailed Sandpiper	-	V	Summer migrant. Widespread in most regions of NSW, especially in coastal areas. Shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation.	0	Unlikely – the study area does not contain any wetlands and there are no records of this species within a 5 km radius of the study area.	No
Calidris canutus	Red Knot	-	V	Summer migrant. In NSW, widespread in suitable habitat along the coast. Intertidal mudflats, sandflats sheltered sandy beaches, estuaries, bays, inlets, lagoons, harbours, sandy ocean beaches, rock platforms, coral reefs, terrestrial saline wetlands near the coast, sewage ponds and saltworks. Rarely inland lakes or swamps.	0	Unlikely – the study area does not contain any preferred habitat and there are no records of this species within a 5 km radius of the study area.	No
Calidris ferruginea	Curlew Sandpiper	E1	CE	Summer migrant. Occurs along the entire coast of NSW, and sometimes in freshwater wetlands in the Murray-Darling Basin. Littoral and estuarine habitats, including intertidal mudflats, non-tidal swamps, lakes and lagoons on the coast and sometimes inland. This species does not breed in Australia.	168	No – this species forage for invertebrates on mudflats, edges of shallow pools and drains of intertidal mudflats and sandy shores, and saltmarshes. No such habitat is present for this species within the study area, which is comprised	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
						of hardstand surfaces, exotic grass and Cocos Palms.	
Calidris tenuirostris	Great Knot	V	V	Summer migrant. In NSW, this species is recorded at scattered sites along the coast down to about Narooma. It has also been observed inland at Tullakool, Armidale, Gilgandra and Griffith. Preferred habitat consists of intertidal mudflats or sandflats, including inlets, bays, harbours, estuaries and lagoons.	13	Unlikely – no preferred habitat in the form of intertidal mudflats or sandflats was identified within the study area, which is comprised of 14 Cocos palms, exotic grass and hardstand surfaces.	No
Calyptorhynchus fimbriatum	Gang-gang Cockatoo	E1	E	In NSW, distributed from the south-east coast to the Hunter region, and inland to the Central Tablelands and south-west slopes. Tall mountain forests and woodlands in summer; in winter, may occur at lower altitudes in open eucalypt forests and woodlands, and urban areas.	0	No – the Gang-gang Cockatoo require hollow bearing trees for nesting and predominantly forages on the seeds of *Eucalyptus* and *Acacias.* While this species can forage on the seeds of introduced trees and shrubs in urban areas, there are no records of this species within a 5 km radius of the study area.	No
Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo	V	V	Open forest and woodlands of the coast and the Great Dividing Range where stands of *Allocasuarina* (e.g. Scrub She-oak) or *Casuarina* (e.g. Swamp Oak) trees occur. They prefer areas that have not undergone extensive clearing and are rugged.	0	No – the study area does not contain the preferred habitat. This species requires large hollow bearing eucalypt trees for nesting and selectively feeds on mature	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
						Allocasuarina or *Casuarina* trees. There are no records of this species within a 5 km radius of the study area.	
Charadrius leschenaultii	Greater Sand Plover	V	V	Summer migrant. In NSW, recorded between the northern rivers and the Illawarra, with most records coming from the Clarence and Richmond estuaries. Almost entirely restricted to coastal areas in NSW, mainly on sheltered sandy, shelly or muddy beaches or estuaries with large intertidal mudflats or sandbanks.	4	Unlikely – no preferred habitat in the form of sandy, shelly or muddy beaches or large intertidal mudflats was identified within the study area, which is comprised of 14 Cocos palms, exotic grass and hardstand surfaces. There are only a few records within a 5 km radius.	No
Charadrius mongolus	Lesser Sand Plover	V	V	Summer migrant to Australia. Found around the entire coast but in NSW most common on north coast. Rarely recorded south of the Shoalhaven estuary, and there are few inland records. Inhabits large intertidal sandflats or mudflats in sheltered bays, harbours and estuaries, and occasionally sandy ocean beaches, coral reefs, wave-cut rock platforms and rocky outcrops.	6	Unlikely – the study area is outside this species breeding range. This species roosts during high tide on sandy beaches and spits or on rocky shores, and forage along the water's edge. No such habitat is present within the study area which is comprised of 14 Cocos Palms, exotic grass, and hardstand surfaces.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
Climacteris picumnus victoriae	Brown Treecreeper (south-eastern)	V	V	From eastern through central NSW, west to Corowa, Wagga Wagga, Temora, Forbes, Dubbo and Inverell. Occupy dry open Eucalypt forests and woodlands. Can also occur in mallee and River Red Gum Forests adjacent to wetlands with an open understory consisting of saltbush, grasses, acacias, lignum and cumbungi.	0	No – This species mainly pecks and probe for insects in trees and on the ground, amongst the litter, fallen timber, and tussocks grass within Open Eucalypt forests, woodlands and mallee. It requires dead or living hollow bearing trees or stumps for nesting. There is no such habitat available for this species within the study area which consist of planted Cocos palms, exotic grass and hardstand surfaces. There are no local records of this species within a 5 km radius of the study area.	No
Dasyornis brachypterus	Eastern Bristlebird	E	E	Habitat is characterised by dense, low vegetation and includes sedgeland, heathland, swampland, shrubland, sclerophyll forest and woodland, and rainforest, as well as open woodland with a heathy understorey. In northern NSW occurs in open forest with tussocky grass understorey. It nests among low dense vegetation on the ground and forages on insects, seeds and small fruit. All of these vegetation types are fire prone, aside from the rainforest habitat as utilised by the northern population as fire refuge.	0	Unlikely – preferred habitat in the form of sedgeland, heathland, swampland, shrubland, sclerophyll forest and woodland, and open woodlands containing dense low vegetation was not identified within development footprint. While there is suitable	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
				Age of habitat since fires (fire-age) is of paramount importance to this species.		habitat present in the adjacent wetlands, there are no local records of this species within a 5 km radius of the study area.	
Diomedea antipodensis	Antipodean Albatross	V	V	Pelagic species. Regularly occurs off the NSW south coast from Green Cape to Newcastle during winter. Breeds on islands off the coast of New Zealand. The majority of birds breed on Antipodes Island, with a small number of pairs breeding on Campbell Island.	0	No – This species feeds pelagically on squid, fish and crustaceans. The study area does not contain any waterbody that would provide suitable foraging habitat and there are no records of this species within a 5 km radius of the study area.	No
Diomedea gibsoni	Gibson's Albatross	V	V	Pelagic species. Regularly occurs off the NSW south coast from Green Cape to Newcastle during winter. Breeds on islands off the coast of New Zealand. Known to only breed on the Adams, Disappointment and Auckland islands.	0	No – the study area is outside the known breeding range of this species, and it does not contain any suitable foraging habitat for this pelagic species that feeds on squid, fish and crustaceans. There are no records of this species within a 5 km radius of the study area.	No
Diomedea epomophora	Southern Royal Albatross	-	V	Pelagic species. May occasionally be observed off the south-east coast of mainland Australia. The species is	0	No – the study area is outside the species	No

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				migratory, and possibly circumpolar, occurring in all sectors of the Southern Ocean. Breeds biennially on Campbell Island and in the Auckland Islands south of New Zealand. It feeds primarily on squid and fish.		breeding range, there is no suitable foraging habitat present in the form of a waterbody within the study area, and there are no local records.	
Diomedea exulans	Wandering Albatross	E1	V	Pelagic species. Has been recorded along the length of the NSW coast. This species spends the majority of their time in flight, soaring over the southern oceans. They breed on South Georgia Island, Prince Edward and Marion Islands, Crozet and Kerguelen Islands and Macquarie Island.	3	No – the study area is outside the species breeding range. This species feed in pelagic, offshore and inshore waters, taking fish and cephalopods such as squid, crustaceans and carrion. There is no suitable foraging habitat present in the form of a within the study area, and there are only a few local records.	No
Diomedea sanfordi	Northern Royal Albatross	-	E	Visits Australian waters extending from Fremantle, Western Australia, across the southern water to the Whitsunday Islands in Queensland between June and September. It has been recorded along the length of the NSW coast. The Northern Royal Albatross breeds biennially on Chatham Island and Taiaroa Head on the South Island of New Zealand.	0	No – the study area is outside the species breeding range and there is no suitable foraging habitat present in the study area for this species that primarily on cephalopods, fish, crustaceans and salps. There are no records of	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
						this species within a 5 km radius of the study area.	
Erythrotriorchis radiatus	Red Goshawk	E1	E	In NSW, extends to ~30°S. Recent records confined to the Northern Rivers region north of the Clarence River. Open woodland and forest, often along or near watercourses or wetlands. In NSW, preferred habitats include mixed subtropical rainforest, Melaleuca swamp forest and coastal riparian Eucalyptus Forest.	0	No – preferred habitat in the form of open mixed subtropical rainforest, Melaleuca swamp forest and coastal riparian Eucalyptus Forest was not identified within development footprint. The study area is comprised of 14 Cocos Palm, exotic grass and hardstand surfaces and there are no records within a 5 km radius of the development footprint.	No
Falco hypoleucos	Grey Falcon	V	V	Arid and semi-arid zones. In NSW, found chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range. This species occur in shrubland, grassland and wooded watercourses, occasionally in open woodlands near the coast, and near wetlands.	0	No – this species is rare to the east coast. This species nests in tall eucalypt trees near water or a water course. No such breeding habitat was identified within the study area which consist of planted Cocos palms, exotic grass and hardstand surfaces. There are no previous records of this species within a 5 km radius of the study area.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
Fregetta grallaria grallaria	White-bellied Storm Petrel (Australasian)	-	V	Vagrant birds occur in coastal NSW waters, particularly after storm events.	0	No – no preferred habitat occurs in the study area. This species spends most of its time at sea where it forage for crustaceans and squid. It only breeds and nests on offshore islands in the Lord Howe island group. There are no records of this species within a 5 km radius.	No
Gallinago hardwicki	Latham's Snipe	-	V	Non-breeding migrant to east coast of Australia, extending inland west of the Great Dividing Range in NSW. Freshwater, saline or brackish wetlands up to 2000 m above sea-level; usually freshwater swamps, flooded grasslands or heathlands.	0	Unlikely – the Latham's Snipe forage in mud or in very shallow water with low, dense vegetation. Roosting occurs on the ground near or in foraging areas beside or under clumps of vegetation, among dense tea-tree, in forests, in drainage ditches or plough marks, among boulders, or in shallow water if cover is unavailable. No such habitat was identified within the study area which consist of Cocos palms exotic grass and hardstand surfaces, and	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
						there are no local records of this species.	
Glossopsitta pusilla	Little Lorikeet	V	-	Dry, open eucalypt forests and woodlands, including remnant woodland patches and roadside vegetation. Feeds predominately on nectar and pollen, with nest occurring nearby to feeding areas if possible.	1	Unlikely – preferred habitat in the form of eucalypt forests and woodlands or remnant woodlands was not identified within development footprint. There is only a single record of this species within a 5 km radius of the development footprint.	No
Grantiella picta	Painted Honeyeater	V	V	Widely distributed in NSW, predominantly on the inland side of the Great Dividing Range but avoid arid areas. Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests.	0	No – preferred habitat in the form of Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests was not identified within development footprint. There are no records of this species within a 5 km radius of the development footprint.	No
Haematopus fuliginosus	Sooty Oystercatcher	V	-	Distributed along the entire NSW coast. Rocky headlands, rocky shelves, exposed reefs with rock pools, beaches and muddy estuaries.	1	Unlikely – this species forages on mussels and limpets on exposed rock or coral at low tide, and breeds almost exclusively on offshore islands. No such foraging habitat was	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
						identified within the study area which consist of Cocos palms exotic grass and hardstand surfaces. There is only a single record of this species within a 5 km radius of the study area.	
Haematopus longirostris	Pied Oystercatcher	E1	-	Thinly scattered along the entire NSW coast. Intertidal flats of inlets and bays, open beaches and sandbanks.	7	Unlikely – preferred habitat in the form of intertidal flats of inlets or bays, open beaches and sandbanks were not identified within development footprint. This species forages on molluscs, worms, crabs and small fish on exposed sand, mud and rock at low tide. While they sometimes use saltmarshes or grassy areas for nesting, they predominately nest on costal or estuarine beaches. There are only a few records within a 5 km radius of the development footprint.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
Haliaeetus leucogaster	White-bellied Sea-Eagle	V	-	Distributed along the coastline of mainland Australia and Tasmania, extending inland along some of the larger waterways, especially in eastern Australia. Freshwater swamps, rivers, lakes, reservoirs, billabongs, saltmarsh and sewage ponds and coastal waters. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, forest and urban areas.	1	Unlikely – this highly mobile species may occasionally fly over the study area on feeding forays, however, no preferred breeding habitat in the form of tall open woodland was identified in the development footprint. There is only one single record of this species within a 5 km radius of the development footprint.	No
Hieraaetus morphnoides	Little Eagle	V	-	The Little Eagle is widespread in mainland Australia, central and eastern New Guinea. The Little Eagle is seen over woodland and forested lands and open country, extending into the arid zone. It tends to avoid rainforest and heavy forest. The population of Little Eagle in NSW is considered to be a single population.	2	Unlikely – this highly mobile species may occasionally fly over the study area on feeding forays, however, no preferred breeding habitat in the form of tall living trees was identified in the development footprint. There are only a couple records within a 5 km radius of the development footprint.	No
Hirundapus caudacutus	White-throated Needletail	V	V	All coastal regions of NSW, inland to the western slopes and inland plains of the Great Divide. Occur most often over open forest and rainforest, as well as heathland, and remnant vegetation in farmland.	2	Unlikely – this highly mobile species may occasionally fly over the study area on feeding	No

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				Breeds in eastern Siberia, north-eastern China, and Japan.		forays, however, no preferred roosting habitat such as forests or woodlands was identified in the development footprint. There are only a couple records within a 5 km radius of the development footprint.	
Ixobrychus flavicollis	Black Bittern	V	-	In NSW, records are scattered along the east coast, with individuals rarely being recorded south of Sydney or inland. Occur in terrestrial and estuarine wetlands. Also flooded grassland, forest, woodland, rainforest and mangroves where permanent water is present.	2	Unlikely – no preferred habitat in the form of wetlands, flooded grassland, forest, woodland, rainforest or mangroves with permanent water was identified within the study area. While wetland and mangrove habitat is present within the vicinity of the study area there are only two records within a 5 km radius of the study area.	No
Lathamus discolor	Swift Parrot	E1	CE	In mainland Australia, preferred foraging habitat is Box -Ironbark forests and woodlands either side of the Great Dividing Range and coastal forests containing Swamp Mahogany and Spotted Gum.	0	No – the study area is outside this species breeding range. The Swift Parrot favours winter flowering tree species including *Eucalyptus robusta* (Swamp Mahogany), *Corymbia*	No

Scientific Name		Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
							maculata (Spotted gum), *Corymbia gummifera* (Red Bloodwood, *Eucalyptus sideroxylon* (Mugga Ironbark), and *Eucalyptus albens* (White Box). No such preferred foraging habitat was identified within the study area which consists of 14 Cocos Palms, exotic grass and hardstand surfaces. There are no records of this species within a 5 km radius of the study area.	
Limosa baueri	*lapponica*	Bar-tailed Godwit	-	E	Summer migrant. The subspecies is widespread in the Torres Strait and along the east and south-east coasts of Queensland, New South Wales, and Victoria. Occurs on intertidal mud flats and sand flats, beaches, estuaries and harbours. This species does not breed in Australia, rather, in the northern hemisphere.	0	No – this species rarely forages in vegetated or grassy areas. The Bar-tailed Godwit predominately forages in shallow water in tidal estuaries and harbours, where they prefer exposed sandy substrates, soft mud with beds of seagrasses. No such preferred foraging habitat was identified within the study area which consists of 14 Cocos Palms, exotic grass and hardstand surfaces. There are no	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
						records of this species within a 5 km radius of the study area.	
Limosa limosa	Black-tailed Godwit	V	E	Summer migrant. Arrives in August and leaves in March. In NSW, most frequently recorded at Kooragang Island, with occasional records elsewhere along the coast, and inland in the Murray-Darling Basin, on the western slopes of the Northern Tablelands and in the far north-western corner of the state. Commonly found in sheltered bays, estuaries and lagoons with large intertidal mudflats or sandflats	9	Unlikely – the study area contains no large intertidal mudflats or sandflats. This species forages for insects, crustaceans, molluscs, worms, larvae, spiders, fish eggs, frog eggs and tadpoles in soft mud or shallow water, and roosts and loafs on low banks of mud, sand and shell bars. No such habitat is available in the study area which is comprised of 14 Cocos Palms, exotic grass and hardstand surfaces.	No
Limicola falcinellus	Broad-billed sandpiper	V	-	Summer migrant. Occur occasionally on the southern Australian coast. In NSW, mainly recorded in Hunter River estuary, with birds occasionally reaching the Shoalhaven estuary. There are few records for inland NSW. This species is commonly found in sheltered bays along the coast, particularly favouring estuaries mudflats. Occasionally occur on saltmarshes, shallow freshwater lagoons, saltworks and sewage farms, and in areas with large intertidal mudflats.	2	Unlikely – this species forage worms, including polychaetes, molluscs, crustaceans, insects, seeds and occasionally rootlets and other vegetation in wet mud and shallow water. They roost in sheltered sand, shell or shingle beaches. No such habitat is present within the study area	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
						which is comprised of 14 Cocos Palms, exotic grass and hardstand surfaces, and there are only a couple of records within 5 km of the study area.	
Macronectes giganteus	Southern Giant Petrel	E1	E	Pelagic species. Common visitor off the coast of NSW.	0	No – this species breeds on the Antarctic continent, Peninsula and islands. There is no suitable foraging habitat present within the study area for this marine species that predate on cephalopods, euphausiids and small penguins, and scavenge from fishing vessels and animal carcases on land.	No
Macronectes halli	Northern Giant Petrel	V	V	Pelagic species. Common visitor in NSW waters, predominantly along the south-east coast during winter and autumn.	0	No – the study area is outside the species breeding range in Australia (Macquarie Island) and this species mainly forage at sea or savage on penguin and seal carcasses on land. There is no habitat present for this species as the study area is comprised of hardstand	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
						surfaces, exotic grass and Cocos Palms.	
Melanodryas cucullate cucullata	South-eastern Hooded Robin	E1	E	Found throughout much of inland NSW, with the exception of the extreme north-west, where it is replaced by subspecies *picata*. Open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas.	0	No – preferred habitat in the form of open eucalypt woodland, acacia scrub or mallee was not identified within development footprint. There are no records within a 5 km radius of the development footprint.	No
Neophema chrysostoma	Blue-winged Parrot	V	V	Blue-winged parrots inhabit a range of habitats from coastal, sub-coastal and inland areas, through to semi-arid zones. They tend to favour grasslands and grassy woodlands and are often found near wetlands both near the coast and in semi-arid zones. Pairs or small parties of blue-winged parrots forage mainly near or on the ground for seeds of a wide range of native and introduced grasses, herbs and shrubs.	0	Unlikely – grass within study area may provide very marginal foraging habitat however the study area contains no suitable breeding habitat for this species which nests in hollow bearing trees or stumps. The study area contains 14 Cocos palms and hard standing surfaces and there are no records within a 5 km radius of the development footprint.	No
Neophema pulchella	Turquoise Parrot	V	-	Occurs along the length of NSW from the coastal plains to the western slopes of the Great Dividing	1	Unlikely – grass within study area may provide	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
				Range. Eucalypt and cypress pine open forests and woodlands, ecotones between woodland and grassland, or coastal forest and heath.		very marginal foraging habitat for this species that spend most of their time on the ground searching for grass seeds. However, the study area contains no suitable breeding habitat for this species which nests in hollow bearing trees and stumps, or fence posts. The study area contains 14 Cocos palms and hard standing surfaces and there is only a single record of this species within a 5 km radius of the development footprint.	
Neophema chrysogaster	Orange-bellied Parrot	CE	CE	A ground feeding parrot, endemic to south-eastern Australia. Predominantly occurs in costal and sub-coastal areas, favouring saltmarshes, heathlands, low scrubland and grassy areas. Fewer than 50 birds remain in the wild.	0	Unlikely – very rare species. The study area contains a 14 Cocos Palms, hardstand surfaces and a limited extent of exotic grass. While grassy areas are preferred habitat for the species, the study area only contains marginal habitat and there are no records of this species within a 5 km radius.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
Ninox strenua	Powerful Owl	V	-	Woodland, open sclerophyll forest, tall open wet forest and rainforest, including on the urban fringe in the Sydney Basin. The Powerful Owl relies upon large (>20 cm) hollows in mature trees for breeding within the above habitat types.	13	Unlikely – this highly mobile species may occasionally fly over the study area on feeding forays. However, this species roosts in vegetation species such as *Syncarpia glomulifera* (Turpentine), Allocasuarina littoralis (Black She-oak), *Acacia melanoxylon (Blackwood), Angophora floribunda* (Rough-barked Apple), *Exocarpus cupressiformis* (Cherry Ballart) and eucalypt species, and require large hollow bearing trees for nesting. No such preferred habitat is present within the study area which is comprised of hardstand surfaces, exotic grass, and Cocos Palms.	No
Numenius madagascariensis	Eastern Curlew	-	E	Summer migrant. Primarily coastal distribution in NSW, with some scattered inland records. Estuaries, bays, harbours, inlets and coastal lagoons, intertidal mudflats or sandflats, ocean beaches, coral reefs, rock platforms, saltmarsh, mangroves,	0	Unlikely – the preferred foraging habitat in the form of sheltered intertidal sandflats, rockpools, coral reefs and beaches is not present	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
				freshwater/brackish lakes, saltworks and sewage farms. Breeds in Russia and north-eastern China.		within the study area. Nor is the preferred roosting habitat for this species which comprises of sandy spits and islets among saltmarsh or mangroves, on reef-fats in the shallow water near-coastal wetlands, and occasionally in trees. The study area is comprised of hardstand surfaces, exotic grass, and Cocos Palms, and there are no local records of this species.	
Pachyptila turtur subantarctica	Fairy Prion (southern)	-	V	Marine species. Often beachcast on the south-eastern coast of Australia and are commonly seen offshore over the continental shelf and over pelagic waters. Beachcast birds are found along the whole coast of NSW. This species is found in temperate and subantarctic seas. The Fairy Prion sometimes forages over continental shelves and the continental slope, but it can come close inshore in rough weather. It may also feed in deep coastal waters.	0	No – there is no suitable foraging habitat present within the study area for this pelagic species that rely on waterbodies to forage. The study area is also outside this species breeding range in Australia (Macquarie Islands), and there are no records of this species within a 5 km radius of the study area.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
Petroica boodang	Scarlet Robin	V	-	In NSW, it occurs from the coast to the inland slopes. Dry eucalypt forests and woodlands, and occasionally in mallee, wet forest, wetlands and tea-tree swamps.	2	Unlikely – the preferred habitat in the form of dry eucalypt forests and woodlands, mallee, wet forest, wetlands and tea-tree swamps was not identified within the study area which comprises hardstand surfaces, exotic grass, and Cocos Palms. There are only two records of this species within a 5 km radius of the study area.	No
Petroica phoenicea	Flame Robin	V	-	Winter migrant. In NSW, breeds in upland areas, and in winter many birds move to the inland slopes and plains, or occasionally to coastal areas. Likely that there are two separate populations in NSW, one in the Northern Tablelands, and another ranging from the Central to Southern Tablelands. Breeds in upland tall moist eucalypt forests and woodlands. In winter uses dry forests, open woodlands, heathlands, pastures and native grasslands. Occasionally occurs in temperate rainforest, herb fields, heathlands, shrublands and sedgelands at high altitudes.	1	Unlikely – preferred habitat not identified within development footprint.	No
Pterodroma leucoptera leucoptera	Gould's Petrel	V	E	Pelagic species. Recorded off NSW coast. Breeds on Cabbage Tree Island offshore from Port Stephens, and on nearby Boondelbah island. Nesting habitat is located within steeply sloping rock scree gullies with a canopy of Cabbage Tree Palms.	0	No – the study area is outside this species breeding range and there is no preferred nesting habitat in the form of steeply sloping rock scree	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
						with a canopy of Cabbage Tree Palms present within the study area which comprises 14 Cocos Palms, exotic grass and hard stand surfaces. This species forages at sea and there are no records of within a 5 km radius of the study area.	
Pterodroma neglecta neglecta	Kermadec Petrel (western)	V	V	Pelagic species. Vagrant birds occur in coastal NSW waters, particularly after storm events. Breeds on Balls Pyramid (near Lord Howe Island) and Phillip Island (near Norfolk Island).	0	No – the study area is outside this species breeding range in Australia (Balls Pyramid and Phillip Island). This species that forages at sea and there are no records of this species within a 5 km radius of the study area.	No
Ptilinopus superbus	Superb Fruit-Dove	V	-	Principally from north-eastern Qld to north-eastern NSW. Further south, it is confined to pockets of suitable habitat, and occurs as far south as Moruya. Preferred habitat includes rainforest and closed forests. May also forage in eucalypt or acacia woodland where there are fruit-bearing trees.	4	Unlikely – preferred habitat in the form rainforest, closed forest, eucalypt or acacia woodland was not identified within development footprint. While this species is known to forage on the fruits of fig and palm tree species, the study area only consists of 14 Cocos	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
						palms with no surrounding canopy cover and would only provide very limited and marginal foraging habitat for this species. There are only a few records within a 5 km radius of the development footprint.	
Pycnoptilus floccosus	Pilotbird	-	V	Pilotbirds are endemic to south-east Australia. They are ground dwelling birds that occur in dense forests with heavy undergrowth from the Blue Mountains west of Newcastle, around the wetter forests of eastern Australia, to Dandenong near Melbourne.	0	No – preferred habitat in the form dense forests with heavy undergrowth, was not identified within the study area and there are no records of this species within a 5 km radius.	No
Rostratula australis	Australian Painted Snipe	E1	E	In NSW most records are from the Murray-Darling Basin. Other recent records include wetlands on the Hawkesbury River and the Clarence and lower Hunter Valleys. Swamps, dams, and nearby marshy areas.	0	No – the study area is outside the area in which this species has previously been recorded. No preferred habitat in the form of wetlands, swamps or dams with nearby marshy areas was identified within the study area and no local records.	No
Stagonopleura guttata	Diamond Firetail	V	V	Widely distributed in NSW, mainly recorded in the Northern, Central and Southern Tablelands, the Northern, Central and South Western Slopes and the	1	Unlikely – no preferred habitat in the form of grassy eucalypt	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
				North West Plains and Riverina, and less commonly found in coastal areas and further inland. Grassy eucalypt woodlands, open forest, mallee, Natural Temperate Grassland, secondary derived grassland, riparian areas and lightly wooded farmland.		woodlands, open forest, mallee, Natural Temperate Grassland, secondary derived grassland, riparian areas and lightly wooded farmland was identified within development footprint. There is only one single record of this species.	
Sternula albifrons	Little Tern	E1	-	Occur in sheltered costal environments such as lagoons, estuaries, river mouths and deltas, lakes, bays, harbours and inlets. They particularly favour inlets with exposed sandbanks or sand-spits and on exposed ocean beaches.	67	Unlikely – this species forage on small fish, crustaceans, worms and molluscs in shallow waters of estuaries, coastal lagoons, lakes, and sometimes at sea. It roosts and nests on sand around the preferred habitat. No such preferred habitat was identified within the study area.	No
Sternula nereis nereis	Australian Fairy Tern	-	V	Known from NSW in the past, but it is unknown if it persists. Fairy Terns utilise embayments of a variety of habitats including offshore, estuarine or lake islands, wetlands and mainland coastline. Nests on sheltered sandy beaches, spits and banks above the high tide line and below vegetation.	0	Unlikely – this species forage on small fish, crustaceans, and molluscs in shallow water in embayments offshore, estuarine or lake, wetlands and mainland coastline. No such	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
						preferred foraging habitat, nor suitable breeding habitat in the form of sandy beaches, spits and banks was identified within the study area. There are no local records within a 5 km radius of the study area.	
Thalassarche bulleri	Buller's Albatross	-	V	Marine, pelagic species. Breeds on subtropical and subantarctic islands off New Zealand. Occasional visitor to Australian coastline.	0	Unlikely – the study area is outside the species breeding range and there is no preferred foraging habitat present in the study area for this pelagic species that mainly forage on squid, as well as fish, krill and tunicates. There are also no records of this species within a 5 km radius of the study area.	No
Thalassarche bulleri platei	Northern Buller's Albatross	-	V	Marine, pelagic species. The Northern Buller's Albatross is mostly limited to Pacific Ocean and Tasman Sea but is an occasional visitor to east coast of mainland Australia. The species occurs over inshore, offshore and pelagic waters however habitat preferences are poorly known. Breeds on islands off New Zealand.	0	Unlikely – rare to the east coast of Australia. The study area is also outside the species breeding range and there is no preferred foraging habitat present in the study area for this pelagic species that mainly forage on squid and fish. There are also no records of this	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
						species within a 5 km radius of the study area.	
Thalassarche carteri	Indian Yellow-nosed Albatross	-	V	Pelagic species. Breeds on islands off South Africa and France. Forages predominately in the southern Indian Ocean.	0	No – the study area is outside the species breeding range and there is no preferred foraging habitat present in the study area for this pelagic species that forages within the ocean. There are also no records of this species within a 5 km radius of the study area.	No
Thalassarche cauta	Shy Albatross	E1	E	Pelagic species. Occurs along the east coast south from Stradbroke Island and across the south coast to Carnarvon in WA. It is commonly recorded off southeast NSW, though rarely north of Sydney.	0	Unlikely – this species spends most of its time at seas and only occasionally occurs in bays and harbours where it forages on fish, crustaceans, offal and squid. The study area is outside the species breeding range, contain no suitable foraging habitat and there are no records within a 5 km radius.	No
Thalassarche eremita	Chatham Albatross	-	E	Pelagic species. Occurs in subantarctic and subtropical waters. It occurs both onshore and offshore and enters harbours and bays. This species breeds on islands off New Zealand and is a rare visitor to the east coast of mainland Australia.	0	No – rare to the east coast of Australia, it forages pelagically, and the study area is outside the species breeding range. There are	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
						no records of this species within a 5 km radius. Of the study area.	
Thalassarche impavida	Campbell Albatross	-	V	Pelagic species. Rare vagrant to southeast Australian waters. It inhabits subantarctic and subtropical waters. It occurs both onshore and offshore, and enters harbours and bays. Campbell Albatross nests on ledges and steep slopes covered in low native grasses, tussocks and mud on Campbell Island, south of New Zealand.	0	No – rare to the east coast of Australia, it forages pelagically, and the study area is outside the species breeding range. There are no records of this species within a 5 km radius of the study area.	No
Thalassarche melanophris	Black-browed Albatross	V	V	Marine species. Regularly recorded off the NSW coast during May-November. This species nets annually on Antarctic and subantarctic islands.	0	No – this species forage pelagically, the study area is outside the species breeding range, and there are no records of this species within a 5 km radius of the study area.	No
Thalassarche salvini	Salvin's Albatross	-	V	Pelagic species. Distributed on waters from southern QLD to SA, and Tasmania. This species prefers subantarctic and subtropical waters and it occurs both onshore and offshore and enters harbours and bays. Breeds on islands off New Zealand. Visitor to Australian waters in the non-breeding season.	0	Unlikely – this species forage on squid and fish in shelf waters, the study area is outside the species breeding range, and there are no records of this species within a 5 km radius of the study area.	No
Thalassarche steadi	White-capped Albatross	-	V	Pelagic species. Likely common off the coast of south-east Australia throughout the year, although limited information is known for the species. It occurs both	0	Unlikely – this species is believed to forage on squid and fish in shelf waters, the study area is	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
				inshore and offshore and enters harbours and bays Breeds on islands off New Zealand.		outside the species breeding range, and there are no records of this species within a 5 km radius of the study area.	
Tringa nebularia	Common Greenshank	-	E	Summer migrant. Recorded in most coastal regions of NSW. Occurs in terrestrial wetlands (swamps, lakes, dams, rivers, creeks, billabongs, waterholes and inundated floodplains, claypans, saltflats, sewage farms and saltworks dams, inundated rice crops and bores) and sheltered coastal habitats (mudflats, saltmarsh, mangroves, embayments, harbours, river estuaries, deltas, lagoons, tidal pools, rock-flats and rock platforms).	0	Unlikely – the preferred habitat was not identified within development footprint and there are no records of this species within a 5 km radius of the study area.	No
Mammals							
Arctocephalus pusillus doriferus	Australian Fur-Seal	V	-	Marine species. Occurs along parts on coastal NSW where it can be observed resting on beaches or rock ledges in the intertidal zone.	1	No – strictly marine species, and there is no suitable habitat in the form of a waterbody, beach or rock ledges within the study area which is comprised of 14 Cocos Palms, exotic grass and hardstand surfaces.	No
Chalinolobus dwyeri	Large-eared Pied Bat	V	E	Wet and dry sclerophyll forests, Cypress Pine dominated forest, woodland, sub-alpine woodland adjacent (usually within 2 km) to clifflines. Roosting habitat includes caves, cliff crevices, old mine workings, and disused Fairy Martin nests with	0	Unlikely – the preferred habitat in the form of wet and dry sclerophyll forests, Cypress Pine dominated forest, woodland, sub-alpine	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
				contemporary breeding habitat comprising caves (mostly sandstone) with crevices in domed roofs.		woodland adjacent to clifflines was not identified within development footprint and there are no records of this species within a 5 km radius.	
Dasyurus maculatus maculatus	Spotted-tailed Quoll (south-eastern mainland population)	V	E	Found on the east coast of NSW, Tasmania, eastern Victoria and north-eastern Qld. Rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline.	0	No – preferred habitat in the form of rainforest, open forest, woodland, coastal heath, and riparian forest was not identified within development footprint. There are no records within a 5 km radius of the development footprint.	No
Dugong dugon	Dugong	E1	-	Marine species. In NSW they occur in costal and estuarine waters, particularly in areas with large seagrass beds that sometimes contains *Halophila* seagrass species.	2	No – strictly marine species, and there is no suitable habitat in the form of a waterbody, within the study area which is comprised of 14 Cocos Palms, exotic grass and hardstand surfaces.	No
Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern)	E1	E	Found in south-eastern NSW, east of the Great Dividing Range south from the Hawkesbury River. Heath or open forest with a heathy understorey on sandy or friable soils.	0	No – preferred habitat in the form of heath or open forest was not identified within development footprint. There are no records within a 5 km	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
						radius of the development footprint.	
Miniopterus australis	**Little Bent-winged Bat**	**V**	**-**	**Moist eucalypt forest, rainforest, vine thicket, wet and dry sclerophyll forest, Melaleuca swamps, dense coastal forests and banksia scrub. Roost in caves, tunnels, tree hollows, abandoned mines, stormwater drains, culverts, bridges and sometimes buildings.**	**0**	**Potential – potential roosting habitat is present within the study area in the form of human-made structures. While this species predominately forages on small insects beneath the dense canopy of forests, it may forage on insects that congregate around light fixtures or around the canopy of the exotic vegetation within in the immediate vicinity of the existing building.**	**Yes**
Miniopterus orianae oceanensis	**Large Bent-winged Bat**	**V**	**-**	**Rainforest, wet and dry sclerophyll forest, monsoon forest, open woodland, paperbark forests and open grassland. Primarily roosts in caves, but also derelict mines storm-water tunnels, buildings and other man-made structures.**	**23**	**Potential – potential roosting habitat is present within the development footprint in the form of human-made structures. This species may also forage on moths and other flying insects congregating around light fixtures or above the canopy of the exotic vegetation in the vicinity of the existing building.**	**Yes**

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
Myotis macropus	**Southern Myotis**	**V**	**-**	**Foraging habitat is waterbodies (including streams, or lakes or reservoirs) and fringing areas of vegetation up to 20m. Roosting habitat includes hollow-bearing trees and made-made structures including culverts and stormwater tunnels.**	**4**	**Potential – potential foraging habitat identified adjacent to the study area in the form of waterbodies and potential roosting habitat identified within development footprint in the form of human-made structures. This species may also forage on moths and other flying insects congregating around light fixtures or above the canopy of the exotic vegetation in the vicinity of the existing building.**	**Yes**
Notamacropus parma	Parma Wallaby	V	V	The species once occurred in north-eastern NSW from the Queensland boarder to the Bega area in the southeast. Their range is now confined to the coast and ranges of central and northern NSW from the Gosford district to south of the Bruxner Highway between Tenterfield and Casino. Wet sclerophyll forest with a thick, shrubby understorey and nearby grassy patches, or dry sclerophyll forests with a dense understorey.	0	No – the study area is outside of known distribution, and the preferred habitat in the form of wet sclerophyll forest with a thick, shrubby understorey and nearby grassy patches, or dry sclerophyll forests with a dense understorey was not identified within development footprint. There are also no records of this species within a 5	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
						km radius of the study area.	
Perameles nasuta	Long-nosed Bandicoot population in the inner west Sydney	E2	-	Exact area occupied by the population is not clearly defined, and includes the local government areas (LGA) of Marrickville and Canada Bay, with the likelihood that it also includes Canterbury, Ashfield and Leichhardt LGAs.	9	Unlikely – the study area outside of populations known distribution and this species prefers grassy areas that contain undergrowth for shelter and nesting. No such habitat is present within the study area that contains 14 Cocos Palms, exotic grass and hardstand surfaces. There are only a few previous records of this species within a 5 km radius of the study area.	No
Petauroides volans	Greater Glider	E1	E	Eucalypt forests and woodlands, particularly those containing timbered watercourses. The species relies on large hollows in mature trees for shelter and breeding.	0	No – the preferred habitat in the form of eucalypt forests and woodlands with timbered watercourses was not identified within development footprint. There are no records within a 5 km radius of the development footprint.	No
Petaurus australis australis	Yellow-bellied Glider (south-eastern)	V	V	Found along the eastern coast to the western slopes of the Great Dividing Range, from southern Queensland to Victoria. Occur in tall mature eucalypt	0	No – the study area contains no tall mature eucalypt forests, which is	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
				forest generally in areas with high rainfall and nutrient rich soils. Shelters in hollows found in large, old trees.		the preferred habitat of this species. There are no records within a 5 km radius of the development footprint. .	
Phascolarctos cinereus	Koala	E1	E	In NSW it mainly occurs on the central and north coasts with some populations in the west of the Great Dividing Range where it occupied eucalypt woodlands and forests.	2	No – no preferred habitat in the form of eucalypt woodlands and forest was identified within development footprint.	No
Pseudomys novaehollandiae	New Holland Mouse	P	V	Open heathlands, woodlands and forests with a heathland understorey, vegetated sand dunes.	0	No – the preferred habitat in the form of open heathlands, woodlands or forests with a healthy understorey was not identified within development footprint. There are no records within a 5 km radius of the development footprint.	No
Pteropus poliocephalus	**Grey-headed Flying-fox**	**V**	**V**	**Subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.**	**894**	**Likely – potential foraging habitat identified within development footprint including 14 Cocos palm trees.**	**Yes**
Saccolaimus flaviventris	**Yellow-bellied Sheathtail-Bat**	**V**	**-**	**Roosts in tree hollows and buildings. Forages across a wide range of habitats, high and fast in areas of denser vegetation but lower in areas where habitat is more open.**	**4**	**Potential – potential foraging habitat is present within the development footprint as well as potential roosting**	**Yes**

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
						habitat in the form of human-made structures.	
Invertebrates							
Meridolum maryae	Maroubra Woodland Snail	E	E	The species is found in the leaf litter of coastal vegetation communities, most commonly in heathland on foredunes also from areas of podsolised dunes/sand plains that support taller heath communities including Eastern Suburbs Banksia Scrub	0	Unlikely – the preferred habitat in the form heathlands on foredunes was not identified within the study area which comprises 14 Cocos Palms, exotic grass and hard standing surfaces. There are no records within a 5 km radius of the development footprint.	No
Reptiles							
Caretta caretta	Loggerhead turtle	E1	E	Marine species. Nests on open sandy beaches along the coast in Queensland.	3	No – this marine species spends most of its time in the ocean and it nests on sandy beaches in Queensland.	No
Chelonia mydas	Green Turtle	V	V	Marine species. Nests on open sandy beaches along the coast in northern Australia.	0	No – this marine species spends most of its time in the ocean and it nests on sandy beaches in northern Australia.	No
Eretmochelys imbricata	Hawksbill Turtle	-	V	Marine species. Nests on open sandy beaches along the coast in northern Australia.	0	No – this marine species spends most of its time in the ocean and it nests on	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution/ Habitat	BioNet Records within 5 km	Likelihood of Occurrence	Impact Assessment Required
						sandy beaches in northern Australia.	
Hoplocephalus bungaroides	Broad-headed Snake	E1	E	Restricted to sandstone ranges within a 200 km radius of Sydney. Often found in rocky outcrops and adjacent sclerophyll forest and woodland, most suitable habitat occurring in sandstone ridgetops.	0	No – the preferred habitat in the form of rocky outcrops with adjacent sclerophyll forest and woodland was not identified within the study area which comprises 14 Cocos Palms, exotic grass and hard standing surfaces. There are no records of this species within a 5 km radius.	No
Natator depressus	Flatback Turtle	-	V	Marine species. Nests on open sandy beaches along the coast in northern Australia.	0	No – No – this marine species spends most of its time in the ocean and it nests on sandy beaches in northern Australia.	No

BC Act: E1 = Endangered, E2 = Endangered Population, E4 = Extinct, E4A = Critically Endangered, V = Vulnerable; EPBC Act: Bonn = Listed migratory species under Bonn Convention, CD = Conservation Dependent, CE = Critically Endangered, E = Endangered, V = Vulnerable, X = Extinct.

Table 6: Likelihood of occurrence, and requirement of impact assessment, for threatened flora species recorded or predicted to occur within 5 km of the study area.

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Habitat	Number of records within 10 km radius of subject site	Likelihood of Occurrence	Impact Assessment Required
Acacia bynoeana	Bynoe's Wattle	E1	V	Heath or dry sclerophyll forest on sandy soils.	2	No – no potential habitat present. The study area is comprised of exotic vegetation and hardstand surfaces. There are no areas of heath or dry sclerophyll forest present.	No
Acacia pubescens	Downy Wattle	V	V	Open woodland and forest, including Cooks River/Castlereagh Ironbark Forest, Shale/Gravel Transition Forest and Cumberland Plain Woodland. Occurs on alluviums, shales and at the intergrade between shales and sandstones.	5	Unlikely – no potential habitat is present. There are no open woodland and forest, including Cooks River/Castlereagh Ironbark Forest, Shale/Gravel Transition Forest and Cumberland Plain Woodland present. There are only a few records a long distance away from the study area.	No
Acacia terminalis subsp. *Eastern Sydney*	Sunshine Wattle	E1	E	Coastal scrub and dry sclerophyll woodland on sandy soils.	10	Unlikely –no potential habitat is present. There are no coastal scrub or dry sclerophyll woodland present within the study area. The study area is located on an old landfill site which has undergone significant soil disturbance	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Habitat	Number of records within 10 km radius of subject site	Likelihood of Occurrence	Impact Assessment Required
						and comprises of exotic vegetation and hardstand surfaces. The records of this species are a long distance away from the study area.	
Allocasuarina glareicola	-	E1	E	Castlereagh open woodland on alluvial gravels with a clay subsoil.	0	No – no potential habitat present. The study area is comprised of exotic vegetation and hardstand surfaces. There are no areas of Castlereagh open woodland present and there are no records of this species within a 5 km radius of the study area.	No
Caladenia tessellata	Thick-lipped Spider-orchid	E1	V	Grassy sclerophyll woodland on clay loam or sandy soils, or low woodland with stony soil.	0	No – no potential habitat present. The study area is comprised of exotic vegetation and hardstand surfaces. There are no areas of grassy sclerophyll woodland or low woodland present and there are no records of this species within a 5 km radius of the study area.	No
Cryptostylis hunteriana	Leafless Tongue-orchid	V	V	Coastal heathlands, margins of coastal swamps and sedgelands, coastal forest, dry woodland, and lowland forest.	0	No – no potential habitat in the form of heathland, coastal swamp, sedgelands,	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Habitat	Number of records within 10 km radius of subject site	Likelihood of Occurrence	Impact Assessment Required
						coastal forest, dry woodland, or lowland forest present within the study area. The study area is comprised of exotic vegetation and hardstand surfaces and there are no records of this species within a 5 km radius of the study area.	
Eucalyptus camfieldii	Camfield's Stringybark	V	V	Coastal heath on shallow sandy soils overlying Hawkesbury sandstone, mostly on exposed sandy ridges.	0	No – the study area contains no native trees; it is comprised of exotic vegetation and hardstand surfaces. There is no potential habitat in the form of coastal heath present within the study area and there are no records of this species within a 5 km radius.	No
Genoplesium baueri	Bauer's Midge Orchid	E1	E	Dry sclerophyll forest and moss gardens over sandstone.	0	No – no potential habitat present. The study area is comprised of exotic vegetation and hardstand surfaces. There are no areas of dry sclerophyll forest or moss gardens present and there are no records of this species	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Habitat	Number of records within 10 km radius of subject site	Likelihood of Occurrence	Impact Assessment Required
						within a 5 km radius of the study area.	
Leucopogon exolasius	Woronora Beard-heath	V	V	Upper Georges River area and in Heathcote National Park. Woodland on sandstone.	0	No – no potential habitat present. The study area is comprised of exotic vegetation and hardstand surfaces. There are no areas of woodland present and there are no records of this species within a 5 km radius of the study area.	No
Maundia triglochinoides	-	V	-	Distributed on the central coast and north coast of NSW, extending into southern Queensland. Occur in permanent swamps and wetlands.	2	Unlikely – there is no permanent swamps or wetlands within the study area which is comprised of exotic vegetation and hardstand surfaces. The study area has been subjected to high level of soil disturbance in the past and the only two records of this species area long distance away from the study area.	No
Melaleuca biconvexa	Biconvex Paperbark	V	V	Damp places, often near streams or low-lying areas on alluvial soils.	0	Unlikely – the preferred habitat is not present within the study area which comprises of exotic vegetation and hardstand surfaces. There is no	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Habitat	Number of records within 10 km radius of subject site	Likelihood of Occurrence	Impact Assessment Required
						stream nor alluvial soil present and are no records of this species within a 5 km radius and the study area.	
Melaleuca deanei	Deane's Melaleuca	V	V	Heath on sandstone.	10	Unlikely – no potential habitat present. The study area is comprised of exotic vegetation and hardstand surfaces. There are no area of heath present within the study area. While there are a few records of this species within a 5 km radius of the study area, no seeds of this species would be stored in the seedbank given that the study area is located on an old landfill and have undergone significant soil disturbance	No
Persicaria elatior	Tall Knotweed	V	V	Damp areas besides stream and lakes. Occasionally swamp forests or disturbed areas.	0	Unlikely – while the study area represents a disturbed area there are no records of this species within a 5 km radius.	No
Persoonia hirsuta	Hairy Geebung	E1	E	Sandy soils in dry sclerophyll open forest, woodland and heath on sandstone.	3	Unlikely – no potential habitat present. The study area is comprised of exotic vegetation and hardstand surfaces. There are no	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Habitat	Number of records within 10 km radius of subject site	Likelihood of Occurrence	Impact Assessment Required
						areas of woodland, sclerophyll open forest or heath present within the study area. There are only a few records of this species within a 5 km radius of the study area.	
Pimelea curviflora var. *curviflora*	-	V	V	Woodland, mostly on shaley/lateritic soils over sandstone and shale/sandstone transition soils on ridgetops and upper slopes.	0	No – no potential habitat present. The study area is comprised of exotic vegetation and hardstand surfaces. There are no areas of woodland present and the study area is not situated on a ridgetop nor upper slope.	
Pimelea spicata	Spiked Rice-flower	E1	E	Cumberland Plain and Illawarra on well-structured clay soils. Associated with woodland and grasslands.	0	No – the study area is situated on an old landfill site and have undergone significant soil disturbance, there is no well-structured clay soil, woodland nor grassland present. There are no records of this species within a 5 km radius.	No
Prostanthera densa	Villous Mintbush	V	V	Sclerophyll forest and shrubland on coastal headlands and near-coastal ranges.	0	No – no potential habitat present. The study area is comprised of exotic vegetation and hardstand	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Habitat	Number of records within 10 km radius of subject site	Likelihood of Occurrence	Impact Assessment Required
						surfaces. There are no areas of sclerophyll forest or shrubland present within the study area and there are no records within a 5 km radius.	
Pterostylis saxicola	Sydney Plains Greenhood	E1	E	Heathy forest, sclerophyll forest or woodland in shallow sandy soil over flat sheets of sandstone rock shelves above cliff lines and in crevices between sandstone boulders, commonly in close proximity to streams. Restricted to the greater Sydney Region of NSW.	0	No – no potential habitat present. The study area is comprised of exotic vegetation and hardstand surfaces. There are no areas of healthy forest, sclerophyll forest or woodland present.	No
Rhizanthella slateri	Eastern Underground Orchid	V	E	Sclerophyll forest in shallow to deep loams. Currently known from fewer than 10 locations	0	No – very rare species very small distribution range and there is no preferred habitat such as sclerophyll forest present. The study area is comprised of exotic vegetation and hardstand surfaces. There are no records within a 5 km radius.	No
Rhodamnia rubescens	Scrub Turpentine	E4A	CE	Littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils.	0	No – no potential habitat present. The study area is comprised of exotic vegetation and hardstand surfaces. There are no areas of littoral, warm	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Habitat	Number of records within 10 km radius of subject site	Likelihood of Occurrence	Impact Assessment Required
						temperate rainforest present and there are no records within a 5 km radius of the study area.	
Rhodomyrtus psidioides	Native Guava	E4A	CE	littoral, warm temperate and subtropical rainforest and wet sclerophyll forest often near creeks and drainage lines.	0	No – no potential habitat present. The study area is comprised of exotic vegetation and hardstand surfaces. There are no areas of littoral, warm temperate or subtropical rainforest present and there are no records within a 5 km radius of the study area	No
Syzygium paniculatum	Magenta Lilly Pilly	E1	V	Subtropical and littoral rainforest on gravels, sands, silts and clays.	18	Unlikely – no potential habitat present. There are no areas of subtropical or littoral rainforest present within the study area and the records of this species within a 5 km radius are in isolated patches of vegetation. The study area is comprised of exotic vegetation and hardstand surfaces and is situated on an old landfill that have undergone historic soil disturbance.	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Habitat	Number of records within 10 km radius of subject site	Likelihood of Occurrence	Impact Assessment Required
Tetratheca juncea	Black-eyed Susan	V	V	Occurs in sandy, or occasionally moist heath and in dry sclerophyll vegetation communities endemic to costal NSW.	16	Unlikely –no potential habitat present. There are no areas of heath or sclerophyll present within the study area. The study area is comprised of exotic vegetation and hardstand surfaces and is situated on an old landfill that have undergone historic soil disturbance. All records within a 5 km radius of the study area are a long distance away.	No
Thesium australe	Austral Toadflax	V	V	Grassland on coastal headlands or grassland and grassy woodland away from the coast.	0	No– there is no preferred habitat in the form of grassland or grassy woodland present within the study area which is comprised of exotic vegetation and hard stand surfaces. The study area is not situated on a costal headland and there are no records within a 5 km radius.	No
Wilsonia backhousei	Narrow-leafed Wilsonia	V	-	On the margins of costal intertidal saltmarshes or lakes and occasionally on seacliffs. Scattered distribution along the coast of NSW.	1	Unlikely – no potential habitat present. The study area is comprised of exotic vegetation and hardstand	No

Scientific Name	Common Name	BC Act Status	EPBC Act Status	Habitat	Number of records within 10 km radius of subject site	Likelihood of Occurrence	Impact Assessment Required
						surfaces. There are no areas of intertidal saltmarshes or lakes present within the study area. There is only a single record of this species within a 5 km radius of the study area.	

BC Act: E1 = Endangered, E2 = Endangered Population, E3 = Endangered Ecological Community, E4 = Extinct, E4A = Critically Endangered, E4B = Critically Endangered Ecological Community V = Vulnerable, V2 = Vulnerable Ecological Community; EPBC Act: Bonn = Listed migratory species under Bonn Convention, CD = Conservation Dependent, CE = Critically Endangered, E = Endangered, V = Vulnerable, X = Extinct

Appendix F Test of Significant Impact (BC Act)

The 'Test of significance' (5-part test) is applied to species, populations and ecological communities listed on Schedules 1 and 2 of the BC Act and Schedules 4, 4A and 5 of the FM Act. The assessment sets out 5 factors, which when considered, allow proponents to undertake a qualitative analysis of the likely impacts of an action and to determine whether a significant impact is likely. All factors must be considered, and an overall conclusion made based on all factors in combination.

F1 *Litoria aurea* (Green and Golden Bell Frog)

The Green and Golden Bell Frog (GGBF) is listed as endangered under the BC Act and has previously been recorded within 5 km of the study area (NSW DCCEEW 2024a). The description and habitat associations of this species are presented in Appendix D. The proposed works would impact on potential foraging and dispersal habitat for this species. Individual GGBF may utilise the study area as part of a movement corridor between one or two times per year, for up to two days, when moving between breeding and non-breeding habitat. It is noted however that the proposed impacts are to occur in vegetation (long exotic grass) that would only provide very marginal foraging habitat for the GGBF and would not be relied upon as a sole foraging resource. Given the lack of a dam or other suitable watercourse within the study area, this species would only use the study area as non-breeding habitat, either for shelter and / or migratory movement, most likely during periods of heavy rain when the study area is inundated.

There are 671 previous records of this species within 5 km of the study area and there are several areas of potential breeding habitat for the GGBF within the adjacent wetlands and ponds, including the Landing Lights, and Eve Street wetlands and associated ponds located approximately 500 m to the southwest and 400 m to the northwest of the study area respectively. Given that this is a desktop assessment, and no targeted surveys has been conducted by ELA, as a precautionary approach, a Test of Significance has been undertaken and a GGBF Management Plan (MP) has been prepared in accordance with Clause 17 of the Cooks Cove SREP (ELA 2024).

Table 7: BC Act Test of Significance for Green and Golden Bell Frog

BC Act	Question	Response
7.3.1 a)	In the case of a threatened species: whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction	There is no suitable breeding habitat present for the GGBF within the study area and none would be directly impacted by the proposed works. There is potential breeding habitat present for GGBF within the neighbouring wetlands and ponds, including the adjacent Landing Lights Wetlands 500 m to the southwest of the study area, and the Eve Street wetlands and associated ponds 400 m to the northwest of the study area. No individuals have previously been recorded within the study area however there are numerous records within a 5 km radius. The proposed works would impact on 0.063 ha of potential dispersal and foraging habitat for the GGBF through changes to the vegetation within the study area. The area of potential foraging and dispersal habitat within the study area is of marginal quality and comprised of long exotic grass which is occasionally maintained through mowing, and small patches of leaf litter.

BC Act	Question	Response
		The study area would possibly be utilised on occasion (between one to two times per year, for a duration of up to two days) by GGBF either for shelter, feeding or migratory movements, likely during periods of heavy rainfall. The indirect impacts associated could affect the life cycle of the GGBF through disrupting and changing foraging/breeding behaviour. However, the habitat to be impacted would not be considered to act as a permanent dispersal corridor nor as a vital stepping stone between the neighbouring Eve Street and Landing Lights wetlands. The proposed works would not cut off any permanent migration route and individual GGBF will still be able to move around the study area and use adjacent habitats. Therefore, indirect impacts are unlikely to occur and would be very minimal. There is the potential for changes in hydrology, erosion and pollution levels within the Eve Street wetlands as a result of the proposed works. However, given that the study area is situated within a flat landscape with minimal runoff and is not flood prone this is unlikely, and may only occur if associated earthworks take place during rare periods of extreme rainfall. It is therefore considered unlikely that this would have associated indirect impacts significant enough to affect the life cycle of the GGBF through disrupting and changing foraging/breeding behaviour within the Eve Street Wetlands. Therefore, the proposed works are unlikely to have an adverse effect that would place a viable local population at risk of extinction.
7.3.1 b) i	In the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity: 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	Not applicable.
7.3.1 b) ii	In the case of an endangered ecological community or critically endangered ecological community: Whether the proposed development or activity 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.	Not applicable.
7.3.1 c) i	In relation to the habitat of a threatened species or ecological community: The extent to which habitat is likely to be removed or	The proposed works would directly impact on 0.063 ha of potential GGBF foraging and dispersal habitat through changes to the vegetation within the study area. 14 planted Cocos palm will be removed, and the surrounding groundcover vegetation (long exotic grass) will be modified. While there have been no records of GGBF within the study area, it is located in between wetlands known to contain the GGBF (Land Lights Wetland and Eve Street

BC Act	Question	Response
	modified as a result of the proposed development or activity	Wetlands). However, the area of potential foraging and dispersal habitat to be directly impacted is of marginal quality (long exotic grass). GGBF within the area would only be utilising the study area occasionally (between one to two times per year, for a duration of up to two days) either for shelter, feeding or migratory movements, likely during periods of heavy rainfall. The proposed works would not cut off any permanent migration route since the habitat within the study area does not act as a permanent dispersal corridor nor as the only steppingstone between the adjacent wetlands. Individual GGBF will still be able to move around the study area and use adjacent habitats . Similar and better quality habitat is abundantly available within the vicinity of the study area, and within the surrounding landscape. The proposed works may have indirect impacts to potential breeding habitat within the Eve Street Wetlands through changes in hydrology, erosion, and pollution levels. However, given that the study area is situated within a flat landscape and is not flood prone this may only occur if earthworks take place during periods of extreme rainfall.
7.3.1 c) ii	In relation to the habitat of a threatened species or ecological community: 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	The potential dispersal and foraging habitat to be directly impacted within the study area would does not act as a permanent dispersal corridor nor as a vital stepping stone between the neighbouring Eve Street and Landing Lights wetlands. The long exotic grass would provide marginal foraging habitat that would only be used occasionally by the species. With a lack of a suitable watercourse present, GGBF would likely only utilise the potential dispersal habitat during periods of heavy rainfall either for shelter and / or migratory movements, likely between one to two times per year for up to two days. The proposed works would not cut off any permanent migration route between any potentially suitable breeding habitat present for GGBF within the neighbouring wetlands and ponds, including Landing Lights Wetlands 500 m to the southwest of the study area, and the Eve Street wetlands 400 m to the northwest of the study area. Individual GGBF will still be enabled continued movement and foraging around the study area and use of adjacent habitat. If earthworks associated with the Proposal take place during rare periods of extreme rainfall, potential breeding habitat within Eve Street wetlands may be modified through changes in hydrology, erosion and pollution levels. However, such indirect impacts to the GGBF would be minimal and unlikely given that the study area is not mapped as flood prone and is situated within a flat landscape that is with minimal runoff. Furthermore, GGBF within the area would continue to have access to similar breeding habitat within the Landing Lights Wetlands. Therefore, it is unlikely that the proposed works would cause fragmentation or isolation of an area of habitat.
7.3.1 c) iii	In relation to the habitat of a threatened species or ecological community: The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or	The small area (0.063 ha) of potential foraging and dispersal habitat to be directly impacted within the study area is not considered vital to the long-term survival of this species within the locality (DEC 2005). This is because it is of marginal quality, does not contain any breeding habitat, and would only be utilised occasionally (between one to two times per year, for a duration of up to two days) by the species, either for shelter, foraging or migratory movements, likely during periods of heavy rainfall. GGBF would not be relying on the habitat to be impacted as a permanent dispersal corridor nor as a vital stepping stone between any important breeding habitat present

BC Act	Question	Response
	ecological community in the locality.	within the neighbouring wetlands and ponds, including Landing Lights Wetlands 500 m to the southwest of the study area, and the Eve Street wetlands 400 m to the northwest of the study area. There would be no barrier to movement or foraging between these areas of habitat as individuals would be able move around the study area. GGBF would continue to have access to similar and better quality foraging and dispersal habitat which is abundantly available within the vicinity of the study area, and within the broader surrounding landscape. Potential breeding habitat present within the adjacent Eve Street wetlands may be modified through changes in hydrology, erosion and pollution levels as a result of the Proposal. However, indirect impacts to GGBF would be minimal and unlikely to occur given that the study area is situated within a flat landscape with minimal runoff and is not mapped as flood prone. This may only occur if earthworks take place during rare periods of extreme rainfall. Given that GGBF within the area would have access to similar breeding habitat within Landing Light Wetlands, this area of habitat is not considered vital to the long-term survival of this species.
7.3.1 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 works would not impact any declared Areas of Outstanding Biodiversity Value.
7.3.1 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 works is not part of a key threatening process (KPI) nor is likely to increase the impact of a key threatening process.
Conclusion	**Is there likely to be a significant impact?**	The proposed works are unlikely to have a significant impact on GGBF for the following reasons: • The extent of potential dispersal and foraging habitat to be directly impacted is minimal (0.063 ha) and of marginal quality (long exotic grass). • GGBF would not rely on the area of habitat to be directly impacted and may only occasionally use it as non-breeding habitat, either for shelter, feeding and or migratory movements as part of a broader network. • There is similar and better quality foraging and dispersal habitat abundantly available for GGBF in the neighbouring wetlands and ponds including the Landing Lights Wetlands 500 m to the southwest of the study area, and the Eve Street wetlands 400 m to the northwest of the study area. • No breeding habitat would be directly impacted and indirect impacts to the adjacent breeding habitat within the Eve Street wetland would be rare (only if works takes place during periods of extreme rainfall), similar breeding habitat is present within the Landing Lights Wetland. • The habitat to be directly impacted does not act as a permanent dispersal corridor nor as a vital stepping stone between the

BC Act	Question	Response
		neighbouring Eve Street and Landing Lights wetlands. GGBF would be enabled continued movement and foraging around the study area and use of adjacent habitats.

F2 *Pteropus poliocephalus* (Grey-headed Flying-fox)

The Grey-headed Flying-fox (GHFF) is listed as vulnerable under the BC Act and has previously been recorded within 5 km of the study area (NSW DCCEEW 2024a). The description and habitat associations of this species are presented in Appendix D. The proposed works include the removal of 14 planted *Syagrus* sp. (Cocos palm) trees which may provide supplementary foraging habitat for the species.

No known GHFF Camps are present within the study area and no camps will be affected by the proposed development. GHFF present in camps within a 20 km radius of the study area may use the marginal foraging resources available within the study area. The potential foraging habitat within the study area is marginal and would not be relied upon as a sole foraging resource for this species. The closest Nationally Important Camp is located approximately 3 km northwest of the study area, in Wolli Creek. Other Flying-fox camps nearby are located at Centennial Park (approximately 14 km northeast), Oatley (approximately 9 km southwest) and Kurnell (approximately 8 km southeast).

Table 8: BC Act Test of Significance for Grey-headed Flying-fox

BC Act	Question	Response
7.3.1 (a)	In the case of a threatened species: whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction	There are no known flying fox camps present within the study area (DCEEW 2024b). The nearest camp is located at Wolli Creek approximately 3 km northwest of the study area. No individuals have previously been recorded within the study area however there are numerous records within a 5 km radius of the study area. The proposed works would result in the removal of 14 planted Cocos Palm trees which may provide potential supplementary foraging habitat for GHFF. The area of potential foraging habitat is small in extent and of marginal quality. It does not consist of *Ficus* and *Myrtaceous* sp. which are preferred feeding trees for this species (DAWE 2021) . The Cocos Palms within the study area would be utilised on occasion as marginal foraging habitat and would form part of a larger foraging resource within this species foraging range. The works will not result in impacts to breeding habitat in the form of camps. There is similar and better foraging habitat available within the broader surrounding landscape. There is also better quality foraging habitat present in the form of native vegetation approximately 600 m to the northwest of the study area (PCT 4057). This area is more likely to be preferred by the species. It is considered unlikely that the proposed works would place a viable population of the species at risk of

BC Act	Question	Response
		extinction given that the potential foraging habitat is of marginal quality, limited in extent, and would not be relied upon as a sole resource for this wide-ranging species that can travel an average distance of 20 km per night to forage.
7.3.1 (b) (i)	In the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity: 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	Not applicable
7.3.1 (b) (ii)	In the case of an endangered ecological community or critically endangered ecological community: Whether the proposed development or activity 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.	Not applicable
7.3.1 (c) (i)	In relation to the habitat of a threatened species or ecological community: The extent to which habitat is likely to be removed or modified as a result of the proposed development or activity	The Proposal would remove 14 planted Cocos Palms of potential foraging habitat immediately adjacent to the existing building. No camps would be affected.
7.3.1 (c) (ii)	In relation to the habitat of a threatened species or ecological community: 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	The Proposal would remove 14 Cocos Palms across the development footprint. The Cocos Palms would provide marginal foraging habitat that would only be used occasionally by the species. There are no camps within the study area and none would be affected as part of the Proposal. The Cocos Palms do not act as a stepping stone between the closest camps and other areas of foraging habitat, or as stepping stones between two areas of foraging habitat. Therefore, the Proposal would not fragment or isolate any areas of habitat.
7.3.1 (c) (iii)	In relation to the habitat of a threatened species or ecological community: The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	The proposed works would impact 14 Cocos palm trees of marginal foraging habitat for GHFF. According to The National Recovery Plan for the Grey-headed Flying-fox 2021, exotic trees such as the 14 Cocos palms present within the study area are not considered critical foraging habitat (DAWE 2021). Instead, The National Recovery Plan for the Grey-headed Flying-fox 2021 identifies myrtaceous plants, including important winter and spring vegetation communities that contain: *Eucalyptus tereticornis, E. albens, E. crebra, E. fibrosa, E. melliodora, E. paniculata, E. pilularis, E. robusta, E. seeana, E. sideroxylon, E. siderophloia, Banksia integrifolia, Castanospermum australe, Corymbia*

BC Act	Question	Response
		citriodora C. eximia, C. maculata, Grevillea robusta, Melaleuca quinquenervia or Syncarpia glomulifera as critical foraging habitat to the survival of the species. Furthermore, the GHFF is a highly mobile species (travelling an average of 20 km per night to forage) and there is an abundance of foraging habitat available within a 20 km radius of the study area, as well as better quality foraging habitat available in the form of native vegetation approximately 600 m to the northwest of the study area (PCT 4057). The GHFF would not be relying on this small patch of marginal foraging habitat, and it is not considered vital to the long-term survival of this species.
7.3.1 (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 works will not impact any declared area of outstanding biodiversity value.
7.3.1 (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 Proposal is not part of a key threatening process nor is likely to increase the impact of a key threatening process.
Conclusion	Is there likely to be a significant impact?	No. The Proposal is unlikely to have a significant impact on GHFF for the following reasons: • The extent of potential foraging habitat (14 planted Cocos palm trees) to be removed is small, is marginal in quality and does not contain the preferred foraging habitat (winter and spring flowering native vegetation) • Better quality foraging habitat for this highly mobile species is available adjacent to the study area within PCT 4057 approximately 600 m northwest of the study area. • GHFF is unlikely to rely on this patch of habitat and would only occasionally use it as part of a broader network of foraging resources across the landscape. • No breeding habitat (camps) will be impacted by the proposed upgrades. • The proposed works would not isolate or fragment any foraging habitat given that the foraging habitat to be removed is of marginal quality, limited in extent, and that species is highly mobile and can access similar or better quality foraging habitat within a 20 km radius of the study area.

F3 Microchiropteran Bats (Microbats)

The proposed works would impact on potential roosting habitat in the form of a derelict existing building, and a small extent (0.063 ha) of potential foraging habitat for the following microbat species:

- *Miniopterus australis* (Little Bent-winged Bat)
- *Miniopterus orianae oceanensis* (Large Bent-winged Bat)
- *Saccolaimus flaviventris* (Yellow-bellied Sheath-tail Bat)
- *Myotis macropus* (Southern Myotis)

Each of the species above are listed as vulnerable under the BC Act. The habitat associations of each species are presented in Appendix D. While the desktop assessment identified no records of these four (4) microbats species within the study area, several records of Large Bent-winged Bat, Southern Myotis and Yellow-bellied Sheath-tail Bat were found within 5 km of the study area. While there are no records of the Southern Myotis within a 5 km radius of the study area, this species has been included given its similar habitat requirements.

The proposed works would not impact any microbat breeding habitat. Given that the above species share similar roosting and foraging habitats, a single Test of Significance was undertaken for the four microbat species.

Table 9: BC Act Test of Significance for microbat species

BC Act	Question	Response
7.3.1 a)	In the case of a threatened species: whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction	The proposed works will impact on one derelict building which may provide occasional potential roosting habitat for Large and Little Bent-winged Bat, Southern Myotis, and Yellow-bellied Sheath-tail Bat. There is the potential for these species to also utilise the immediate surrounds of the existing derelict building for foraging. No breeding habitat (caves, cliff crevices, old mine workings, or appropriately sized hollows) would be impacted as part of the proposed works. These species are highly mobile and similar and better quality roosting habitat is abundantly available within the vicinity of the study area, and within the broader surrounding landscape, including within the surrounding vegetation of the Eve street and Landing lights wetlands located 500 m to the southwest and 400 m to the northwest of the study area respectively, along Muddy Creek to the south, and in Banksia field to the west, as well as across the broader surrounding landscape. Therefore, it is considered unlikely that the proposed works will place a viable population of any of these species at risk of extinction.
7.3.1 b) i	In the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:	Not applicable

BC Act	Question	Response
	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	
7.3.1 b) ii	In the case of an endangered ecological community or critically endangered ecological community: Whether the proposed development or activity 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.	Not applicable
7.3.1 c) i	In relation to the habitat of a threatened species or ecological community: The extent to which habitat is likely to be removed or modified as a result of the proposed development or activity	The impacts to potential roosting and foraging habitat for these microbat species are minimal (removal of one derelict building and modifications to 0.063 ha of exotic vegetation). The Large and Little Bent-winged Bat, Southern Myotis, and Yellow-bellied Sheath-tail Bat, may only utilise this habitat within the study area on occasion. No other potential roosting habitats (caves, tree hollows, tunnels, and storm water drains) known to be preferred by these species will be impacted as part of the proposed works. Given that there is similar and better roosting and foraging habitat is abundantly available adjacent to the study area and in the surrounding area, these microbat species would not be relying on this small patch of habitat within the study area.
7.3.1 c) ii	In relation to the habitat of a threatened species or ecological community: 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	The Proposal would remove a limited area of occasional roosting habitat (one derelict building) and foraging habitat (0.063 ha of exotic vegetation within the immediate surrounding building). These highly mobile species would still be able to access similar habitats for roosting and foraging located adjacent to the study area and in the surrounding area. This habitat would not act as a stepping stone between other areas of foraging and roosting habitats. Therefore, the Proposal would not fragment or isolate any areas of habitat.
7.3.1 c) iii	In relation to the habitat of a threatened species or ecological community: The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.	The proposed works would impact on one derelict building containing occasional potential roosting habitat for these microbat species, as well as a small extent of (0.063 ha) foraging habitat within the immediate surrounding of the study area. The area of habitat to be impacted is not considered vital to the long-term survival of any of these microbat species within the locality due to the absence of potential breeding habitat and the abundant availability of similar and better quality habitat in the surrounding area.

BC Act	Question	Response
7.3.1 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 works will not impact any declared area of outstanding biodiversity value.
7.3.1 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 works is not part of a key threatening process nor is likely to increase the impact of a key threatening process.
Conclusion	Is there likely to be a significant impact?	No. The Proposal is unlikely to have a significant impact on Large and Little Bent-winged Bat, Southern Myotis, and Yellow-bellied Sheath-tail Bat for the following reasons: • The extent of removal of potential roosting habitat in the context of the broader surrounding landscape is small (one derelict building). • The extent of the potential foraging habitat to be impacted is limited (0.063 ha of exotic vegetation within the immediate surrounding building). • Similar and better roosting and foraging habitat for these highly mobile species is abundantly available adjacent to the study area and in the surrounding area. • No breeding habitat (caves, cliff crevices, old mine workings, disused or appropriately sized hollows) would be impacted by the proposed upgrades. • The proposed works would not isolate or fragment any foraging habitat given that the species are highly mobile.

Appendix G Assessment of Significance (EPBC Act)

This assessment has been prepared in accordance with the EPBC Act Matters of National Environmental Significance: Significant Impact Guidelines 1.1 (DAWE 2013). These guidelines have been established to assist proponents to determine whether a proposed action is likely to result in a significant impact on a matter of national environmental significance.

G1 *Litoria aurea* (Green and Golden Bell Frog)

Litoria aurea (Green and Golden Bell Frog) (GGBF) is listed as endangered under the EPBC Act. The description and habitat associations of this species are presented in Appendix D. The proposed action would impact on a small extent (0.063 ha) of marginal potential foraging and dispersal habitat that this species may utilise on occasion (likely during periods of heavy rainfall, between one or two times per year, for up to two days, when moving between breeding and non-breeding habitat).

No breeding habitat would be directly impacted and no permanent dispersal corridor or vital stepping stone habitat between the neighbouring Eve Street and Landing Lights wetlands would be cut off or removed as a result of the proposed action. A GGBF Management Plan (MP) has been prepared in accordance with Clause 17 of the Cooks Cover SREP to mitigate any direct and indirect impacts and a significance assessment has been undertaken in accordance with Significant Impact Guidelines 1.1 under the EPBC Act (DotE 2013) (Table 10).

Table 10: EPBC Act Assessment of Significance for Green and Golden Bell Frog

Criterion	Question	Response
An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:		
a)	Lead to a long-term decrease in the size of an important population of a species	All current populations of Green and Golden Bell Frog (GGBF) are regarded as an 'important population' (DEWHA 2009). GGBF have previously been recorded within a 5 km radius of the study area. These individuals form part of the Arncliffe Population (DEC 2005). The proposed action would directly impact on 0.063 ha of potential dispersal and foraging habitat for this population, through changes to the vegetation within the study area. The area of potential foraging and dispersal habitat within the study area is of marginal quality and comprised of long exotic grass which is occasionally maintained through mowing, and small patches of leaf litter. It would likely only be utilised occasionally by this population (between one to two times per year, for a duration of up to two days) either for shelter, feeding or migratory movements, likely during periods of heavy rainfall. The associated indirect impacts could affect the lifecycle of the species through disrupting or changing the foraging/migratory behaviour. However, this is considered unlikely given that the study area does not act as a permanent dispersal corridor nor as a vital stepping stone between areas of potential breeding habitat present within the adjacent Eve Street and Landing Lights Wetlands (400 m northwest and 500 m southwest of the study area respectively). There would be no barrier to movement or foraging between these areas of habitat as GGBF would be able to move around the study area. Furthermore, similar, and better-quality foraging

Criterion	Question	Response
		and dispersal habitat is abundantly available within the vicinity of the study area, and within the broader surrounding landscape. There is no suitable GGBF breeding habitat present within the study area and none would be directly impacted by the proposed works. The proposed action may have indirect impacts to breeding habitat within the Eve Street Wetlands through changes in hydrology, erosion, and pollution levels. However, given that the study area is situated within a flat landscape with minimal runoff and is not flood prone this is unlikely and may only occur if associated earthworks take place during rare periods of extreme rainfall. GGBF within the area would continue to have access to similar breeding habitat within the Landing Lights Wetlands. It is therefore highly unlikely that the proposed action would lead to a long term decrease in the population.
b)	Reduce the area of occupancy of an important population	The proposed action would remove a small extent (0.063 ha) of potential dispersal and marginal foraging habitat that would only be used occasionally by GGBF in the area. This may impact on the area of occupancy of the species by removing and replacing vegetation within the study area used for foraging and dispersal. The proposed action may also have indirect impacts to breeding habitat within the Eve Street Wetlands through changes in hydrology, erosion, and pollution levels. However, these impacts would be minimal and unlikely given that the study area is situated within a flat landscape with minimal runoff. This may only occur if earthworks take place during rare periods of extreme rainfall. It must also be noted that there is no suitable breeding habitat present within the study area and none would be directly impacted by the proposed action. Given the proposed level of impact of the works, the broader availability of similar and better foraging and dispersal habitat, and availability to similar breeding habitat within the Landing Lights Wetlands, it is considered unlikely that the proposed works would reduce the area of occupancy of the GGBF.
c)	Fragment an existing important population into two or more populations	The proposed action would directly impact a small extent (0.063 ha) of marginal dispersal and foraging habitat that may be utilised by the species on occasion (between one to two times per year, for a duration of up to two days), likely during periods of heavy rainfall. The proposed action would therefore not cut off any permanent migration route or vital stepping stone between any potentially suitable breeding habitat present for the Arncliffe population within the neighbouring wetlands and ponds, including Landing Lights Wetlands 500 m to the southwest of the study area, and the Eve Street wetlands 400 m to the northwest of the study area. Migratory and foraging habitat would still be present within the broader landscape and dispersal and feeding would still be possible. If the proposed works takes place during rare periods of extreme rainfall, potential breeding habitat within Eve Street wetlands may be modified through changes in hydrology, erosion and pollution levels. However, impacts would be minimal and would only occur if earthworks take place during rare periods of extreme rainfall. Furthermore, GGBF within the area would continue to have access to similar breeding habitat within the Landing Lights Wetlands.

Criterion	Question	Response
		Therefore, the proposed action would not fragment the existing population.
d)	Adversely affect habitat critical to the survival of a species	No breeding habitat is present within the study area, and none would be directly impacted by the proposed action. The proposed action would directly impact on a small extent (0.063 ha) of potential dispersal and foraging habitat for this species. However, it should be noted that this habitat would not be considered critical to GGBF, as it is of marginal quality and comprised of long exotic grass which is occasionally maintained through mowing, and small patches of leaf litter. It would only be utilised for occasional migratory movements (once or twice per year, for up to two days) and feeding, likely during periods of heavy rainfall. This population would not be relying on the habitat to be impacted as a permanent dispersal corridor nor as a critical stepping stone between areas of potential breeding habitat present within the neighbouring Landing Lights and Eve Street wetlands and ponds. Individual GGBF would be enabled continued movement around the study area and use of the adjacent habitats. GGBF would continue to have access to similar and better quality foraging and dispersal habitat which is abundantly available within the vicinity of the study area, and within the broader surrounding landscape. The proposed action may have indirect impacts to breeding habitat within the Eve Street Wetlands through changes in hydrology, erosion, and pollution levels. This habitat would be of critical importance to this species. However, these impacts would be minimal and unlikely given that the study area is situated within a flat landscape with minimal runoff. It may only occur if earthworks take place during rare periods of extreme rainfall. As such, the proposed development is unlikely to adversely affect habitat critical to the survival of the species.
e)	Disrupt the breeding cycle of an important population	There is no suitable breeding habitat present within the study area and none would be directly impacted as a result of the proposed action. The associated indirect impacts could affect the breeding cycle of the species through disrupting or changing the migratory behaviour. However, this is considered unlikely given that the study area does not act as a permanent dispersal corridor nor as a vital stepping stone between areas of potential breeding habitat present within the adjacent Eve Street and Landing Lights Wetlands and ponds. The proposed action would not create a barrier to movement and individual GGBF would still be enabled continued movement around the study area and use of the adjacent habitats. If the proposed works takes place during rare periods of extreme rainfall, potential breeding habitat within Eve Street wetlands may be modified through changes in hydrology, erosion, and pollution levels. However, these impacts would be minimal and would only occur if earthworks take place during rare periods of extreme rainfall. Furthermore, GGBF within the area would continue to have access to similar breeding habitat within the Landing Lights Wetlands. Therefore, it is considered unlikely that the proposed action would disrupt the breeding cycle of this species.
f)	Modify, destroy, remove or isolate or decrease the	The potential dispersal and foraging habitat to be directly impacted within the study area would does not act as a permanent dispersal corridor nor

Criterion	Question	Response
	availability or quality of habitat to the extent that the species is likely to decline	as a vital stepping stone between the neighbouring Eve Street and Landing Lights wetlands. The long exotic grass within the study area would only provide marginal foraging habitat that would only be used occasionally by the species. With a lack of a suitable watercourse present, GGBF would likely only utilise the potential dispersal habitat during periods of heavy rainfall either for shelter and / or migratory movements, likely between one to two times per year for up to two days. Given that individual GGBF still would be enabled continued movement and foraging around the study area, there would be no barrier to movement between any potential breeding habitat present for GGBF within the neighbouring wetlands and ponds, including the adjacent Landing Lights and Eve Street wetlands 400 m to the northwest of the study area. No breeding habitat would be directly impacted by the proposed action. Any indirect impacts to potential breeding habitat present within the adjacent Eve Street wetlands and ponds associated with changes in hydrology, erosion and pollution levels are highly unlikely given that the study area is situated within a flat landscape with minimal runoff and flood risk. GGBF within the area would continue to have access to similar breeding habitat within the Landing Lights Wetlands. Considering the above factors, the proposed action is highly unlikely to cause the decline of GGBF.
g)	Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	*Gambusia holbrooki* (Mosquitofish) have previously been detected in the Landing Lights east pond which are a key threatening process on Green and Golden Bell Frog. The proposed development is unlikely to increase the threats associated with this invasive species given that there is no watercourse present within the study area in which the work is to take place. The proposed action is also unlikely to result in the establishment of invasive weeds that are harmful to the GGBF due to mitigation measures regarding the spread of weed propagules.
h)	Introduce disease that may cause the species to decline, or	GGBF are particularly vulnerable to the amphibian chytrid fungus, a pathogenic fungal disease caused by the water-born pathogen *Batrachochytrium dendrobatidis*. Chytrid fungus is a key threat to this species. To prevent the introduction or spread of this disease all equipment including garden rakes, nets, plastic, as well as all footwear are to be 'clean on entry' to the study area. Clean on entry means washing the equipment thoroughly and all footwear with 5% bleach solution.
i)	Interfere substantially with the recovery of the species.	Considering the above factors, the proposed action will not interfere substantially with the recovery of the species.
Conclusion	Is there likely to be a significant impact?	The proposed action is not likely to cause a significant impact to the GGBF because: • There will be no direct impacts to any GGBF breeding habitat and indirect impacts to the adjacent breeding habitat within the Eve Street wetlands and associated ponds would be minimal and rare (only if works takes place during periods of extreme rainfall), and similar breeding habitat is present within the Landing Lights Wetland. • The extent of potential dispersal and foraging habitat to be directly impacted is minimal (0.063 ha), of marginal quality and

Criterion	Question	Response
		may only be utilised by GGBF occasionally as part of a broader network. • The proposed works would not result in fragmentation of any habitat for the species. • This population would continue to have access to similar and better-quality foraging and dispersal habitat which is abundantly available within the vicinity of the study area, and within the broader surrounding landscape.

G2 *Pteropus poliocephalus* (Grey-headed Flying-fox)

The Grey-headed Flying-fox is listed as vulnerable under the EPBC Act. The description and habitat associations of this species are presented in Appendix D. While the desktop assessment identified no records of this species within the study area, numerous records were found within 5 km of the site. The proposed works include the removal of 14 planted *Syagrus* sp. (Cocos palm) trees which may provide supplementary foraging habitat of marginal quality for the species. No camps will be affected by the proposed development. Considering that GHFF is present in camps within 20 km of the study area and may forage on the Cocos Palm trees within the study area on an occasional basis, a significance assessment has been undertaken in accordance with Significant impact guidelines 1.1 under the EPBC Act (DotE, 2013) (Table 10).

Table 11: EPBC Act Assessment of Significance for Grey-headed Flying-fox

Criterion	Question	Response
An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:		
a)	Lead to a long-term decrease in the size of an important population of a species	The proposed action involves the removal of 14 planted Cocos palm trees which may provide potential supplementary foraging habitat of marginal quality for the GHFF. The study area would only be used on occasion and form part of the broader foraging resources available within the species foraging range. There are also better quality foraging habitat present adjacent to the study area, approximately 600 m to the northwest of the study area (PCT 4057), as well as similar and better quality foraging habitat within the broader surrounding landscape. The Matters of National Environmental Significance Impact Guidelines 1.1 (DoE, 2013) defines an important population as a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are: 3. Key source populations either for breeding or dispersal 4. Populations that are necessary for maintaining genetic diversity, and/or 5. Populations that are near the limit of the species range GHFF is considered one population due to the constant exchange of genetic material between individuals and its movement between camps throughout its entire geographic range (DAWE 2021). Maternity or other roosting habitat is considered important habitat for this species. According to the National Flying-fox Monitoring Program, no GHFF camps currently occur or have ever been recorded within the study area and none would be impacted as part of the proposed action (DCCEW 2024b). The nearest Nationally Important Camp is located approximately 3 km northwest of the study area, in Wolli Creek. Other Flying-fox Camps nearby are located at Centennial Park (approximately 14 km northeast), Oatley (approximately 9 km southwest) and Kurnell (approximately 8 km southeast). Given that the potential foraging habitat to be removed is marginal and would only be used on occasion, and that foraging habitat exists in the surrounding landscape that this wide-ranging species (traveling an average of 20km per night) can access, the proposed action is unlikely to affect any populations of this species that would lead to a long-term decrease in the size of an important population of this species
b)	Reduce the area of occupancy of an important population	Individuals of this species are known to move approximately 20 km from a camp to forage. This species is highly mobile and populations at each camp may change during seasonal fluctuations.

Criterion	Question	Response
		The removal of 14 Cocos palms of potential marginal foraging habitat that is limited in extent is unlikely to reduce the area of occupancy of this species given their large foraging range and availability of several patches of foraging habitat within a 20 km radius of the study area. The GHFF is not known to occupy the study area in the form of a camp but may occasionally forage within the study area, the nearest Nationally Important camp is located 3 km away to the northwest. The GHFF is known to utilise a range of foraging resources within a region. This species would not rely solely on the vegetation within the site for foraging purposes.
c)	Fragment an existing important population into two or more populations	According to the National Recovery Plan for the Grey-headed Flying-fox 2021, "the Grey-headed Flying-fox is considered to be a single, mobile population with individuals distributed across Queensland, New South Wales, Victoria, South Australia, Tasmania and the ACT." The population across camps is highly dynamic and individuals move between permanent camps to utilise foraging resources. They will return to permanent camps to rear offspring. Individuals are highly mobile, and populations are not static. The nearest Nationally Important camp is 3 km away to the northwest. It is unlikely that any known camp or important population would be fragmented under the proposed action. The proposed action will result in the removal of 14 planted Cocos palms which provides marginal potential foraging habitat for this species. This small patch of marginal foraging habitat would only be used on occasion by this species. The Cocos Palms do not act as a stepping stone between the closest camps and other areas of foraging habitat, or as stepping stones between two areas of foraging habitat. There is potential foraging habitat available within a 20 km radius of the study area that this wide-ranging species can access, as well as better quality foraging habitat available adjacent to the study area (approximately 600 m to the northwest) in the form of native vegetation (PCT 4057). Considering the above factors, the proposed action is unlikely to fragment the existing important population into two or more populations.
d)	Adversely affect habitat critical to the survival of a species	The National Recovery Plan for the GHFF 2021 identifies 'a continuous temporal sequence of productive foraging habitats, linked by migration corridors or stopover habitats, and suitable roosting habitat within nightly commuting distance of foraging areas' as habitat critical to the survival of the species. Specifically, the plan identifies Myrtaceous winter and spring flowering vegetation communities to be critical foraging habitat for the GHFF. The proposed action would result in the removal of 14 planted Cocos palm trees, which are not considered to represent critical habitat to the survival of this species according to the recovery plan for the species. There are no camps present within the study area, and none will be directly impacted by the proposed action. The study area is approximately 600 m northwest of a camp at Wolli creek, which is considered a Nationally important camp. Other Flying-fox camps nearby are located at Centennial Park (approximately 14 km northeast), Oatley (approximately 9 km southwest) and Kurnell (approximately 8 km southeast). The 14 Cocos Palms present within the study area would form part the foraging habitat for these camps. However, this habitat is considered marginal and would only provide occasional foraging opportunities of limited extents for the GHFF. There is potential foraging habitat available within a 20 km radius of the study area that this wide-ranging species can access, as well as better quality foraging habitat

Criterion	Question	Response
		available adjacent to the study area (approximately 600 m to the northwest) in the form of native vegetation (PCT 4057). Therefore, it is unlikely that the proposed action will adversely affect habitat critical to the survival of a species.
e)	Disrupt the breeding cycle of an important population	The proposed action is unlikely to disrupt the breeding cycle of the GHFF given that no breeding habitat would be removed or disturbed. The proposed works would not fragment or isolate camps from foraging areas or reduce a large enough extent of foraging habitat within their foraging range to result in a lack of food to indirectly impact the breeding cycle of this species. Therefore, it is unlikely that the proposed works would not disrupt the breeding cycle of the GHFF.
f)	Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No GHFF camps currently occur or have ever been recorded within the study area (DCCEEW 2024b). The nearest active camp occurs approximately 3 km to the northwest at Wolli Creek. The proposed action would remove 14 Cocos palm trees of marginal potential foraging habitat for the GHFF. No known camps would be removed or disturbed, and it is unlikely that the extent of the vegetation removal would cause the species to decline given that suitable foraging habitat is available adjacent to the study area and within a 20 km radius. The proposed action would therefore be unlikely to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
g)	Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	The proposed action is unlikely to result in the establishment of invasive species such as weeds or predatory species that would be harmful to the GHFF.
h)	Introduce disease that may cause the species to decline, or	GHFF are reservoirs for the Australian bat lyssavirus (ABL), Hendra Virus and Menangle virus which can cause clinical disease and mortality in GHFF (DAWE 2021). The risk of disease transmission is extremely low and rare. The proposed action is unlikely to present a significant ecological stress on any camps or on individuals that may utilise the study area and therefore the works are unlikely exacerbate these viruses or any other disease that may cause this species to decline.
i)	Interfere substantially with the recovery of the species.	The proposed action would remove a limited extent of potentially marginal foraging habitat in the form of 14 Cocos Palms for this species. However, exotic trees such as these are not considered to represent critical habitat to the survival of this species according to the National Recovery Plan for GHFF. The proposed action would not remove any camp and there is suitable habitat present adjacent to study area and within the broader surrounding landscape. It is therefore unlikely that the proposed action would interfere with the recovery of this species.
Conclusion	Is there likely to be a significant impact?	No. The proposed action is unlikely to have a significant impact on the GHFF for the following reasons: • No camps or habitat important to the lifecycle of this species would be removed by the proposed action. • No critical habitat will be affected. • The proposed works would not result in fragmentation of habitats. • Similar foraging habitat would still be available within 20 km of the nearest Nationally Important camp, including immediately adjacent to the study area.

Appendix H Green and Golden Bell Frog Management Plan

Riverine Park, 201B West Botany Street: Green and Golden Bell Frog Management Plan

Prepared for Arncliffe Aurora Football Club

[redacted]

DOCUMENT TRACKING

Project Name Riverine Park, 201B West Botany Street – Green and Golden Bell Frog Management Plan

[redacted]

This report should be cited as '[redacted] 2024. *Riverine Park, 201B West Botany Street - Green and Golden Bell Frog Management Plan* Prepared for *Arncliffe Aurora Football Club*.'

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This document has been prepared by [redacted] Pty Ltd with support from Arncliffe Aurora Football Club

Template 2.8.1

Contents

List of Figures

List of Tables

Abbreviations

Abbreviation	Description
BC Act	NSW *Biodiversity Conservation Act 2016*
BC	Bayside Council
DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
ELA	[redacted] Pty Ltd
EP&A Act	NSW *Environmental Planning and Assessment Act 1979*
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
GGBF	Green and Golden Bell Frog
ha	Hectares
LEP	Local Environment Plan
SREP	Regional Environmental Plan
LGA	Local Government Area
MNES	Matters of National Environmental Significance
NSW	New South Wales
NSW DCCEEW	New South Wales Department of Climate Change, Energy, the Environment, and Water
PCT	Plant Community Type
SEPP	State Environmental Planning Policy

Executive Summary

[redacted] Pty Ltd (ELA) was engaged by Arncliffe Aurora Football Club to prepare a Green and Golden Bell Frog Management Plan on behalf of Bayside Council for the proposed construction works at 201B West Botany Street, Riverine Park, Arncliffe.

The purpose of the Green and Golden Management Plan is to describe the existing habitat and provide measures to protect this species during the demolition and construction phases of the project. Fencing is to be provided around the perimeter of the study area to prevent frogs from entering areas subject to clearing and construction. Fencing must set in place before works begin. Impacts to biodiversity are to be minimised during construction works through the inclusion of biodiversity management requirements in the site induction, provision of targeted pre-clearing surveys to locate and capture resident fauna and the safe relocation of that fauna to suitable alternative habitats that are expected to be retained into the long-term. Protocols for the handling and relocation of fauna are provided in this plan.

To ensure that the actions within this plan are correctly implemented, compliance reports are to be submitted after each task is completed. The progress and compliance with this management plan will be monitored and reviewed monthly. Management and monitoring of the study area will occur in two main stages; prior to works being started and then during construction works.

1. Introduction

[redacted] Pty Ltd (ELA) was engaged by Arncliffe Aurora Football Club (Arncliffe Aurora FC) to prepare a management plan for *Litoria aurea*, the Green and Golden Bell Frog (GGBF). This (GGBF) Management Plan (MP) is to be prepared on behalf of Bayside Council (Council) to mitigate any impacts to GGBF by the proposed construction works at 201B West Botany Street, Riverine Park, Arncliffe (Figure 1) (Part Lot 100 DP 1228008). The objective of the proposed works is to upgrade the existing derelict club house building of Arncliffe Aurora Football Club at Riverine Park.

The study area is approximately 0.35ha in size and is contained within the Barton Park precinct located in the Bayside Local Government Area (LGA). Several planted trees are present within the study area, but the study area does not contain any mapped Plant Community Types (PCTs) or remnant native vegetation (NSW DCCEEW 2024c). To the east of the study area is Barton Park Golf Range and to the west is Cooks River and Sydney Airport. To the northwest is Eve Street Wetlands and to the south is the Landing Lights Wetlands (Figure 1), both of which have been recorded as being used by GGBF. The existing building will be upgraded to include new field lighting, new change rooms, toilets, canteen, club house facilities, storage facilities, accessible toilets and other commodities, while not affecting the building's footprint (ELA 2024). A replacement sewer main will be connected through Riverine Park and Barton Park Golf Range connecting to existing infrastructure in Eve Street (ELA, 2024). The scope of work includes the removal of the existing internal fixtures and damaged external features, exterior paving, replacement of roofing, eaves and soffits, and fit out of the interior of the existing building (ELA 2024). It also includes the removal of 14 planted *Syagrus* sp. (Cocos palm) trees located immediately adjacent to the existing building (Figure 2). To enable safe and easy access to the facilities, these palm trees are required to be removed due to shallow roots creating uneven walking surfaces and some palms leaning on the existing building (Figure 1) (ELA 2024).

1.1. Purpose of the Riverine Park Green and Golden Bell Frog Management Plan

According to the Flora and Fauna Assessment (FFA) for the site (ELA 2024), the study area is located on crown land and is zoned as Open Space according to the Sydney Regional Environmental Plan No 33 – Cooks Cove (EIP 397) 2004 (Figure 3) (Cooks Cove SREP). According to the FFA, the study area does not contain any suitable breeding habitat for the GGBF (see Appendix A). However, there are 671 previous NSW Atlas of Wildlife (BioNet) records of this species within a 5 km radius of the study area (Figure 4) (NSW DCCEEW 2024a), and there are several areas of suitable habitat for the GGBF within the adjacent wetlands and ponds, including the Landing Lights, and Eve Street wetlands located approximately 500 m to the southwest and 400 m to the northwest of the study area respectively (Figure 1). Individual GGBF may utilise the study area as occasional movement habitat when dispersing from nearby wetlands and ponds. The study area may also provide marginal foraging habitat in the form of long grass, at least on occasions. The GGBF is listed as Endangered under the NSW Biodiversity Conservation Act 2016 (BC Act) and vulnerable under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). In accordance with the Cooks Cove SREP Part 4 Clause 17, the preparation and implementation of a GGBF MP is required as:

(1) Consent must not be granted for any development on land within the Cooks Cove site until after the consent authority has taken into consideration—

(c) a Green and Golden Bell Frog management plan that has been served on the Director-General of the Department of Environment and Conservation, which identifies areas of its habitat and outlines proposals for mechanisms to be introduced to create, enhance and manage habitat areas for the species, and any written comments made to the consent authority about that plan by that Director-General within 40 days after the date of service.

The GGBF individuals recorded within the vicinity of the study area form part of the Arncliffe Key Population of which this MP will relate to. No targeted surveys have been conducted by ELA as part of the REF (ELA 2024) and no breeding habitat is present. As a precautionary approach, this species is assumed to be able to occasionally use the study area as non-breeding habitat, either for shelter, feeding and or migratory movements. The preparation and implementation of a GGBF MP is required and has been prepared in accordance with Clause 17 of the Cooks Cove SREP and the information to be included is shown in Table 1 below:

Table 1: Clause 17 of the Cooks Cove SREP and ELA's responses

Clause 17 of the Cooks Cove SREP	ELA's response	Found in the following section within the MP
(5) The Green and Golden Bell Frog management plan must identify the location of existing and proposed Green and Golden Bell Frog habitats, including areas considered to be significant, and include proposals covering the following—		
(a) protection of the Green and Golden Bell Frog,	To ensure the protection of the GGBF this Management Plan has been prepared.	See section 2 below.
(b) protection of the Green and Golden Bell Frog habitat,	The study area contains limited potential foraging and dispersal habitat of marginal quality for the GGBF. To ensure the protection of the GGBF habitat this GGBF MP has been prepared.	See section 1 above and section 2 below.
(c) how existing and proposed wetlands relate to protection of the Green and Golden Bell Frog and its habitat,	The study area does not contain any existing or proposed wetlands for GGBF to inhabit. However, the study area is located adjacent to wetlands which provide habitat for the GGBF. To the northwest of the study area are the Eve Street Wetlands and to the south are the Landing Lights Wetlands, both of which have been recorded as being used by GGBF. Therefore, this species could occasionally use the study area as non-breeding habitat, either for shelter, feeding and or migratory movements. As a result, the preparation and implementation of a GGBF MP is necessary to mitigate any potential impacts.	See section 1 above.

Clause 17 of the Cooks Cove SREP	ELA's response	Found in the following section within the MP
(d) how stormwater management processes relate to protection of the Green and Golden Bell Frog and its habitat,	No stormwater management processes are included in the proposed works.	See section 1 above.
(e) how development and management of the golf course and open space areas, management of public access and proposed development within the Trade and Technology Zone relate to protection of the Green and Golden Bell Frog and its habitat,	The study area does not contain any suitable breeding habitat for GGBF and minimal habitat that would be used by them for any other purposes.	See section 1 above.
(f) management of the direct and indirect impacts of the proposed development on the protection of the Green and Golden Bell Frog and its habitat,	To manage any direct or indirect impacts of the proposed works on the GGBF this GGBF Management Plan has been prepared.	See section 2 and 3 below.
(g) measures to mitigate adverse environmental impacts of the proposed development, including habitat enhancement and the provision of compensatory habitat for the Green and Golden Bell Frog,	None have been proposed for the development given the small extent of works and absence of suitable breeding habitat and minimal other habitat.	Not applicable.
(h) measures to appropriately manage habitat areas in both the short and long term.	The study area does not contain any suitable breeding habitat for GGBF and minimal other habitat.	See section 1 above.

Figure 1: Study area

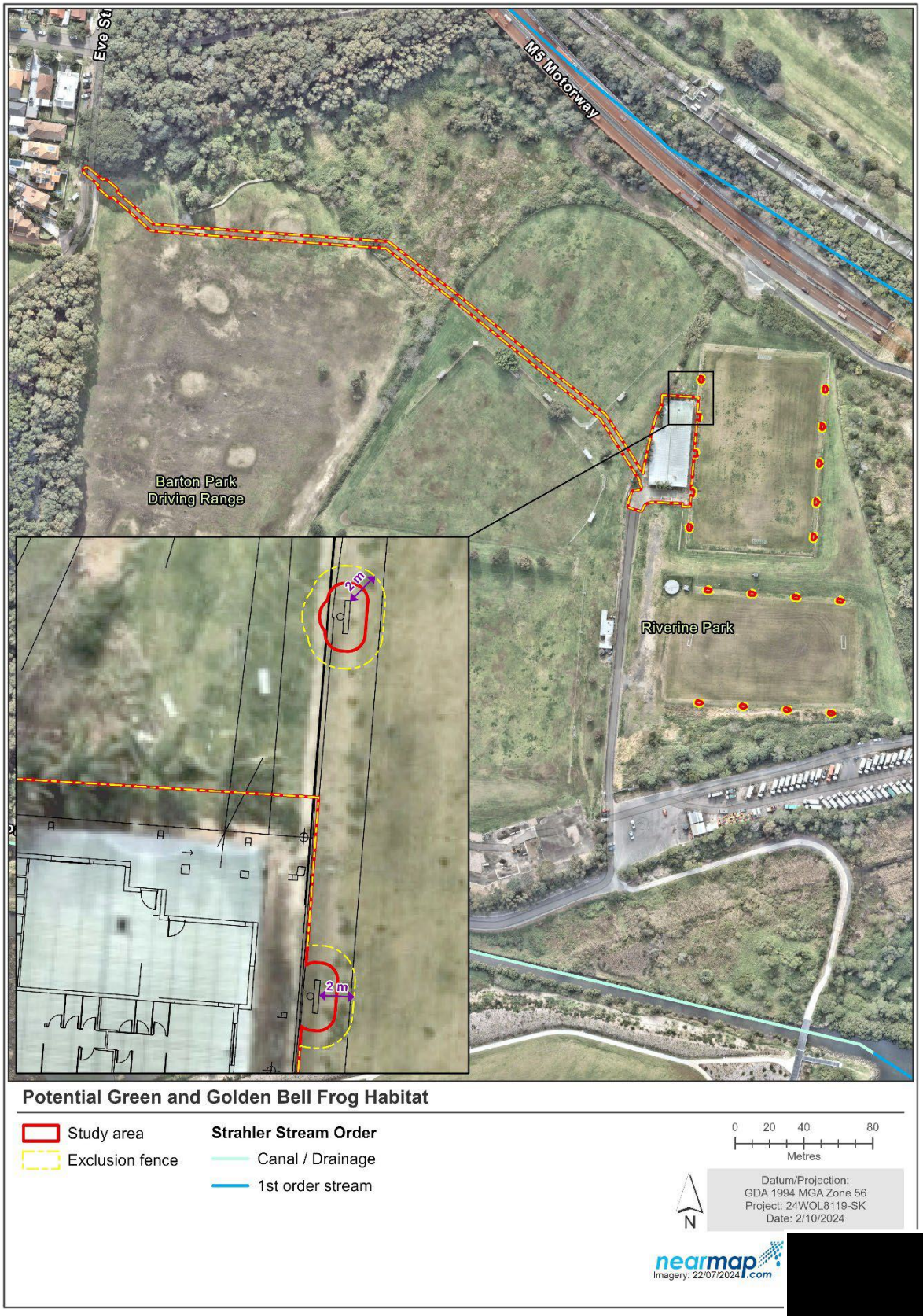

Figure 2: Building to be refurbished and potential GGBF habitat within the study area

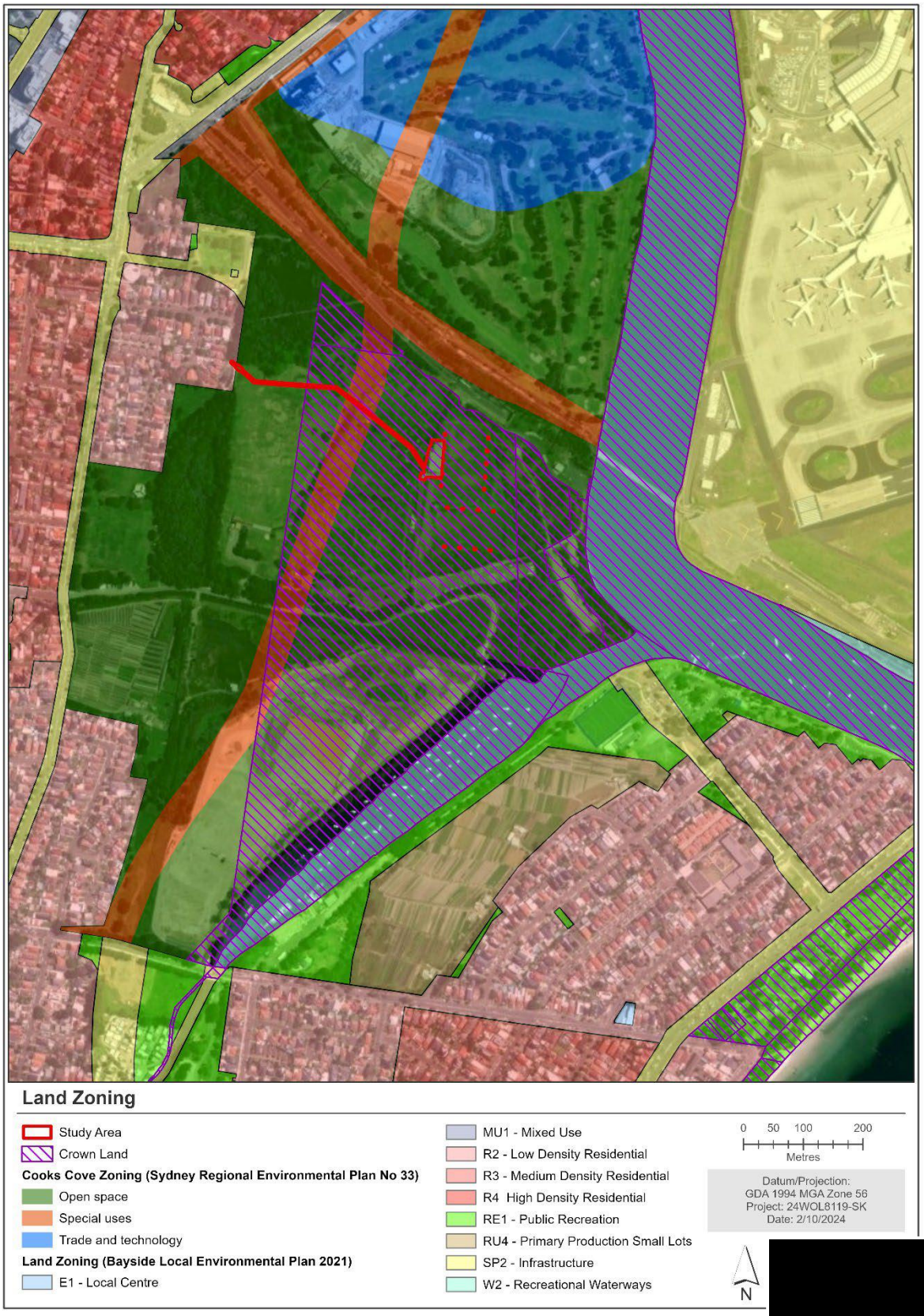

Figure 3: Land Zoning within the study area and the surrounding areas

Figure 4: Previous records of GGBF within the vicinity of the study area (NSW DCEEW)

2. Green and Golden Bell Frog management actions

There is currently no suitable breeding habitat for the GGBF within the study area. However, there are numerous records of this species within the immediate vicinity of the study area and the adjacent wetlands and ponds contain suitable GGBF breeding habitat. Individual GGBF that disperse from the wetlands and ponds may migrate/disperse through the study area as they move between or to other areas of breeding and non-breeding habitat and so be subject to impacts from the development.

2.1. Site induction

All personnel working at or visiting the site are required to be inducted for site safety and environmental management requirements. This induction will include a component on protection of GGBF at the site including:

- maintenance of site boundaries
- the purpose of the frog exclusion fencing and its intended operation
- hygiene protocols (Appendix A; Wellington and Haering 2008)
- salient features for identification and legal status of GGBF (Appendix B)
- method for relocation in the instance of positive identification of the GGBF during construction.

Appendix C contains further site environmental induction information.

2.2. Erect frog exclusion fencing

Frog exclusion fencing is to be erected around the perimeter of the study area to prevent frogs from entering areas subject to construction and clearing and is to be set in place as detailed in Figure 2.

The frog exclusion fence is to be installed prior to any construction and clearing activities occurring within the subject site. The frog exclusion fencing required is detailed in Appendix D and will:

- be made using durable and permeable material, such as shade cloth.
- be a minimum of 80 cm high.
- have an overhanging horizontal return lip facing outwards.
- have a cleared 1 m wide gap maintained around the outside of the fence.
- completely surround the study area to reduce the likelihood of frogs entering the construction zone.
- where the fence is located on soft landscaping it will be dug into the ground at least 20 cm (to prevent frogs burrowing under it).
- where it is not possible to dig it into the ground (e.g. at gates) there should be a 30 cm flap sitting flat on the ground and weighed down with sand bags or similar.
- maintained free of vegetation to a distance of 1 m either side of the fence to prevent elements such as long grass and vines that could hang over the fence and provide means for frogs to enter the impact area.
- checks to ensure that the integrity of the exclusion fence is being maintained is required at the start of every work day prior to construction starting (responsibility of contractor).
- any tears of holes in the fence are to be repaired immediately (that day) to its original standard.

Signs are to be placed on the outside of the perimeter fence to instruct people that no material is to be placed outside the fencing such that it may compromise the integrity of the fencing. The frog exclusion fencing can be removed following the completion of all construction works.

Additional information to guide fence construction is provided in Appendix D.

2.3. Pre-clearing and construction survey

Prior to any vegetation removal and construction taking place, the study area must be searched and cleared of any terrestrial wildlife. This will include the following tasks:

- An initial clearance survey to be undertaken by an ecologist to establish that the construction site inside the exclusion fencing is free from GGBF and to remove any other detected fauna. This will involve a nocturnal survey to detect any GGBF remaining within the construction area.
- Searches will involve looking under rocks, raking debris, rubbish, turning over dumped tyres, thick plant litter, and in the crowns of tussock grasses.
- Removal of vegetation should be conducted as per the following sequence to limit the potential for fauna kills:

    1. The site ecologist will search for, capture, and move on all fauna species within the boundary of the structure and then instruct the demolition team to demolish the structure.
    2. The site ecologist will be on hand through the demolition to manage any fauna that becomes evident during the demolition.
    3. Repeat steps 1 & 2 until the entire site has been searched and cleared of fauna.

- If any frogs require capture and relocation, this will only be done by the approved site ecologist.
- If GGBF are found on site DCCEEW will be advised of their presence immediately.
- Should any fauna be detected on site by staff or visitors (a chance or unexpected find), works in the immediate vicinity of the animal will stop and site management will arrange removal by the approved site ecologist or as advised by the site ecologist as per Appendix C.
- Any frogs located will be removed by the site ecologist and released (at night) within the vegetation located on the southern side of the lot on which the study area sits (Part Lot 100 DP 1228008), presuming conditions and seasonal timing are suitable. This is to minimise the potential spread of *Batrachochytrium dendrobatidis* (Frog Chytrid Fungus) between GGBF populations.
- Any injured fauna will be assessed by the site ecologist who will determine if they are to be released or require care of a veterinarian or carer and, if so, will arrange for that to take place.
- Surveys must be undertaken immediately prior to tree clearing and construction works. If the tree clearing or construction works are not completed on the same day as the survey, the survey must be repeated before either works starts.

The site ecologist must be covered by appropriate licenses to 'handle' fauna under the National Parks and Wildlife Act 1974. They must also have demonstrated at least two years of experience in and knowledge of the handling and relocation of frogs.

2.4. Avoid spread of disease

When an ecologist is present on site, they are responsible for handling frogs. The ecologist will at all times abide by with the hygiene guidelines of NSW DPIE /DEECCW (2020) (Appendix A;Wellington and Haering 2008). However, when the ecologist is not present on site, it may become necessary for other staff to handle and move frogs. This should not occur without consulting the site ecologist.

To comply with NPWS (2008), all equipment including garden rakes, nets, plastic, as well as all footwear are to be 'clean on entry' to the site. Clean on entry means washing the equipment thoroughly and all footwear with 5% bleach solution. This must be done daily before entering the site. The aim of this process is to reduce the risk of spreading the water-borne fungal pathogen *Batrachochytrium dendrobatidis* (Frog Chytrid Fungus).

At a minimum, prior to the erection of the frog fence, site workers and project ecologists must:

- Sterilise vehicle tyres prior to entering the site by spraying the tyres with disinfectant. Tyre disinfectant will not be required after fences are erected and the site is free of frogs.
- Disinfect boots prior to entry on site (prior to erection of frog fencing).
- Disinfect any equipment that may carry organic material into the site.

The minimum cleaning requirements prior to the erection of the frog fence are:

- Scrape boots clean of mud before entering the site and on leaving.
- Stand soles in disinfectant solution and spray remainder of boot with disinfectant and then allow to dry before undertaking work.
- Disinfectant is to contain benzalkonium chloride. 'Pine-o-clean' is a suitable product.
- Have clean disinfected hands or use disposable gloves that are not re-used unless disinfected.

Note that these protocols will not be needed once the frog fence has been set properly in place and any frogs have been cleared out of the work site. Should the frog fence fail to be maintained, these procedures will need to be implemented again until the fence is fully functional again and the site has again been cleared of any frogs.

2.5. Unexpected finds protocol

If fauna of any kind is found within the study area:

- Do not attempt to touch, capture or handle the animal.
- Inform others in the area of the presence of the animal and immediately stop works in the vicinity of the find.
- Inform the project manager of the presence and location of the animal.
- Project manager is to take photographs of the animal and contact the on-call ecologist for advice. If the animal is not a frog and can be safely moved, it can be moved on to alternative habitat created on site, if available, or to the nearest other suitable habitat that is not to be cleared.
- Spotter to remain with a frog, or any other animal not clearly able to be moved, to ensure others are aware of its location and for easy location when the ecologist arrives on site.

- Fauna to be removed in accordance with the advice of the site ecologist or in accordance with Appendix C.

The relocation area for captured native fauna needs to be determined by the approved site ecologist and is likely to be dependent on the species located and the conditions at the time of capture. Fauna other than GGBF detected in the subject site will be captured and placed in a suitable container/calico bag/plastic bag with a small amount of moistened grass/leaves and then moved to the designated relocation site by the project ecologist. The relocation site must be an area that will not be cleared in the foreseeable future.

However, if the frog is confirmed to be a GGBF the ecologist must attend the site to assess the condition of the frog (record size, sex and reproductive status) and check if it has been marked with a Passive Integrated Transponder (PIT) Tag, as some frogs from other areas have been marked in this way and data on movements in the area is very useful. The ecologist will move the GGBF from the impact area to the designated release site within the vegetation located on the southern side of the lots on which the study area sits (Part Lot 100 DP 1228008 and Part Lot 1 DP576148) or Eve St Wetlands, whichever is closer. There must be sufficient moisture at the release point to ensure that the frog will not immediately de-hydrate. If ground conditions are dry then the frog must be released into a suitable water body as close to the collection site as is possible. The release point should minimise the possible spread of the Frog Chytrid Fungus between GGBF populations. GGBF and native frogs detected in the subject site will be captured and placed in a suitable container/plastic bag with a small amount of distilled water or small handful of moistened grass/leaves.

Fauna will be released as soon as it is safe to do so in conditions that are safe for release. Nocturnal fauna will not be released until after dusk. Aquatic fauna must be released into a water body and given at least 30 minutes to acclimate to the water temperature (release container placed into water) before release into the water body. Fauna will not be released where there is a clear threat from predators. Fauna will not be released during weather conditions when their welfare may be put at risk (e.g., middle of a very hot day into an area with little shade; released into dry vegetation on a cool night). It is the duty of the approved site ecologist to ensure that the release of animals is undertaken ethically with the minimal risk possible to the welfare of the animal.

3. Monitoring and reporting

3.1. Compliance report

To ensure that the actions within this plan are correctly implemented, compliance reports are to be submitted after each task is completed. These reports will include a description of the task undertaken, the date, key personnel, methodology, results and any important maps and photographs. A list of the tasks that require compliance reports is outlined below:

- Frog exclusion fencing installation
- Pre-clearance surveys

3.2. Performance criteria

The progress and compliance with the GGBF MP will be monitored and reviewed monthly. Management and monitoring of the study area will occur in two main stages; prior to construction works commencing and then during construction works until they are completed. Monitoring is to be undertaken by a person holding a minimum qualification of TAFE Cert III in Conservation & Land Management.

The performance criteria are outlined in Table 4, to be achieved by the end of the period identified (e.g., 'Prior to construction works'). A report should be compiled following each site visit to summarise site conditions and provide recommendations for further action if required.

Table 2: Performance Criteria

Stage	Criteria
GGBF Management	
Prior to construction works	Prior to frog fences being erected, vehicle tyres are to be disinfected prior to entering the site by spraying the tyres with disinfectant. Tyre disinfectant will not be required after fences are erected and the site is free of frogs.
	All worker boots to be disinfected prior to entry on site (prior to erection of frog fencing). All boots scraped of mud before entering and on leaving site.
	Site induction for GGBF awareness conducted as per Section 2.1 and Appendix C of this plan.
	Frog exclusion fencing installed as per requirements in Section 2.2 of this plan.
	Signage installed on frog fencing.
	Erection of fencing inspected to confirm adequacy and compliance report provided.
	Pre-clearance survey for GGBF undertaken by a suitably qualified ecologist and summary report provided.
	If found onsite, an ecologist will relocate the GGBF as per Section 2.3 of this plan. DCCEEW will be notified of findings.
	All other fauna located to be removed off site to a safe location.
During construction works	ELA notified immediately if any GGBF are found onsite.
	Fence inspected daily to confirm status and any repairs required implemented within 24 hours.

4. References

Department of Environment and Climate Change (DECC) 2008. Best Practice Guidelines: Green and Golden Bell Frog Habitat. Department of Environment and Climate Change, Sydney South, DECC 2008/510 November 2008. http://www.environment.nsw.gov.au/resources/threatenedspecies/08510tsdsgreengoldbfbpg.pdf.

Department of Environment and Conservation (DEC) 2005. Draft Recovery Plan for the Green and Golden Bell Frog (*Litoria aurea*). Hurstville, NSW

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024. Protected Matters Search Tool [online]. Available: https://www.dcceew.gov.au/environment/epbc/protected-matters-search-tool. (Accessed April 2024)

Department of Climate Change, Energy, the Environment, and Water (NSW DCCEEW) 2024a. NSW BioNet: Atlas of NSW Wildlife online search tool. Available: http://www.bionet.nsw.gov.au/. (Accessed April 2024)

Department of Climate Change, Energy, the Environment, and Water (NSW DCCEEW) 2024b. NSW Threatened Species Profile Database. NSW BioNet: NSW Environment and Heritage. Available: https://profile.bionet.nsw.gov.au/ (Accessed April 2024)

Department of Climate Change, Energy, the Environment, and Water (NSW DCCEEW) 2024c. NSW State Vegetation Type Map. Available: https://datasets.seed.nsw.gov.au/dataset/nsw-state-vegetation-type-map (Accessed April 2024)

DPIE (2020). Hygiene guidelines: Protocols to protect priority biodiversity areas in NSW from *Phytophthora cinnamomi*, myrtle rust, amphibian chytrid fungus and invasive plants. Saving our Species, NSW Department of Planning, Industry and Environment, Sydney.

[redacted] 2024. *Riverine Park: Review of Environmental Factors*. Prepared for Arncliffe Aurora Football Club.

Google 2024. Street View. (Accessed May 2024)Available: https://www.google.com.au/maps/@-33.94323,151.1597395,1169m/data=!3m1!1e3?entry=ttu.

Wellington, R. and Haering, R. 2008. Frog Hygiene Protocol for the control of disease in frogs. Threatened Species Management Information Circular No. 6, Hurstville, NSW (Reprint of the 2001 publication). http://www.environment.nsw.gov.au/resources/nature/hyprfrog.pdf

Appendix A Site hygiene protocol

Table 3: Site hygiene protocol

Hygiene Protocol to reduce introduction and spread of the Frog Chytrid (*Batrachochytrium dendrobatidis*) and other potential frog diseases	
Reduce or Restrict Access	Exclusion areas will be established between areas for constriction and the surrounding frog exclusion fence. This will assist in the prevention of accidental incursion.
Construction Activities	Works will be constrained or stopped during wet conditions.
Personnel and Equipment	Whilst undertaking works that are directly related to the erection of frog exclusion fencing all personnel will practice disinfection of footwear. Footwear will be disinfected by first removing adhering soil and then sprayed with an atomiser containing a diluted bleach solution or else by stepping in a shallow disinfection tray containing the same solution. The tray and new solution should be prepared at the start of each day of work. The sterilisation process should be undertaken on entry and exit to the sensitive area(s) (i.e. in proximity to the exclusion fences). Those individuals undertaking frog clearances or transfer will also undertake hand disinfection. A simple procedure is to utilise an alcohol based self-drying hand cleanser from an applicator. Alternatively making use of disposable gloves. Hand cleaning or glove changes should be practised between each frog handled. Handling of frogs should be kept to a minimum and undertaken only when essential. Where frogs need to be temporarily containerised, one frog only per container ('take-away' containers or plastic bags with a small amount of water). This prevents possible cross infection between individuals.
Vehicles and Machinery	Vehicles and machinery to be used on-site must be cleaned of soil and mud from previous use. This should be done off-site or else undertaken in a 'contained' area where waste water produced can be captured and disposed of or disinfected. Runoff from this step MUST NOT be permitted to enter the potential GGBF habitat area(s) adjacent to the south and north east of the site. If necessary, due to site characteristics, a bunded area may need to be established. This is to prevent tracking in of potential propagules of the frog chytrid, other pathogens and weed propagules or at least enable it to be trapped and disposed of and prevented from flowing to sensitive area(s). Where vehicles are washed down on-site, this should be undertaken using chlorinated 'town' water containing a dilute cleansing/sterilising agent e.g. bleach, Farmcleanse© or similar, used in accordance with the label. Vehicles leaving the site should be subject to a similar cleaning regime.
Water	Water used on site should be chlorinated 'town' water or else sourced from a certified provider or (post construction) captured directly from roof runoff.
Landscaping	Plant stock used in the landscaping and habitat creation initiatives should be either sourced from a certified supplier where potting mix has been heat treated or else plants watered pre-planting with a dilute non harmful (to plants) sterilising solution.

* Where the above protocols do not apply due to site circumstances or are in some way apparently compromised by the activity proposed, prior to proceeding, advice should be sought from a suitably qualified ecologist.

Appendix B Factsheet: Have you seen a Green and Golden Bell Frog

Have you seen a green and golden bell frog?

The green and golden bell frog (*Litoria aurea*) is endangered in NSW and the Department of Environment and Climate Change (DECC) is trying to save it from extinction. You can help by:

- **letting us know if you have seen it**
- **reading this brochure to find out more about it.**

The green and golden bell frog was once very common along coastal NSW and eastern Victoria and in parts of the ranges and tablelands. Since the 1970s, its numbers and distribution have rapidly declined. The likely reasons for this include:

- a severe fungal disease called frog chytrid
- loss and detrimental alteration of its habitat
- introduced fish, such as the plague minnow, eating its eggs, tadpoles or hatchlings.

As at June 2008, only about 40 isolated green and golden bell frog populations remain.

Green and golden bell frogs in NSW

What does the green and golden bell frog look like?

The adult frog is between 4½ and 10 cm long. There is considerable variation in colour and patterning of the back and limbs, which are usually a vivid green blotched with differing amounts of gold, bronze and brown. However, some frogs may be almost entirely green, while others may be mainly golden, bronze or brown. A creamy-white stripe extends from behind the eye, over the ear, almost to the groin, usually partly bordered underneath by a darker stripe. An electric blue splash can be seen on the groin and on the back of the thighs if the back legs are extended.

Juvenile green and golden bell frogs can be confused with adult eastern dwarf tree frogs (*Litoria fallax*) which are similar in size. Eastern dwarf tree frogs are also green and can have brown or bronze blotches on the back. However, the green and golden bell frog has a gold-edged cream stripe that runs **above** the ear and down the side, while the eastern dwarf tree frog has a cream stripe that runs down the side from **below** the ear.

Eastern dwarf tree frog Juvenile green and golden bell frog

The two species also have very different calls. The green and golden bell frog's call is almost growling, a grrrrrrrrk, grrrrk grrk grk that with practice can be imitated – visit www.threatenedspecies.environment.nsw.gov.au and search using 'green and golden bell frog' to hear a recording. Eastern dwarf tree frogs have a raspy wreeeet yitt yitt call – visit www.frogsaustralia.net.au/frogs/calls/wma/litoria_fallax.wma to hear a recording.

Eggs, tadpoles and juveniles

Green and golden bell frogs usually lay their eggs in pools or ponds during spring and summer. Their eggs are laid in a clear gel, not in a white foamy mass like those of many other frogs.

Tadpoles grow rapidly and become quite big, up to about 4 cm long, including the tail. When fully grown, the tadpoles have the same cream stripe as the adults along their sides, and a green tinge on their back.

Juvenile frogs take around 12 weeks to develop after eggs are laid. When they transform from the tadpole stage and lose their tail, they are about 2 cm long. Once they become frogs, they may climb nearby vegetation to feed, but then later will usually move to other areas.

Habitat and habits

Populations of the green and golden bell frog occur in both natural and highly disturbed places, but need particular habitat features. For breeding, the frog prefers swamps, dams, ponds or slow-flowing streams, particularly those with rushes or sedges, exposure to sunlight and a varying water level. It also needs nearby vegetation for foraging, and uses vegetation, rocks, ground debris, soil cracks and other features for shelter during the day and through winter.

Adult green and golden bell frogs quite often sun themselves, and may perch on reeds or other objects to bask. They are usually very alert to danger, and when close to water, will hide in it.

How you can help

- **Tell us if you see or hear a green and golden bell frog.** Visit www.environment.nsw.gov.au/surveys/bellfrogonlineform.htm, or phone Environment Line on 131 555. Avoid handling the frog, but take a photo of it if you can to confirm identification later.
- **Get involved in local projects.** Phone Environment Line on 131 555 to find the location of your nearest green and golden bell frog population and discover ways in which you can help conserve it. Contact your local council about bush regeneration or habitat creation projects happening in your area.
- **Make your garden or workplace more bell frog-friendly.** Build a fish-free pond in a sunny position, with rocks, logs and emergent plants such as reeds, sedges and grasses around the edges.

- **Don't release introduced fish like 'guppies' (plague minnow), carp or goldfish into creeks, dams or lakes.**
- **Prevent the spread of the frog chytrid disease.** Visit www.environment.nsw.gov.au/plantsanimals/FrogChytridFungus.htm to find out how you can help.

Further information

The NSW and Australian Governments are funding activities to help recover the green and golden bell frog. For more information on the frog's conservation and threats to its survival, visit www.threatenedspecies.environment.nsw.gov.au (search using 'green and golden bell frog', 'frog chytrid' or 'plague minnow' as keywords).

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or phone Environment Line on 131 555.
For more information, visit
www.threatenedspecies.environment.nsw.gov.au
Australian Government
Catchment Management Authorities
CMA NEW SOUTH WALES
Department of Environment & Climate Change NSW

Appendix C Site environmental induction training

Construction

1. A nominated 'Site Construction/Project Manager' is to be identified and undergo a GGBF related briefing.
2. An ecologist that has demonstrated at least two years of experience in handling and releasing frogs is to be appointed who is available on-call, aware of the site circumstances and able to provide any required advice or attend the site as required.
3. Workers and visitors on the site are to undergo a site induction training program.
4. Site induction should include a synopsis of the measures outlined within this Management Plan.
5. 'Tool box Talks' undertaken under standard WHS requirements should include a section on the risks and requirements re biodiversity.
6. Daily pre-start up checks for sheltering or trapped fauna should be made. It is possible that fauna could enter ex-situ overnight and may use stationary machinery or materials for shelter or become trapped in excavation pits and deep holes etc.
7. Site staff must know what the correct reporting and removal/transfer procedure if fauna are detected during operations.

MATTERS TO BE COVERED BY INDUCTION TRAINING

General: Status of the GGBF, its features for identification and its habits. Site managers to be given digital and hard copy of 'Have you seen a green and golden bell frog?' brochure (DECC 2008) (Appendix C).

Exclusion Fencing: Its purpose, how it is intended to operate, reporting and inspection requirements to ensure that it remains unobstructed and any inadvertent incursion or damage is rectified immediately.

Hygiene Protocol Requirements: Topics Should Cover - Frog chytrid disease, its impacts on frogs generally and specifically, the requirements for personnel and the equipment used as appropriate to individual activities and risk i.e. frog exclusion fence construction; equipment; machinery, vehicles, imported products, materials, site operational personnel and maintenance as well as appropriate handling/reporting requirement and restriction for incidental finds of any frogs detected.

Fauna Capture, Holding, Reporting and Transfer Protocol: To protect individual fauna and prevent inadvertent mortality, the following steps should be followed:

- do not attempt to touch, capture or handle the fauna
- inform others in the area of the presence of the fauna and immediately stop works in the vicinity of the find
- inform the project manager of the fauna
- project manager is to contact ecologist to have fauna moved to the suitable identified release site
- spotter to remain with the fauna to ensure others are aware of its location and for easy capture when the ecologist arrives on site.

If fauna is found on site and an ecologist is not present, a photo can be taken while someone watches the animal. This photo can be sent to the project ecologist to provide advice as to removing the fauna, including any required hygiene protocols and suitable release protocols. It is the responsibility of the project ecologist to determine when and where any fauna (other than frogs) is to be released and to ensure that this is done in a safe and humane manner according to ethical guidelines.

If a frog is confirmed to be GGBF the ecologist must attend the site to move the GGBF from the impact area to the designated release site. GGBF and native frogs detected in the subject site will be captured and placed in a suitable container/plastic bag with a small amount of distilled water or small handful of moistened grass/leaves. They will be kept in a cool and quiet location prior to release which must be at or just after dusk and into a safe and moist enough location to avoid immediate dehydration.

Injured or sick fauna will be transferred to a vet for assessment and treatment. They can be released back at the release site if they have been declared well enough for release by the vet or qualified animal carer (e.g. WIRES member).

INDIVUDUAL RESPONSIBILITY

On-call Ecologist: capture of frogs, general site fauna clearance, reporting of any fauna occurrence, collecting and collating any observations from other site personnel via Site Construction and Operational Managers as appropriate, makes a call/decision in discussion with original observer on release/transfer of fauna to the designated relocation area (i.e. beyond frog exclusion fence and into the appropriate fauna habitat area).

Site Construction/Project Manager: ensure capture/observation data is recorded, reports observations to on call ecologist. Where it is determined by the ecologist to be safe to do so, and under the direction of the ecologist, the construction manager/ project manager can move the fauna into designated release areas by using disposable gloves and/or hand cleaner. Note that GGBF must be moved by the ecologist.

Appendix D Frog exclusion fencing

Frog Exclusion Fencing Specification for hardstand/pavement and soft landscaped areas:

Materials: Shade Cloth or similar, supported by short star-pickets or similar and single strand fencing wire supporting at base and at top. An optional mid-height supporting strand may also be required/applied as necessary. Where frog exclusion fencing is required on hardstand/pavement areas shade cloth should be installed along the fence with a 30 cm flap sitting on the ground and weighed down with sandbags or similar.

Height: 80 cm

Returns: 25 cm on outward facing side (outward facing the subject site) where possible

Depth: The bottom of the shade cloth should be buried to a depth of 15-20cm.

Maintenance: As a preventative measure, an obviously demarcated buffer area should be established between the works and the fence. A cleared 1 m wide gap must be maintained around the fence until all works are completed. Fencing should be checked as a daily pre-start up exercise. Any damage should be repaired immediately. When fencing is established it should be constructed in a manner that is mindful of the potential for damage from site run-off. Incident reporting should include any accidental incursion or breaching to the frog exclusion fencing. Appropriate design examples are included below:

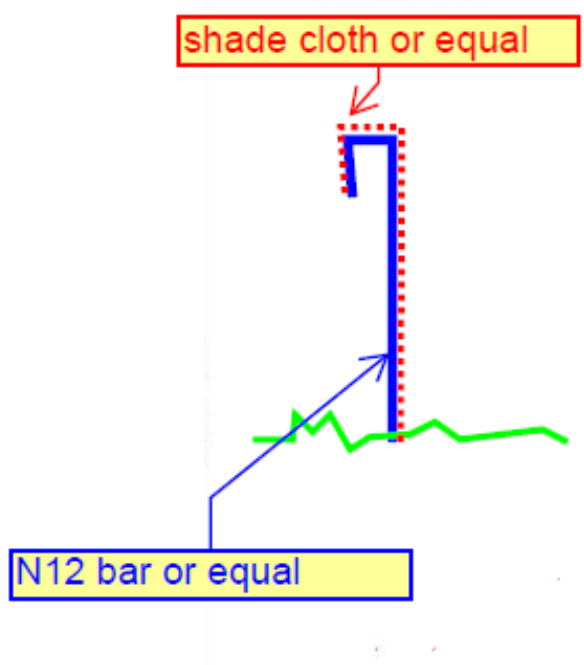

Figure 5: Drawn example of frog exclusion fence to be installed on soft landscaping (Supplied by John Fitzgerald, Mainbrace 2017)

Examples of Frog Exclusion Fencing in soft landscaped areas

(Source: RMS 2011 Management Plan for the Green and Golden Bell Frog, South Nowra Upgrade and DTMR 2009)

[redacted]