ntepa Northern Territory Environment Protection Authority

Statement of Reasons

DEPARTMENT OF INFRASTRUCTURE, PLANNING AND LOGISTICS – CULLEN BAY FERRY TERMINAL MAINTENANCE DREDGING PROJECT

PROJECT

The Department of Infrastructure Planning and Logistics (the Proponent), submitted the Notice of Intent (NOI) for the Cullen Bay Ferry Terminal Maintenance Dredging Project (the Project) to the Northern Territory Environment Protection Authority (NT EPA) on 20 June 2017 for consideration under the *Environmental Assessment Act* (EA Act).

The Project aims to remove an estimated 120 000 m^3 of accumulated seabed sediment in the entrance channel and vicinity of the Cullen Bay Ferry Terminal to maintain shipping movement. The ferry terminal and entrance channel covers an area of approximately 200 m^2 and is located directly outside the lock entrance to the Cullen Bay Marina which is situated approximately 3 km northwest of Darwin's central business district.

The Cullen Bay Marina and ferry terminal was constructed in the early 1990s with the expectation that regular maintenance dredging would be required as sediment accumulated over time. Maintenance dredging of the ferry terminal and entrance channel first occurred from October 1999 to April 2000, and again in 2008. Dredging is proposed using the cutter suction method and will follow a similar profile and depth to the 1999/2000 and 2008 dredging operations. The material consists of silt, fine and coarse sands (approximately 80% fine sediment).

Dredge spoil will be pumped up to 1500 m via high density polyethylene (HDPE) pipeline to a dedicated offshore spoil ground approximately 750 m west of Emery Point in an area of water approximately 20 m deep. The pipeline will be a combination of floating on the surface and submerged on the seabed and will require the use of a booster pump which will be mounted on a pontoon between the dredge and the spoil ground. At the spoil ground, the pipe will direct dredge spoil down to the seabed.

The location of the Project is within the Darwin Harbour Region Beneficial Use Area, declared under the *Water Act*, with beneficial uses specified as aquaculture, environment and cultural. The Harbour is also part of the Darwin Harbour Site of Conservation Significance.

Project works will be undertaken from 7 am to 7 pm, six days a week over 90 days and are proposed to be completed by November 2017.

CONSULTATION

The NOI has been reviewed as a notification under the EA Act in consultation with Northern Territory Government (NTG) advisory bodies and the responsible Minister, in accordance with clause 8(1) of the Environmental Assessment Administrative Procedures.

JUSTIFICATION

Review of the NOI identified potential impacts to, Benthic Communities and Habitats; Marine Environmental Quality; Marine Fauna; Coastal Processes; and Social, Economic and Cultural Surroundings, as the key environmental factors. Cumulative impacts from this and other maintenance dredging campaigns in Darwin Harbour were also identified.

Benthic Communities and Habitats

Darwin Harbour comprises a range of benthic communities and habitats including extensive areas of mangroves and tidal mudflats, soft and hard corals, and seagrass and algae, which support a diverse range of marine species including dugongs, dolphins, marine turtles, crocodiles and a large variety of fish.

The area proposed to be dredged is already highly modified as a result of the construction of Cullen Bay Marina and the ferry terminal, and two subsequent maintenance dredging programs. As a result, it has limited value as a benthic habitat and the NT EPA considers that the direct loss of seabed sediment from the site will not have a significant impact.

There are a number of benthic communities and habitats of significant value in adjacent waters that may be impacted from the effects of sediments introduced to the water column by dredging and spoil disposal. These include:

- seagrass communities in neighboring Fannie Bay (approximately 1 km north)
- coral communities in East Point Aquatic Life Reserve (approximately 5 km north) and at Weed Reef, Plater Rock and Karumba Shoal (approximately 5 km southwest).

Modelling of sediment transport undertaken on behalf of the Proponent by the Australian Institute of Marine Science (AIMS) has been used in conjunction with sedimentation tolerance limits of benthic communities adopted for the INPEX gas project to determine areas of potential impact. The modelling indicates that most deposition occurs on existing intertidal mud flat areas with the highest deposition area (< 1.5 mm) offshore of Mindil Beach in Fannie Bay. This is well within tolerance limits (15 – 40 mm depending on habitat type) and is expected to be temporary with residual sediment removed by wave activity during the Wet season.

The Proponent's contractor has prepared a Dredge and Spoil Disposal Management Plan (DSDMP) and an Environmental Management Plan (EMP) that identifies zones of impact and influence, and includes plume and seagrass monitoring programs.

The NT EPA is satisfied that potential impacts and risks to benthic communities and habitats can be adequately managed through the implementation of the DSDMP and EMP.

Marine Environmental Quality

Based on monitoring undertaken by the Department of Environment and Natural Resources (DENR), the overall water quality of Darwin Harbour is considered to be in very good condition. There is large natural variability in some water quality parameters (e.g. salinity and turbidity) due to seasonality and large tides. The Harbour has naturally high turbidity year round, with Wet season values generally much higher than those in the Dry, and turbidity is the parameter most likely to be affected from sediments being introduced to the water column by dredging and spoil disposal. The sediment transport modelling undertaken by AIMS predicts that turbidity would increase to Wet season values for the period of dredging and return to ambient conditions after 30 – 40 days.

The NT EPA recommends that dredging be conducted in the Wet season where practicable, when turbidity levels are naturally higher. The Proponent intends to undertake dredging in the late Dry season prior to Spring tides in October and November, as low tides will be around 0.25 m and ferry services would otherwise need to be cancelled. Given this, and the relatively short duration of the Project, the NT EPA considers dredging prior to the onset of the Wet acceptable provided that turbidity levels are maintained within typical Wet season ranges.

The DSDMP and EMP prepared for the Project include a monitoring program for turbidity with management actions based on defined trigger levels. Advice from DENR suggested that the frequency of monitoring proposed was unlikely to be sufficient to determine the extent to which dredging may be affecting turbidity levels. The Project will require a development permit under the *Planning Act* and a waste discharge licence under the *Water Act,* and the requirements for turbidity monitoring will need to be finalised to the satisfaction of DENR prior to the granting of any such approvals. Applications have been lodged and the NT EPA has provided recommendations to the Development Consent Authority to inform its consideration of the development application and a revised DSDMP and EMP is anticipated.

Sediment sampling indicates that potential contaminants have generally been below relevant guideline levels. A copper sulfate treatment was used in Cullen Bay Marina in 1999 to control an outbreak of Black-striped mussel and has been detected in previous sampling. More recent sampling undertaken in 2016 indicates that concentrations for copper are well below Screening Levels outlined in the National Assessment Guidelines for Dredging (NADG 2009). Sediments were also analysed for other heavy metals, nutrients, tributyltin and hydrocarbons, and the NT EPA is satisfied that the results show that the sediment to be dredged is not contaminated.

Sediment sampling undertaken in 1999 showed the potential for acid sulfate soils (ASS) to be generated, however recent field testing did not indicate the presence of any ASS or potential acid sulfate soils. Previous maintenance dredging and the current proposal have avoided exposure of dredge spoil to air and the NT EPA considers it unlikely that ASS will be generated by the Project.

Bringing dredge equipment to Darwin Harbour has the potential to introduce marine pests. Fuel, chemicals and wastes must also be managed to avoid pollution to the marine environment. The NT EPA considers that the risks and potential impacts have been addressed in the DSDMP and EMP and can be appropriately managed with the implementation of the measures proposed.

The NT EPA is satisfied that potential impacts and risks to marine environmental quality can be adequately managed through regulatory requirements and implementation of the DSDMP and EMP.

Marine Fauna

Darwin Harbour supports a diverse range of marine fauna including dugongs, dolphins, marine turtles, crocodiles and a large variety of fish. Dredging has the potential to impact marine fauna through physical interactions with vessels and equipment, and through underwater noise.

The DSDMP and EMP prepared for the Project include a monitoring program for protected marine fauna which includes regular visual assessments by trained marine fauna observers. Triggers for prescribed management actions based around predetermined marine fauna approach distances within designated observation and exclusion zones have been developed.

The NT EPA is satisfied that potential impacts and risks to marine fauna can be adequately managed through the implementation of the DSDMP and EMP.

Coastal Processes

Changes to currents, waves or energy dissipation can result in changes to shorelines and bathymetry, potentially modifying ecological and physical processes. The construction of Cullen Bay Marina involved the installation of groyne and seawall structures, thereby modifying existing coastal processes.

The NT EPA considers that the potential impacts and risks have been addressed in the DSDMP and EMP and can be appropriately managed with the implementation of the measures proposed.

The NT EPA is satisfied that the potential impacts and risks to coastal processes can be adequately managed through the implementation of the DSDMP and EMP.

Social, Economic and Cultural Surroundings

The Cullen Bay area provides accommodation and services for residents and tourists. This includes a number of commercial businesses such as restaurants and tourism operators. The marina provides berthing and services for local and visiting vessels, is accessible on all tides and provides cyclone berthing for small and medium sized vessels. The ferry terminal provides public services to Mandorah and the Tiwi Islands.

The Project will generate noise, and vessel movements may be inconvenienced by dredge infrastructure. The NT EPA considers that the potential impacts and risks have been addressed in the DSDMP and EMP and can be appropriately managed with the implementation of the measures proposed.

The NT EPA also considers that the Project will result in positive social, economic and cultural outcomes by maintaining vessel access to Cullen Bay Marina and the Ferry Terminal and the services they provide to the community.

The NT EPA is satisfied that potential impacts and risks to social, economic and cultural surroundings can be adequately managed through the implementation of the DSDMP and EMP.

Cumulative impacts

In addition to the dredging proposed by the Proponent, there are a number of other dredging campaigns proposed for Darwin Harbour. The NT EPA considers that there is some uncertainty with respect to potential cumulative impacts and that a long term biological monitoring program to improve understanding of cumulative impacts is required.

The NT EPA views cumulative environmental impacts in Darwin Harbour, and the associated need for long term environmental monitoring programs, to be a shared responsibility of relevant government agencies and companies wishing to undertake activities in the Harbour (and its catchment) that may have cumulative environmental impacts and risks. In this regard, the development of such programs should be informed by the best available science (e.g. the dredging node of the WA Marine Science Institution). The NT EPA will raise this matter with the Chief Executive of DENR in the first instance.

The NT EPA considers that potential environmental impacts and risks associated with the Project can be adequately managed through regulatory processes under the *Planning Act* and the *Water Act*, and implementation of mitigation measures detailed in the DSDMP and EMP. Comments from NTG advisory bodies have been provided to the Proponent and the NT EPA has provided recommendations to ensure that potential impacts on the environment are minimised and obligations under relevant legislation can be met.

DECISION

The proposed action, which was referred to the NT EPA by the Department of Infrastructure Planning and Logistics, has been examined by the NT EPA and preliminary investigations and inquiries conducted. The NT EPA has decided that the potential environmental impacts and risks of the proposed action are not so significant as to warrant environmental impact assessment by the NT EPA under provisions of the *Environmental Assessment Act*. However, the proposed action will require assessment and approvals under the *Planning Act* and the *Water Act* to ensure the environmental issues associated with the proposed action are effectively managed.

This decision is made in accordance with clause 8(2) of Environmental Assessment Administrative Procedures, and subject to clause 14A the administrative procedures are at an end with respect to the proposed action.

DR PAUL VOGEL

CHAIR

NORTHERN TERRITORY ENVIRONMENT PROTECTION AUTHORITY

5 SEPTEMBER 2017