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North One Hotel Development and Apartments

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN



CONTROL AND REVISION HISTORY**Revisions**

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Figure 1-1: Project Location **Error! Bookmark not defined.**

LIST OF ABBREVIATIONS

Abbreviation	Meaning
ASS	Acid sulphate soils
BPL	BPL Environmental
ESD	Ecologically Sustainable Development
CEMP	Construction Environmental Management Plan
EMS	Environmental Management System
EP Act	<i>Environment Protection Act 2019</i>
ESD	Ecologically Sustainable Development
GHG	Greenhouse gases
ha	Hectare
km	Kilometre
KTT Investment	KTT Investment Pty Ltd
NT	Northern Territory
NT EPA	Northern Territory Environmental Protection Authority
The Project/Development	North One Hotel and Apartment Development
WMP	Waste Management Plan
WMPC Act	<i>Waste Management and Pollution Control Act 1998</i>

1 INTRODUCTION

BPL Environmental has been engaged by KTT Investment Pty Ltd (**KTT**) to prepare a Construction Environmental Management Plan (**CEMP**) for the proposed North One Hotel and Apartment Complex (the **Development**) at Little Mindil Beach, Darwin, Northern Territory (**NT**). The CEMP has been prepared to provide an environmental management framework for the construction of the Project.

1.1 PROJECT OVERVIEW

The proposed North One Hotel and Apartment Development is situated at 25 Gilruth Avenue, The Gardens, Northern Territory, approximately 2.5 kilometres (**km**) north-west of the Darwin Central Business District.

The 5.13 hectare (**ha**) Project site is currently largely cleared, with a partially developed at-grade carpark, associated landscaping and a large lawn area (**Figure 1-1**). Little Mindil beach is to the north-west and the site is adjacent to the Mindil Beach Casino Resort.

The North One Development will consist of five buildings comprising the following:

- 150 hotel rooms, including 16 lagoon villas and 3 garden villas;
- 53 serviced apartments;
- Six retail spaces;
- 151 semi-basement and 126 ground level car parking spaces; and
- Beachfront food and beverage venue.

Bars, function and entertainment venues, dining facilities and a market area will be incorporated into the complex design.

1.2 PROPONENT DETAILS

Proponent details for the North One development are summarised in **Table 1-1**.

Table 1-1: Proponent Details

Proponent	KTT Investment Pty Ltd
Contact	John Hamilton – Urbanscope (Australia) Pty Ltd
Postal address	c/- 459 Harris Street Ultimo NSW 2007
Phone	+61 2 9042 0600
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Email	johnha@urbanscope.com.au
Proponent ABN	70 634 253 197



Figure 1-1: Project Site

1.3 OBJECTIVES

This CEMP aims to:

- Detail the legislative and policy framework for environmental management;
- Identify potential environmental impacts with construction of the Project;
- Detail environmental management and mitigation procedures for the Project; and
- Describe the monitoring, reporting and training processes during the construction phase of the project.

1.4 LEGISLATION AND POLICY

The overarching legislation applicable to the environmental assessment process within the NT is the *Environment Protection Act 2019 (EP Act)* and the associated *Environment Protection Regulations 2020*. The key aims of the EP Act are to:

- protect the environment of the Territory;
- promote ecologically sustainable development so that the wellbeing of the people of the territory is maintained or improved without adverse impact on the environment of the Territory;
- recognise the role of the environmental impact assessment and environmental approval in promoting the protection and management of the environment of the Territory; provide for broad

community involvement during the process of environment impact assessment and environmental approval; and

- recognise the role that Aboriginal people have as stewards of their country conferred under their traditions and recognised in law, and the importance of participation by Aboriginal people and communities in environmental decision-making processes.

Other legislation that is relevant to the CEMP includes:

- *Waste Management and Pollution Control Act 1998 (WMPC Act);*
- *Waste Management and Pollution Control (Administration) Regulations 1998;*
- *Litter Act 1972;*
- *Marine Pollution Act 1999;*
- *Heritage Act 2011; and*
- *Aboriginal Sacred Sites Act 1989.*

2 CONSTRUCTION ACTIVITIES

Before construction activities commence, demolition and remediation phases of development are required to prepare the site for development. The types of activities undertaken during the site preparation phase include:

- Demolition and disposal of asphalt pavements;
- Removal and disposal of asbestos cement sheeting if encountered;
- Backfilling of excavations; and
- General grading of the site.

Once site preparation has been completed the construction phase will commence. Activities will primarily consist of the following:

- Installation of temporary facilities such as offices, ablutions, parking and laydown areas;
- Bulk earthworks;
- Civil and architectural construction;
- Structural, mechanical and plate work erection;
- Piping installation; and
- Electrical instrument installation.

3 ENVIRONMENTAL IMPACTS

3.1 DUST EMISSIONS

Many activities during the construction phase of the development have the potential to generate dust emissions including:

- Excavation;
- Demolition of concrete structures;
- Unloading raw building materials;
- Mixing concrete;
- Sawing, hammering, drilling and grinding of concrete, timber or masonry structures; and
- Driving vehicles on unsealed roads.

Dust emissions have the potential to impact the health or amenity of site personnel or neighbouring residents or workers and/or nearby vegetation. The mitigation and management measures to reduce the impact of dust emissions are listed in Table 5-1.

3.2 NOISE EMISSIONS

The construction phase of the Development will necessitate the use of a range of noise generating equipment at the site including:

- Earthmoving equipment (e.g. front end loaders, graders, scrapers etc.);
- Cranes;
- Concrete mixers and pumps;
- Compactors;
- Generators;
- Compressors;

- Pneumatic and hydraulic breakers;
- Pile drivers;
- Angle grinders; and
- Drilling equipment.

The potential impacts and risks associated with noise exceedance include a general reduction in the amenity of the area for site personnel and/or neighbouring land users. The mitigation and management measures to reduce the impact of noise are listed in Table 5-1.

3.3 WASTE GENERATION

Construction phase waste streams for the Development include:

- construction waste;
- fabrication consumables;
- domestic waste (food scraps and office waste);
- rubble;
- hydrocarbons;
- shipment packaging; and
- wastewater.

All wastes will be managed in accordance with the Waste Management Plan (**WMP**) (**Appendix 13** of the Referral) and with consideration of the waste management hierarchy. Where possible, waste materials will be re-used or recycled. Wastes not suitable for recycling will be disposed off-site by licensed contractors. Further detail of waste management strategies are provided in Table 5-1.

3.4 ACID SULPHATE SOILS

There is a possibility that acid sulphate soils (**ASS**) exist at the development site, given its coastal locality. A review of the *Land Systems of the Northern Part of the NT (1:250,000)*, conducted by SLR (2020), indicated the North One Development site exists within the Darwin Coastal geomorphic zone and is classified as level tidal flats with channels and estuaries and minor dunes. It is a common occurrence for ASS to exist on tidal flats, coastal floodplains, and some coastal sand plains. There are, however, no previous or current investigations of the soil, surface water or groundwater within the site; therefore, no definitive assessment can be made regarding the presence or absence of ASS.

The site will be predominantly filled to raise the building level above the storm surge; therefore, whole scale excavation requirements will be minimal. Disturbance of existing soils will, however, occur as a result of:

- Initial site leveling and removal of topsoil layers;
- Excavation required for installation of erosion and sediment control infrastructure;
- Construction of the semi-basement carparking facilities (note – this will be built half within the fill zone and half within the existing soil profile); and
- Excavation for some underground utility services (note – services will predominantly be installed within the fill zone).

Mitigation measures have been developed for the management of ASS to ensure impacts from unmanaged disturbance of ASS and subsequent acid drainage that can lead to adverse impacts to environmental values are minimised; these are described in Table 5-1.

3.5 ASBESTOS

The North One Development site has a history of material dumping, particularly asbestos associated with World War II and Cyclone Tracy, and therefore has the potential to be identified as contaminated.

KTT Investment is cognizant of this risk and will instigate a Land Suitability Assessment prior to commencement of construction. Remedial actions will be undertaken as necessary to ensure the site is suitable for the intended land use. Mitigation measures to avoid the risk of asbestos exposure are listed in Table 5-1.

3.6 EROSION

Erosion and sedimentation risks are expected to be highest during the construction phase of the Development. Clearing of topsoils, excavation, site levelling and temporary stockpiling activities have the potential to facilitate migration of sediments into the inland water environment as site runoff. This is predominately anticipated during the wet season.

Given the relatively short time frame for construction, the seasonality of the risk, the generally flat topography of the site and the availability of proven management strategies, it is not considered that sedimentation and erosion will present a long-term significant impact for the proposal. It is acknowledged, however, that without mitigating strategies erosion and sediment could pose a high risk to Little Mindil Creek water quality and surrounding environmental values throughout the construction phase. Management measures are further details in Table 5-1.

3.7 WATER CONTAMINATION

The Development site is adjacent to the following hydrological features:

- Little Mindil Creek, an open channel natural creek running parallel to the northern boundary of the site;
- Fannie Bay and Little Mindil Beach Foreshore to the north-west of the Development area.

Construction of the Development has the potential to impact the water quality of these above features due to litter entering the waterways, spills and leaks of contaminants and erosion and subsequent sedimentation. Mitigation measures for these impacts are provided in Table 5-1. No impact to groundwater is predicted, being that it is so close to tidal influences, no draw on groundwater is anticipated and there are no beneficial users in proximity of the site.

3.8 FAUNA ENTRAPMENT

The Development site is largely void of vegetation; however, the building envelope occurs adjacent to Sensitive and Significant Vegetation, where there is a likelihood of Threatened Fauna such as migratory shorebirds or the Yellow Spotted Monitor utilising habitats within this vegetation. As such, construction of the Development may increase the likelihood of fauna becoming entrapped in construction infrastructure such as fencing or sumps. Mitigation measures are provided in Table 5-1.

3.9 GREENHOUSE GAS EMISSIONS

Construction of the North One Development has the potential to contribute to the emission of greenhouse gases (GHG) through the operation of machinery and equipment that are powered by fossil fuels. A number of management strategies to reduce emissions are provided in Table 5-1.

4 ENVIRONMENTAL MANAGEMENT FRAMEWORK

The CEMP provides overarching environmental management guidance for the construction phase of the Development that will be implemented through the processes and procedures implemented by the building contractor. The CEMP establishes a framework of management plans and procedures to address key areas of environmental risk and outlines the mechanisms used to deliver commitments made in the Referral document.

4.1 ROLES AND RESPONSIBILITIES

Key roles and responsibilities for environmental management are provided in Table 4-1.

Table 4-1: Roles and responsibilities of the CEMP

Role	Responsibility
KTT Investments	<p>Ensure all statutory approvals are in place prior to commencement of construction.</p> <p>Ensure the building contractor is aware of the conditions and requirements of statutory approvals.</p> <p>Ensures building contractor is complying with CEMP, including implementing management or mitigation actions, monitoring and reporting.</p> <p>Conduct site auditing on a discretionary and strategic basis, where necessary.</p> <p>Respond to complaints from the public.</p> <p>Review and approve corrective actions and notification of regulatory authorities where necessary.</p>
Site Manager/Construction Manager	<p>Ensures implementation of the CEMP across the site including management and mitigation actions, monitoring and reporting.</p> <p>Ensure personnel and contractors conform with the CEMP and have completed induction prior to working on site.</p>
Site Personnel	<p>Comply with CEMP, site induction and/or additional procedures relevant to work tasks.</p> <p>Notify Site Manager of any non-compliance with CEMP.</p>
Sub-contractors	<p>Comply with CEMP, site induction and/or additional procedures relevant to work tasks.</p> <p>Obtain any additional permits from statutory authorities relevant to work tasks.</p> <p>Notify Site Manager of any non-compliance with CEMP.</p>

4.2 MONITORING AND REPORTING

Monitoring will be undertaken to assess compliance with the CEMP and that the magnitude of the impacts are within the approved limits. There will be ongoing monitoring of the site throughout the construction phase by a representative of the building contractor who is aware of the prescriptions of the CEMP. Additional monitoring may be required on an as-needs basis following complaints from community members. Details of specific monitoring that will be implemented are provided in Table 5-1.

A bi-annual CEMP report will be prepared by the building contractor and submitted to KTT throughout the construction phase of the Development. The report will include:

- List of actions that have been implemented from the CEMP;
- Details of any non-compliance or incidents;
- Results of any monitoring that occurred;
- Details of any complaints received from the community;
- Number of staff that have completed mandatory site induction and awareness training; and
- Corrective actions that were implemented.

4.3 COMPLAINTS AND INCIDENTS

The Development has the potential to impact upon the local community both negatively and positively. The mitigation measures develop in this CEMP are designed to mitigate and reduce impacts on the environment and community however an Incident and Complaints register will be established and maintained by the building contractor in the event of an incident or complaint. Any incidents of non-compliance with the CEMP will be recorded and KTT Investment will be notified (and any relevant environmental regulator if necessary) as soon as possible.

Any complaints received will be recorded in the same register. The building contractor will notify KTT Investment of any complaints received as soon as possible, and KTT Investment will be responsible for providing a response. All complaints will be investigated to determine if corrective action is required.

The Incidents and Complaints register will include the following details:

- Date;
- Name, location and contact details of complainant;
- Complaint or incident details;
- Follow-up actions and/or mitigation measures; and
- Close-out approval.

4.4 TRAINING AND AWARENESS

KTT Investment will be ultimately responsible for ensuring all contractors engaged during construction of the North One Hotel and Apartment Complex have undergone the relevant training and awareness. Prior to commencing work, all staff including any contractors/subcontractors must complete a site induction identifying the type and location of sensitive environmental areas, cultural sites and potential hazards. The induction, which will likely be delivered by the building contractor, will include as a minimum:

- Location of Sensitive and Significant vegetation and trees (Little Mindil Creek and the Gilruth Avenue Cliffs);
- Areas of native vegetation to be retained;
- Location of the Registered Sacred Site (5073-89);
- Adjoining residents and land users and their exposure to the Development, particularly the Myilly Point Heritage Precinct;
- Potential areas of sub-surface asbestos burial;
- The impacts of erosion, weed spread, habitat removal, human disturbance, dust and noise can have on environmental, social and cultural values; and
- Mitigation and management strategies required to address potential environmental impacts.

4.5 CEMP REVIEW AND ADAPTIVE MANAGEMENT

This CEMP should be reviewed annually at a minimum. The CEMP should also be reviewed following significant incidents and updated where appropriate to ensure that it remains relevant and effective throughout the life of the Project. All reviews, changes or updates are to be recorded using the Control and Revision History boxes on Page i of this document.

5 CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

A list of management actions to be undertaken to avoid and/or mitigate impacts to the environmental values of the site during construction of the Development is provided in the Construction Environmental Management Plan below (Table 5-1).

Table 5-1: Construction Environmental Management Plan

Source	Objective	Management and Mitigation	Monitoring	Responsible Personnel	Performance Indicators
Dust emissions					
Soil disturbance and vehicle/machinery movement.	Minimise dust generation and the impact of dust emissions from construction activities.	<p>Dust suppression fencing will be erected around the perimeter of the site.</p> <p>Active road surfaces will be either sealed or sprayed with water using water carts.</p> <p>Other areas that have the potential to generate dust such as stockpiles, laydown areas, carparks and tipping areas will be treated with a dust suppressant chemical or sprayed with water to dampen area.</p> <p>Vehicle speeds on site roads will be restricted.</p> <p>In the event that weather conditions lead to extreme dust generation halt activities until conditions alter.</p>	<p>Daily visual checks of the level of dust being emitted or found throughout site.</p> <p>Monthly photographic monitoring at established points within the vegetation associated with Little Mindil Creek and the Escarpment to indicate if dust impact is affecting vegetation health.</p> <p>Monitor dust complaints from site personnel and adjacent residents/businesses.</p> <p>In the event of a complaint, campaign monitoring may be undertaken as follows:</p> <ul style="list-style-type: none"> • PM₁₀ to be monitored in accordance with Australian Standard AS 3580.9.6 • PM_{2.5} to be monitored in accordance with AS/NZS 3580.9.10. 	<p>1) Site Supervisor</p> <p>2) Water Cart Operator</p> <p>3) All Construction/ Site Personnel</p>	<p>No notable impact on vegetation health from dust deposition.</p> <p>No impacts on human health.</p>
Noise and vibration					
Construction activities including the operation and movement of machinery.	Minimise noise and vibration generation from construction activities and ensure compliance with regulatory requirements.	<p>Ensure construction activities adhere to recommendations outlined in the <i>Northern Territory Noise Management Framework Guideline 2018</i>:</p> <ul style="list-style-type: none"> • Construction activities will occur during standard hours (7am – 7pm) and will not occur during non-standard hours, where possible. 	<p>Monitor noise complaints from adjacent residents and businesses.</p> <p>In the event of a complaint, campaign monitoring may be undertaken.</p>	<p>1) Site Supervisor</p> <p>2) Maintenance Personnel</p>	<p>Noise generating activities comply with criteria for standard operating hours.</p> <p>No deterioration in the health of site</p>

Source	Objective	Management and Mitigation	Monitoring	Responsible Personnel	Performance Indicators
		<ul style="list-style-type: none"> • During standard hours, construction noise will not exceed the recommended assigned noise affected level of Rating Background Level (RBL) + 10 decibel (dB); and • If out of hours construction is required, the operation of particularly noisy machinery will be avoided before 7am and after 7pm and will not exceed the recommended noise affected level of RBL + 5 dB. <p>Inductions will be provided to construction personnel (including sub-contractors) addressing responsibilities with regard to noise management.</p> <p>Ensure truck drivers are informed of designated vehicle routes, parking locations, delivery hours and minimising engine braking and idling.</p> <p>Ensure all equipment is equipped with appropriate noise controls (e.g. mufflers, silenced exhausts, acoustic enclosures, flashing lights as an alternative to revising beepers) and equipment is shut down and not left idling when not in use.</p> <p>Ensure vehicles, machinery and equipment are operated in the correct manner and adequately maintained - including replacement of engine covers, tightening of rattling components, repair of leakages in air lines and shutting down equipment not in use.</p> <p>Consider the use of temporary solid screens for noise mitigation of noisy stationary equipment.</p> <p>Inform potentially affected receivers with adequate notice of the construction program and any planned activities that may exceed noise and vibration targets</p>		<p>3) All Construction/ Site Personnel</p>	<p>personnel or neighbouring residents or businesses</p> <p>Recurrent noise complaints are not received</p>

Source	Objective	Management and Mitigation	Monitoring	Responsible Personnel	Performance Indicators
		Establish a Complaints and Grievance Protocol to address noise complaints.			
Odour emissions					
Temporary portable toilets on construction site emitting unpleasant odours for nearby residents, businesses and people utilising area for recreational purposes.	Minimise the odour impacts where possible.	<p>Ensure portable toilets are placed in a location that is as far away from sensitive receptors such as residences, businesses and recreational areas as practicable.</p> <p>Portable toilets will be inspected and cleaned daily and the waste will be pumped out frequently (at least every two weeks).</p> <p>Portable toilets will be regularly serviced by hire provider.</p>	<p>Monitor odour complaints from adjacent residents and businesses.</p> <p>Daily inspections of portable toilets.</p>	<p>1) Site Supervisor</p> <p>2) Cleaner</p> <p>3) Portable toilet hire company</p>	No deterioration in amenity for neighbouring residents and businesses.
Visual amenity					
<p>Construction site reduces aesthetic appeal of area to neighbouring businesses, homes and/or people who utilise general area.</p> <p>Litter from construction site visible or blown into neighbouring areas reducing the visual amenity.</p>	Minimise the visual impact of construction activities where possible.	<p>Dust suppression fencing will be erected to act as a visual screen.</p> <p>Existing vegetation around the perimeter of the construction sites would be retained where feasible and reasonable to act as a visual screen.</p> <p>Where feasible and reasonable the elements within construction sites would be located to minimise visual impact, for example setting particular equipment/ structures back from the site boundaries to minimise their visual impact.</p> <p>Littering on site is prohibited and work and office sites are to be kept clean and tidy.</p> <p>Rubbish containers are to be carried in vehicles and provided at all work area.</p> <p>Housekeeping inspections of all work areas will be undertaken weekly.</p>	Daily visual inspection of site for litter and ensure visual screens are still effective.	<p>1) Site Supervisor</p> <p>2) All Construction/ Site Personnel</p>	<p>No deterioration in amenity for neighbouring residents and businesses.</p> <p>No recurrent visual amenity complaints</p>

Source	Objective	Management and Mitigation	Monitoring	Responsible Personnel	Performance Indicators
		Waste management will be addressed in the site induction.			
Waste generation					
Construction phase waste streams include rubble, shipment packaging, fabrication consumables, hydrocarbons, wastewater and domestic waste.	Reduce waste during the construction phase.	Implement the WMP including: <ul style="list-style-type: none"> • Develop a “Reduce, Reuse, Recycle” awareness campaign; • Incorporate waste management into the Site Environmental Induction; • Establish a waste segregation and recycling program wherever possible including scrap metal and waste oil; • Conduct regular inspections of waste disposal areas to ensure that wastes are being disposed of in the correct manner. If waste is disposed incorrectly raise awareness and review waste management awareness procedures. 	Daily visual inspections of site to ensure there is no litter. Weekly visual inspections of waste disposal areas to ensure recycling is occurring appropriately.	1) Site Supervisor 2) Environmental Representative 3) All Construction/ Site Personnel	No increase in pollution of waterways. No contamination of recycling.
Erosion and sedimentation					
Clearing of vegetation and earthworks during construction make Project site more susceptible to erosion and sedimentation.	Control, minimise and monitor erosion resulting from the construction phase.	Implement the Erosion and Sediment Control Strategies as outlined in the Stormwater Management Plan (Appendix 10 of the Referral) including: <ul style="list-style-type: none"> • Installation of sediment barriers to all entrances to downstream stormwater infrastructure; • Maximise retention of existing vegetation to reduce soil disturbance; • Construction of temporary bunds at the top of earthworks batters • Construction of temporary diversion drains to divert water to sediment basins; and • Re-vegetation of all disturbed areas within two weeks of completion. 	Ongoing site monitoring and audit by building contractor. Monitoring to be more frequent in wet season.	1) Site Supervisor 2) All Construction/ Site Personnel	No increase in sedimentation.

Source	Objective	Management and Mitigation	Monitoring	Responsible Personnel	Performance Indicators
Acid sulphate soils (ASS)					
Liberation and/or disturbance of ASS that then cause acidification of soils and contamination of waterways	Avoid disturbance of ASS.	<p>Implement Acid Sulphate Soil Management Plan including:</p> <ul style="list-style-type: none"> Undertake a geotechnical assessment prior to construction, incorporating ASS assessment. Disturbance of ASS to be avoided where possible, including constructing infrastructure on piles above ground level. Excavated ASS to be treated during construction to prevent acidic fluids leaching into surface water or groundwater. 	<p>Any treated soils will be tested for successful neutralisation before being moved or covered.</p> <p>The pH of any pools of water potentially exposed to ASS will be monitored weekly.</p>	<p>1) Site Supervisor</p> <p>2) All Construction/ Site Personnel</p>	<p>No disturbance of ASS outside of approved areas for disturbance.</p> <p>All treated ASS is successfully neutralised.</p> <p>No significant alteration in pH in surface water.</p>
Asbestos contamination					
Contamination of soil from historical storage of asbestos	Avoid risks to human health and risk of contaminants entering the natural environment.	<p>A Contaminated Sites Management Plan will be developed following an investigation of the Site for the presence of asbestos. Some of the measures that are likely to be implemented to manage the impact of asbestos contamination include:</p> <ul style="list-style-type: none"> North One will ensure people responsible for asbestos-related work are adequately trained in the identification and suitable handling of asbestos; North One will maintain detailed records of all activities relating to asbestos works which are undertaken at the Project, in line with all current legislation and codes of practices. The presence of asbestos will be indicated by a label and warning signs. Warning signs will be compliant with <i>AS 1319-1994 - Safety Signs for the Occupational Environment</i>; Areas in which asbestos has been confirmed or assumed to be present are classified as restricted work areas and will require a permit to work; and 	Ongoing site monitoring and audit by building contractor.	<p>1) Site Supervisor</p> <p>2) Licensed specialist</p>	No impacts to human health.

Source	Objective	Management and Mitigation	Monitoring	Responsible Personnel	Performance Indicators
		<ul style="list-style-type: none"> Removal, transport and disposal of asbestos must be conducted by licensed specialists. 			
Water contamination					
Contamination of surface water groundwater and marine waters	Minimise the risk of contaminants entering the natural environment.	<p>Ensure all hydrocarbons are stored on site in suitably bunded areas in accordance with AS1940:2017 and fixed areas where hydrocarbons are to be handled, such as refuelling bays, are also bunded.</p> <p>Regular inspections of storage areas will be conducted to identify any leaks or issues with hydrocarbon storage areas.</p> <p>MSDSs will be located at storage areas and will be regularly maintained.</p> <p>Ensure spill response equipment is available and procedures are communicated effectively to staff involved with hydrocarbon use in their work areas.</p>	<p>Periodic (during the wet season) water quality monitoring of discharges entering Little Mindil Creek, including total dissolved solids (TDS), total suspended solids (TSS) and hydrocarbons.</p> <p>A maximum release turbidity concentration of 20 NTU (measured using a Turbidity meter) is proposed.</p>	1) Site Supervisor	
Biting insects					
Contamination of surface water groundwater and marine waters	Avoid, minimise or control the effects of biting insects on personnel working at the Project site or nearby residents.	<p>Implement the Biting Insects Management Plan (Appendix 21 of Referral) including:</p> <ul style="list-style-type: none"> Drain, fill and grade current mosquito breeding sites, where possible; Minimise ponding and poorly draining areas capable of holding water, including receptacles that could become breeding areas; Provide personal protective clothing (long sleeved shirts and trousers) to all personnel to protect against bites. Insect repellent will be available at all active work sites Development activities occurring on coastal floodplains in the NT will encounter human health issues associated with biting insects. 	<p>Weekly inspection of any stagnant water bodies and receptacles (i.e. ponds, drains, excavations filled with water, containers with water holding capacity etc.) for the presence of mosquito larvae.</p> <p>Complaints from site personnel or nearby residents,</p>	<p>1) Site Supervisor</p> <p>2) All Construction/ Site Personnel</p>	<p>Compliance with Biting Insects Management Plan including:</p> <ul style="list-style-type: none"> No increased larvae or adult biting insect activity present on site

Source	Objective	Management and Mitigation	Monitoring	Responsible Personnel	Performance Indicators
		Ensure personnel are aware of this issue and the appropriate precautions to implement.			
Fauna injury or death					
Entrapment infrastructure.	in Avoid or limit the likelihood of fauna entrapment at the Project site.	Install fauna egress points in sumps. Avoid the use of barbed wire in fences where possible. If required, barbed wire fences will be inspected for trapped animals (particularly bats).	Daily checks of any sumps or fences.	1) Site Supervisor	No fauna injuries or deaths.
Greenhouse gas emissions					
Carbon emissions from vehicles, machinery and equipment.	Minimise greenhouse gas emissions.	Vehicle emissions will be kept to a minimum by avoidance of unnecessary engine running time. Machinery, plant and equipment (including air conditioners) will be well maintained in accordance with manufacturer's specifications and run in an efficient manner.	Maintain service records to ensure frequent servicing of equipment and machinery.	1) Site Supervisor 2) Maintenance Personnel 3) All Construction/ Site Personnel	N/A

6 ECOLOGICALLY SUSTAINABLE DEVELOPMENT

Part 2 Division 1 of the EP Act sets out the Principles of Ecologically Sustainable Development (**ESD**) that must be considered and applied in making a decision under the Act. Table 6-1 lists the Principles of ESD and discusses how the construction phase of the Development is in keeping with these principles.

Table 6-1: Principles of Ecologically Sustainable Development for the construction phase of the North One Development

Principle	Discussion
Decision Making Principle	
<p>1) Decision-making processes should effectively integrate both long-term and short-term environmental and equitable considerations.</p> <p>2) Decision-making processes should provide for community involvement in relation to decisions and actions that affect the community.</p>	<p>The risk assessment (detailed in Appendix 4 of the Referral) has considered both the long term and short term nature of impacts. The risk assessment methodology incorporates the duration of impact into the assessment of the severity of consequence. Thus, gives consideration to the long term and short term nature of impacts. This is effectively integrated into the decision making process as the risk level is tied to a mitigation response, identifying the appropriate level of corporate governance over which the impact must be managed.</p> <p>Stakeholder engagement has been recognised as fundamental to planning of the Development and, as such, a comprehensive engagement plan has been implemented to determine the potential areas of concern for individual stakeholders and ensure the Development remains current with social issues and expectations. KTT has engaged the services of Darwin-based stakeholder and community engagement consultant Redsplash to inform and consult with stakeholders. In total 42 people were spoken with and feedback was recorded and taken on board.</p> <p>Local businesses will benefit from local procurement of goods and services.</p>
Precautionary Principle	
<p>1) If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.</p> <p>2) Decision-making should be guided by:(a) a careful evaluation to avoid serious or irreversible damage to the environment wherever practicable; and (b) an assessment of the riskweighted consequences of various options.</p>	<p>The Environmental Risk Assessment contained within the Referral has determined that the development of the Hotel will not have any significant impacts on the environmental factors as described by the NT EPA (2020). The Risk Assessment was informed by technical studies undertaken by suitable qualified, experienced specialists and stakeholder engagement. The Risk Assessment details the application of mitigation measures, many of which have been successfully applied in similar projects.</p>
Principle of evidence-based decision-making	
<p>Decisions should be based on the best available evidence in the circumstances that is relevant and reliable.</p>	<p>The environmental impact assessment detailed in the referral has been informed by detailed technical studies, commissioned by KTT Investment, that have drawn on the best available information to</p>

Principle	Discussion
	<p>identify the environmental values present in the Development site and to assess the potential for the Development to impact these values.</p>
<p>Principle of intergenerational and intragenerational equity</p>	
<p>The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of present and future generations.</p>	<p>The Development of the Hotel meets the Principal of Intergenerational Equity by ensuring the health of environmental values, maintaining ecological functions for future generations, whilst minimising any impacts on the environment.</p> <p>Whilst the Development site is largely void of vegetation due to previous disturbances, two areas of Sensitive and Significant Vegetation are adjacent to the building envelope. These areas will not be disturbed as part of the Development and management and monitoring practices will be implemented in the construction phase to ensure they are preserved for future generations. Further management and mitigation measures to ensure protection of other environmental factors for future generations are provided in the Risk Assessment.</p> <p>Development of the North One Complex will create a number of job opportunities for the people of Darwin. The construction phase of the Development is expected to generate approximately 350 direct or indirect jobs within the Darwin region and once operational.</p>
<p>Principle of sustainable use</p>	
<p>Natural resources should be used in a manner that is sustainable, prudent, rational, wise and appropriate.</p>	<p>Construction of the North One Development will utilise large quantities of natural resources to construct the built environment, however the Development will be a permanent fixture to the Mindil Beach foreshore and will provide tourism services that will benefit the local community and greater Northern Territory economy for years to come.</p> <p>The Development also places a strong emphasis on the waste management hierarchy to reduce waste. Where possible, waste materials will be re-used or recycled.</p>
<p>Principle of conservation of biological diversity and ecological integrity</p>	
<p>Biological diversity and ecological integrity should be conserved and maintained.</p>	<p>The Development site is largely void of vegetation; however, the building envelope occurs adjacent to Sensitive and Significant Vegetation, where there is a likelihood of Threatened Fauna utilising habitats within this vegetation. No vegetation clearing is proposed to occur in the Sensitive and Significant vegetation or in habitats suitable for the threatened and migratory shorebirds or Yellow Spotted Monitor. Given the proximity of the Development envelope to these vegetation corridors, mitigation strategies will be implemented to ensure unauthorised clearing does not occur during the construction phase.</p> <p>In addition, KTT Investment were recently granted approval of a Planning Scheme Amendment to excise Little Mindil Creek from the Lot, in order to preserve the environmental and social values of the creek. Furthermore, KTT Investments have made commitments to preserve and maintain the escarpment vegetation. This, along with implementation of management strategies to reduce impacts from</p>

Principle	Discussion
	human disturbance, vehicle strikes, erosion and sedimentation, weed infestation, noise and light and waste generation, results in the Development’s impact on biological and ecological diversity being considered negligible.
Principle of improved valuation, pricing and incentive mechanisms	
1) Environmental factors should be included in the valuation of assets and services.	Environmental factors relevant to the Development have been considered as part of this Referral and the cost associated with the management of the environmental factors has been considered throughout the planning and design phase of the proposal.
2) Persons who generate pollution and waste should bear the cost of containment, avoidance and abatement.	KTT Investment Pty Ltd will be responsible for funding the cost of implementing mitigation and management measures to avoid, contain and decrease pollution and waste at the Hotel during construction.
3) Users of goods and services should pay prices based on the full life cycle costs of providing the goods and services, including costs relating to the use of natural resources and the ultimate disposal of wastes.	Waste streams associated with the Development are detailed in the WMP. This Plan also details management measure that will be implemented with a strong focus on the waste management hierarchy to minimise waste generation from the North One Development.
4) Established environmental goals should be pursued in the most cost-effective way by establishing incentive structures, including market mechanisms, which enable persons best placed to maximise benefits or minimise costs to develop solutions and responses to environmental problems.	The costs of services provided by the Development will incorporate the costs relating to the disposal and abatement of wastes.

7 CONCLUSION

Implementation of the strategies identified within this CEMP will ensure that the North One Hotel and Apartment Development is constructed in line with the environmental objectives established by the NT EPA and that environmental, social and community impacts from the Development are minimised.