Title of Proposal - Clyde Barging Facility, Grand Avenue, Rosehill, NSW

Section 1 - Summary of your proposed action

Provide a summary of your proposed action, including any consultations undertaken.

1.1 Project Industry Type

Transport - Water

1.2 Provide a detailed description of the proposed action, including all proposed activities.

Project Overview -

Stage 2 of the Sydney Metro Rail Program involves extending metro rail from Sydney's Northwest region, beneath Sydney Harbour, through new underground CBD stations and beyond to Bankstown. Services on Sydney Metro City & Southwest are expected to start in 2024. Transport for New South Wales (TfNSW) is delivering this Project on behalf of the New South Wales (NSW) Government. John Holland CPB Contractors Ghella (JHCPBG) has been awarded the contract to build the twin tunnels from Chatswood to Sydenham and excavate six new Sydney Metro stations.

The Project is classified as critical State Significant Infrastructure, and was approved on 9 January 2017 (SSI 15_7400) (Project Planning Approval). Condition E84 requires that opportunities to maximise tunnel spoil removal by non-road methods are investigated to minimise truck movements in truck movements in town centres and the Sydney Central Business District (CBD).

Clyde temporary barging facilities -

To reduce the number of trucks travelling through Sydney's CBD, JHCPBG propose to use barges from Barangaroo and Blues Point to transport Tunnel Boring Machine (TBM) components and the rock (spoil) excavated from the Barangaroo Station and underground structures, including the under-harbour tunnel and the Blues Point shaft. JHCPBG propose to establish and operate a barging facility adjacent to the Parramatta River at Clyde to support this operation. The site is located in Viva Energy Australia's Clyde Terminal on Durham Street, Rosehill.

Site establishment works would start in early 2018 and take approximately two months to complete. The following works would be required to establish the site:
• Installing concrete barriers, fencing and environment controls
• Removing some vegetation (casuarinas) along the access road and small stands of trees within the worksite
• Upgrading the access road involving earthworks, and upgrading drainage and connection to

Grand Avenue
• Minor earthworks to level the loading area
• Upgrading the existing wharf to cater for the barges
• Installing a site office, amenities and a weighbridge at the site entry on Grand Avenue.

The site operations would commence in mid-2018 and be completed in early 2020. Spoil, plant and equipment would arrive at this site by barge. The spoil would be transferred to trucks by excavators, and plant and equipment, including TBM components, would be transferred by self-propelled mobile equipment trailers loaded onto trucks. Trucks would transport the materials to approved locations throughout Sydney and NSW using the arterial road network.

Decommissioning would commence in early 2020 and take approximately one month to complete. The upgrades to the wharf would remain in place at the completion of operation to allow for the continued use of the wharf by Viva Energy Australia. The scope of decommissioning required would be determined in consultation with Viva Energy Australia.

1.3 What is the extent and location of your proposed action? Use the polygon tool on the map below to mark the location of your proposed action.

Area	Point	Latitude	Longitude
Clyde Barging Facility	1	-33.822105135201	151.04537665289
Clyde Barging Facility	2	-33.822518483485	151.04587755542
Clyde Barging Facility	3	-33.822534638567	151.0460197125
Clyde Barging Facility	4	-33.822516812269	151.04625038247
Clyde Barging Facility	5	-33.822489515743	151.04644484263
Clyde Barging Facility	6	-33.823674956843	151.0475365017
Clyde Barging Facility	7	-33.823817565191	151.0475981925
Clyde Barging Facility	8	-33.82372397849	151.04792810421
Clyde Barging Facility	9	-33.823931206048	151.04804075699
Clyde Barging Facility	10	-33.823933434299	151.04823924046
Clyde Barging Facility	11	-33.824321149018	151.04839212637
Clyde Barging Facility	12	-33.824394680922	151.04836530428
Clyde Barging Facility	13	-33.824789078234	151.04686594944
Clyde Barging Facility	14	-33.824033705516	151.04727364521
Clyde Barging Facility	15	-33.823984684047	151.0474479888
Clyde Barging Facility	16	-33.823746261047	151.04734606486
Clyde Barging Facility	17	-33.822594245224	151.04633487206
Clyde Barging Facility	18	-33.822627669499	151.04603178244
Clyde Barging Facility	19	-33.822618756361	151.04566968422
Clyde Barging Facility	20	-33.822195381333	151.04519761543
Clyde Barging Facility	21	-33.822106249452	151.04538000565
Clyde Barging Facility	22	-33.822105135201	151.04537665289

1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland).

The proposed Clyde Barging Facility is located within the larger Viva Energy Australia Clyde Fuel Storage Facility (Clyde Terminal) and is set within the Camellia Industrial Estate, which is home to a range of businesses including recycling services, building products, waste services, gas supplies and product transport. The proposal site was previously a crude oil refinery (operating from 1928 until 2012, by Shell Refining (Australia) Pty Ltd) and is now a fuel storage terminal that receives, stores and distributes fuel products (e.g. diesel, jet fuel, gasoline), which are transferred from Gore Bay Terminal via an existing pipeline. Fuel products are then distributed via an existing pipeline to the Parramatta Terminal road gantry and then via road transport across NSW. Fuel is also supplied from Clyde Terminal to Sydney Airport via existing pipeline infrastructure.

The site is located near the confluence of Parramatta River and Duck River, approximately 200 m upstream of the Silverwater Bridge, with Parramatta River forming the northern boundary of the site, and Duck River the eastern boundary. Opposite the proposal site, the northern bank of the Parramatta River is bordered by mangroves, fronting parkland and the residential suburb of Rydalmere. The site includes a constructed wetland, situated between the refinery area and the Parramatta River. The wetland is surrounded by a band of varying width of mostly planted terrestrial vegetation. The wetland and vegetated surrounds are bordered to the north by a Hymix Concrete facility, a KLF waste recycling centre and the Parramatta River. An existing road bordering the Clyde Wetlands follows the boundary between the vegetated area and the Hymix and KLF waste facility, then passes through the vegetated area south of the Parramatta River to the wharf. An existing easement is located between the Hymix and KLF facilities.

1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?

Total area is 0.8 hectares

1.7 Is the proposed action a street address or lot?

Street Address

Gate 5

Durham Street
Rosehill NSW 2142
Australia

1.8 Primary Jurisdiction.

New South Wales

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

No

1.10 Is the proposed action subject to local government planning approval?

No

1.11 Provide an estimated start and estimated end date for the proposed action.

Start date 03/2018

End date 06/2020

1.12 Provide details of the context, planning framework and State and/or Local government requirements.

The NSW Environmental Planning and Assessment Act 1979 (EP&A Act) regulates land use planning and development in NSW. The proposal constitutes an 'activity' for the purposes of Part 5 of the EP&A Act by reason of clause 79 of the State Environmental Planning Policy (Infrastructure) 2007 (ISEPP). As such, the proposal is permissible without development consent.

TfNSW is a determining authority in respect of the activity for the purposes of Part 5 of the EP&A Act. Section 111 of the EP&A Act requires TfNSW to examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity. A Review of Environmental Factors (REF) has been prepared to assess the potential environmental impacts of establishing and operating the proposed Clyde Barging Facility and fulfil the requirements of Section 111 of the EP&A Act. The REF has been prepared in accordance with Clause 228 of the Environmental Planning and Assessment Regulation 2000 and has regard to the relevant provisions within the Environment Protection Conservation Act 1999 (EPBC Act).

Having regard to the provisions of Sections 111 and 112 of the EP&A Act, the proposal is not likely to significantly affect the environment or threatened species and therefore neither an EIS, nor a Species Impact Statement is required.

Part 2 of the ISEPP contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development. JHCPBG will consult with City of Parramatta Council as part of the proposal, specifically with reference to Section 13 of the ISEPP, substantial impact on council related infrastructure. Notification will be given to Sydney Harbour Foreshore Authority (now Property NSW) as part of the proposal, specifically with reference to Section 16(2)(d), development in the foreshore area.

In accordance with the NSW Roads Act 1993 and NSW Ports and Maritime Administration Act 1995, JHCPBG will also consult with the NSW Roads and Maritime Services, Sydney Coordination Office, the Harbour Master, and NSW Ferries regarding the proposed works.

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders.

The proposal has been assessed as part of a Review of Environmental Factors. The REF document is currently being exhibited and is publicly available. The exhibition period is between 15 December 2017 and 15 January 2018. During the exhibition period, the community would be encouraged to make submissions to TfNSW on the proposal and information contained in the REF. Following the exhibition period, TfNSW will consider issues raised in submissions and respond to community and stakeholder feedback in a Submissions Report. If required, TfNSW may also propose changes to the proposal and detail these in the Submissions Report. These documents will be available to the public via the Sydney Metro website (sydneymetro@transport.nsw.gov.au).

Following the preparation of the Submissions Report, TfNSW will determine whether to proceed with the proposal. If the proposal proceeds, it would be designed and constructed in accordance with the mitigation measures outlined in this REF and the Submissions Report.

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project.

As noted in 1.12 above, a Review of Environmental Factors (REF) report has been prepared to fulfil the requirements of Section 111 of the EP&A Act. The REF has been prepared in accordance with Clause 228 of the Environmental Planning and Assessment Regulation 2000 and has regard to the relevant provisions within the Environment Protection Conservation Act 1999 (EPBC Act).

Having regard to the provisions of Sections 111 and 112 of the EP&A Act, the proposal is not

likely to significantly affect the environment or threatened species and therefore neither an EIS, nor a Species Impact Statement is required.

A copy of the REF is attached in 1.14.1 (appendices attached separately due to file size restriction).

1.15 Is this action part of a staged development (or a component of a larger project)?

Yes

1.15.1 Provide information about the larger action and details of any interdependency between the stages/components and the larger action.

As described in Section 1.2, above, the proposed Clyde Barging Facility would support tunnelling operations for the Sydney Metro City & Southwest Tunnels and Stations Excavation Works (TSE Works) project. This project is part of Stage 2 of the Sydney Metro Rail Program, which involves extending metro rail from Sydney's Northwest region, beneath Sydney Harbour, through new underground CBD stations and beyond to Bankstown. Services on Sydney Metro City & Southwest are expected to start in 2024.

Transport for New South Wales (TfNSW) is delivering this Project on behalf of the New South Wales (NSW) Government. John Holland CPB Contractors Ghella (JHCPBG) has been awarded the contract to build the twin tunnels from Chatswood to Sydenham and excavate six new Sydney Metro stations.

In May 2016, an Environmental Impact Statement for the Chatswood to Sydenham section of the Project was placed on public exhibition. A Submissions and Preferred Infrastructure Report was prepared and publicly released in October 2016. This report assessed the impacts of barging operations at Barangaroo and Blues Point, however a barge destination site was not identified or assessed. The Project was approved on 9 January 2017 (SSI 15_7400).

As described in Section 1.12, above, a Review of Environmental Factors (REF) report has been prepared to assess the potential environmental impacts of establishing and operating the proposed Clyde Barging Facility. The use of barges from Barangaroo and Blues Point to transport tunnel boring machine components and the rock (spoil) excavated from the Barangaroo Station and underground structures, including the under-harbour tunnel and Blues Point Shaft, aims to reduce the number of trucks travelling through the Sydney and North Sydney CBDs.

1.16 Is the proposed action related to other actions or proposals in the region?

Yes

1.16.1 Identify the nature/scope and location of the related action (Including under the relevant legislation).

In November 2013, AECOM Australia Pty Ltd prepared an Environmental Impact Statement (EIS) on behalf of The Shell Company of Australia Limited (Shell) for a proposal to undertake physical modifications to the Clyde Terminal, Rosehill NSW (i.e. the Viva Energy Australia Clyde Fuel Storage Facility described in Section 1.5, above, within which the proposed Clyde Barging Facility is located).

The EIS was prepared in accordance with the provisions of Part 4, Division 4.1 of the Environmental Planning and Assessment Act 1979 and the Environmental Planning and Assessment Regulation 2000. The proposal, collectively termed the Clyde Terminal Conversion Project, involved:

- Demolition of existing processing units, surplus storage tanks and other redundant infrastructure; and

- Upgrades and improvements to storage tanks to be retained at the site to enable more efficient receipt, dosing, storage and distribution of imported finished petroleum products.

Due to previous recordings of the endangered Green and Golden Bell Frog (Litoria aurea) in the area and potential habitat areas at the site (including tank structures and artificial wetland area), the project was referred to the Commonwealth under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). Assessments of significance pursuant to the Threatened Species Conservation Act 1995 (TSC Act) and EPBC Act found that the proposal was unlikely to significantly impact on this species.

Approval under Part 9 of the EPBC Act was granted by the Department of the Environment 17 April 2014 (EPBC Act referral 2013/6878).

Development Consent for the project was granted by the NSW Department of Planning and Environment on 14 January 2015 (https://www.vivaenergy.com.au/operations/clyde/conversion-project).

Section 2 - Matters of National Environmental Significance

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The interactive map tool can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest. Consideration of likely impacts should include both direct and indirect impacts.

Your assessment of likely impacts should consider whether a bioregional plan is relevant to your proposal. The following resources can assist you in your assessment of likely impacts:

• Profiles of relevant species/communities (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;

• Significant Impact Guidelines 1.1 – Matters of National Environmental Significance;

• Significant Impact Guideline 1.2 – Actions on, or impacting upon, Commonwealth land and Actions by Commonwealth Agencies.

2.1 Is the proposed action likely to have ANY direct or indirect impact on the values of any World Heritage properties?

No

2.2 Is the proposed action likely to have ANY direct or indirect impact on the values of any National Heritage places?

No

2.3 Is the proposed action likely to have ANY direct or indirect impact on the ecological character of a Ramsar wetland?

No

2.4 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed species or any threatened ecological community, or their habitat?

Yes

2.4.1 Impact table

Species	Impact
Green and Golden Bell Frog (Litoria aurea)	The following is derived from the Clyde Barging

Species	Impact
	Facility Ecological Assessment Report, prepared by AMBS Ecology and Heritage in 2018 (attached in Section 2.14, below): The direct impact of the proposed development in relation to the GGBF will be the removal of approximately 0.15 ha of terrestrial habitat comprising an approximately 7-10 metre wide strip to the north of the wetland. The majority of this area is located approximately 30-40 m from the edge of the wetland and comprises either the existing road or Swamp Oak Forest, which is of limited value to the GGBF; indeed, Biosphere (2013b) recommends the removal of a large number of Swamp Oaks and their replacement with grassland. At the western end, where the road meets the easement, the road is much closer to the wetland and widening this section may in fact encroach upon the edge of the wetland itself. The vegetation in this part of the study area contains planted trees and a drainage line with Phragmites, is currently affected by runoff from the Hymix and KLF facilities, and is heavily weed-infested. It was mapped as “Weeds and Exotics” by Jacobs (2017), “Interface Zone” by UBM (2017), and “Swamp Oak Forest” by this study. The significance of the likely impacts on the GGBF as a result of the proposed development were tested by AMBS through application of the “5-part test” criteria listed in the Biodiversity Conservation Act 2016 and the “Significant Impact Criteria” listed for the EPBC Act. These assessments are document in Appendix E of the Ecological Assessment Report. The outcome of the tests was that impacts on the GGBF are not likely to be significant, provided the works are undertaken in the manner described in the Ecological Assessment Report, including implementation of recommended mitigation and management measures, especially appropriate control mechanisms for Key Threatening Processes (KTPs). Furthermore, it is noted that there are no records of the species from within the subject site in any of the studies reviewed and AMBS did not record the occurrence any GGBF during

Species	Impact
	their field assessment in 2017. AMBS concludes that, provided that the project is carried out in a particular manner and incorporates the measures recommended in the Ecological Assessment Report, the project is not likely to have a significant impact on threatened species, populations or ecological communities.
Grey-headed Flying-fox (Pteropus poliocephalus)	The following is derived from the Clyde Barging Facility Ecological Assessment Report, prepared by AMBS Ecology and Heritage in 2018 (attached in Section 2.14, below): A Grey-headed Flying-fox (GHFF) camp is located on the Duck River about 600 metres to the south of the Clyde Wetlands area. This species was recorded by UBMC (2006) in the Planted Woodland area west of the wetland and is likely to forage in other parts of the Planted Woodland. However, the habitat to be removed by the proposed development comprises mainly Swamp Oak Forest dominated by Casuarina glauca, which is of limited value to the species. Impacts are likely to be limited to the loss of a few planted eucalypts that may occur within the footprint. There may be some limited disturbance to individuals foraging at night; however, the majority of truck movements are expected to be during the day. For the reasons given above, potential impacts on the Grey-headed Flying-fox are expected to be limited and the species is not considered further in this assessment.

2.4.2 Do you consider this impact to be significant?

No

2.5 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed migratory species, or their habitat?

Yes

2.5.1 Impact table

Species	Impact
Common Sandpiper (Actitis hypoleucos)	The following is derived from the Clyde Barging Facility Ecological Assessment Report, prepared by AMBS Ecology and Heritage in 2018 (attached in Section 2.14, below): The Clyde Wetlands area clearly provides habitat for a number of waterbirds and several species have been reported during investigations over the years, including herons, ibis, ducks, teal, swamphen, swans and spoonbills. In addition, the area along the Parramatta and Duck Rivers provides potential habitat for a range of species such as cormorants and possibly migratory wading birds. Two of the waterbird species reported by UBMC (2006) are listed as migratory species on the EPBC Act; the Common Sandpiper (Actitis hypoleucos) and Black-winged Stilt (Himantopus himantopus). Several species of migratory wading birds are known to occur in the nearby Sydney Olympic Park and other threatened and/or migratory species recorded in the Park include Latham's Snipe, Glossy Ibis, and White-bellied Sea-eagle, all of which could potentially utilise the study area on occasion. A single individual Shining Bronze-cuckoo (Chalcides lucidus) (listed as a "marine" species) was observed during the survey in the western part of the Planted Woodland area. The direct impact of the proposed development in relation to these species will be the removal of 0.15 ha of terrestrial habitat comprising an approximately 7-10 metre wide strip to the north of the wetland. The majority of this area is located approximately 30-40 m from the edge of the wetland and comprises either the existing road or Swamp Oak Forest, which is of limited value to these species. The main impacts of the project on wetland and migratory species is disturbance from noise and activity, particularly truck movement. However, the wetland is screened to some extent from the road by the area of Swamp Oak Forest, except in the north-eastern corner near the easement. The road is close to the Parramatta River foreshore habitat; however, the habitat along this part of the river is marginal, with much better areas being

Species	Impact
	located nearby along the Duck River. The impacts of noise and activity could be minimised by screening of the road on both sites between the easement and the truck turning area. Based on this, the proposal is not anticipated to have a significant impact on these EPBC listed migratory species.
Black-winged Stilt (Himantopus himantopus)	As per description above.

2.5.2 Do you consider this impact to be significant?

No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

No

2.7 Is the proposed action to be taken on or near Commonwealth land?

No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

No

2.9 Is the proposed action likely to have ANY direct or indirect impact on a water resource related to coal/gas/mining?

No

2.10 Is the proposed action a nuclear action?

No

2.11 Is the proposed action to be taken by the Commonwealth agency?

No

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage Place Overseas?

No

2.13 Is the proposed action likely to have ANY direct or indirect impact on a water resource related to coal/gas/mining?

No

Section 3 - Description of the project area

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed in Section 2).

3.1 Describe the flora and fauna relevant to the project area.

An ecological assessment of the proposal site was carried out by AMBS Ecology and Heritage in 2017. The study involved a review of previous studies, database searches and field survey. Previous studies reviewed included Gunninah 1990; UBMC 2006 and 2007, and UBM 2017; AECOM 2013; Biosphere 2013a, 2013b, 2014; and Jacobs 2016. A range of information provided in Gunninah 1990, UBMC 2006 and UBMC 2007, was captured and updated in UBM 2017. The Clyde Barging Facility Ecological Assessment is attached in Section 2.14 of this EPBC Referral (see also Appendix B of the attached Review of Environmental Factors report), and a summary provided here.

Terrestrial –

A field inspection was undertaken on 6 October 2017 by AMBS Ecology and Heritage. The inspection included a flora survey of the area where the proposed road works would be undertaken and the area for the proposed barging facility upgrade. The field inspection also included an examination of the wetland area adjacent to the worksite known Green and Golden Bell Frog (GGBF) habitat.

A constructed wetland is situated directly west of the proposed Clyde barging facility access road. The wetland is surrounded by a band of vegetation with varying width of mostly planted terrestrial vegetation dominated on the eastern fringe with Swamp Oaks and various Eucalypts. There is also a narrow strip of mangrove trees growing along the edges of the Parramatta River to the north and south of the proposed barging facility.

The assessment undertaken by AMBS identified that the Clyde barging facility forms a large component of the area supporting the “Clyde/Rosehill key population” of the GGBF. Within the Clyde Wetlands area, the species was recorded on the western side of the northern main pond during surveys by UBMC in 2006 and AECOM in 2012, and on the eastern side of the southern main pond during surveys by AECOM in 2012 and Jacobs in 2016. There are no records of the

species from within the subject site in any of the studies conducted and AMBS did not record the occurrence any GGBF during their field assessment in 2017.

A detailed description of the flora and fauna identified is listed in the attached terrestrial flora and fauna assessment undertaken by AMBS (see Section 3.1.1, below, and Appendix B of the attached Review of Environmental Factors report).

Marine –

The field inspection undertaken by AMBS Ecology and Heritage on 6 October 2017 involved ascertaining the current condition of the site and surrounding study area and the presence, or likely presence, of threatened or protected species, populations and communities. This was undertaken in the afternoon to coincide with low tide.

The assessment identified estuarine vegetation communities within the locality that included mangroves, saltmarsh and Swamp-oak Forest. The assessment did not identify any seagrass with in the study area which is consistent with a study by AECOM (2010) which found that seagrasses were only found downstream of Concord Road, Ryde Bridge approximately 5 km downstream of the Site.

There are no RAMSAR listed wetlands within the Parramatta River estuary catchment.

The majority of the Estuarine Mangrove Communities of the study area would not qualify as Coastal Saltmarsh Endangered Ecological Community as they are dominated by dense stands of Grey Mangrove with absent understorey and groundcover.

One species of bony fish has been recorded within the locality and it is listed as Vulnerable under the FM Act. The Black Cod (Epinephelus daemelii) is a large, reef-dwelling species belonging to the grouper family, which is found in warm temperate and subtropical parts of the south-western Pacific. They generally inhabit near-shore rocky and offshore coral reefs at depths down to 50 m. Recently settled juvenile black cod (i.e. individuals that have recently completed the pelagic, drifting larval stage) are often found in coastal rock pools while slightly older juvenile black cod are often found in estuary systems. Juveniles of this species have some

potential to be found in the Study Area.

3.2 Describe the hydrology relevant to the project area (including water flows).

The proposed site is located within the Parramatta River sub-catchment, one of eight sub-catchments in the Sydney catchment, and managed by the Sydney Metropolitan Catchment Management Authority. The Parramatta River is the main tributary of Sydney Harbour, extending from Blacktown Creek in the west to the confluence of the Lane Cove River in the east. The Parramatta River catchment area is over 257 km², with the estuary covering 12 km². It is one of the most urbanised catchments in Australia. Historical land uses have highly modified the nature of the estuary, with a range of sediments and pollutants impacting on water quality and habitat values.

Water quality within the Parramatta River sub-catchment is varied across location and over time (Laxton et al, 2008). There are a number of environmental concerns with regards to the general health of the Parramatta River including turbid water, sickness from primary contact with the water, excessive algal and weed growth, unhealthy fauna, gross pollutants in waterways, oil and grease presence in the water and loss of creek habitats including vegetation and fauna shelters.

A study by AECOM (2013) indicates that the proposed site lies within the 1:100 year flood event, and the Probable Maximum Flood area. Grand Avenue is largely unaffected by flooding. Viva Energy Australia's facility currently has an extensive stormwater management system which was substantially upgraded in the mid-1990s. All Viva Energy storm water flows to one of two interceptor systems before either being released to Duck Creek via licensed discharge points, or alternatively proceeding through a biotreater for additional treatment prior to release into Duck Creek.

Parramatta river is tidal and the tidal range approximately 1.9 metres.

For further details, please refer to the attached Review of Environmental Factors (REF).

3.3 Describe the soil and vegetation characteristics relevant to the project area.

The topography of the property is generally flat to slightly undulating. Soils within the study area are classified as Disturbed Terrain, comprising a relatively level ground extensively disturbed by human activity through land reclamation and levelling. Dominant soils in the area comprise loose black sandy loam, variable transported fill and dark dredged muds and sands (Chapman

and Murphy 1989:132:133). Department of Land and Water Conservation Acid Sulfate Soil Risk maps (Murphy, 1997) identify the proposed site as having a high probability of ASS within one metre of the ground surface.

A study by AECOM (2013) indicates that based on current and historical soil and groundwater conditions within the Viva Energy Australia facility, as well as boundary groundwater monitoring network, there is no groundwater affected by Contaminants of Concern in concentrations above applicable EPA criteria migrating offsite, nor is it impacting adjacent sediments or river systems.

Historic wide scale vegetation clearance since European settlement has resulted in the removal of all original native vegetation, with vegetation communities in the local area being regrowth.

Further detail on the ecological characteristics of the site are outlined in the Clyde Barging Facility Ecological Assessment attached in Section 3.1.1, above (Appendix B of the attached Review of Environmental Factors report).

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area.

There are no other outstanding natural features or other important or unique values in the project area.

3.5 Describe the status of native vegetation relevant to the project area.

As described in Section 3.1, above, an ecological assessment of the proposal site was carried out by AMBS Ecology and Heritage in 2017.

Historic wide scale vegetation clearance at the site since European settlement has resulted in the removal of all original native vegetation, with vegetation communities in the local area being regrowth. A range of vegetation maps incorporating the study area have been produced and there are some differences between these in both the plant communities identified and in nomenclature. In addition, the extent of some of the communities has changed over time. All studies report the presence of a brackish or freshwater wetland area and a form of Swamp Oak Forest, with some reports indicating areas of planted woodland adjacent to the wetland, although the nomenclature of the map units differs between reports. All reports that extend to the Parramatta and Duck Rivers report the presence of a Mangrove community lining both and Estuarine Saltmarsh to the south of the study area along the Duck River.

The AMBS survey found the vegetation at the site comprises a freshwater wetland area surrounded by areas of Swamp Oak Forest and areas of planted woodland. Estuarine Saltmarsh mapped in previous studies (AECOM 2013; OEH 2016) was not observed during the AMBS survey. It appears unlikely to occur in that part of the area, due to the lack of tidal flows and the invasion of mud flats by Casuarina glauca, Typha orientalis and Juncus acutus.

A small area at the northern tip of the wetland near the Hymix and KLF facilities has been variously mapped as Estuarine Reedland (OEH 2016), Weeds and Exotics (Jacobs 2017), and Estuarine saltmarsh - Phragmites reedland (AECOM 2013). The area found by AMBS to contain mainly Phragmites australis and weeds. It was found by AMBS to be consistent with the description of coastal freshwater lagoons and has been included by AMBS with the map unit Plant Community Type (PCT) 781, rather than as a separate unit of Estuarine Reedlands as mapped by OEH (2016).

The vegetation within the hardstand area next to the wharf (the proposed truck turning / loading area) has been variously mapped as “Urban Exotic / Native” (Jacobs 2016), “Estuarine fringe forest - Swamp Oak floodplain forest (EEC)” (AECOM 2013) and “Estuarine Swamp Oak Forest” (OEH 2016). AMBS found this area to be most consistent with Jacobs (2016), as it contained a range of planted trees and other landscape plants in an otherwise bare area, and assigned a separate map unit “Planted Trees over Hard Surface”.

For further detail, please refer to the Clyde Barging Facility Ecological Assessment attached in Section 3.1.1, above (Appendix B of the attached Review of Environmental Factors report).

3.6 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

The topography of the property is generally flat to slightly undulating. Soils within the study area are classified as Disturbed Terrain, comprising a relatively level ground extensively disturbed by human activity through land reclamation and levelling. To allow for the operation of the barging facility, the existing wharf would require upgrading. The upgrade of the wharf would involve piling. Additional piles would be installed within Parramatta River to provide additional protection for the existing pipeline and allow for the barges to be moored safely. The works associated with the proposed wharf upgrade would be confined to a relatively small area adjacent to the river bank (approximately 50 m in length) that has previously been disturbed through piling and backfilling and clearing of vegetation.

3.7 Describe the current condition of the environment relevant to the project area.

The Clyde Barging Facility would be located within the former Shell Refinery site, adjacent to the Parramatta River. The site is heavily disturbed, and has a long history of human occupation and use. Most recently, the previous crude oil refinery was operated by Shell Refining (Australia) Pty Ltd from 1928 until 2012, and is now a fuel storage terminal operated by Viva Energy Australia. The terminal receives, stores and distributes fuel products (e.g. diesel, jet fuel, gasoline), which are transferred from Gore Bay Terminal via an existing pipeline.

The site is located near the confluence of Parramatta River and Duck River, approximately 200 m upstream of the Silverwater Bridge, with Parramatta River forming the northern boundary of the site, and Duck River the eastern boundary. Opposite the proposal site, the northern bank of the Parramatta River is bordered by mangroves, fronting parkland and the residential suburb of Rydalmere.

The site is a fenced and largely level cleared area comprising of predominately compacted road base and a concrete hard stand with sparse vegetation. The site includes a constructed wetland, situated between the refinery area and the Parramatta River. The wetland is surrounded by a band of vegetation with varying width of mostly planted terrestrial vegetation dominated on the eastern fringe with Swamp Oaks and various Eucalypts. There is also a narrow strip of mangrove trees growing along the edges of the Parramatta River to the north and south of the proposed barging facility. The wetland and vegetated surrounds are bordered to the north by a Hymix Concrete facility, a KLF waste recycling centre and the Parramatta River. An existing road bordering the Clyde Wetlands follows the boundary between the vegetated area and the Hymix and KLF waste facility, then passes through the vegetated area south of the Parramatta River to the wharf. An existing easement is located between the Hymix and KLF facilities.

3.8 Describe any Commonwealth Heritage Places or other places recognised as having heritage values relevant to the project area.

A Statement of Heritage Impact (SoHI) has been prepared for the Clyde Barging Facility site by AMBS Ecology and Heritage in December 2017 (see Appendix D of the attached REF). The following statutory and non-statutory lists and registers were reviewed as part of AMBS's assessment of the proposed site to identify the location and significance of historic heritage items and places in the vicinity of the study area:

- National Heritage List (NHL)
- Commonwealth Heritage List (CHL)
- State Heritage Register (SHR)

- Maritime NSW Heritage & Conservation (Section 170) Register
- Harbour SREP
- Parramatta LEP 2011
- Parramatta Historical Archaeological Landscape Management Study (PHALMS)
- National Trust of Australia (NSW) Register
- Register of the National Estate (RNE)

The heritage assessment determined that the proposed site of the Clyde Barging Facility is not listed on the National Heritage List, Commonwealth Heritage List or the State Heritage Register. It is not listed on the non-statutory Register of the National Estate or National Trust Register and there are no items within the near vicinity included on these lists or registers. However, within the footprint of the proposal there are parts or sections of local heritage items including the tramway alignment listed on the Parramatta LEP and the Shell Oil Refinery Wharf, listed on the Harbour SREP.

The assessment identified that the study area was part of Elizabeth Farm, which comprised lands granted and acquired from 1793 by John Macarthur. The farming estate included a dairy, gardens, various crops, horses, cattle, and sheep, and continued until 1880, when the farm was sold, and the estate subsequently subdivided and sold off in portions. Gradual silting of the Parramatta River past the confluence of the Parramatta and Duck Rivers, affected the ability of ferries to sail to the Queen’s Wharf from the early 1840s, and in the late 1800s a series of wharves were constructed at Redbank, to the northwest of the study area.

In 1883 a tramway was constructed accessing the area from the Domain gates in Parramatta to a wharf and associated facilities established at Redbank, at the confluence of the Parramatta and Duck Rivers. It ran along a right of way leased from the Elizabeth Farm Estate, crossing a specially built bridge over Clay Cliff Creek. The tramway was closed on 31 March 1943. An 1885-1889 sale advertisement for the area of the Elizabeth Farm Estate later occupied by the Shell Oil Refinery shows the tramway running from Redbank Wharf.

The Shell Oil Refinery was established in 1928, and the company gradually expanded to acquire lands from the surrounding industrial landholders. The refinery continued operating until 2011, when it ceased operations as a refinery and is currently owned and operated by Viva Energy Australia as a fuel storage facility. As per other 20th century industries in the local area,

the refinery made use of the wharves in the current study area for movement of goods and equipment.

There is potential for physical remains of early wharfage and tram tracks associated with the local heritage items to still be present within the proposal area. The proposed earthworks during site establishment would remove relatively shallow overburden which have the potential to expose tramway track, and the wharf extension would entail piling around the existing piles, which would be retained in situ.

The historic heritage assessment concluded that impacts to the local heritage items would be minor and that an Unexpected Finds Procedure would be an appropriate mitigation strategy.

For further detail, please refer to Appendix D of the attached Review of Environmental Factors report.

3.9 Describe any Indigenous heritage values relevant to the project area.

An Aboriginal Heritage Due Diligence Assessment of the proposal site was carried out by AMBS Ecology and Heritage in December 2017 (see Appendix E of the attached REF). The potential impact on Aboriginal cultural heritage was assessed in accordance with current heritage best practice and OEH guidelines, as specified in the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (DECCW 2010).

The assessment determined that the Aboriginal archaeological potential of the Clyde Barging Facility area is low. No Aboriginal heritage sites have been previously recorded on AHIMS or any other statutory heritage register within the study area, and the nearest recorded AHIMS site is located approximately one kilometre east of the study area on the northern side of the Parramatta River. Past levelling and land reclamation of the local area during establishment of wharves, tramway, and the adjacent fuel storage facility has resulted in the removal or extensive disturbance of natural soils with potential to retain Aboriginal heritage objects across the entire study area. As such, there is no potential for Aboriginal heritage objects to remain in the study area.

The pre-disturbance environment of the study area would have comprised low-lying estuarine mudflats, salt marsh and mangroves which are likely to have represented a significant faunal resource area for Aboriginal people, but which would not have been suitable for prolonged

occupation.

For further detail, please refer to Appendix E of the attached Review of Environmental Factors report.

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area.

Transport for New South Wales (TfNSW) is delivering the Sydney Metro City & Southwest Project on behalf of the NSW Government. John Holland CPB Contractors Ghella (JHCPBG) has been awarded the contract to build the twin tunnels from Chatswood to Sydenham and excavate six new Sydney Metro stations.

The subject of this EPBC referral is a proposal involving establishment and operation of a barging facility adjacent to the Parramatta River at Clyde to support barging operations for the TSE Works. The site is located in Viva Energy Australia's Clyde Terminal on Durham Street.

Clause 79 of the ISEPP provides that development for the purpose of a railway or rail infrastructure facilities are permissible without the need for development consent under Part 4 of the EP&A Act, when undertaken by, or on behalf of a public authority. TfNSW would obtain a short-term lease over the portion of worksite owned by Viva Energy Australia to support the delivery of the TSE Works component of the Project. Development permissible without consent is required to be assessed under Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act) and development consent from council is not required.

TfNSW is a determining authority in respect of the activity for the purposes of Part 5 of the EP&A Act. Section 111 of the EP&A Act requires A Review of Environmental Factors (REF) report has been prepared to assesses the likely effect of the proposal on the environment and threatened species, populations and ecological communities (refer to Section 1.14 of this EPBC Referral). Having regard to the provisions of Sections 111 and 112 of the EP&A Act, the proposal is not likely to significantly affect the environment or threatened species and therefore neither an EIS, nor a Species Impact Statement is required.

3.11 Describe any existing or any proposed uses relevant to the project area.

The proposed Clyde Barging Facility is located within the larger Viva Energy Australia Clyde Fuel Storage Facility (Clyde Terminal) and is set within the Camellia Industrial Estate, which is

home to a range of businesses including recycling services, building products, waste services, gas supplies and product transport. The proposal site was previously a crude oil refinery (operating from 1928 until 2012, by Shell Refining (Australia) Pty Ltd) and is now a fuel storage terminal that receives, stores and distributes fuel products (e.g. diesel, jet fuel, gasoline), which are transferred from Gore Bay Terminal via an existing pipeline. Fuel products are then distributed via an existing pipeline to the Parramatta Terminal road gantry and then via road transport across NSW. Fuel is also supplied from Clyde Terminal to Sydney Airport via existing pipeline infrastructure.

The TSE Works barging support operations would commence in mid-2018 and be completed in early 2020. Spoil, plant and equipment would arrive at this site by barge. The spoil would be transferred to trucks by excavators, and plant and equipment, including TBM components, would be transferred by self-propelled mobile equipment trailers loaded onto trucks. Trucks would transport the materials to approved locations throughout Sydney and NSW using the arterial road network.

Decommissioning would commence in early 2020 and take approximately one month to complete. The upgrades to the wharf would remain in place at the completion of operation to allow for the continued use of the wharf by Viva Energy Australia. The scope of decommissioning required would be determined in consultation with Viva Energy Australia.

Section 4 - Measures to avoid or reduce impacts

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action.

As detailed in Section 1.12, above, a Review of Environmental Factors (REF) report has been prepared to fulfil the requirements of Section 111 of the EP&A Act. The REF has been prepared in accordance with Clause 228 of the Environmental Planning and Assessment Regulation 2000 and has regard to the relevant provisions within the Environment Protection Conservation Act 1999 (EPBC Act). This REF prescribes management and mitigation measures to be implemented during construction of the proposed Clyde Barging Facility to minimise and manage potential impacts identified in the REF.

Environmental management measures are outlined in Section 7.0 of the REF, which has been extracted from the report and attached in Section 4.3, below. There are 54 prescribed management and mitgation measures, which are detailed in Section 7.2 of the REF (see attachment below). Of these, 24 specifically relate to the management of flora and fauna, as described below. The other management and mitgation measures relate to the following environmental aspects: traffic, noise and vibration, soil and water, waste and recycling, land use and property, hazard and risk, air quality, heritage, visual amenity, and sustainability.

In addition, as described in Section 6.3.1 of this EPBC Referral, the proposal would be managed under the systems and tools set out in Part B JHCPBG's Construction Environmental Management Plan (CEMP). A copy of this CEMP is attached in Section 6.3.2.

4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved.

An ecological assessment of the proposal site was carried out by AMBS Ecology and Heritage in 2017. The corresponding report is attached in Section 2.14 of this EPBC Referral (see also Appendix B of the attached REF). This specialist study included the identification of

management and mitigation measures to minimise potential impacts on flora and fauna as a result of the proposed Clyde Barging Facility. These flora and fauna management and mitigation measures have been incorporated into the Clyde Barging Facility REF, and are as follows (see also the attached extract from the Clyde Barging REF in Section 4.3, below):

FF1: Access to the wetland area and surrounding vegetation would be avoided except for environmental mitigation and monitoring purposes.

FF2: A pre-clearance survey in the Swamp Oak Forest would be undertaken within two weeks prior to construction in order to identify any nests or other features within the construction zone. If nests, hollows or coarse woody debris occur an ecologist would be present during vegetation clearing to manage fauna that may be present.

FF3: A temporary frog-fence would be established along the southern side of the construction area and maintained for the life of the project. Pre-clearance searches for sheltering GGBFs would be undertaken after erection of the fence and prior to construction. This would include diurnal and nocturnal searches and incorporate the easement area and along the KLF waste management facility fence line.

FF4: Implement frog hygiene protocols consistent with the Hygiene protocol for the control of disease in frogs (DECC 2008) and erect information signs to prevent non-disinfected vehicles/equipment/people from entering the site.

FF5: Construct a chytrid fugus (Phytophthora cinnamomi) and weed wash area at the Grand Avenue access. Vehicle wheels, equipment and shoes must be cleaned so that they are free of dirt and debris, then sprayed or washed with solution containing 10% bleach.

FF6: Site supervisors are to be inducted on Hygiene protocol for the control of disease in frogs (DECC 2008) and frog handling techniques.

Workers would be inducted on the location and identification of threatened entities, the importance of the Clyde Wetlands area, and what to do if a frog or other animal is encountered.

FF7: Exclusion zones would be set up at the limit of clearing to protect the adjacent wetland, Swamp Oak Forest and Mangrove Forest Community.

FF8: Any fill to be brought onsite for construction purposes should be clean and tested or processed to ensure no contaminants are present.

FF9: While work is being undertaken on site conduct daily checks of the following:

a) Frog exclusion fences

b) Monitor the chytrid barrier wash area

c) Confirm other sterilisation procedures are being implemented correctly

A daily checklist would be prepared to assist in implementation of this requirement.

FF10: Timber from native trees removed would be re-used as coarse woody debris in the adjacent woodland, particularly along the northern edge of the wetland, and as advised by AMBS.

FF11: It is recommended that the area of vegetation cleared for the project is re-vegetated post-development. Revegetation works would be co-ordinated with other bush regeneration and management activities undertaken in the study area and be consistent with UBM (2017).

FF12: Weed control and monitoring would be undertaken prior, during and post-construction. Any weeds removed would be undertaken using low impact techniques to minimise disturbance and/or destruction of significant flora and fauna, mobilisation of sediments, and pollution by herbicides.

FF13: Herbicides used must be registered or permitted for aquatic situations and personnel must follow all product label directions.

FF14: Green waste including weeds is to be disposed of responsibly. Seed bearing debris, bulbs, corms, rhizomes and succulents which regenerate from fragments are to be bagged and removed off-site at the end of work sessions (not stockpiled overnight). All green waste must be taken off-site and disposed at an appropriately licenced facility.

FF15: Any temporary stockpiling of soil that may contain seed of exotic species would be away from adjacent vegetation or stormwater drains where they could be spread during rainfall events.

FF16: Night-time truck movements would be limited as far as practicable and a speed limit of 20 km/hr at night would be enforced.

FF17: Light spill into the wetland and surrounding vegetation would be minimised as much as possible. There is to be no additional lighting of the access road and lights on the wharf, truck turning area and site office area would be subdued as much as possible and directed away from the wetland.

FF18: Noise such as horns and air brakes would be avoided except during emergencies and noise generally kept to a minimum, particularly along the section of road through the Swamp Oak Forest.

FF19: A temporary visual screen would be erected on the southern side of the track between the easement and the section of track running north-east from the easement, to screen truck movements from water birds in the wetland.

FF20: No chemicals, fuels and / or wastes would be stored within or near any natural or stormwater drainage lines or on the foreshore. All such substances are to be contained in sealed vessels of appropriate volumes and, where necessary, stored within bunded areas.

FF21: All in-water activities associated with piling would be scheduled to coincide with favourable tidal conditions to ensure that sediment re-suspension and dispersion is minimised, e.g. calm conditions and minimal tidal fluctuation where practicable.

FF22:Floating booms, silt curtains or screens would be used during in-stream activities to minimise the mobilisation of sediments and the spread of suspended sediments.

FF23: Aquatic habitat would be protected in accordance with Section 3.3.2 Standard precautions and mitigation measures of the Policy and guidelines for fish habitat conservation and management Update 2013 (NSW DPI 2013) and NSW control Plan for the Noxious Marine Alga Caulerpa taxifolia (I&I NSW 2009).

FF24: If the blocked drain between the wetland and the river is repaired, the drainage upgrades would ensure that the normal water levels of the Parramatta River and Duck River cannot flow into the wetland. The drainage would be one-directional, allowing water to drain from the wetland to the river during overflow events, but not the reverse.

Section 5 – Conclusion on the likelihood of significant impacts

A checkbox tick identifies each of the matters of National Environmental Significance you identified in section 2 of this application as likely to be a significant impact.

Review the matters you have identified below. If a matter ticked below has been incorrectly identified you will need to return to Section 2 to edit.

5.1.1 World Heritage Properties

No

5.1.2 National Heritage Places

No

5.1.3 Wetlands of International Importance (declared Ramsar Wetlands)

No

5.1.4 Listed threatened species or any threatened ecological community

No

5.1.5 Listed migratory species

No

5.1.6 Commonwealth marine environment

No

5.1.7 Protection of the environment from actions involving Commonwealth land

No

5.1.8 Great Barrier Reef Marine Park

No

5.1.9 A water resource, in relation to coal/gas/mining

No

5.1.10 Protection of the environment from nuclear actions

No

5.1.11 Protection of the environment from Commonwealth actions

No

5.1.12 Commonwealth Heritage places overseas

No

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action.

As detailed in Sections 2.4 and 2.5 of this EPBC Referral, the following threatened fauna have been recorded within the study area of the Clyde Barging Facility Ecological Assessment, prepared by AMBS Ecology and Heritage in 2017 (see attachment in Section 2.14):

- Green and Golden Bell Frog (Litoria aurea), listed as Vulnerable on the EPBC
- Grey-headed Flying-fox (Pteropus poliocephalus), listed as Vulnerable on the EPBC
- Common Sandpiper (Actitis hypoleucos), a listed migratory species on the EPBC Act
- Black-winged Stilt (Himantopus himantopus) is a listed migratory species on the EPBC Act

As described in Section 2.4 of this EPBC Referral, the direct impact of the proposed development in relation to the GGBF will be the removal of approximately 0.15 ha of terrestrial habitat comprising an approximately 7-10 metre wide strip to the north of the wetland. The majority of this area is located approximately 30-40 m from the edge of the wetland and comprises either the existing road or Swamp Oak Forest, which is of limited value to the GGBF; indeed, Biosphere (2013b) recommends the removal of a large number of Swamp Oaks and their replacement with grassland. At the western end, where the road meets the easement, the road is much closer to the wetland and widening this section may in fact encroach upon the edge of the wetland itself. The vegetation in this part of the study area contains planted trees and a drainage line with Phragmites, is currently affected by runoff from the Hymix and KLF facilities, and is heavily weed-infested. It was mapped as “Weeds and Exotics” by Jacobs (2017), “Interface Zone” by UBM (2017), and “Swamp Oak Forest” by this study.

The significance of the likely impacts on the GGBF as a result of the proposed development were tested by AMBS through application of the “5-part test” criteria listed in the Biodiversity

Conservation Act 2016 and the “Significant Impact Criteria” listed for the EPBC Act. These assessments are document in Appendix E of the Ecological Assessment Report. The outcome of the tests was that impacts on the GGBF are not likely to be significant, provided the works are undertaken in the manner described in the Ecological Assessment Report, including implementation of recommended mitigation and management measures, especially appropriate control mechanisms for Key Threatening Processes (KTPs). Furthermore, there are no records of the species from within the subject site in any of the studies reviewed and AMBS did not record the occurrence any GGBF during their field assessment in 2017.

AMBS concludes that, provided that the project is carried out in a particular manner and incorporates the measures recommended in the Ecological Assessment Report, the project is not likely to have a significant impact on threatened species, populations or ecological communities.

With regards to the Grey-headed Flying-fox, Section 2.4 of this EPBC Referral outlines that potential impacts on this species are expected to be limited as the habitat to be removed by the proposed Clyde Barging Facility works comprises mainly Swamp Oak Forest dominated by Casuarina glauca, which is of limited value to the species. Impacts are likely to be limited to the loss of a few planted eucalypts that may occur within the footprint. There may be some limited disturbance to individuals foraging at night; however, the majority of truck movements are expected to be during the day. Overall, the proposal is not anticipated to have a significant impact on this species.

With regards to the Common Sandpiper (Actitis hypoleucos) and Black-winged Stilt (Himantopus himantopus), the Ecological Assessment conducted by AMBS concluded that the proposal is not anticipated to have a significant impact on these EPBC listed migratory species. The direct impact of the proposed development in relation to these species will be the removal of 0.15 ha of terrestrial habitat comprising an approximately 7-10 metre wide strip to the north of the wetland. The majority of this area is located approximately 30-40 m from the edge of the wetland and comprises either the existing road or Swamp Oak Forest, which is of limited value to these species.

The main impacts of the project on wetland and migratory species is disturbance from noise and activity, particularly truck movement. However, the wetland is screened to some extent from the road by the area of Swamp Oak Forest, except in the north-eastern corner near the easement. The road is close to the Parramatta River foreshore habitat; however, the habitat along this part of the river is marginal, with much better areas being located nearby along the Duck River. The impacts of noise and activity could be minimised by screening of the road on both sites between the easement and the truck turning area.

Section 6 – Environmental record of the person proposing to take the action

Provide details of any proceedings under Commonwealth, State or Territory law against the person proposing to take the action that pertain to the protection of the environment or the conservation and sustainable use of natural resources.

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Please explain in further detail.

As described in Section 1.2, above, the proposed Clyde Barging Facility would support tunnelling operations for the Sydney Metro City & Southwest Tunnels and Stations Excavation Works (TSE Works) project. Transport for New South Wales (TfNSW) is delivering this Project on behalf of the New South Wales (NSW) Government. John Holland CPB Contractors Ghella (JHCPBG) has been awarded the contract to design and construct the TSE Works.

JHCPBG will implement a clear vision and communicate the values and underpinning behaviours expected of all staff and workforce who participate in the TSE Works. JHCPBG's 'Staying Ahead of the Game' vision is based on our very recent experience in successfully completing the Sydney Metro Northwest Tunnels and Station Civil (TSC) Works. 'Staying Ahead of the Game' and its guiding values focusses effort towards proactive identification and management of potential issues well ahead of construction. It is a multi-disciplinary and collaborative approach. Our values are:

- One team

- We are respectful, humble and work together to achieve a common goal

- We listen, we speak up, and we support the final decision

- We plan for safety and we work safely

- Responsibility

- I am responsible for understanding what I need to do and I own the delivery

- We hold each other to account

- Our safety is my responsibility

- Integrity

- We act professionally, honestly and fairly at all times

- We do what we say we're going to do

- We champion safety and challenge any unsafe acts

Non-negotiables underpin this vision by establishing safety and environment ground rules to drive expected and required behaviours. JHCPBG's 'Staying Ahead the Game' vision is communicated to employees and subcontractors as part of interview and procurement processes. This vision works to ensure that we get the right people to join our team. By putting health and safety first, being environmentally responsible and supporting our host communities we will again deliver a world class project.

Building on our award winning performance on the Sydney Metro Northwest Project, JHCPBG has developed an Environmental Management System (EMS), set out in the attached Construction Environmental Management Plan (CEMP) (see Section 6.3.2, below). We have successfully implemented and continually improved this EMS on many projects, including the Sydney Metro Northwest Tunnels and Station Civil Works (TSC Works) and Glenfield to Leppington Rail Line.

JHCPBG's environment and sustainability delivery team includes some of the most experienced infrastructure delivery professionals in NSW. They have worked on most tunnel and rail projects in Sydney over the past 20 years. These include Sydney Airport Link, Northside Storage Tunnel, Epping to Chatswood Rail Line, Lane Cove Tunnel, Glenfield to Leppington Rail Line and TSC Works. The team manages planning approvals, site environmental performance and sustainability together with JHCPBG's design, construction, commercial, quality, safety and community teams. This ensures all opportunities to minimise impacts to the environment will be explored and implemented where reasonable and feasible.

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (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.

Not applicable

6.3 If it is a corporation undertaking the action will the action be taken in accordance with the corporation's environmental policy and framework?

Yes

6.3.1 If the person taking the action is a corporation, please provide details of the corporation's environmental policy and planning framework.

Building on our award-winning performance on the Sydney Metro Northwest TSC Works, JHCPBG has prepared an Environmental Management System (EMS) for the design and construction of Sydney Metro TSE Works, as documented in the attached Construction Environmental Management Plan (CEMP). This CEMP forms part of the integrated management plan framework for JHCPBG, and has been prepared in accordance with the following:

- Framework of AS/NZS ISO 14001:2016 EMS
- Parent company John Holland's EMS – John Holland's EMS which is accredited under ISO 14001:2015 AS/NZS ISO 14001:2016
- New South Wales Environmental Management Systems Guidelines (Edition 3)
- TfNSW's Construction Environmental Management Framework (Revised)
- The Department of Environment and Planning's Guideline for the Preparation of Environmental Management Plans.

The proposal would be managed under the systems and tools set out in Part B JHCPBG's Construction Environmental Management Plan (CEMP), including:

- Leadership, accountability and culture
- Governance and planning
- Legal and other compliance monitoring
- Risk and opportunity management
- Change management
- Communication and consultation
- Training and competency

- Subcontractor management
- Incident management
- Emergency planning and response
- Document and record management
- Reporting, auditing, review and improvement

The CEMP Sub-Plans and Aspect specific management plans referenced in the CEMP would not apply to the proposal as the following site-specific documentation would be prepared to set out required environmental mitigation measures and controls:

- Site Environmental Plan
- Construction Flora and Fauna Management Plan.
- Construction Noise and Vibration Impact Statement
- Erosion and Sediment Control Plan
- Construction Traffic Management Plan for road based transport
- Traffic Management Plan(s) and Communication Plan(s) for barging

The CEMP was submitted to the Secretary of the NSW Department of Environment and Planning (DP&E) for approval in accordance with the Project Planning Approval. Approval was granted on 22 December 2017.

In addition, JHCPBG has prepared an Environmental and Sustainability Policy for the TSE Works, which is also attached. JHCPBG places high importance on achieving key sustainability outcomes during the design and construction of the TSE Works, including those specified in the TSE D&C Deed. Addressing sustainability requirements will be an ongoing process through detailed design, procurement of plant and materials, and construction. The design and construction of the TSE Works will be consistent with the principles of ecologically sustainable development (ESD).

Please refer to the attached JHCPBG Environment and Sustainability Policy and Construction

Environmental Management Plan (CEMP) for the Sydney Metro City & Southwest Tunnels and Stations Excavation Works (TSE Works) (CEMP appendices attached separately due to file size restrictions).

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

No

Section 7 – Information sources

You are required to provide the references used in preparing the referral including the reliability of the source.

7.1 List references used in preparing the referral (please provide the reference source reliability and any uncertainties of source).

Reference Source	Reliability	Uncertainties
Clyde Barging Receival Site: Ecological Assessment, February 2018. Prepared by AMBS Ecology & Heritage Pty Ltd (in conjunction with Alison Hunt & Associates Pty Ltd (AH Ecology) for assessment of the aquatic environment) for JHCPBG.	AMBS' ecology staff includes specialists in botany, zoology and wildlife management, with an excellent understanding of Commonwealth and NSW legislation relevant to ecological assessments and threatened species, populations and ecological communities (http://ambs.com.au/ecology-services.html). Their team has an established reputation for providing a high level of service. AMBS Heritage & Ecology (AMBS) were engaged to provide expert advice on the potential ecological impacts of the proposal, which was incorporated into the Clyde Barging Facility Review of Environmental Factors. This report has been prepared by Glenn Muir, AMBS Director Ecology and Belinda Pellow, AMBS Director Flora, in conjunction with Dr Alison Hunt, Director Alison Hunt & Associates Pty Ltd (for assessment of the aquatic environment). AMBS note in the Ecological Assessment report that, in relation to terrestrial flora and fauna, the study area has been the subject of a number of previous studies and	The specialist study conducted is considered thorough and reliable.

Reference Source	Reliability	Uncertainties
	the presence of a number of threatened species and ecological communities in the wetland and/or its surrounds are already known. The GGBF and the wetlands and surrounds are already the subject of management plans that have been prepared for the Clyde Facility (UBMC 2007, 2017; Biosphere 2013a, 2013b, 2014). Detailed field surveys were undertaken by UBMC (2006). In addition, some field surveys were undertaken by Gunninah (1990), AECOM (2013) and Jacobs (2016).	
Clyde Barging Facility Statement of Heritage Impact, December 2017. Prepared by AMBS Ecology & Heritage for John Holland CPB Ghella Joint Venture.	AMBS' heritage staff have an established reputation for providing high quality services for Aboriginal and historical cultural heritage and archaeological projects (http://ambs.com.au/heritage-services.html). Their staff have a sound understanding of Commonwealth and NSW heritage legislation and all reports are prepared in accordance with the principles of the Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance 2013, and relevant State and Commonwealth legislation, guidelines and requirements. This report has been prepared by AMBS Senior Archaeologist, Adam Pietrzak. Director Historic Heritage, Jennie Lindbergh provided technical advice and input, and reviewed the report. It is consistent with the principles and guidelines of the Burra Charter: The Australian ICOMOS charter for the	The specialist study conducted is considered thorough and reliable.

Reference Source	Reliability	Uncertainties
	Conservation of Places of Cultural Significance 2013. The report has been prepared in accordance with current best-practice guidelines as identified in the NSW Heritage Manual (1996), published by the Heritage Office and Department of Urban Affairs and Planning, and associated supplementary publications, including Statements of Heritage Impact (rev.2002).	
Clyde Barging Facility Aboriginal Heritage Due Diligence Assessment, December 2017. Prepared by AMBS Ecology & Heritage for John Holland CPB Ghella Joint Venture.	AMBS' heritage staff have an established reputation for providing high quality services for Aboriginal and historical cultural heritage and archaeological projects (http://ambs.com.au/heritage-services.html). Their staff have a sound understanding of Commonwealth and NSW heritage legislation and all reports are prepared in accordance with the principles of the Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance 2013, and relevant State and Commonwealth legislation, guidelines and requirements. This report has been prepared by Christopher Langeluddecke, AMBS Director Aboriginal Heritage. It has been prepared in accordance with current heritage best practice and OEH guidelines, as specified in the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (DECCW 2010). As such, the assessment has addressed the following requirements: • Identification of any previously	The specialist study conducted is considered thorough and reliable.

Reference Source	Reliability	Uncertainties
	recorded Aboriginal sites • Development of a predictive model for local Aboriginal archaeological sites, including any landscape features within the study area which are likely to indicate the presence of Aboriginal objects, and • Identification of any constraints resulting from Aboriginal objects that may be present within the study area, and any requirements for additional Aboriginal heritage investigations.	

Section 8 – Proposed alternatives

You are required to complete this section if you have any feasible alternatives to taking the proposed action (including not taking the action) that were considered but not proposed.

8.0 Provide a description of the feasible alternative?

JHCPBG completed a review of available barging infrastructure and identified the following potential barge destination options:

1. Port Kembla – Outer Harbour development

2. Camelia Industrial Precinct– Private development applications

3. White Bay – Industrial wharfs

4. Clyde - Viva Energy Australia's Clyde Terminal

To assess these options, advantages and disadvantages were identified and compared, as detailed in Section 2.0 of the attached Review of Environmental Factors.

Option 4, use of Viva Energy Australia's Clyde Terminal was identified as the preferred option as it would utilise an existing wharf facility, located in an industrial area with ready access to the arterial road network and site establishment works and operations are not expected to have significant environmental impacts. This option is the subject of this EPBC referral.

8.1 Select the relevant alternatives related to your proposed action.

8.27 Do you have another alternative?

No

Section 9 – Contacts, signatures and declarations

Where applicable, you must provide the contact details of each of the following entities: Person Proposing the Action; Proposed Designated Proponent and; Person Preparing the Referral. You will also be required to provide signed declarations from each of the identified entities.

9.0 Is the person proposing to take the action an Organisation or an Individual?

Organisation

9.2 Organisation

9.2.1 Job Title

Project Sustainability Manager

9.2.2 First Name

Ann

9.2.3 Last Name

Azzopardi

9.2.4 E-mail

ann.azzopardi@sydneymetro2.com.au

9.2.5 Postal Address

140 Sussex Street
Sydney NSW 2000
Australia

9.2.6 ABN/ACN

ABN

77863045764 - CPB CONTRACTORS PTY LIMITED & GHELLA PTY LTD & JOHN HOLLAND PTY LTD

9.2.7 Organisation Telephone

0427151631

9.2.8 Organisation E-mail

ann.azzopardi@sydneymetro2.com.au

9.2.9 I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

Not applicable

Small Business Declaration

I have read the Department of the Environment and Energy's guidance in the online form concerning the definition of a small a business entity and confirm that I qualify for a small business exemption.

Signature:..... Date: 3/1/18

9.2.9.2 I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations

No

9.2.9.3 Under sub 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

Person proposing the action - Declaration

I, Ann Azzopardi, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral 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: 3/1/18

I, Ann Azzopardi, the person proposing the action, consent to the designation of Ann Azzopardi as the proponent of the purposes of the action describe in this EPBC Act Referral.

Signature:..... Date: 3/1/18

9.3 Is the Proposed Designated Proponent an Organisation or Individual?

Organisation

9.5 Organisation

9.5.1 Job Title

Project Sustainability Manager

9.5.2 First Name

Ann

9.5.3 Last Name

Azzopardi

9.5.4 E-mail

ann.azzopardi@sydneymetro2.com.au

9.5.5 Postal Address

140 Sussex Street
Sydney NSW 2000
Australia

9.5.6 ABN/ACN

ABN

77863045764 - CPB CONTRACTORS PTY LIMITED & GHELLA PTY LTD & JOHN HOLLAND PTY LTD

9.5.7 Organisation Telephone

0427151631

9.5.8 Organisation E-mail

ann.azzopardi@sydneymetro2.com.au

Proposed designated proponent - Declaration

I, Ann Azzopardi, the proposed designated proponent, consent to

the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature:..... Date: .....3/1/18.....

9.6 Is the Referring Party an Organisation or Individual?

Organisation

9.8 Organisation

9.8.1 Job Title

Project Sustainability Manager

9.8.2 First Name

Ann

9.8.3 Last Name

Azzopardi

9.8.4 E-mail

ann.azzopardi@sydneymetro2.com.au

9.8.5 Postal Address

140 Sussex Street
Sydney NSW 2000
Australia

9.8.6 ABN/ACN

ABN

77863045764 - CPB CONTRACTORS PTY LIMITED & GHELLA PTY LTD & JOHN HOLLAND PTY LTD

9.8.7 Organisation Telephone

0427151631

9.8.8 Organisation E-mail

ann.azzopardi@sydneymetro2.com.au

Referring Party - Declaration

I, Ann Azzopardi, I declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence.

Signature:..... Date: 3/1/18

Appendix A - Attachments

The following attachments have been supplied with this EPBC Act Referral:

1. clyde_barging_facility_ecological_assessment.pdf
2. clyde_barging_facility_map.png
3. clyde_barging_ref.pdf
4. clyde_barging_ref_-_appendix_a_-_noise_assessment.pdf
5. clyde_barging_ref_-_appendix_b_-_ecological_assessment.pdf
6. clyde_barging_ref_-_appendix_b_-_ecological_assessment_2018.pdf
7. clyde_barging_ref_-_appendix_c_-_preliminary_hazard_assessment.pdf
8. clyde_barging_ref_-_appendix_d_-_statement_of_heritage_impacts.pdf
9. clyde_barging_ref_-_appendix_e_-_aboriginal_due_diligence.pdf
10. clyde_barging_ref_-appendix_b_-_ecological_assessment_2018.pdf
11. clyde_barging_ref_extract_-_section_7.0_environmental_management.pdf
12. clyde_ref_proposed_action_area.zip
13. clyde_site_footprint_shapefile.zip
14. disturbance_footprint_-_figure_6.1_from_ecology_assessment_report.pdf
15. jhcpbg_cemp_-_sydney_metro_tse_works.pdf
16. jhcpbg_cemp_appendices_file_1_of_2.pdf
17. jhcpbg_cemp_appendices_file_2_of_2.pdf
18. jhcpbg_tse_works_environment_and_sustainability_policy.pdf
19. proposed_action_area_clyde_barging_facility.pdf