



Australian Government

Department of the Environment

Referral of proposed action

Cook Cove Southern Precinct Development

Prepared by Cumberland Ecology, for John Boyd Properties

Referral of proposed action

Cook Cove Southern Precinct

Proposed action title:

1 Summary of proposed action

1.1 Short description

The proposed action is the Cook Cove Southern Precinct development, situated to the immediate west and south west of the Cooks River and Sydney International Airport (see **Figure 1** of **Attachment A**).

The proposed action is principally for the construction and operation of an 18-hole golf course and clubhouse (also referred to as the new Kogarah Golf Course). In addition to this, the proposed action involves a number of components including:

- The demolition of identified dilapidated structures;
 - Remediation of land and treatment of groundwater;
 - Creation of new foreshore active and passive open space;
 - Establishment of new walking and cycling paths, including a bridge over Muddy Creek to improve regional accessibility to and from Botany Bay;
 - Upgrades to the Arncliffe Market Gardens; and
 - Environmental improvement works.
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1.2 **Latitude and longitude**

The latitude and longitude points corresponding to the extents of the Project Boundary are provided in **Table 1** and correlate with **Figure 2** of **Attachment A**. A GIS-compliant file is provided (**Attachment F**).

Table 1: Latitude and Longitude of the Project Boundary

Location Point	Longitude			Latitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
1	33.0000	56.0000	26.2404	151.0000	9.0000	20.7823
2	33.0000	56.0000	28.2616	151.0000	9.0000	23.6645
3	33.0000	56.0000	28.3577	151.0000	9.0000	23.5183
4	33.0000	56.0000	29.5440	151.0000	9.0000	25.1068
5	33.0000	56.0000	29.7339	151.0000	9.0000	25.6865
6	33.0000	56.0000	30.8489	151.0000	9.0000	27.2863
7	33.0000	56.0000	31.1812	151.0000	9.0000	27.4279
8	33.0000	56.0000	31.2402	151.0000	9.0000	27.9478
9	33.0000	56.0000	31.0792	151.0000	9.0000	28.0751
10	33.0000	56.0000	32.4616	151.0000	9.0000	30.2510
11	33.0000	56.0000	32.5673	151.0000	9.0000	30.8532
12	33.0000	56.0000	33.9484	151.0000	9.0000	33.2664
13	33.0000	56.0000	34.5733	151.0000	9.0000	32.8147
14	33.0000	56.0000	35.1136	151.0000	9.0000	33.1053
15	33.0000	56.0000	36.1667	151.0000	9.0000	34.9261
16	33.0000	56.0000	36.3924	151.0000	9.0000	34.8473
17	33.0000	56.0000	36.4961	151.0000	9.0000	35.4157
18	33.0000	56.0000	35.3389	151.0000	9.0000	35.6832
19	33.0000	56.0000	35.4074	151.0000	9.0000	35.8142
20	33.0000	56.0000	39.0712	151.0000	9.0000	35.3217
21	33.0000	56.0000	43.5251	151.0000	9.0000	38.4739
22	33.0000	56.0000	44.1630	151.0000	9.0000	37.7185
23	33.0000	56.0000	45.2239	151.0000	9.0000	38.6987
24	33.0000	56.0000	45.1423	151.0000	9.0000	39.5122
25	33.0000	56.0000	46.0626	151.0000	9.0000	40.3357
26	33.0000	56.0000	46.3558	151.0000	9.0000	39.8869
27	33.0000	56.0000	47.5029	151.0000	9.0000	40.9828
28	33.0000	56.0000	48.5846	151.0000	9.0000	39.4074
29	33.0000	56.0000	45.9249	151.0000	9.0000	36.8638
30	33.0000	56.0000	45.4418	151.0000	9.0000	37.7892
31	33.0000	56.0000	44.4363	151.0000	9.0000	36.8670
32	33.0000	56.0000	46.3853	151.0000	9.0000	31.9072
33	33.0000	56.0000	46.0719	151.0000	9.0000	30.2717
34	33.0000	57.0000	1.4580	151.0000	9.0000	10.5928
35	33.0000	56.0000	59.7977	151.0000	9.0000	3.9756
36	33.0000	56.0000	54.4359	151.0000	9.0000	5.2866
37	33.0000	56.0000	54.4438	151.0000	9.0000	5.5119
38	33.0000	56.0000	51.7184	151.0000	9.0000	6.0582
39	33.0000	56.0000	51.6598	151.0000	9.0000	5.6130
40	33.0000	56.0000	51.0983	151.0000	9.0000	5.7296
41	33.0000	56.0000	51.0647	151.0000	9.0000	5.4156
42	33.0000	56.0000	48.2371	151.0000	9.0000	6.0119
43	33.0000	56.0000	47.2668	151.0000	9.0000	1.2626
44	33.0000	56.0000	44.3900	151.0000	9.0000	1.9289
45	33.0000	56.0000	40.9177	151.0000	9.0000	1.5959
46	33.0000	56.0000	33.9518	151.0000	9.0000	3.0506
47	33.0000	56.0000	34.5722	151.0000	9.0000	7.8634
48	33.0000	56.0000	29.7359	151.0000	9.0000	8.8295
49	33.0000	56.0000	30.2571	151.0000	9.0000	12.5105
50	33.0000	56.0000	28.6286	151.0000	9.0000	12.8238

1.3 **Locality and property description**

The Cook Cove Southern Precinct development is located within the suburbs of Arncliffe and Banksia (suburb boundary is the Spring Street Drain) within the Rockdale Local Government Area (LGA) approximately 10 km south of the Sydney Central Business District (CBD).

The Cook Cove Southern Precinct development is located to the south west of Sydney International Airport, bound by Cooks River to the east, Muddy Creek and Bestic Street to the south east and south, West Botany Street to the west and the M5 East to the north.

The land within the Project Boundary is currently utilised for a variety of purposes including the Barton Park Golf Driving Range, St George Football Stadium (pitch only, Stadium structure is structurally unsound and access is prohibited), playing fields, walking and cycling tracks.

1.4 **Size of the development footprint or work area (hectares)** The Project Boundary is approximately 59.6 ha in size.

1.5 **Street address of the site** West Botany Street and Bestic Street, Arncliffe.

1.6 **Lot description**

The lot/DP numbers within the Project Boundary are detailed in **Table 2**.

Table 2: Lot Descriptions within the Project Boundary

Lot	DP
Part of 7303	1148740
1	219126
1	514811
1	576148
1	599312
1	665481
1	107987
6	1050923
100	1133869
Part of 5	31742

1.7 **Local Government Area and Council contact (if known)**

The proposed action is located within the Rockdale LGA. Development consent is being sought from Rockdale Council under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

Mr Luis Melim, Manager - Development Services – Rockdale City Council

1.8 Time frame

Staged construction and occupation is proposed as follows:

Stage 1 (between Q2 2017 and Q3 2018):

- Commence demolition, bulk earthworks, remediation, ecology rehabilitation;
- Commence construction of first 9 holes of new course from Bestic Street ;
- Construct Muddy Creek and Kyeemagh pedestrian and cycle links, including new bridge; and
- Complete Arncliffe market gardens upgrade.

Stage 2 (between Q3 2018 and Q4 2019):

- Relocate Kogarah Golf Club into new first stage of new course;
- Further earthworks and ecology upgrades;
- Commence Firmstone Gardens pedestrian and cycle links; and
- Complete construction of final 9 holes of new course.

1.9	Alternatives to proposed action		No
		X	Yes. Refer to Section 2.2.
1.10	Alternative time frames, locations or activities	X	No
			Yes
1.11	Commonwealth, State or Territory assessment		No
		X	Yes. Refer to Section 2.5.
1.12	Component of larger action	X	No. Refer to Section 2.7.
			Yes
1.13	Related actions/proposals		No
		X	Yes. Refer to Section 2.8.
1.14	Australian Government funding	X	No
			Yes
1.15	Great Barrier Reef Marine Park	X	No
			Yes

2 Detailed description of proposed action

2.1 Description of proposed action

The proposed action is in conjunction with an Integrated Development Application (DA) to be submitted to Rockdale City Council, pursuant to Part 4 of the New South Wales *Environmental Planning and Assessment Act 1979* (EP&A Act). Olympic Murals Pty Ltd, trading as John Boyd Properties, as applicant, is seeking to secure approval for open space works within the southern section of Cook Cove, which includes site remediation, environmental improvements, public domain enhancements and construction of a new golf course and clubhouse.

The proposal is addressed in part in the Boyd Indicative Development Proposal, as described in detail in John Boyd Properties (2016) submission to Rockdale City Council, and provided in **Attachment B**. The subject of this proposed action is limited in scope to those elements affecting the land south of the M5 Motorway and as shown in **Figure 3 of Attachment A**.

The land on which the new Kogarah Golf Course is to be constructed is presently contaminated degraded open space and artificial in land form. The land is underlain in broad areas by the residue of historic putrescible and non-putrescible landfills and a sewage farm. The site in its current condition has minimal or limited environmental value. As components of the proposed action, this land will be remediated and reconstructed to create the potential for significant new flora and fauna habitats, as well as accommodate new active and passive public open space recreation facilities.

The proposed action will involve the following works:

- The carrying out of site establishment works including demolition of existing structures (including the existing St George football stadium), tree and vegetation removal;
- Early works, including cutting, filling and stockpiling of material;
- Site remediation works in accordance with EPA approved Remediation Action Plan, Site Audit Statement and Site Audit Report, including groundwater treatment;
- Construction and operation of an 18-hole golf course including land contouring, landscaping, waterbodies, irrigation, utility services, golf cart / pedestrian access pathways and bridges;
- Construction of the golf course clubhouse with car parking and operational maintenance building and hardstand areas;
- Environmental improvement and alterations to the Landing Lights Wetland, Spring Street Wetland and to parts of the Spring Street Drain, and planting of additional habitat including salt marshes, reedland and new purpose built pond habitat designed to encourage habitation and foraging by nearby Green and Golden Bell Frog communities;
- Upgrade and heritage conservation works to the Arncliffe Market Gardens, including a boundary adjustment;
- Supply of recycled water for irrigation within the golf course;
- Public domain improvement works including landscaping works along sections of the Cooks River and Muddy Creek foreshores south of the M5 Motorway, shared pedestrian / cycle ways, lighting, wayfinding and interpretive signage; and
- Construction of 1 x bridge, for the shared pedestrian / cycleway over Muddy Creek to Kyeemagh.

As explained in John Boyd Properties' Indicative Development Proposal (2016), the proposed action includes the following key environmental measures:

- **Landfill Remediation:** An existing municipal landfill containing polluted waste materials up to 8 m thick will be remediated via the implementation of an EPA accredited Remediation Action Plan, including the installation of an engineered capping layer and impacted groundwater collection and land fill gas treatment.

- **Green and Golden Bell Frog Habitat Creation:** Action by the WestConnex M5 works subject to referral 2015/7520 on land to the north of the proposed action has been identified to potentially result in a loss of foraging, dispersal, sheltering and ephemeral breeding habitat. The proposed action that is the subject of this referral is the proposed construction of new foraging, dispersal, sheltering and ephemeral breeding habitats integrated into the design of the new golf course. These proposed habitats will have the potential to link to and complement breeding and foraging habitats that will be created by the WestConnex New M5 project adjacent to Marsh Street and the existing RTA ponds. The combined resultant habitat for the Green and Golden Bell Frogs will be substantially larger than current habitat areas and will be comprised of a greater diversity of purpose built habitat elements.

Note that the Green and Golden Bell Frog does not currently occur within the project boundary and will not be impacted by the proposed action. Such habitat creation will be provided as mitigation and offsetting for impacts anticipated with future developments north of the Sydney Water's Southern and Western Suburbs Ocean Outfall Sewer (SWSOOS) infrastructure, which will impact the Green and Golden Bell Frog.

- **Wetland Restoration:** a key wetland on site – “the Landing Lights Wetland” will be retained and sustainably managed.
- **Environmental Management Plans:** New management plans will be prepared and implemented in perpetuity to ensure environmental improvements are maintained. These plans will include:
 - Wetlands Environmental Management Plan detailing the proposed rehabilitation and extension of the Landing Light wetlands and the establishment of new saltmarsh and wetland communities and vegetated riparian buffers;
 - Soil and Water Management Plan addressing and mitigating the potential impact of remediation, golf course and open space development on water quality during and after construction through the identification and utilisation of effective erosion and sediment control measures and stormwater management measures to improve the quality of water entering Muddy Creek and the Cooks River; and
 - Green and Golden Bell Frog Management Plan that complements the New M5 Green and Golden Bell Frog Management Plan prepared by Ecological on behalf of RMS NSW - WestConnex on adjacent lands at Cook Cove and the creation of new foraging, dispersal and sheltering and ephemeral breeding habitat as integrated elements of the new golf course and public open space improvements.
- **Landscaping with local native plants:** Native plant species including Swamp Paperbark (*Melaleuca quinquenervia*) will be planted throughout the new golf course areas to provide new foraging habitat for birds, bats, frogs and other native fauna.

The WestConnex New M5 project as approved will include surface infrastructure to be constructed to the north of the Cook Cove Southern Precinct within an area formerly forming part of the Kogarah Golf Club golf course (AECOM, 2015) to host a permanent tunnel ventilation and fresh air intake facility and motorway operation compound. The proposed action will have regard to, and complement the WestConnex New M5 project by:

- Construction of Green and Golden Bell Frog habitat that complements similar initiatives by WestConnex. To ensure sustainable management of the endangered Green and Golden Bell Frog (*Litoria aurea*) the WestConnex project has provided management plans for the creation of

additional breeding ponds at Marsh Street, and for the protection of the species during the construction period of the project.

- Intended utilisation of certified clean VENM (virgin excavated natural material) and ENM (excavated natural material) sourced from WestConnex tunnel excavation material within structured remediation capping layers, landscaping for golf course and construction of new habitat. The fill will be emplaced on the area proposed for the new golf course and will raise the land surface of the new golf course. However, it is noted that this particular component being the fill from the adjacent WestConnex Arncliffe facility has not been confirmed as taking place at the time of lodging this referral. Fill may be provided from another source and may be determined closer to the construction period.
- Course design will incorporate new purpose built Green and Golden Bell Frog habitat areas within its design, including a proposed complex of interlinked breeding and foraging ponds along the northern western perimeter of the new golf course, parallel to the perceived existing foraging pathway to the north of the SWSOOS emanating from the RTA ponds and to the east of the new Captive breeding habitat to be constructed by RMS adjacent to Marsh Street

The above package of works is subject to further refinement. Refer to Section 1.8 for an indication of staging of the proposal. The conceptual project layout for the proposed action is shown on **Figure 3 of Attachment A**.

2.2 Feasible alternatives to taking the proposed action

The proposed action is similar to an action that was previously approved by Rockdale City Council and the Department of the Environment in 2006 pertaining to a combined Cook Cove Southern Precinct and Cook Cove Northern Precinct scheme. Concept approval was granted by Rockdale City Council to Boyd Cook Cove Pty Ltd on 6th December 2006 (now lapsed), being Development Consent No. DA-2007/5/1 and an Approval Decision – Cooks Cove Development Project (EPBC 2006/2685) issued by the Department to Boyd Cook Cove on 1 June 2007.

The main differences between the previously approved proposal (EPBC 2006/2685) and the current proposed action are:

1. The Cook Cove Southern Precinct Development is being advanced as a separate development precinct pursuant to the environmental submission requirements of Sydney Regional Environmental Plan 33 Cooks Cove, due to the WestConnex construction compound works commencing on parts of the Northern Cook Cove site and the resultant need to relocate the Kogarah Golf Course to a new location, to allow it to operate as a holistic 18-hole course.
2. The Cook Cove Southern Precinct treatment as an entirely separate proposal reflects the actual physical division of the site into North and South precincts by the M5 Motorway and SWSOOS infrastructure which dissect the site from east-west. No alteration of these structures is proposed pursuant to this proposal.
3. The current proposed action is for the construction of a new golf course wholly contained within the boundaries of the Cook Cove Southern Precinct. The previously EPBC approved development configuration was structured on a golf course configuration that incorporated land both north and south of the M5 Motorway infrastructure, connected by bridging structure passing beneath the M5 viaduct and over the SWSOOS.
4. Land previously designated for active open space and stadium (750 seat grandstand) development in the southern eastern portion of the Cook Cove Southern Precinct now proposed to be developed for golf course and environmental improvement purposes. Land previously accommodating golf course development in the approved proposal (EPBC Referral 2006/2685) to

the north of the current proposed action is proposed to include development for passive and active open space, including a new stadium development.

5. Land to the north of the current proposed action is the subject of EPBC Referral 2015/7520 by RMS NSW.
6. The location, size and layout of the proposed new golf course has changed to respond to physical and environmental site constraints; and
7. The location, size and built form of the new football stadium and public open space areas have changed, and are now to be located external to this project referral boundary within the Cook Cove Northern Precinct rezoning and subsequent development.

The WestConnex New M5 project has been approved by the Commonwealth Government and, when constructed, will have infrastructure located at Cook Cove, within the grounds of the existing Kogarah Golf Course (AECOM, 2015). To ensure sustainable management of the endangered Green and Golden Bell Frog (*Litoria aurea*) the WestConnex New M5 project has provided management plans for the creation of additional breeding ponds adjacent to Marsh Street, and for the protection of the species during the construction period of the project.

The proposed action by John Boyd Properties also entails preparation of plans of management for the Green and Golden Bell Frog, wetland environmental management plans, soil and water management plans and an Open Space Plan of Management. Such plans of management will provide for the sustainable management of the Landing Light wetlands and new wetlands that will afford greater areas and variety of habitat than currently exist for the Arncliffe Green and Golden Bell Frog population.

The mitigation measures proposed for the Green and Golden Bell Frog and for the key Landing Light wetlands by the proposed action will complement and integrate with comparable measures to be implemented by the WestConnex project. The cumulative result will be an increased area of permanently managed habitat for the species, and actively managed wetland habitats fenced to preclude predators and capable of water level management, salt water supply and water quality monitoring to optimise the potential suitability of this new habitat .

2.3 Alternative locations, time frames or activities that form part of the referred action

No alternative locations, time frames or activities to the proposed action have been identified as part of this referred action. Refer to Section 2.7 for details of the separate Cook Cove Northern Precinct which pertains to entirely different subject land and that will be subject to a separate controlled action referral.

2.4 Context, including any relevant planning framework and state/local government requirements

Development consent is being sought from Rockdale Council under Part 4 of the EP&A Act for demolition of identified structures; remediation of soil and groundwater interception, collection and treatment; construction of a new golf course and open space development and rehabilitation works.

2.5 Environmental impact assessments under Commonwealth, State or Territory legislation

A number of environmental studies have been undertaken for previous development applications within and adjacent to the Project Boundary. EPBC Referral 2006/2685 Approval was granted 1 June 2007 for an alternative configuration of the proposed action (Stadium and football field in the south east and 5 holes of golf course to the north of M5, now replaced by this proposed action whereby the golf course is consolidated to the south of the M5 East motorway and new public recreational facilities are to be developed north of the M5 East Motorway. The Cook Cove Northern Precinct will be subject to a separate referral of proposed action).

Chief Executive Requirements (CERs) have been obtained from the NSW Office of Environment and Heritage for the preparation of a Species Impact Statement (SIS).

The SIS will be prepared to support the development application to be submitted to Rockdale Council. The SIS is required to be prepared in accordance with Division 2 of Part 6 of the NSW *Threatened Species Conservation Act 1995*. Rockdale Council is required to seek the concurrence of the Chief Executive of the Office of Environment and Heritage for the SIS in accordance with Section 79B of the EP&A Act.

2.6 Public consultation (including with Indigenous stakeholders)

Formal public consultation will be conducted in conjunction with the exhibition of the Development Application to be assessed by Rockdale City Council. However, discussions have been on-going for some time with the registered members of the Kogarah Golf Course, affected occupants of the Southern Precinct, and with the elected Councillors and staff of Council. In response, Council has passed a number of Resolutions in support of the proposed action.

2.7 A staged development or component of a larger action

The proposed action is a discrete project in its own right. It is not part of a staged development or a component of a larger project. The Northern and Southern Precincts of Cook Cove have discrete sections with unique lands and individual constraints which are physically separated by trunk infrastructure, being the M5 Motorway and the SWSOOS.

Future development of lands to the north of the M5 Motorway and the SWSOOS (described as the Cook Cove Northern Precinct) will be subject to a separate planning approval pathway approved by the NSW Department of Planning and Environment. This will include a masterplanning and rezoning exercise, prior to the lodgement of separate development applications. These separate, future development applications will then be subject to a separate action.

2.8 Related actions

The proposed action is to the immediate south (physically separated by the M5 Motorway and SWSOOS infrastructure of several parcels of land (DP 213314, DP 108492 and DP 329283).

These parcels of land will be utilised in whole or in part by the Sydney Motorway Corporation on a temporary basis for the Arncliffe construction compound for the WestConnex New M5 controlled action (EPBC 2015/7520), before reducing their site footprint to construct a permanent ventilation and operations centre.

John Boyd Properties proposes the future mixed-use urban redevelopment of portions of Lots 10 and 11 DP 570900, adjacent to the above mentioned WestConnex New M5 parcels, that are located north of the project boundary, pursuant to a rezoning process agreed with the NSW Department of Planning & Environment and Rockdale City Council. Following a rezoning, any future DA proposals north of M5 / SWSOOS will be subject to a separate action

3 Description of environment & likely impacts

3.1 Matters of national environmental significance

3.1 (a) World Heritage Properties

Description

No World Heritage Properties are identified as occurring within a 5km buffer from the Project Boundary (the locality).

Nature and extent of likely impact

Not applicable.

3.1 (b) National Heritage Places

Description

No National Heritage Places are identified as occurring within the locality of the Project Boundary.

Nature and extent of likely impact

Not applicable.

3.1 (c) Wetlands of International Importance (declared Ramsar wetlands)

Description

There are no Wetlands of International Importance identified as occurring within the locality of the Project Boundary. The Protected Matters Search Tool (PMST) report identified the Towra Point Nature Reserve as being relevant to the search area. Towra Point Nature Reserve meets Criterion 2, 3, 4 and 8 of the listing criteria.

Towra Point Nature Reserve is located approximately 5.7 km south-south east of the Project Boundary. It is located on the northern side of Kurnell Peninsula, forming the southern and eastern shores of Botany Bay, and is approximately 16 km from the Sydney CBD. It is an estuarine complex comprising a mixture of spits, bars, mudflats, dunes and beaches and supports known habitat for threatened flora species and migratory birds (DoE, 2016d).

Nature and extent of likely impact

The proposed action is not expected to directly or indirectly impact the Towra Point Nature Reserve. The distance between the proposed action area and the Towra Point Nature Reserve is considered sufficient to prevent any direct or indirect impacts upon the in-situ conservation of biological diversity or the maintenance of ecological processes within the wetland.

3.1 (d) Listed threatened species and ecological communities

Description

The generated PMST report indicates that there are seven threatened ecological communities, 13 threatened flora species and 57 threatened fauna species with a potential to occur in the locality of the Project Boundary. A list of threatened ecological communities and species and an analysis of their likelihood of occurrence within the Project Boundary is provided in **Table A** of **Attachment C**.

In addition to the existing survey undertaken within the Project Boundary, further surveys and assessment will be completed for the preparation of an SIS to determine the impacts of the Project upon ecological communities, threatened flora and threatened fauna.

Threatened Ecological Communities

No EPBC Act listed threatened ecological communities have been recorded within the Project Boundary.

Threatened Flora Species

No EPBC Act listed threatened flora have been recorded within the Project Boundary and none are considered likely to occur.

Threatened Vulnerable Fauna Species

The following threatened fauna species listed under the EPBC Act have been recorded external to the Project Boundary in the Cook Cove Northern Precinct during the previous detailed studies by Cumberland Ecology (2006b; 2010):

- Green and Golden Bell Frog (*Litoria aurea*) – Vulnerable.

Green and Golden Bell Frog

In NSW, the Green and Golden Bell Frog commonly occupy disturbed habitats and can be found in a range of water bodies except fast flowing streams. Favourable breeding habitat includes water bodies that are shallow, still or slow flowing, ephemeral and/or widely fluctuating, unpolluted, unshaded, with aquatic plants and free of Mosquito Fish (*Gambusia holbrooki*) and other predatory fish, with terrestrial habitats that consist of grassy areas and vegetation no higher than woodlands, and a range of diurnal shelter sites (DoE, 2016a).

Green and Golden Bell Frogs are known to be a highly mobile species and may move among breeding sites, however, dispersal patterns can vary between populations. Previous studies suggest that the Green and Golden Bell frog is capable of moving long distances in a single day or night of up to 1-1.5 kilometres. Observations suggest that movements of up to 5 kilometres may be common, and Green and Golden Bell Frogs could potentially disperse as far as 10 kilometres (DoE, 2016a). However, as noted in the May 2016 Green and Golden Bell Frog Plan of Management prepared for the WestConnex New M5 project by Eco Logical Australia, there is an absence of movement to areas adjacent to the Cook Cove Southern Precinct "*Frog monitoring since 2000 failed to detect any Bell frogs in the Marsh Street wetland after 2006*" (page 15).

Green and Golden Bell Frogs have been found to the north and north east of the Project Boundary and are identified within the Green and Golden Bell Frog Recovery Plan (DEC (NSW), 2005), which refers to the occurrence as the "Arncliffe Key Population".

This population was historically impacted by road works and infrastructure built in association with the M5 East Motorway in 1998. At that time compensatory habitat was built comprising two breeding ponds in the south-western corner of the then Kogarah Golf Course on Roads and Maritime Land (Eco Logical Australia, 2015a; Eco Logical Australia, 2015b). These breeding ponds are approximately 500m west-north-west of the Cook Cove Southern Precinct.

Annual monitoring has shown that these ponds are being used for breeding by the Green and Golden Bell Frogs. Also, Green and Golden Bell Frogs from this population have been recorded consistently on fairways of the Kogarah Golf Course. However, breeding has remained confined to the breeding ponds and essentially no breeding has occurred in ponds of the golf course in recent years (Dr Arthur White pers. comm. 2015).

Whilst the population peaked in 2012 (110 adults), the population has since declined and is now estimated at substantially less than 50 adults and is limited to the known RTA breeding ponds located just outside of the Project Boundary (Eco Logical Australia, 2015a; Eco Logical Australia, 2015b).

New breeding habitat for Green and Golden Bell Frogs will be created within the Marsh Street Wetland area by RMS NSW as part of the recently approved WestConnex New M5 project. The breeding habitat to be created for the WestConnex New M5 project will be separated from the Project Boundary by a saline wetland owned by Sydney Water, commonly referred to as the Eve Street Wetland. At this present time, no breeding habitat has been created at Marsh Street Wetland.

To date, Green and Golden Bell Frogs have not been recorded within the Project Boundary during annual monitoring and appear to be largely restricted to constructed habitat to the north and north east of the Project Boundary. Within the Project Boundary, there is currently no breeding habitat for the species and no terrestrial foraging habitat within 200 metres of known breeding habitat. As such, the Green and Golden Bell Frog is presently unlikely to occur in the Project Boundary. An objective of the works proposed within the Cook Cove Southern Precinct Project Boundary is to incorporate 'GGBF friendly' pond habitats into the new golf course design to encourage Green and Golden Bell Frog habitation within the Project Boundary, including the potential accommodation of Green and Golden Bell Frogs bred in the RMS Captive Breeding Habitat to be established adjacent to Marsh Street, approximately 400 metres to the west, subject to the agreement and co-operation of RMS and other stakeholders.

Grey-headed Flying-fox

The Grey-headed Flying-fox is Australia's only endemic flying-fox and occurs along the eastern coast of Australia from Rockhampton in Queensland to Melbourne in Victoria. The national population of the Grey-headed Flying-fox is spatially structured into colonies. However; there are no separate or distinct populations due to the constant genetic exchange and movement between camps throughout the species entire geographic range (DoE, 2016b).

The Grey-headed Flying-fox is a canopy-feeding frugivore and nectarivore, which utilises vegetation communities including rainforests, open forests, closed and open woodlands, *Melaleuca* swamps and *Banksia* woodlands. It is also known to feed on commercial fruit crops and on introduced tree species in urban areas. The Grey-headed Flying-fox roosts in aggregations of various sizes which are typically located near water such as lakes, rivers or the coast (DoE, 2016b).

The Grey-headed Flying-fox has a diverse native diet, which is supplemented by introduced plants. Nectar and pollen from flowers of eucalypts, melaleucas and banksias are the primary food sources for the species. The species has no adaptations for withstanding food shortages and will migrate in response to changes in the amount and location of flowering (DoE, 2016b).

The Atlas for NSW Wildlife database (OEH, 2016) indicates that Grey-headed Flying-fox has previously been detected within the Project Boundary but the number of records held by the database is very low. The few individuals that have been recorded within the Project Boundary are likely to belong to the permanent roosting camp at Turrella Reserve in Wolli Creek Valley, which is the closest known camp to the Project Boundary (DoE, 2014). This roosting camp is known to have been established in 2007 in riparian vegetation along Wolli Creek.

Individuals from the Wolli Creek camp are likely to fly over the Project Boundary from time to time as part of a wider foraging range (Eco Logical Australia, 2015a; Eco Logical Australia, 2015b). Within the Project Boundary, there are very limited foraging resources for the Grey-headed Flying-fox. The vegetation within the Project Boundary is largely represented by cleared areas of exotic grassland comprising a golf driving range, a number of sports fields and regularly maintained cleared green space. There is a very low abundance of eucalypts, melaleucas and banksias within the Project Boundary. Mangroves, *Casuarina* spp. and *Acacia* spp. comprise the majority of the woody vegetation that occurs within the Project Boundary and do not provide foraging habitat for Grey-headed Flying-fox. Native plantings within the Project Boundary consist primarily of Swamp Oak and River Oak with only occasional occurrences of melaleucas and banksias.

Threatened Wading Bird Species

Two additional threatened species, the Australasian Bittern (*Botaurus poiciloptilus*) and Curlew Sandpiper (*Calidris ferruginea*) were previously recorded within, or in the immediate vicinity of, the Project Boundary. These are both wetland bird species that forage in shallow wetlands and saltmarsh habitats.

The Australasian Bittern was recorded by Biosphere Environmental Consultants (2000) in the Eve Street Wetland and Marsh Street Wetland, both of which occur outside the Project Boundary. The Curlew Sandpiper was recorded by Biosis Research (2001) at the Eve Street Wetland and at Landing Lights Wetland in 2007 (OEHL, 2016), the latter wetland is within the Project Boundary. Neither of these species was recorded in subsequent surveys of the Project Boundary and immediate vicinity. Previous records indicate that these wetlands have historically been sites used by wading birds (OEHL, 2016).

Since the construction of the M5 Motorway there has been a decline in the number of wading birds using Eve Street Wetland and Marsh Street Wetland (Cumberland Ecology, 2006b).

The Eve Street wetland is a remnant of the larger Barton Park wetland system which once stretched from Eve Street to the Cooks River. Much of the original wetland was lost by landfill operations to create playing fields and parklands. Sydney Water converted it from a silted mangrove swamp to an open shallow, hyper-saline wetland. The majority of the river flat forest community to the south of this wetland has been planted. The wetland is bordered by two structures, a sewer carrier to the south and an elevated part of the M5 to the north (Cumberland Ecology, 2006a).

It is likely that the elevated portion of the M5 Motorway that runs next to the Eve Street Wetland has created conditions unfavourable to wading birds. Wading birds have a low take-off angle and are often preyed upon by birds of prey that target other birds from elevated positions around the wetland such as fringing trees (Lissimore *et al.*, 1999). Due to this, wading birds generally avoid areas with these characteristics. Originally Marsh Street wetland was made up of a stormwater detention basin and an ephemeral freshwater area. Since the construction of the M5 Motorway the Marsh Street wetlands have been severed and the freshwater wetland that remains on the subject site is invaded by weeds (Cumberland Ecology, 2006b).

The Spring Street Wetland is currently a brackish, mangrove dominated wetland that has been highly modified but was once suitable habitat for wading birds. The wetland was originally constructed over old landfill to form an open habitat for water birds, including a large pond in the middle of the wetland with a central island, surrounded by native tree plantings on the fringes. Over time, Spring Street Wetland has become heavily degraded, suffering from leachate infiltration and rubbish dumping, as well as sedimentation that has led to the northern end of the wetland becoming anaerobic. Significant encroachment of mangrove vegetation has dramatically altered the habitat characteristics of this wetland and negated the value of this area for water birds. This wetland is not considered to provide habitat for any threatened species. The Spring Street Wetland may be used by the occasional coot or heron but in general it has low habitat value (Cumberland Ecology, 2006b; Cumberland Ecology, 2006a; Cumberland Ecology, 2010).

Landing Lights Wetland is a small area of wetland habitat that provides some foraging habitat for wading birds but does not offer substantial breeding or roosting habitat for wading birds. The Landing Lights Wetland is likely to have been created by the entrapment of saline water behind the Drain wall after extremely high tides. A saltmarsh community now occurs there although the land is contaminated with land fill and dumped waste. This area has remained protected from development due to the landing lights that were previously used to guide planes into the nearby Sydney International Airport, and which have since been removed, though an easement for such structures remains on title. The gentle slope of the edges and the general shallowness of the water allow the birds to walk and feed in the sediment but does not provide sufficient habitat to support breeding or roosting activities (Cumberland Ecology, 2006b; Cumberland Ecology, 2006a; Cumberland Ecology, 2010).

The wetland habitats described above have generally become less suitable or unsuitable over time due to weed invasion, the encroachment of mangroves (in the case of Spring Street Wetland), planted vegetation at the perimeters, and the presence of the M5 Motorway (in the case of Eve Street Wetland). Notwithstanding the absence of recent records of the Australasian Bittern and the Curlew Sandpiper and the reduction in habitat value since they were recorded, these species have been assessed as having a moderate likelihood of occurrence within the Landing Lights Wetland and therefore have been assessed as present within the Project Boundary.

Figure 4 of Attachment A shows locations of Green and Golden Bell Frog and Grey-headed Flying Fox within the Project Boundary. It also shows the location of key wetland areas within and near the Project Boundary. Note that further field surveys will be undertaken for the proposed action as part of the SIS.

Nature and extent of likely impact

Vulnerable Species

The proposed action is considered unlikely to have a direct or indirect impact on the two Vulnerable listed species recorded within or near the Project Boundary: Green and Golden Bell Frog and Grey-headed Flying-fox.

The known population of the Green and Golden Bell Frog that is located within proximity of the Project Boundary (the Arncliffe population) is considered to be an important population due to the following:

- It is a key source population for breeding and dispersal; and
- It is a population that is necessary for maintaining genetic diversity.

The Arncliffe population of the Green and Golden Bell Frog is largely restricted to the north of the M5 and the occurrence of the species within the Project Boundary is currently considered to be unlikely. The key breeding habitat for Green and Golden Bell Frog consists primarily of the RTA breeding ponds, which were established for a previous RTA development approval and is located at a distance of greater than 200 m from the Project Boundary on the north side of the existing M5.

The surrounding foraging habitat supporting the RTA ponds was located on the existing Kogarah Golf Course in land to the north of the existing M5 and comprised grassed areas, fringing vegetation around golf ponds and any ephemeral wet areas including drainage trenches. This area provided habitat for foraging and dispersal from the RTA breeding ponds. In July 2016, a large portion of this area was occupied for the WestConnex New M5 construction compound. These areas are outside of the Project Boundary.

Also outside of the Project Boundary, there were a couple of ponds on the existing Kogarah Golf Course that are reported to have provided breeding habitat in the past (Eco Logical Australia, 2015a; Eco Logical Australia, 2015b). It has been acknowledged that breeding events in these latter ponds are rare and unlikely, due to the presence of Mosquito Fish (*Gambusia holbrooki*). These ponds will or have been removed in the establishment of the WestConnex construction compound.

Ponds that will be created for the new Kogarah Golf Course as part of the proposed action will be suitable for Green and Golden Bell Frogs and can augment the eventual breeding habitat to be created for the WestConnex New M5 project.

The population of the Grey-headed Flying Fox that may forage over the Project Boundary from time to time is not considered to form an important population. No separate or distinct populations have been identified for the species due to the constant genetic exchange and movement between camps throughout the species' entire geographic range (DoE, 2016b). The foraging value of the vegetation within the Project Boundary is presently minimal. Landscape planting that will be implemented as part of the proposed action will establish tree and shrub species within the Project Boundary that are suitable foraging species and so maintain (or increase) foraging habitat for the Grey-headed Flying-fox within the locality.

For the reasons above, the proposed action is not considered likely to have a significant impact on either or both the Green and Golden Bell Frog and the Grey-headed Flying-fox. Potential impacts to these species are examined formally in **Table 3**.

Table 3 – Significant Impact Criteria for Vulnerable Species

Significant Impact Criteria	Response – Green and Golden Bell Frog	Response – Grey-headed Flying-fox
Will the action lead to a long-term decrease in the size of an important population of a species	The proposed action is unlikely to decrease the size of the Arncliffe population. The proposed action will not remove known breeding or foraging habitat.	As the Project Boundary does not support an important population of the Grey-headed Flying-fox the proposed action is not considered to result in the long-term decrease in the size of an important population of this species.
Will the action reduce the area of occupancy of an important population	The proposed action is unlikely to reduce the area of occupancy of the Arncliffe population. The proposed action will not remove known breeding or foraging habitat. The proposed action has the potential to increase the area of occupancy	As the Project Boundary does not support an important population of the Grey-headed Flying-fox the proposed action is not considered to reduce the area of occupancy of an important population of this species.
Will the action fragment an existing important population into two or more populations	No. The proposed action is unlikely to fragment the Arncliffe population as the population is not known to occur within the Project Boundary.	As the Project Boundary does not support an important population of the Grey-headed Flying-fox the proposed action is not considered to fragment an existing important population into two or more populations.
Will the action adversely affect habitat critical to the survival of a species	No. The proposed action will not adversely affect habitat critical to the survival of the Arncliffe population. The proposed action is designed to create potential habitat	<p>The proposed action will involve the removal of very minimal areas of foraging habitat for the species, predominantly in the form of native plantings, particularly <i>Melaleuca quinquenervia</i>.</p> <p>The habitat within the proposed action area represents a small portion of the available habitat for this species in the locality. This species is likely to only utilise the Project Boundary on occasion as part of a larger habitat range. There are no known roosts of the Grey-headed Flying-fox within the proposed action area. For these reasons, the proposed action is not considered to adversely affect habitat critical to the survival of the species.</p>
Will the action	No. The proposed action is unlikely to	As the Project Boundary does not support

disrupt the breeding cycle of an important population	disrupt the breeding cycle of the Arncliffe population. The proposed action will not remove known breeding or foraging habitat.	an important population of the Grey-headed Flying-fox the proposed action is not considered to disrupt the breeding cycle of an important population.
Will the action modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No. The proposed action is unlikely to modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline. The proposed action will not remove known breeding or foraging habitat.	The proposed action will involve the removal of foraging habitat for the species, predominantly in the form of native plantings. The habitat to be removed represents a small portion of the available habitat for the species. The removal of a small portion of foraging habitat is not considered to result in the decline of the species.
Will the action result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	<p>No. The proposed action will not be undertaken in known habitat for the Arncliffe population and is presently more than 200 m from known breeding ponds. The proposed action is separated from known habitat by the M5. The Arncliffe population currently is at risk of predation from feral and domestic animals and the proposed action is not likely to substantially increase this risk.</p> <p>In future, when breeding ponds are established at Marsh Street for the WestConnex New M5 project, the proposed action will need to ensure that it does not result in invasive species harmful to Green and Golden Bell Frog becoming established at the Marsh Street breeding ponds.</p>	The proposed action is unlikely to result in an invasive species harmful to the Grey-headed Flying-fox becoming established.
Will the action introduce disease that may cause the species to decline, or	<p>No. The proposed action will not be undertaken in known habitat for the Arncliffe population and is presently more than 200 m from known breeding ponds. The proposed action will be separated from known habitat by the M5.</p> <p>In future, when breeding ponds are established at Marsh Street for the WestConnex New M5 project, the proposed action will need to ensure that it does not introduce disease harmful to Green and Golden Bell Frog to the Marsh Street breeding ponds, to be located more than 200 m west of the Project Boundary</p>	The proposed action is unlikely to introduce disease that may cause this species to decline.
Will the action interfere substantially with the recovery of the species	The proposed action is considered unlikely to interfere substantially with the recovery of the species. The proposed action will not remove known breeding or foraging habitat.	The habitat within the proposed action area represents a small portion of the available habitat for this species in the locality. This species is likely to only utilise the Project Boundary on occasion as part of a larger habitat range. There are no known roosts of the Grey-headed Flying-fox within the proposed action area. For these reasons, the proposed action is not considered to adversely affect habitat critical to the survival of the species.

Significant Impact Thresholds for Green and Golden Bell Frog

Further assessment of Green and Golden Bell Frog has been undertaken with respect to the significant impact thresholds for the species:

1. *Will the action result in the removal or degradation of aquatic or ephemeral habitat either where the green and golden bell frog has been recorded since 1995 or habitat that has been assessed as being suitable according to these guidelines. This can include impacts from chytrid, Gambusia originating off-site.*

No. The proposed action will not directly remove or degrade known breeding habitat for the Green and Golden Bell Frog (being the RTA breeding ponds outside of the Project Boundary).

2. *Will the action result in the removal or degradation of terrestrial habitat within 200 metres of habitat identified in threshold 1?*

No. The terrestrial foraging habitat (i.e. grassed areas) within the Project Boundary is located at a distance of greater than 200 m from known breeding habitat for the Green and Golden Bell Frog (being the RTA breeding ponds outside of the Project Boundary).

3. *Will the action result in breaking the continuity of vegetation fringing ephemeral or permanent waterways or other vegetated corridors linking habitats meeting the criteria in threshold 1.*

No. The proposed action is not likely to disrupt dispersal corridors linking the RTA breeding ponds to other sources of aquatic / ephemeral habitat.

Critically Endangered and Endangered Species

The proposed action has the potential to directly and indirectly impact the one Endangered and one Critically Endangered listed bird species that have historically been recorded within and near the Project Boundary, and which have the potential to occur within the Project Boundary in the future.

The wetland habitats within the vicinity of the Project Boundary have generally become less suitable or unsuitable over time due to weed invasion, the encroachment of mangroves (in the case of Spring Street wetland), planted vegetation at the perimeters, and the presence of the M5 Motorway (in the case of Eve Street wetland). However, the Landing Lights Wetland is a small area of wetland habitat that still provides some foraging habitat for wading birds although it is unlikely to offer substantial breeding or roosting habitat for wading birds. The protected wetlands at Towra Point offer extensive habitat for migratory waders and it is likely that the Landing Lights wetland functions as nearby foraging habitat.

The Curlew Sandpiper is a critically endangered species that is also listed as migratory species under international agreements. The Curlew Sandpiper does not breed in Australia and occurrences of Curlew Sandpiper at Landing Lights wetland are not considered to be a population of international importance (DoE, 2016c). For the purpose of assessment, any occurrences of Curlew Sandpiper at Landing Lights wetland are considered to be part of a larger population that may visit in the wider locality (including North Botany Bay Foreshore Reserve, Sydney Airport, Botany Bay and other wetlands and foreshores in the locality).

The Australasian Bittern is an endangered species that occurs in terrestrial freshwater wetlands and, rarely, estuarine habitats (DoE, 2016c). Database records indicate that it was recorded only once in the locality since 1980 and this was at Eve Street Wetland in 2000. Eve Street wetland is now an open shallow, hyper-saline wetland. No record since 2000 is available for this species and it is not likely that the species occurs frequently in the area. However, there is still some foraging habitat available for the species afforded by Landing Lights wetland.

The proposed action will encroach on the Landing Lights Wetland and has the potential to have some

direct impacts on the Saltmarsh vegetation on the fringes of the wetland. Therefore, the proposed action has potential to impact on foraging habitat for the Australasian Bittern and Curlew Sandpiper. Impacts to these species are examined in **Table 4**.

Table 4 – Significant Impact Criteria for Critically Endangered and Endangered Species

Significant Impact Criteria	Response – Australasian Bittern	Response – Curlew Sandpiper
Will the action lead to a long-term decrease in the size of a population	The proposed action is unlikely to lead to the long-term decrease in the size of the population. The Landing Lights wetland is a small area of habitat that is available in the wider locality.	The proposed action is unlikely to lead to the long-term decrease in the size of the population. The Landing Lights wetland is a small area of habitat that is available in the wider locality.
Will the action reduce the area of occupancy of the species	The proposed action may reduce the area of occupancy of the species if the surrounding golf course development leads to a substantial reduction in the size and condition of the foraging habitat at Landing Lights wetland (e.g. increase the area of fringing terrestrial vegetation, reduce visibility) such that it deters the species from visiting.	The proposed action may reduce the area of occupancy of the species if the surrounding golf course development leads to a substantial reduction in the size and condition of the foraging habitat at Landing Lights wetland (e.g. increase the area of fringing terrestrial vegetation, reduce visibility) such that it deters the species from visiting.
Will the action fragment an existing population into two or more populations	The proposed action is not likely to fragment an existing population into two or more populations.	The proposed action is not likely to fragment an existing population into two or more populations.
Will the action adversely affect habitat critical to the survival of a species	The proposed action is not likely to adversely affect habitat critical to the survival of the species.	The proposed action is not likely to adversely affect habitat critical to the survival of the species.
Will the action disrupt the breeding cycle of a population	The proposed action is not likely to disrupt the breeding cycle of a population.	The proposed action is not likely to disrupt the breeding cycle of a population.
Will the action modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposed action may modify or decrease the quality of habitat at Landing Lights wetland (e.g. increase the area of fringing terrestrial vegetation, reduce visibility) such that it deters the species from visiting. However, this is not likely to cause a decline of the species.	The proposed action may modify or decrease the quality of habitat at Landing Lights wetland (e.g. increase the area of fringing terrestrial vegetation, reduce visibility) such that it deters the species from visiting. However, this is not likely to cause a decline of the species.
Will the action result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	The proposed action is not likely to result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat.	The proposed action is not likely to result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat.
Will the action introduce disease that may cause the species to decline, or	The proposed action is not likely to introduce disease that may cause the species to decline.	The proposed action is not likely to introduce disease that may cause the species to decline.
Will the action interfere with the recovery of the species	The proposed action is unlikely to interfere with the recovery of the species.	The proposed action is unlikely to interfere with the recovery of the species.

3.1 (e) Listed migratory species

Description

The generated PMST Report indicates that there are 71 migratory species with a potential to occur in the locality of the Project Boundary. A list of migratory species and analysis of their likelihood of occurrence within the Project Boundary is provided in **Table B** of **Attachment C**.

The following migratory species have been recorded within or within the vicinity of the Project Boundary during the previous detailed studies by Biosis Research (2001), Cumberland Ecology (2006b; 2010) and recent surveys:

- Great Egret (*Ardea alba*) – Migratory-Wetland;
- Sharp-tailed Sandpiper (*Calidris acuminata*) – Migratory-Wetland;
- Curlew Sandpiper (*Calidris ferruginea*) - Migratory-Wetland; and
- Latham's Snipe (*Gallinago hardwickii*) – Migratory-Wetland.

It is noted that the Great Egret was previously listed as a migratory species but has been removed from the list of migratory species under Section 209 of the EPBC Act, effective 9 June 2016. It is not assessed further in this referral.

A suite of additional migratory birds were previously recorded within, or in the immediate vicinity of, the Project Boundary (OEHL, 2016). Most records for these species date from around 2000. There has been an apparent decline in the occurrence of such wading birds since that time. Most recently in the previous spring and summer, none of these species were recorded in the Project Boundary and immediate vicinity.

The wetland habitats within the vicinity of the Project Boundary have generally become less suitable or unsuitable over time. The Spring Street wetland is currently a brackish, mangrove dominated wetland that has been highly modified but was once suitable habitat for wading birds. The wetland was originally constructed over old landfill to form an open habitat for water birds, including a large pond in the middle of the wetland with a central island, surrounded by native tree plantings on the fringes. Over time, Spring Street Wetland has become heavily degraded, suffering from leachate infiltration and rubbish dumping, as well as sedimentation that has led to the northern end of the wetland becoming anaerobic. Significant encroachment of mangrove vegetation has dramatically altered the habitat characteristics of this wetland and negated the value of this area for water birds. This wetland is not considered to provide habitat for any threatened species. The Spring Street Wetland may be used by the occasional coot or heron but in general it has low habitat value (Cumberland Ecology, 2006b).

However, the Landing Lights Wetland is a small area of wetland habitat that provides some foraging habitat for migratory wading birds but does not offer substantial breeding or roosting habitat for wading birds. The Landing Lights Wetland is likely to have been created by the entrapment of saline water behind the Drain wall after extremely high tides. A saltmarsh community now occurs there although the land is contaminated with land fill and dumped waste. This area has remained protected from development due to the landing lights that are used to guide planes into the nearby Sydney International Airport. The gentle slope of the edges and the general shallowness of the water allow the birds to walk and feed in the sediment but does not provide sufficient habitat to support breeding or roosting activities.

The proposed action will encroach on the Landing Lights Wetland and has potential to have some direct impacts on the Saltmarsh vegetation on the fringes of the wetland. Therefore, the proposed action has potential to impact on foraging habitat for migratory birds.

Figure 4 of Attachment A shows locations of wetland habitat within and in the immediate vicinity of the Project Boundary. Note that further field surveys will be undertaken for the proposed action as part of the SIS.

Nature and extent of likely impact

Two migratory species have been recorded within the Project Boundary and have the potential to be impacted by the proposed action through encroachment on habitat and some habitat removal. The habitat for these migratory species primarily occurs within the Landing Lights Wetland. Spring Street Wetland, Eve Street Wetland and Marsh Street Wetland also occur within and in the vicinity of the Project Boundary but their habitat value has declined over the years (see **Figure 4 of Attachment A**).

The Eve Street Wetland and Marsh Street Wetland occur outside the Project Boundary. Therefore the direct impacts to habitat for migratory species are confined to the Landing Lights Wetland and Spring Street Wetland. The proposed action will encroach on the Landing Lights Wetland and has potential to have some direct impacts on the Saltmarsh vegetation on the fringes of the wetland. Spring Street Wetland will be removed by the proposed action. The Spring Street wetland is not considered to provide habitat for any threatened species due to habitat degradation by mangrove invasion, leachate infiltration and sedimentation.

Impacts to the migratory species known to occur within the Project Boundary are examined in **Table 5**.

Table 5 – Significant Impact Criteria for Migratory Species

Significant Impact Criteria	Response
Will the action substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	<p>The proposed action will remove habitat within Spring Street Wetland. This habitat is not considered to be important for the assessed species as it is no longer utilised and has been significantly overgrown by vegetation.</p> <p>The proposed action will encroach on and remove some fringing Saltmarsh vegetation from the Landing Lights Wetland. This habitat is not considered to be important habitat for migratory species known to occur. The habitat available does not constitute key breeding habitat for these species. The protected wetlands at Towra Point offer extensive habitat for migratory waders and it is likely that Landing Lights wetland functions as nearby foraging habitat.</p>
Will the action result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	<p>The habitat proposed to be cleared within the Project Boundary is not considered to be important habitat for migratory species known to occur.</p> <p>The Project is unlikely to result in an invasive species becoming established. The Project is likely to result in invasive species being removed.</p>
Will the action seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.	The Project Boundary is not considered to support an ecologically significant portion of the populations of migratory species known to occur. As such, the proposed action is not considered to seriously disrupt the lifecycle of these migratory species.

3.1 (f) Commonwealth marine area

(If the action is in the Commonwealth marine area, please complete 3.2(c) instead. This section is for actions taken outside the Commonwealth marine area that may have impacts on that area.)

Description

No Commonwealth marine areas have been identified within the locality of the Project Boundary.

Nature and extent of likely impact

Not applicable.

3.1 (g) Commonwealth land

(If the action is on Commonwealth land, please complete 3.2(d) instead. This section is for actions taken outside Commonwealth land that may have impacts on that land).

Description

There is one small parcel of Commonwealth land within the Project Boundary, and this is shown in **Figure 5 of Attachment A**. The Commonwealth Land is legally described as Lot 1, DP107987. It is approximately 10 m² in area, and accommodates a building which once housed a substation providing electricity to Landing Lights for Sydney Airports installed in the 1950's and decommissioned and removed in the late 1990's. It is located within the wetland known as the "Landing Lights Wetland" which will be retained by the proposed action. The proposed action does not propose that the structure or the Commonwealth land upon which it sits will be touched in the carriage of the action.

Nature and extent of likely impact

Not applicable.

3.1 (h) The Great Barrier Reef Marine Park**Description**

Not applicable.

Nature and extent of likely impact

Not applicable.

3.1 (i) A water resource, in relation to coal seam gas development or large coal mining development**Description**

Not applicable.

Nature and extent of likely impact

Not applicable.

3.2 Nuclear actions, actions taken by the Commonwealth (or Commonwealth agency), actions taken in a Commonwealth marine area, actions taken on Commonwealth land, or actions taken in the Great Barrier Reef Marine Park

3.2 (a)	Is the proposed action a nuclear action?	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment

3.2 (b)	Is the proposed action to be taken by the Commonwealth or a Commonwealth agency?	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment

3.2 (c)	Is the proposed action to be taken in a Commonwealth marine area?	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(f))

3.2 (d)	Is the proposed action to be taken on Commonwealth land?	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(g))

3.2 (e)	Is the proposed action to be taken in the Great Barrier Reef Marine Park?	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(h))

3.3 Description of the project area and affected area for the proposed action

3.3 (a) Flora and fauna

Flora

Nearly 130 flora species have been recorded within the Project Boundary and surrounds during previous surveys by Cumberland Ecology (2006b). Over 60% of the species recorded were exotic species and include Crofton Weed (*Ageratina adenophora*), Fleabane (*Conyza sumatrensis*), Fireweed (*Senecio madagascariensis*), Large-leaved Privet (*Ligistrum lucidum*), Small-leaved Privet (*Ligistrum sinense*), Whisky Grass (*Andropogon virginicus*), Blackberry (*Rubus fruticosus* sp. agg.) and Purple Top (*Verbena bonariensis*).

Fauna

Nearly 100 fauna species have been recorded within the Project Boundary and surrounds during previous surveys by Cumberland Ecology (2006b; 2010), including 78 birds, 4 mammals, 3 amphibians and 8 fish. The majority of species recorded are native, however a number of feral species have been recorded including Common Myna (*Acridotheres tristis*), Common Starling (*Sturnus vulgaris*), Dog (*Canis lupus familiaris*), Fox (*Vulpes vulpes*) and Black Rat (*Rattus rattus*).

3.3 (b) Hydrology, including water flows

The Spring Street Drain is the primary flow path through the Project Boundary. This man-made concrete channel conveys runoff from a 220 ha upstream catchment in the Rockdale area and drains into Muddy Creek, near the confluence with Cooks River. The channel also facilitates tidal flushing of the Spring Creek and Landing Light wetlands. A small upstream catchment drains to the Eve Street Wetland. These wetlands are connected to Cooks River via a 400 m channel which passes under the M5 Motorway and to the river via a piped outlet. This change and pipe system also allows tidal ingress to the Eve Street Wetland.

3.3 (c) Soil and Vegetation characteristics

Soil

The Project Boundary is generally underlain by Hawkesbury sandstone bedrock ranging from shallow at 1 m depth near West Botany Street, increasing to approximately 15 m at the Cooks River. The Project Boundary is largely comprised of fill. The exact composition of fill has not yet been determined, however from a historical perspective, it is known that the Project Boundary has been used as a landfill for Council Municipal wastes and prior to that as a sewage farm. It is also likely that large amounts of dredged material fill the Project Boundary due to the diversion of the Cooks River.

Vegetation

The following vegetation communities have been recorded within the Project Boundary:

- Mangroves;
- Saltmarsh;
- Saltmarsh/Reedland;
- Reedland;
- Reedland/Exotic;
- Exotic Grasses and Sedge Mosaic;
- Melaleuca sieberi Shrubland;
- Native Planting; and
- Exotic.

The majority of the Project Boundary comprises exotic grassland. Wetland vegetation occurs in the vicinity of the Landing Lights Wetland, Spring Street Wetland and the Spring Street Drain.

None of the vegetation communities occurring within the Project Boundary conform to any ecological communities listed under the EPBC Act.

3.3 (d) Outstanding natural features

There are no outstanding natural features such as cliffs, caves or escarpments within the Project Boundary.

3.3 (e) Remnant native vegetation

The Project Boundary was previously cleared of native vegetation (prior to 1943) and the majority of the woody vegetation present was planted. Remnant wetland vegetation such as mangroves and saltmarsh are still present as part of the wetland habitat.

3.3 (f) Gradient (or depth range if action is to be taken in a marine area)

The Project Boundary is predominantly flat as it has been artificially reformed during earlier work on the Cooks River diversion, the contouring of the former land fill for playing fields and also when an old night soil tipping area was buried and contoured.

3.3 (g) Current state of the environment

The majority of the Project Boundary is highly altered and consists of either exotic or semi-natural vegetation that has recolonised or been planted within the Project Boundary following previous development. As a result of this and due to the location adjacent to urban areas, a wide variety of exotic flora and fauna species occur.

Erosion is limited to specific areas such as tracks beneath transmission easements and is not considered to be a significant concern within the Project Boundary.

3.3 (h) Commonwealth Heritage Places or other places recognised as having heritage values

The following Commonwealth Heritage Places have been identified as occurring within the locality of the Project Boundary:

- Botany Post Office
- Marrickville Post Office
- Sydney Airport Air Traffic Control Tower

No Commonwealth Heritage Places occur within the Project Boundary.

3.3 (i) Indigenous heritage values

No known sites of indigenous heritage value are likely to exist given the highly altered landforms comprising the site.

3.3 (j) Other important or unique values of the environment

No other important or unique values of the environment occur within close proximity to the proposed action. Towra Point Nature Reserve is the closest key environmental feature and is located 5.7 km south-south-east of the Project Boundary on the northern side of Kurnell Peninsula.

3.3 (k) Tenure of the action area (e.g. freehold, leasehold)

The action area comprises of land owned by Rockdale City Council, Crown Land under the care control and management of Rockdale Council, and a small portion of the Arncliffe Market Garden which is owned by the Minister administering the *Environmental Planning and Assessment Act 1979*, as shown in **Figure 6 of Attachment A**. On 18 May 2016 Rockdale Council resolved, pursuant to Section 55 of the NSW Local Government Act, to endorse direct negotiations with John Boyd Properties and Kogarah Golf Club (KGC).

John Boyd Properties (JBP) as sole and exclusive agent of KGC, seeks Rockdale Council to grant a 99 year lease to KGC in consideration for JBP remediating and improving the Cook Cove Southern Precinct for the purposes of a golf course and public domain improvements.

3.3 (l) Existing uses of area of proposed action

The Project Boundary has previously been utilised for a variety of purposes including the Cooks River diversion and landfill. Currently, the Project Boundary includes:

- Riverine Park;
- Spring Street Wetland;
- Spring Street Drain;
- Landing Lights Wetland;
- Portion of Arncliffe Market Garden
- Barton Park; and
- Portions of the 'Bay to Bay' Cycleway.

3.3 (m) Any proposed uses of area of proposed action

The proposed land use of the Project Boundary includes remediation of land, the construction and operation of an 18-hole golf course, construction of new active and passive open space assets such as foreshore pedestrian and cycleways and regional cycle links and environmental improvement works.

Whilst not a marine use, the proposed action includes the construction of a pedestrian and cycle bridge spanning Muddy Creek near its confluence with the Cooks River. The bridge will be set at such a height so as not to prohibit marine navigation but to provide a regional cycling and pedestrian links from the Cook Cove Southern Precinct area and beyond to the eastern extremity of the Cooks River foreshore and further to the pedestrian and cycling links adjacent to the western shore of Botany Bay.

4 Environmental outcomes

Due to the known occurrence of EPBC Act matters of national environmental significance, the proposed action is being referred at an early stage of the assessment process. As such, the final suite of environmental outcomes for the proposed action has not been determined.

Broadly, the following components of the proposed action will contribute to environmental outcomes for migratory species and the Green and Golden Bell Frog:

- Environmental improvement works to the Landing Lights Wetland and to parts of the Spring Street Drain;
- Establishment of new water bodies that will be integrated within the golf course design, which will potentially provide new habitat and complement the improvement works to the Landing Lights Wetland; and
- Planting of additional habitat including salt marshes, reedland and ponds designed to provide potential Green and Golden Bell Frog habitat.

The proposed action will entail preparation of plans of management for the management of wetlands. Although the proposed action is unlikely to have a significant impact on Green and Golden Bell Frog, the proposed action will also entail preparation of plans of management for the Green and Golden Bell Frog. Such plans of management will provide for the sustainable management of key existing wetlands and new wetlands and will complement and link up with comparable measures to be implemented by the WestConnex project. The result will be an increased area of permanently managed potential habitat for Green and Golden Bell Frog, and actively managed wetland habitats.

Further environmental outcomes will be determined for the proposed action as part of the preparation of an SIS under the state assessment process. The SIS is required to contain a description and justification of the measures proposed to mitigate any adverse effect of the action on threatened species, populations and communities.

5 Measures to avoid or reduce impacts

As explained in John Boyd Properties Indicative Development Proposal (2016), the proposed action includes the following key environmental measures:

- **Landfill Remediation:** An existing municipal landfill containing polluted waste materials up to 8 m thick will be remediated via the implementation of an EPA accredited Remediation Action Plan, including the installation of an engineered capping layer and impacted groundwater collection and treatment.
- **Green and Golden Bell Frog Habitat Creation:** Action by the WestConnex New M5 project works subject to referral 2015/7520 on land to the north of the proposed action has been identified to potentially result in a loss of foraging, dispersal, sheltering and ephemeral breeding habitat. The proposed action that is the subject of this referral is the proposed construction of new foraging, dispersal, sheltering and ephemeral breeding habitats integrated into the design of the new golf course. These habitats will have the potential to link to and complement breeding and foraging habitats that will be created by the WestConnex M5 project adjacent to Marsh Street and the existing RTA ponds. The combined resultant habitat for the Green and Golden Bell Frogs will be substantially larger than current habitat areas and will be comprised of a greater diversity of purpose built habitat elements.
- **Wetland Restoration:** a key wetland on site – “the Landing Lights Wetland” will be retained and sustainably managed.
- **Environmental Management Plans:** New management plans will be prepared and implemented in perpetuity to ensure environmental improvements occur. These plans will include:
 - Wetlands Environmental Management Plan detailing the proposed rehabilitation and extension of the Landing Light wetlands and the establishment of new saltmarsh and wetland communities and vegetated riparian buffers;
 - Soil and Water Management Plan addressing and mitigating the potential impact of remediation, golf course and open space development on water quality during and after construction through the identification and utilisation of effective erosion and sediment control measures and stormwater management measures to improve the quality of water entering Muddy Creek and the Cooks River; and
 - Green and Golden Bell Frog Management Plan that complements the GGBF Management plan prepared by Eco Logical Australia for RMS NSW and WestConnex on adjacent lands at Cook Cove and the creation of new foraging, dispersal and sheltering and ephemeral breeding habitat as integrated elements of the new golf course and public open space improvements.
- **Landscaping with local native plants:** Native plant species including Swamp Paperbark (*Melaleuca quinquenervia*) will be planted extensively throughout the new golf course areas to provide new foraging habitat for Grey-headed Flying-fox and other native fauna.

These management plans will build upon the previously approved ‘Wetland Environmental Management Plan’ and the ‘Green and Golden Bell Frog Management Plan’, which was produced as part of the conditions for the previously approved Cook Cove DA. These plans will be improved and updated with the latest information available on conservation and management actions. Each of these reports will also, where relevant, compliment and be consistent with the WestConnex New M5 project management

plans. Such plans of management will provide for the sustainable management of key existing wetlands and new wetlands that will afford greater areas of habitat than currently exist for the Green and Golden Bell Frog.

The purpose of the Wetland Environmental Management Plan (WEMP) is to prescribe plans to protect significant areas of wetland and associated species and their habitat, specifically migrating birds and the Green and Golden Bell Frog (GGBF). The WEMP will outline measures to minimise adverse environmental impacts, which will entail measures such as implementing a weed control programme, removing mangrove encroachment to improve long-term sustainability, limiting public access and erecting a low fence around the wetland where relevant, and implementing long-term management and maintenance of the wetland. It will also include plans on compensatory habitat and re-planting. The WEMP will outline measures specific to the construction phase, post-construction management, and procedures for monitoring and adaptive management.

The Green and Golden Bell Frog Management Plan will outline measures to assist the established population of GGBF, and the new Captive Breeding GGBF community that inhabit areas adjacent to but external to the proposed development area. The GGBF Management Plan will propose measures to ensure such adjacent communities are protected during construction within the Cook Cove Southern Precinct, and to provide favourable conditions to allow the population to expand in the longer term. This will be achieved by integrating the construction of new foraging, dispersal, sheltering and ephemeral breeding habitat into the design of the golf course and public domain improvements and by managing these ponds to reduce threatening processes. It will also involve creating additional habitat specific to the Green and Golden Bell Frog's requirements, ameliorating water pollution levels at wetland sites, and providing long-term habitat protection and management.

Detailed plans relating to management before and during construction will outline measures such as erecting frog-proof fencing pre-clearance surveys. There will also be detailed plans of management for the post-construction phase, and for monitoring and adaptive management.

The GGBF Management Plan will be consistent with the WestConnex Management Plan for the species, and will provide detailed plans consistent with the latest research regarding the habitat creation and creation of additional breeding ponds.

Further avoidance and mitigation will be determined for the proposed action as part of the preparation of an SIS under the state assessment process. The SIS is required to contain a description and justification of the measures proposed to mitigate any adverse effect of the action on threatened species, populations and communities.

6 Conclusion on the likelihood of significant impacts

6.1 Do you THINK your proposed action is a controlled action?

- | | |
|-------------------------------------|---------------------------|
| <input type="checkbox"/> | No, complete section 5.2 |
| <input checked="" type="checkbox"/> | Yes, complete section 5.3 |

6.2 Proposed action IS NOT a controlled action.

Not applicable.

6.3 Proposed action IS a controlled action

Matters likely to be significantly impacted

<input type="checkbox"/>	World Heritage values (sections 12 and 15A)
<input type="checkbox"/>	National Heritage places (sections 15B and 15C)
<input type="checkbox"/>	Wetlands of international importance (sections 16 and 17B)
<input checked="" type="checkbox"/>	Listed threatened species and communities (sections 18 and 18A)
<input checked="" type="checkbox"/>	Listed migratory species (sections 20 and 20A)
<input type="checkbox"/>	Protection of the environment from nuclear actions (sections 21 and 22A)
<input type="checkbox"/>	Commonwealth marine environment (sections 23 and 24A)
<input type="checkbox"/>	Great Barrier Reef Marine Park (sections 24B and 24C)
<input type="checkbox"/>	A water resource, in relation to coal seam gas development and large coal mining development (sections 24D and 24E)
<input type="checkbox"/>	Protection of the environment from actions involving Commonwealth land (sections 26 and 27A)
<input type="checkbox"/>	Protection of the environment from Commonwealth actions (section 28)
<input type="checkbox"/>	Commonwealth Heritage places overseas (sections 27B and 27C)

Reasons:

The proposed action is considered to be a controlled action due to the potentially direct and indirect impact anticipated on migratory wading birds and two threatened wading birds.

The proposed action will encroach on foraging habitat at Landing Lights wetland for migratory wading birds and two threatened wading birds, and potentially remove fringing vegetation around the wetland. The construction and operation of the golf course around the wetland may reduce the attractiveness of the wetland for migratory waders.

The proposed action is considered to have potential to impact on habitat for migratory species and on a precautionary basis, is considered to be a controlled action for migratory species.

7 Environmental record of the person proposing to take the action

	Yes	No
<p>7.1 Does the party taking the action have a satisfactory record of responsible environmental management?</p> <p>Provide details Boyd Properties is committed to ensuring appropriate environmental management of the Cook Cove project and have a demonstrable history in this regard. This extends to ensuring that contractors adhere to high standards of environmental management. Boyd will adhere to all conditions of approval and will continue to liaise with the Department to ensure the values of the environment are upheld.</p>	X	
<p>7.2 Provide details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against:</p> <p>(a) the person proposing to take the action, or (b) if a permit has been applied for in relation to the action - the person making the application.</p> <p>If yes, provide details</p> <p>Not applicable</p>		X
<p>7.3 If the person taking the action is a corporation, please provide details of the corporation's environmental policy and planning framework. and if and how the framework applies to the action.</p> <p>Not applicable.</p>		X
<p>7.4 Has the party taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?</p> <p>Provide name of proposal and EPBC reference number (if known) Cook Cove Project (EPBC 2006/2685)</p>	X	

8 Information sources and attachments

(For the information provided above)

8.1 References

- AECOM (2015). *WestConnex New M5 Roads and Maritime Services*. Environmental Impact Statement. AECOM Australia, Fortitude Valley.
- Biosis Research (2001). *Natural and Cultural Heritage Issues and Constraints for the Cooks Cove Master Plan*. Biosis Research, Sydney.
- Biosphere Environmental Consultants (2000). *Rockdale Flora and Fauna Study*. Biosphere Environmental Consultants, Sydney.
- Cumberland Ecology (2006a). *Cooks Cove Wetland Plan of Management*. Wetlands Environmental Management Plan, Carlingford Court.
- Cumberland Ecology (2006b). *Cooks Cove: Flora and Fauna Assessment of Significance*. Prepared for Boyd Cook Cove, Carlingford Court.
- Cumberland Ecology (2010). *Flora and Fauna Impact Assessment for Cooks Cove*. Detailed Design Stage Development Application, Carlingford Court.
- DEC (NSW) (2005). *Draft Recovery Plan for the Green and Golden Bell Frog (Litoria aurea)*. Department of Environment and Conservation (NSW), Hurstville, NSW.
- DEWHA (2009). *Significant Impact Guidelines for the vulnerable green and golden bell frog (Litoria aurea)*. Department of the Environment, Water, Heritage and the Arts, Canberra.
- DoE (2013). *Matters of National Environmental Significance. Significant impact guidelines 1.1. Environment Protection and Biodiversity Conservation Act 1999*. Department of the Environment, Canberra.
- DoE (2014). *Draft EPBC Act Policy Statement*. Camp management guidelines for the Grey-headed and Spectacled Flying-fox. Australian Government, Department of the Environment, Canberra.
- DoE (2016a). *Litoria aurea in Species Profile and Threats Database*. Canberra, Department of the Environment.
- DoE (2016b). *Pteropus poliocephalus in Species Profile and Threats Database*. Department of the Environment, Canberra.
- DoE (2016c). "Species Profile and Threats Database." *Biodiversity*, from <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>.
- DoE (2016d). "Towra Point Nature Reserve - Overview." *Australian Wetlands Database: Ramsar wetlands*, from <https://www.environment.gov.au/cgi-bin/wetlands/ramsardetails.pl?refcode=23#>.
- Eco Logical Australia (2015a). *The New M5 - Biodiversity Assessment Report*. Prepared for Roads and Maritime Services of NSW.
- Eco Logical Australia (2015b). *WestConnex New M5: Referral of Proposed Action*. Prepared on behalf of Roads and Maritime Services, NSW.
- Eco Logical Australia (2016). *Habitat Creation and Captive Breeding Plan – Green and Golden Bell Frog at Arncliffe*. Prepared for WCX M5 AT Pty Ltd.
- John Boyd Properties (2016). *Cook Cove Indicative Development Proposal: Kogarah Golf Course Relocation*. John Boyd Properties, Sydney.

Lissimore, D., Lemon, M., Lank, D. B., Butler, R. W. and Ydenberg, R. C. (1999). "Large and consistent body mass differences of migrant calidris sandpipers at adjacent stopover sites: phenomenon and possible explanations." *Wader Study Group Bulletin* **88**: 55-58.

Moore, S. and Lowe, D. (2016). *Remediation Option Appraisal Report Areas C, D, D1 and E, Cooks Cove Development, Banksia NSW*. Consulting Earth Scientists, Sydney.

OEH (2016). "BioNet." Accessed: 2015, 2016, from www.bionet.nsw.gov.au.

8.2 Reliability and date of information

This referral has been prepared using the most recent survey reports and data for flora and fauna by Cumberland Ecology (2006b; 2010) within the Project Boundary, and includes current surveys in progress that are being undertaken to inform the Cook Cove Southern Precinct Development. The survey data entailed vegetation census, mapping of plant community boundaries and targeted surveys for threatened species. The reports contained reference to previous data collected within the Project Boundary, which has been considered in this referral.

Sufficient recent information exists to reliably predict the major impacts upon threatened species of flora and fauna, for the purposes of making a referral under the requirements of the EPBC Act. Further detailed information will be required for the purposes of the forthcoming SIS and for the purposes of offsetting the impacts of the proposed action on the Green and Golden Bell Frog.

8.3 Attachments

		attached	Title of attachment(s)
You must attach	figures, maps or aerial photographs showing the locality of the proposed action (section 1)	✓	Attachment A – Figures Attachment F – GIS files
	GIS file delineating the boundary of the referral area (section 1)		
	figures, maps or aerial photographs showing the location of the proposed action in respect to any matters of national environmental significance or important features of the environments (section 3)	✓	Attachment A – Figures
If relevant, attach	copies of any state or local government approvals and consent conditions (section 2.5)		
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.6)		
	copies of any flora and fauna investigations and surveys (section 3)	✓	Attachment C , D and E– Likelihood of Occurrence assessment and Previous Reports
	technical reports relevant to the assessment of impacts on protected matters that support the arguments and conclusions in the referral (section 3) conclusions in the referral (section 3 and 4)	✓	Attachment B, C , D and E– Indicative Development Proposal, Likelihood of Occurrence Assessment and Previous Reports

report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)		
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9 Contacts, signatures and declarations

Proposed action title:

Cook Cove Southern Precinct Development

9.1 Person proposing to take action

Name and Title: Mr Peter Bettridge, General Manager
Olympic Murals Pty Ltd, trading as John Boyd Properties

Organisation (if applicable): Organisation name should match entity identified in ABN/ACN search

Trust deed (if applicable): ☐ attached; OR
☒ not applicable

ACN / ABN (if applicable): 91 053 538 355

Postal address: Level 3 Legion House, 161 Castlereagh Street Sydney NSW 2000

Telephone: 02 9260 4000

Email: peter@boydproperties.com.au

COMPLETE THIS SECTION ONLY IF YOU QUALIFY FOR EXEMPTION FROM THE FEE(S) THAT WOULD OTHERWISE BE PAYABLE

I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am: ☐ an individual; OR
☐ a small business entity (within the meaning given by section 328-110 (other than subsection 328-119(4)) of the *Income Tax Assessment Act 1997*); OR
☒ not applicable.

If you are small business entity you must provide the Date/Income Year that you became a small business entity:

Note: You must advise the Department within 10 business days if you cease to be a small business entity. Failure to notify the Secretary of this is an offence punishable on conviction by a fine (regulation 5.23B(3) *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth)).

COMPLETE THIS SECTION ONLY IF YOU WOULD LIKE TO APPLY FOR A WAIVER

Note: Applications for a waiver must be supported by information in writing setting out the grounds on which the applicant considers that a waiver should be made and the reasons why it should be made. The Minister may, at his or her discretion, waive all or part of a fee that would otherwise be payable in the following circumstances:

- the action's primary objective is to protect the environment, or protect and conserve heritage, in a way that is consistent with the objects of the EPBC Act;
- it is in the public interest to do so; or
- there are other exceptional circumstances justifying the waiver.

The Minister will consider the application within 20 business days.

I would like to apply for a waiver of full or partial fees under regulation 5.21A of the [EPBC Regulations](#). Under regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made:

X not applicable.

Declaration:

I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct.
I understand that giving false or misleading information is a serious offence.
I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.

Signature:



Date: 22/08/2016

9.2 Designated proponent

Name of proposed proponent:

Mr Peter Bettridge

If the name of the proposed proponent is not the same person as named at item 1 of section 9.1 above, please complete all of the below fields in section 9.2.

ACN / ABN (if applicable):

Postal address:

Telephone:

Email:

Declaration by the proposed proponent:

I PETER BETTRIDGE, the proposed proponent, consent to the proposed designation of myself as the proponent for the purposes of the action described in this referral.

Declaration by the
person proposing to
take the action:

I PETER BETTRIDGE, the person proposing to take the action, consent to
the proposed designation of PETER BETTRIDGE as proponent for the purposes
of the action described in this referral.

Signature:



Date: 22/08/2016

9.3 Person preparing the referral information (if different from section 9.1)

Name: Dr David Robertson
Title: Director
Organisation: Cumberland Ecology Pty Ltd
ACN / ABN (if applicable): ABN 141 061 446 47
Postal address: PO Box 2474, Carlingford Court, NSW, 2118
Telephone: (02) 9868 1933
Email: david.robertson@cumberlandecology.com.au
Declaration: I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct.
I understand that giving false or misleading information is a serious offence.

Signature:



Date: 15/08/2016