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Nunduk Retreat & Spa
29-Mar-2018

Nunduk Retreat & Spa Environmental Management Plan

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Client: Nunduk Retreat & Spa

ABN: 40601979444

Prepared by

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Cover image: Nunduk Retreat and Spa site looking east (Seacombe West Pty Ltd)

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Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
1.0	19-Feb-2018	Draft for Issue	David Hyett – Industry Director, Environment	
2.0	21-Mar-2018	Final	David Hyett Industry Director	
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1.0 Introduction

1.1 Background

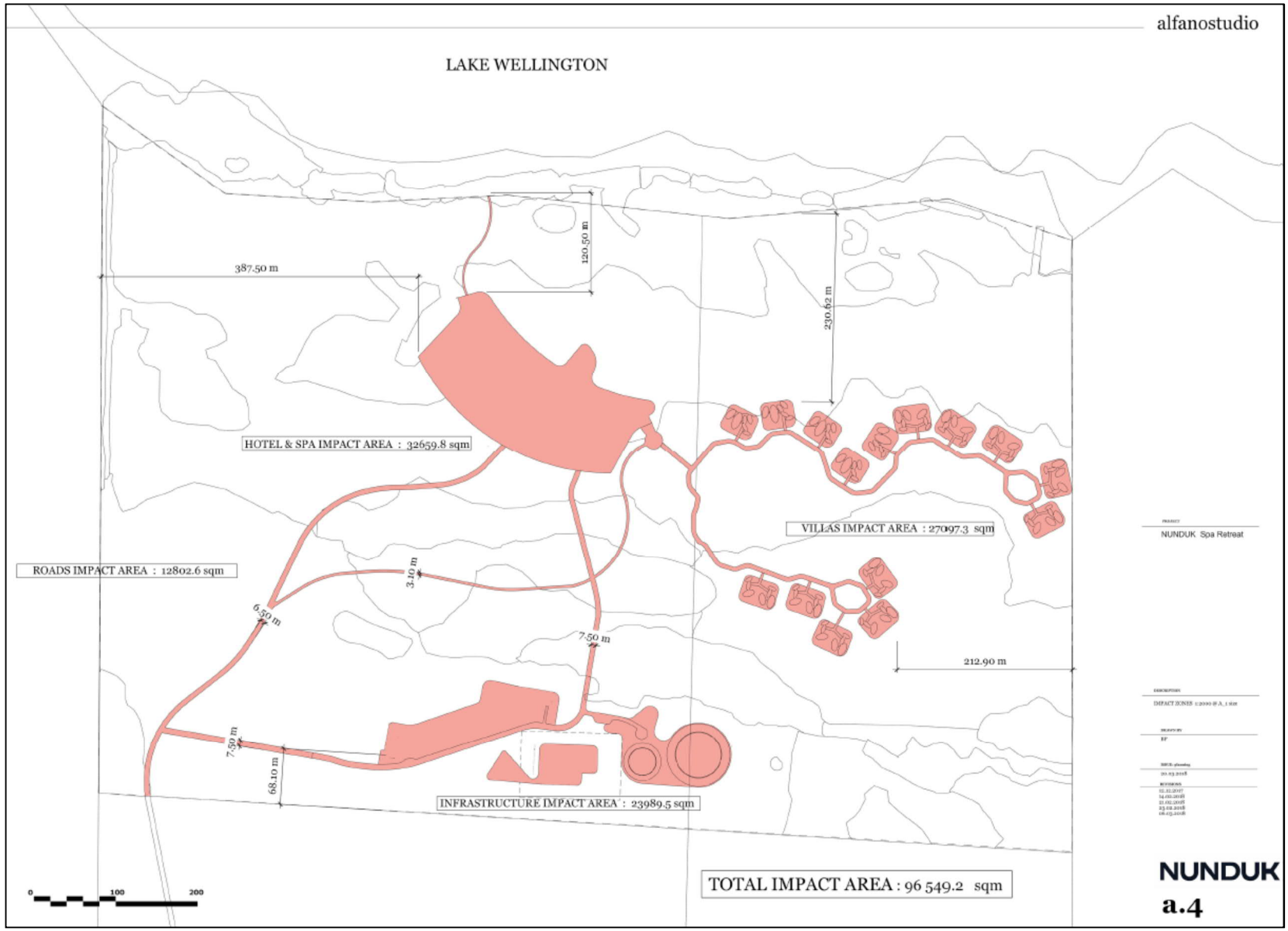
Seacombe West Pty Ltd proposes to develop the Nunduk Retreat & Spa (herein referred to as the Nunduk Retreat); a luxury retreat and well-being spa facility. The project is to be located on the shores of the Lake Wellington, located to the east of Sale in Victoria's Gippsland region. The project comprises luxury accommodation, geothermally heated pools and a wellness spa.

Seacombe West Pty Ltd is seeking approval for the project under the *Planning and Environment Act 1987*. This Environmental Management Plan (EMP) has been developed for the Nunduk Retreat to support the approvals application. The EMP identifies the environmental risks associated with the construction and operation of the facility. This EMP is considered to be the overarching EMP for the site which will guide the development and operation of the Nunduk Retreat to ensure that environmental issues associated with the project are effectively managed.

The project site is shown in Figure 1 below and a detailed Retreat layout is provided in Figure 2.

Figure 1 Nunduk Retreat and Spa location

Figure 2 Nunduk Retreat and Spa layout and impact footprint



1.2 Timing of construction

The general timeframes for activities covered by this EMP are outlined in Table 1.

Table 1 - Timing of construction

Stage and key activities	Indicative Timing
Stage One (Mobilisation) – early works, site mobilisation and site set up	Early 2019
Stage Two (Construction) – excavation, building construction and utilities equipment installation	Early 2019
Stage Three (Demobilisation) – fencing, landscaping and revegetation	June 2020

1.3 Scope of Environmental Management Plan

This EMP describes the overarching environmental management framework that applies to the Nunduk Retreat development. This EMP applies to both construction and operation phases of the project. This overarching EMP will be implemented through a works specific Construction Environmental Management Plan (CEMP) to be developed by the appointed construction contractor. During operation, this EMP will guide the planning, management and routine activities at the site to manage and mitigate environmental impacts.

This EMP is limited to the consideration of risks and impacts, and the development of mitigation and management measures associated with the project description as provided by Seacombe West Pty Ltd. This includes the description of project extents, design, construction methods and operation methods which are considered correct as at the date of this report. Should the project extent, design, construction methods or operation methods change then this EMP cannot be considered to extend to cover the revised aspects of the project.

2.0 Objectives

The objectives of this EMP are as follows:

- ensure that the Nunduk Retreat development works as communicated to AECOM in the preparation of this EMP are carried out in accordance with applicable environmental legislation and standards,
- ensure appropriate management of environmental risks,
- provide government, community and other stakeholders with assurance that environmental issues associated with the Nunduk Retreat project are managed, monitored and audited appropriately,
- clearly allocate responsibility for environmental management at all levels,
- ensure that potential environmental risks are identified and assessed,
- ensure that measures to monitor and control potential environmental impacts associated with the works are implemented effectively; and
- ensure conformance with the EMP through the construction and operation phases of the facility.

2.1 EMP review

This EMP is a live document and would be reviewed annually and updated where necessary to reflect the plan of construction, updates to relevant legislation and policy, any recommendations arising from monitoring, site inspections, audits, meetings and non-conformances. Triggers for EMP review include:

- identification of new environmental risks,
- changes in legislation and best practice environmental management standards,
- changes in the landscape (including changes as a result of a natural disaster), and
- requests from the Nunduk Retreat Project Director or Seacombe West Pty Ltd.

Any revisions to the EMP must be approved by the Nunduk Retreat Project Director and the updated EMP provided to the construction contractor Project Manager and any relevant stakeholders.

Changes to this EMP must be incorporated into the CEMP if these changes occur during the construction phase of the project. If changes to the CEMP occur, all construction staff will be informed of any important changes to the EMP during toolbox sessions prior to the start of the working day. A hard copy of the EMP will be kept onsite at all times and at the Nunduk Retreat Project Manager's office, where it can be viewed upon request.

A record of reviews and updates to the EMP will be maintained by the Nunduk Retreat Project Manager in a register, for audit purposes.

3.0 Overview of proposal

3.1 Project components and activities

The Nunduk Retreat is a proposed luxury retreat and well-being spa facility. The retreat is located on approximately 20 acres on the southern shores of Lake Wellington in Gippsland (see Figure 1 for general location), which is part of Australia's largest inland lakes system.

The Nunduk Retreat (see Figure 2 for Nunduk Retreat layout) is situated approximately half way between Sale and Loch Sport on the southern shores of Lake Wellington in the Gippsland Lakes, Victoria. It is located adjacent to Wellington Park on Longford-Loch Sport Road which is predominately used for sheep grazing and cropping, with some pockets of remnant native vegetation.

It is our understanding following consultation with Seacombe West Pty Ltd, that Nunduk Retreat includes a main building with 36 visitor rooms, a restaurant, lounge and bar area, gallery, resource centre, guest shop, geothermally heated pools, spa and wellness centre as well as secluded villas connected to main building with elevated walk ways all located 3.2m above ground level. It is further understood that the main building will have a green / vegetated roof and there will be landscaping in the vicinity of main building, secluded villas and walkways. Clean fill will be imported to create the green / vegetated roof, and clean fill and gravel will be imported to build up the existing access tracks in their existing orientation.

The supporting infrastructure zone will include solar panels for energy generation, biodiesel generators, an energy storage area, a waste management area, a sewerage treatment area (above ground), a laundry, aboveground rainwater tanks, aboveground water holding ponds, aboveground water pumps, telecommunications facility, staff accommodation, and car parking.

The scope of the Nunduk Retreat for which approval is being sought will not include the development or operation of wind turbines, aquaculture facility, geothermal bore or a desalination plant.

Geothermally heated water to be used by the retreat will be drawn from a local aquifer and provided for use in the natural hot spring pools. In addition, a geothermal interface will be present in the design through space/underfloor heating. The geothermal development is not included in the project scope as it is understood that geothermally heated water will be sourced from an external provider and will be piped to the property. It is further understood that the hot spring pools will be aboveground, within the main building and villas, and will not require excavation.

The existing farm, adjacent to the Nunduk Retreat site, is planned to be utilised for disposal of treated wastewater for irrigation purposes. This farm has been in operation for decades and the farm activities will not change as a result of this project other than through the use of wastewater generated by the project for irrigation purposes.

3.2 Construction

It is our understanding following consultation with Seacombe West Pty Ltd, that the Nunduk Retreat will be constructed using driven piles to elevate the development above predicted flood levels. Backfilling and importation of clean fill and topsoil will be required to construct the roof and building materials will be brought onto site and stored in areas where construction will occur (i.e.: the materials laydown area and site shed will be initially within the footprint of the main building and will then be moved to the car park in the infrastructure zone when the main building and villas are under construction). Refuelling will mainly be offsite although cranes and drill rigs will be refuelled on site using a mobile tanker.

As the construction of Nunduk Retreat will utilise driven piles, it will not include excavation such as digging, tunnelling, removal of material, scooping, cutting, trenching, drilling, boring or other activity that will result in the movement of earth. In addition, existing tracks will be used on the site and no hardening of tracks will be conducted. There are no current structures on site that will require demolition. On this basis, these activities have been excluded from the EMP.

3.3 Environmental interactions

Construction and operation activities and related environmental interactions are identified in Table 2 below. All information regarding construction and operation activities provided in this document are derived from a desk based assessment of available data and reporting provided by Seacombe West Pty Ltd. Note that during the operational phase only routine operation and maintenance activities have been considered for the development.

Table 2 Environmental Interactions from construction activities

	Acid Sulphate Soils	Air Quality	Amenity & Access	Aquatic ecology	Bank erosion	Contamination	Dust	Flora and fauna	Groundwater quality	Groundwater regime	Aboriginal Heritage sites	Noise	Odour	Terrestrial Ecology	Visual Landscape	Waste & Litter	Water Quality
Construction Activities																	
Overall site activities / Central Retreat Zone																	
Removal of vegetation								X						X			
Establishment of site offices and amenities for staff								X						X	X		
Transportation of construction materials to site		X	X				X	X				X					
Laydown of construction materials			X				X	X						X	X	X	
Steel fixing and welding												X				X	
Concrete works												X					X
Concrete cutting												X					
Other Building Construction Activities (i.e. timber works, electrical installations, sanitary installations)							X					X				X	
Storage of chemicals and fuels						X											X
Refuelling of vehicles and plant						X											X
Collection and disposal of construction waste																X	X
Backfilling and compaction of fill areas	X											X					
Vehicle mobilisation and Operations / Combustion Engines		X	X				X					X					

	Acid Sulphate Soils	Air Quality	Amenity & Access	Aquatic ecology	Bank erosion	Contamination	Dust	Flora and fauna	Groundwater quality	Groundwater regime	Aboriginal Heritage sites	Noise	Odour	Terrestrial Ecology	Visual Landscape	Waste & Litter	Water Quality
Construction Activities																	
Pile Driving	X			X					X	X		X					X
Installation of fences			X									X		X	X		

Table 3 Environmental interactions from operation activities

	Acid Sulphate Soils	Air Quality	Amenity & Access	Aquatic ecology	Bank erosion	Contamination	Dust	Flora and fauna	Groundwater quality	Groundwater regime	Aboriginal Heritage sites	Noise	Odour	Terrestrial Ecology	Visual Landscape	Waste & Litter	Water Quality
Operation Activities																	
Overall site activities / Central Retreat Zone																	
Collection and disposal of non-recyclable waste (including maintenance waste)		X	X													X	X
Goods Delivery (assume vehicle based)		X	X														

	Acid Sulphate Soils	Air Quality	Amenity & Access	Aquatic ecology	Bank erosion	Contamination	Dust	Flora and fauna	Groundwater quality	Groundwater regime	Aboriginal Heritage sites	Noise	Odour	Terrestrial Ecology	Visual Landscape	Waste & Litter	Water Quality
General small scale maintenance (work force, transportation, equipment, materials – assumed no oversize equipment or transportation required)		X	X				X					X				X	
Infrastructure Zone																	
Waste treatment operation																X	

3.4 Assumptions

A number of assumptions have been made as part of the development of this EMP. These assumptions are as follows:

- Design and layout: The assessment of environmental risks and impacts as well as the development of management measures is based on the assumption that the Nunduk Retreat will be built at the site shown in Figure 1 and that the Nunduk Retreat design and layout will be as per drawing in Figure 2.
- Inundation: The development area is subject to regular inundation and the proposed minimum floor level for the Nunduk Retreat building, villas and staff accommodation is 3.2m above sea level development to allow for flood levels in the event of a 1 in 100 year storm and potential sea level rise. It is assumed that the infrastructure zone will also have a minimum floor level of 3.2m to facilitate the same flood protection measures.
- Report inputs: A number of reports have been commissioned by Seacombe West Pty Ltd to support the planning permit application for the Nunduk Retreat and to inform the design of the facility. These reports were also provided to AECOM to assist in developing this EMP. As AECOM's scope for this project did not include a technical peer review of these reports, we have assumed that their findings are scientifically accurate and up to date at the time of developing the EMP.

4.0 Roles and responsibilities

4.1 Management framework

Nunduk Retreat is committed to achieving outstanding performance in relation to environmental management. To achieve this, the environment, community and stakeholders will be considered in all activities related to the Nunduk Retreat construction and operation.

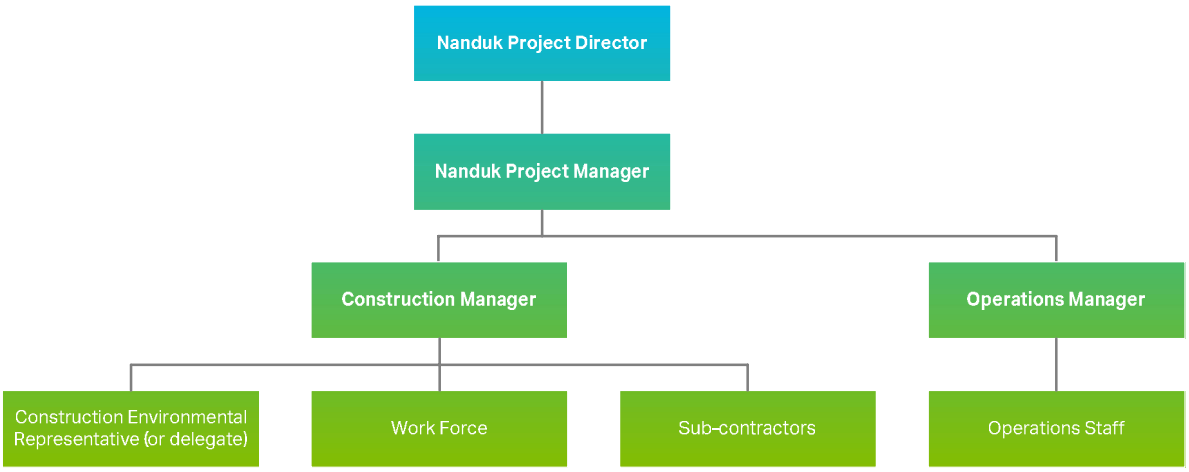
This EMP has been prepared in accordance with Planning Permit (*permit number to be provided when known*) and is to be implemented by all members of the Nunduk Retreat team and appointed construction contractor workforce, including sub-contractors.

4.2 Project organisational structure

The Nunduk Retreat will be delivered by a combined team of Nunduk Retreat and appointed construction contractor representatives. The project will be managed by the Project Delivery Team as per the organisational chart presented in Figure 3. The Nunduk Retreat Project Manager is accountable for ongoing compliance with the EMP and the overall environmental performance of the project. This will include implementation of the appointed construction contractor CEMP and for overall supervision of construction personnel. The appointed construction Project Manager will be supported by the Environment Manager (or delegate) who will be responsible for managing environmental procedures onsite.

During the construction period, all construction personnel (Nunduk Retreat appointed construction contractor and sub-contractor personnel) have general responsibilities in the development of a positive environmental management culture and for ensuring all activities are conducted in a manner which is consistent with this EMP.

Figure 3 Project organisational structure



4.3 Individual roles and responsibilities

A list of key project roles and their responsibilities are detailed in this section of the EMP. The appointed construction contractor is responsible for preparing and keeping current an environmental key contacts list which will identify the name and contact number for the roles described below. This contact list will be publicly available to all personnel at the project site.

4.3.1 Nunduk Retreat Project Director

The Nunduk Retreat Project Director is responsible for high-level oversight of the project. The Nunduk Retreat Project Manager reports directly to the Nunduk Retreat Project Director by way of regular

meetings to discuss schedule, construction progress and milestones and any health, safety or environmental issues that may be raised through the construction and operation phases of the project.

4.3.2 Nunduk Retreat Project Manager

The Nunduk Retreat Project Manager is responsible for the overall administration, planning management, performance and delivery of all aspects of the Nunduk Retreat development. The Nunduk Retreat Project Manager is responsible for:

- reviewing and authorising the EMP and contractor CEMP project documentation, which identifies the project specific environmental impacts, aspects, objectives and targets,
- ensuring project personnel are provided with the appropriate documentation required to identify and implement the EMP and contractor CEMP,
- ensuring subcontractors have a contractual obligation to comply with the requirements of all EMP and contractor CEMP documentation (including legislation, regulations, SEPP etc.),
- reviewing and authorising personnel to amend the EMP or contractor CEMP,
- reporting incidents to senior Management and conducting consultation in complaint resolution and investigation, and
- reviewing performance of the EMP and contractor CEMP with the Environment Manager (or delegate), and reporting to senior management.

4.3.3 Construction Manager

The Construction Manager reports directly to the Nunduk Retreat Project Manager and is responsible for the day-to-day construction management and associated environmental performance on the project. The Construction Manager is ultimately responsible for the implementation of the requirements contained within this EMP and the contractor CEMP. The Construction Manager is responsible for:

- conducting toolbox sessions prior to work commencing each morning,
- overseeing implementation of this EMP and the contractor CEMP,
- planning and undertaking work activities in consideration of this EMP and the contractor CEMP,
- ensuring that employees and sub-contractors are aware of and comply with this EMP and the contractor CEMP including project procedures, relevant to their respective activities,
- reporting and managing environmental incidents which occur as a result of the actions of all personnel that are invited onto the site including sub-contractors and visitors',
- ensuring periodic monitoring, inspections and audits are undertaken when required by suitably trained personnel,
- periodic evaluation of how effectively environmental controls are performing (in consultation with the Construction Environmental Representative),
- ensuring any issues / non-conformance / incidents are recorded, reported and addressed appropriately,
- reporting environmental incidents (both actual and potential) to the Nunduk Retreat Environmental Manager and assisting in resolution,
- participating in periodic environmental inspections, external environmental inspections and audits as requested,
- carrying out maintenance on environmental controls as required,
- undertake daily inspections, maintain site records and ensure environmental corrective actions associated with any site inspections, audits or meetings are closed out,
- initiating remedial measures when inadequacies in environmental mitigations are observed or in response to environmental complaints and/or non-conformances,

- restriction of construction activities which may cause environmental impacts as a result of inadequacies in environmental mitigations until remedial action has been undertaken, and
- maintaining environmental performance records (such as audit results, incidents and non-conformances).

4.3.4 Construction Environmental Representative (or delegate)

The Construction Environmental Representative (or delegate) will liaise with the Nunduk Retreat Project Manager and appointed contractor Construction Manager for the duration of the project and is responsible for tracking and reporting environmental performance as well as direct implementation of this EMP and the contractor CEMP. Other responsibilities include:

- ensuring the appointed contractor Construction Manager is aware of the environmental obligations of the project as detailed within this EMP and contractor CEMP,
- oversee implementation of the EMP and contractor CEMP,
- updating the contractor CEMP, where required (including revisions and re-issue),
- undertaking regular site inspections and the active pursuit of opportunities to enhance environmental outcomes, and
- tracking and reporting of environmental performance.

4.3.5 Work Crew and sub-contractors

All construction personnel will have a responsibility for implementing this EMP and environmental management procedures relevant to their work activities. All personnel have a responsibility to:

- attend toolbox sessions,
- maintain site safety, site cleanliness and order,
- carry out any corrective actions issued as a result of any site inspections, audit or meetings,
- report any incidents and non-conformances to the Construction Manager,
- follow instructions issued by Nunduk Retreat and the appointed contractor management staff,
- reporting any environmental management concerns to the Construction Manager for reporting to the Environment Manager (or delegate), and
- observe Nunduk Retreat's commitments to the community and minimise construction impacts to neighbouring residents where possible.

4.3.6 Operations Manager

The Operations Manager will be responsible for the day-to-day operations of the Nunduk Retreat once the facility is in operation. The responsibilities of the Operations Manager will include:

- day-to-day management of the Nunduk Retreat,
- complaint handling and resolution,
- scheduling of maintenance and appointment of appropriate contractor staff for work required throughout the Nunduk Retreat,
- ensuring contractor staff are aware of and comply with this EMP including project procedures, relevant to their respective activities, and
- ensure all contractor staff attend the environmental awareness induction prior to the commencement of any works.

4.3.7 Operations staff

The operations staff working at the Nunduk Retreat will report directly to the Operations Manager. The operations staff will include the front of house staff, cleaning staff and grounds keeping staff.

All complaints received through these staff should be reported directly to the Operations Manager for recording and resolution.

5.0 Environmental Management Plan framework

5.1 Planning and environmental approvals

The Nunduk Retreat is located within the Lake Wellington area of Wellington Shire Council, Gippsland. The Wellington Shire Council Planning Scheme provides a framework within which decisions about the use and development of land can be made. It also provides for the implementation of State, regional and local policies affecting land use and development.

One of the ways it does this is through planning controls known as planning overlays. Planning overlays are part of municipal planning schemes and are applied over areas of land to control development. Overlays may be applied to protect areas from adverse impacts or to allow easy identification of constraints in developments on that area. One or more overlays may be applied to an area. Most overlays have schedules which specify municipal objectives and requirements.

The Nunduk Retreat project is located on private land which is zoned as 'Farming' (FZ). It is subject to the following Wellington Shire Council Planning scheme overlays / planning controls:

- Bushfire Management Overlay (BMO) which requires that a Bushfire Management Plan be prepared for the site incorporating bushfire protection measures,
- Environmental Significance Overlay 'Schedule 1 (ESO 1) Coastal and Gippsland Lake Environs' which requires the consideration of discharges to wetlands, waterways and groundwater as well as the minimisation of disturbance, minimisation of construction impacts, protection of vegetation, consideration of environmental processes, retention of vegetation and retention of fauna habitat,
- Environmental Significance Overlay 'Schedule 2 (ESO 2) Wetlands' which requires the consideration of the integrity and long-term ecological functioning of the wetland and areas surrounding the wetland, ecological restoration of the wetland, the benefit of retaining or planting a buffer strip of native vegetation, exclusion of vermin, the need for a land management plan, and the need to consider the views of DELWP,
- Floodway Overlay (FO) which the requires the consideration of the Victorian River Health Strategy (2002) and any relevant regional river health strategies and associated wetland plans; and,
- Land Subject to Inundation Overlay (LSIO) which requires the consideration of the effect of the development on river health values including wetlands, natural habitat, bank stability, erosion, environmental flows, water quality and sites of scientific significance.

A range of policies are relevant for this potential development as shown in Table 4 below.

Table 4 Policies/Controls relevant to Nunduk Retreat

Regulation	Detail
Council Policy Manual - Policy Number 3.1.2: Assessment of development in relation to potential sea level rise policy.	Policy contained within the Council Policy Manual which is based on technical advice from West Gippsland Catchment Management Authority (WGCMA). It requires finished floor levels to include and allowance of 0.2 metres potential sea level rise.
Local Law no. 4, 2011, Section 6.7.	This requires that "A person must not deposit any wastewater on any land or in water or a watercourse or drain or stormwater drain unless authorised and licensed under the Environment Protection Act 1970".
Local Law no 2, 2011, Section 5.1.2.	This requires that "An owner or occupier of land must not allow any tree or part of a tree or any plant or other vegetation to grow on that land, so that it interferes or obstructs with the passage of traffic by:

Regulation	Detail
	• overhanging onto or over any pavement abutting that land at a height of less than three (3) metres from the level of the adjacent Footpath or nature strip; • overhanging onto or over any Road abutting that land at a height of less than five (5) metres from the level of the adjacent Footpath or nature strip; • obstructing or impairing the vision of the driver of a Vehicle travelling along a Road adjacent to or near the land or approaching the intersection adjacent to or near the land; or • otherwise impacting on the safe and convenient use of any pavement or Road adjacent to or near the land.
Local Law no 2, 2011, Section 5.3.1.	This requires that "An owner or occupier of land, his agent, servants or contractors must not allow the discharge of irrigation water onto the Road formation section of any Road".
Wellington Shire Council Planning Scheme, Clause 52.17.	Requires a permit to remove, lop or destroy native vegetation where native vegetation is defined under the Clause 72 of the Planning Scheme as 'plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses'. Clause 52.17-2 requires that all applications to remove, destroy or lop native vegetation must comply with the application requirements specified in the Guidelines.

5.2 Key legislation

A range of environmental laws are applicable to the Nunduk Retreat development works. The key Commonwealth and State environmental legislation relevant to the proposed development are outlined in Table 5 below.

Table 5 – Key Commonwealth and State environmental legislation relevant to the proposal

Legislation or policy	Relevant authority	Description
Commonwealth		
Environment Protection and Biodiversity Conservation Act 1999	Department of the Environment and Energy (DoEE)	The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Commonwealth Government's key piece of legislation for environmental protection. One of the main aims of the EPBC Act is to protect Matters of National Environmental Significance (MNES). Under the EPBC Act, actions[1] that are likely[2] to have a significant impact upon MNES are required to be referred to the Environment Minister for approval.

[1] Under the EPBC Act an 'action' includes any project, development, undertaking, activity or series of activities.
[2] Under the EPBC Act 'likely' refers to when the potential for a significant impact on the environment to be real or not a remote chance or possibility.

Legislation or policy	Relevant authority	Description
Aboriginal and Torres Strait Island Heritage Protection Act 1984	DoEE	The *Aboriginal and Torres Strait Island Heritage Protection Act 1984* aims to protect areas and objects of Aboriginal and Torres Strait Islander significance from activities likely to have a significant impact upon them.
State		
Planning and Environment Act 1987	Department of Environment, Land, Planning and Water (DELWP)	The *Planning and Environment Act 1987* (P&E Act) aims to facilitate development in line with a set of principles which include the fair, orderly, economic and sustainable use and development of land. Development is controlled through municipal planning schemes. State approval is required for amendments to Planning Schemes. This project is located in the Shire of Wellington, and is therefore subject to the Wellington Planning Scheme.
Environment Protection Act 1970	Environment Protection Agency (EPA) Victoria	The *Environment Protection Act 1970* (EP Act) aims to ensure sustainable management of the environment, prohibiting unauthorised pollution of land, air and water. The Act regulates industrial waste management, noise emissions, notifiable chemicals, and the transport of prescribed wastes. The EP Act establishes a system of licences and works approval for certain premises, making provisions for the development of State Environment Protection Policies (SEPPs). Applicable SEPPs include: • SEPP Air Quality Management 2001, • SEPP Ambient Air Quality 1999, • SEPP Control of Noise from Commerce, Industry and Trade No. N-1 (2001), • SEPP Groundwaters of Victoria 2002, • SEPP Prevention and Management of Contaminated Land in Victoria 2002, and • SEPP Waters of Victoria 2004. These are described in greater detail below.
Aboriginal Heritage Amendment Act 2016	Aboriginal Victoria	The *Aboriginal Heritage Amendment Act 2016* aims to protect and conserve objects and places of Aboriginal cultural heritage. Under this act any activity likely to adversely impact these areas require a cultural heritage permit to be obtained or a Cultural Heritage Management Plan (CHMP) to be developed and provided to Aboriginal Victoria for approval.
Aboriginal Heritage Regulations 2007	Aboriginal Victoria	The *Aboriginal Heritage Regulations 2007* state the circumstances in which a Cultural Heritage Management Plan (CHMP) is required to be prepared and the standards for its preparation.
Water Act 1989	DELWP	The *Water Act 1989* provides a framework for water management in Victoria, governing the issue and allocation of water entitlements.

Legislation or policy	Relevant authority	Description
		The Act aims to ensure water resources are conserved and managed for sustainable use.
Heritage Act 2017	DELWP	The *Heritage Act 2017* establishes a legislative framework for the protection, conservation and registration of places and objects of cultural heritage significance in Victoria. The Act establishes the Heritage Council of Victoria, the Heritage Register and the Heritage Inventory.
Road Management Act 2004	Department of Economic Development, Jobs, Transport and Resources	The *Road Management Act 2004* provides a framework for the coordinated management of public roads for safe and efficient State and local public road networks.
Flora and Fauna Guarantee Act 1988	DELWP	The *Flora and Fauna Guarantee Act 1988* (FFG Act) provides a legal framework for enabling and promoting the conservation of all Victoria's native flora and fauna, and to enable management of potentially threatening processes. A permit from DELWP is required to 'take'[3] listed flora and fauna species from public land, including the removal of native vegetation. A permit is not required under the FFG Act for private land unless listed species are present and the land is declared 'critical habitat' for the species.
Wildlife Act 1976	DELWP	The *Wildlife Act 1975* forms the basis for the protection and conservation of native wildlife within Victoria. With the exception of pest animals declared under the *Catchment and Land Protection Act 1976* or wildlife declared to be unprotected wildlife, the Wildlife Act makes it an offence to hunt, take or destroy protected or threatened wildlife without authorisation.
Catchment and Land Protection Act 1994	DELWP	The *Catchment and Land Protection Act 1994* (CaLP Act) is the principle legislation relating to the management of pest plants and animals in Victoria. Under the Act landowners have a responsibility to avoid causing or contributing to land degradation including taking all reasonable steps to conserve soil, protect water resources, eradicate regionally prohibited weeds, prevent the growth and spread of regionally controlled weeds and, where possible, eradicate established pest animals as declared under the CaLP Act.
Guidelines for the removal, destruction or lopping of native vegetation [4]	DELWP	Biodiversity assessment guidelines (formerly known as the *Permitted clearing of native vegetation: biodiversity assessment guidelines*) aim to guide how impacts on biodiversity should be considered when assessing an application for a permit to remove, lop or destroy native vegetation, including how offsets are calculated and established to compensate for the loss in biodiversity value from the removal of native vegetation. These guidelines are

[3] Under the FFG Act 'take' refers to means to kill, injure, disturb or collect flora.
[4] Formerly known as *Permitted clearing of native vegetation: biodiversity assessment guidelines*

Legislation or policy	Relevant authority	Description
		incorporated in the Victoria Planning Provisions and all planning schemes in Victoria. Some remnant vegetation was identified at the project site therefore the site will require offsetting under these new guidelines. The approval to remove vegetation is still to be obtained through the planning permit (offsets are proposed to be obtained on-site, i.e. through first-party offset).
State Environment Protection Policies (SEPPs)		
SEPP (Waters of Victoria) 2004	EPA Victoria	*SEPP (Waters of Victoria) 2004* provides measures for the protection of all surface waters in Victoria. The SEPP has the objective to maintain and improve surface water quality where possible and identifies potential risks to surface waters and provides a framework for their management.
SEPP (Groundwaters of Victoria) 2002	EPA Victoria	*SEPP (Groundwaters of Victoria) 2002* provides a framework for the protection of groundwater from activities potentially detrimental to groundwater quality and includes a classification of groundwater quality on the basis of background concentrations of salinity measured as total dissolved solids.
SEPP (Air Quality Management) 2001	EPA Victoria	*SEPP (Air Quality Management) 2001* aims to improve air quality and applies the appropriate air quality management strategies in Victoria, including measures to reduce greenhouse gas emissions.
SEPP (Ambient Air Quality) 1999	EPA Victoria	SEPP *(Ambient Air Quality) 1999* sets objectives for the protection of air quality in Victoria, including health-based objectives, visibility objectives and vegetation objects. The SEPP specifies how pollutants should be monitored and reported.

5.3 Other relevant guidelines

Guidelines which are applicable to the Nunduk Retreat development works but which are not legislative requirements include:

- Construction Techniques for Sediment Pollution Control (EPA 1991),
- Noise Control Guidelines (EPA 1992),
- Bunding Guidelines (EPA 1992),
- Environmental Guidelines for Major Construction Sites (EPA 1995),
- Urban Stormwater Best Practice Environmental Management Guidelines (CSIRO 1999),
- Industrial Waste Management Policy (Waste Acid Sulfate Soils) (EPA 1999),
- Managing Waste Acid Sulfate Soils: Industrial Waste Management Policy (Waste Acid Sulfate Soils) and Policy Impact Assessment (EPA 2000),
- Australian Property Industry Association (APIA) Code of Environmental Practice (1998), and
- Green Star Certification Guidelines (Green Building Council Australia, 2009-2016).

6.0 Risk assessment

6.1 Risk assessment process

A risk assessment procedure has been utilised to evaluate the significance of the various potential environmental impacts associated with the project. The four-step procedure is outlined below:

i. Identify actual and potential environmental impacts for the project.

ii. Describe a worst-case scenario for each actual and potential environmental impact.

iii. For each worst-case scenario assign a level for likelihood (Table 6) and a level for consequences (Table 7).

iv. Determine the worst-case scenario risk rating using Table 8.

Table 6 - Qualitative measures of likelihood

Level	Descriptor	Description
A	Almost Certain	The event is expected to occur in most circumstances.
B	Likely	The event will probably occur in most circumstances.
C	Moderate	The event should occur at some time.
D	Unlikely	The event could occur at some time.
E	Rare	The event may occur only in exceptional circumstances.

Table 7 - Qualitative measures of consequence or impact

Level	Descriptor	Description
1	Insignificant	No adverse human health effects, no environmental damage, low financial loss (<$500).
2	Minor	On-site release contained immediately, medium financial loss ($500-$5,000), disruption to employee, customer, neighbour, regulator or business partner.
3	Moderate	Minor adverse human health effects, minor environmental damage, on-site release contained with outside assistance, high financial loss ($5,000-$50,000), complaint from employee, customer, neighbour, regulator or business partner.
4	Major	Significant adverse human health effects, significant environmental damage, loss of revenue generation capability, off-site release with no detrimental effects, local negative publicity, major financial loss ($50,000-$500,000), notice served under environmental laws.
5	Catastrophic	Toxic release off-site causing severe adverse human health effects or severe environmental damage, widespread negative publicity, huge financial loss (>$500,000), prosecution under environmental laws.

Table 8 - Risk rating matrix

Likelihood	Consequence				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
A (almost certain)	LOW	MED	HIGH	HIGH	HIGH
B (likely)	LOW	LOW	MED	HIGH	HIGH
C (moderate)	LOW	LOW	MED	HIGH	HIGH
D (unlikely)	LOW	LOW	MED	MED	HIGH
E (rare)	LOW	LOW	LOW	MED	MED

HIGH - High risk issue requiring detailed research and planning at senior management level.

MED - Moderate risk issue requiring senior management attention and coordination.

LOW - Low risk issue requiring action through routine management processes.

6.2 Assessment of environmental aspects and impacts

Project activities have the potential to result in environmental impacts. The key interactions between project activities and aspects are detailed in Table 9 below.

Table 9 - Aspects and impacts register (Note: Risks rated as MED or HIGH are discussed further in Section 7)

Activity ID	Activity	Environmental Aspect	Potential Environmental Impact	Likelihood / Consequence	Risk Rating	Proposed Mitigation Measures
Construction	**Overall site activities / Central Retreat Zone**					
1	Removal of vegetation	Removal of vegetation of conservation value	Diminished biodiversity values	Unlikely / Minor	LOW	NIL
		Disposal of green waste to landfill	Landfill space utilisation	Moderate / Insignificant	LOW	NIL
		Harm to protected species	Diminished biodiversity values	Unlikely / Minor	LOW	See section 7.3
2	Establishment of site offices and amenities for staff	Damage to vegetation of conservation value	Diminished biodiversity values	Unlikely / Minor	LOW	NIL
		Works site unsightly	Visual impact	Unlikely / Minor	LOW	NIL
3	Transportation of construction materials to site	Excessive noise from construction traffic and unloading	Noise annoyance	Moderate / Moderate	MED	See section 7.1
		Excessive dust from construction traffic and unloading	Dust annoyance	Unlikely / Moderate	MED	See section 7.1
		Congestion and disruption due to construction traffic	Reduced local amenity	Likely / Moderate	MED	See section 7.2
		Reduced air quality due to combustion engine fumes	Reduced Air Quality	Unlikely / Moderate	MED	See section 7.1
		Harm to protected species	Diminished biodiversity values	Unlikely / Minor	LOW	See section 7.3
4	Laydown of construction materials	Damage to vegetation of conservation value	Diminished biodiversity values	Moderate / Moderate	MED	See section 7.3
		Excessive dust from materials stockpiles	Dust annoyance	Unlikely / Minor	LOW	NIL
		Works site unsightly	Visual impact	Moderate / Moderate	MED	See section 7.2
5	Rock-breaking	Excessive noise from rock-breaking	Noise annoyance	Likely / Moderate	MED	See section 7.1
6	Steel fixing and welding	Noise from steel works	Noise annoyance	Likely / Minor	LOW	NIL

Activity ID	Activity	Environmental Aspect	Potential Environmental Impact	Likelihood / Consequence	Risk Rating	Proposed Mitigation Measures
7	Concrete works	Noise from concreting works	Noise annoyance	Likely / Minor	LOW	NIL
		Release of concrete wash water on site	Impacts on protected beneficial uses of water	Moderate / Moderate	MED	See section 7.6
8	Concrete cutting	Release of slurry to waterway or drain	Impacts on protected beneficial uses of water	Unlikely / Minor	LOW	NIL
9	Other Building Construction Activities (i.e. timber works, electrical installations, sanitary installations, staff movements)	Excessive noise from construction activities	Noise annoyance	Moderate / Moderate	MED	See section 7.1
		Excessive dust from construction activities	Dust annoyance	Unlikely / Moderate	MED	See section 7.1
		Works site unsightly	Visual impact	Unlikely / Minor	LOW	NIL
		Congestion and disruption due to construction traffic	Reduced local amenity	Likely / Moderate	MED	See section 7.2
10	Storage of chemicals and fuels	Spill into waterway or drain	Impacts on protected beneficial uses of water	Moderate / Moderate	MED	See section 7.5
		Spill onto land	Soil contamination	Moderate / Minor	LOW	NIL
11	Refuelling of vehicles and plant	Spill into waterway or drain	Impacts on protected beneficial uses of water	Unlikely / Moderate	MED	See section 7.5
		Spill onto land	Soil contamination	Moderate / Minor	LOW	NIL
12	Collection and disposal of construction waste	Disposal of construction waste to landfill	Landfill space utilisation	Likely / Minor	LOW	NIL
13	Backfilling and compaction of fill areas	Excessive noise from construction vehicles and plant	Noise annoyance	Unlikely / Minor	LOW	NIL
		Trigger Acid Sulfate Soil oxidation processes	Impact on construction foundations and development features	Likely / Moderate	MED	See section 7.4

Activity ID	Activity	Environmental Aspect	Potential Environmental Impact	Likelihood / Consequence	Risk Rating	Proposed Mitigation Measures
14	Vehicle movements on site	Damage to vegetation of conservation value	Diminished biodiversity values	Unlikely / Minor	LOW	NIL
		Damage to heritage listed property	Diminished heritage values	Almost certain / Major	HIGH	See section 7.1
		Excessive noise from construction vehicles	Noise annoyance	Unlikely / Minor	LOW	NIL
		Excessive dust from construction traffic	Dust annoyance	Unlikely / Moderate	MED	See section 7.1
		Reduced air quality due to combustion engine fumes	Reduced air quality	Unlikely / Moderate	MED	See section 7.1
		Harm to protected species	Diminished biodiversity values	Unlikely / Minor	LOW	See section 7.3
15	Pile Driving	Release of acidic runoff to waterway or drain	Impacts on protected beneficial uses of water, aquatic ecology, flora and fauna	Moderate / Moderate	MED	See section 7.4
		Trigger Acid Sulphate Soil oxidisation processes	Impacts on construction foundations	Moderate / Moderate	MED	See section 7.4
		Release of sediment laden runoff	Impacts on protected beneficial uses of water, aquatic ecology, flora and fauna	Moderate / Moderate	MED	See section 7.3
		Excessive noise from construction vehicles and plant	Noise annoyance	Unlikely / Minor	LOW	NIL
		Incorrect disposal of contaminated waste spoil	Contamination of land	Unlikely / Moderate	MED	See section 7.6
16	Installation of fences	Damage to vegetation of conservation value	Diminished biodiversity values	Unlikely / Minor	LOW	NIL
		Restriction of terrestrial animal species movement	Impacts on terrestrial fauna	Likely / Minor	LOW	NIL
Construction	**Infrastructure Zone**					
17		Excessive noise from plant	Noise annoyance	Rare / Minor	LOW	NIL

Activity ID	Activity	Environmental Aspect	Potential Environmental Impact	Likelihood / Consequence	Risk Rating	Proposed Mitigation Measures
	Operation of water treatment plant	Release of wastewater to waterway or drain	Impacts on protected beneficial uses of water	Moderate / Moderate	MED	See section 7.7
		Release of wastewater to land	Soil contamination	Unlikely / Moderate	MED	See section 7.5
18	Collection and disposal of drill cuttings	Disposal of drill cuttings to landfill	Landfill waste utilisation	Moderate / Moderate	MED	See section 7.6
		Inappropriate disposal of contaminated drill cuttings	Soil contamination	Unlikely / Major	MED	See section 7.5
19	Directional Drilling (desalination plant development)	Excessive noise from directional drilling	Noise annoyance	Moderate / Moderate	MED	See section 7.1
		Release of acidic runoff to waterway or drain	Impacts on protected beneficial uses of water, aquatic ecology, flora and fauna	Moderate / Moderate	MED	See section 7.4
		Trigger Acid Sulphate Soil oxidisation processes	Impacts on construction foundations and development features	Moderate / Moderate	MED	See section 7.4
		Release of sediment laden runoff	Impacts on protected beneficial uses of water, aquatic ecology, flora and fauna	Moderate / Moderate	MED	See section 7.3
		Excessive water use for drilling	Resource depletion	Unlikely / Minor	LOW	NIL
		Creation of link between previously unconnected aquifer	Impacts on protected beneficial uses of groundwater	Unlikely / Moderate	MED	See section 7.4
		Waterbody breakthrough during drilling	Impacts on protected beneficial uses of water	Unlikely / Major	MED	See section 7.4
		Waterbody breakthrough during drilling	Impacts on aquatic ecology	Unlikely / Moderate	MED	See section 7.4
20	Management of crude oil, drilling fluids, saline groundwater and muds	Release of materials to waterway or drain	Impacts on protected beneficial uses of water	Moderate / Moderate	MED	See section 7.7
		Incorrect disposal of contaminated waste	Contamination of land	Unlikely / Major	MED	See section 7.5
21		Excessive noise from pipe works	Noise annoyance	Moderate / Moderate	MED	See section 7.1

Activity ID	Activity	Environmental Aspect	Potential Environmental Impact	Likelihood / Consequence	Risk Rating	Proposed Mitigation Measures
	Treatment of pipe work including hydrostatic testing, dewatering and drying	Release of testing fluids to waterway or drain	Impacts on protected beneficial uses of water (see section 5.2.1)	Unlikely / Moderate	MED	See section 7.7
22	Operation of slurry treatment plant	Excessive noise from plant	Noise annoyance	Rare / Minor	LOW	NIL
		Release of slurry to waterway or drain	Impacts on protected beneficial uses of water (see section 5.2.1)	Moderate / Moderate	MED	See section 7.7
		Release of slurry to land	Soil contamination	Unlikely / Minor	LOW	NIL
23	Operation of water treatment plant	Excessive noise from plant	Noise annoyance	Rare / Minor	LOW	NIL
		Release of wastewater to waterway or drain	Impacts on protected beneficial uses of water (see section 5.2.1)	Moderate / Moderate	MED	See section 7.7
		Release of wastewater to land	Soil contamination	Unlikely / Moderate	MED	See section 7.5
24	Collection and disposal of drill cuttings	Disposal of drill cuttings to landfill	Landfill waste utilisation	Moderate / Moderate	MED	See section 7.6
		Inappropriate disposal of contaminated drill cuttings	Soil contamination	Unlikely / Major	MED	See section 7.5
Operation	**Overall site activities / Central Retreat Zone**					
25	Collection and disposal of non-recyclable waste (including maintenance waste)	Disposal of non-recyclable waste to landfill	Landfill space utilisation	Likely / Minor	LOW	NIL
26	Small Scale vehicle based goods delivery	Congestion and disruption due to construction traffic	Reduced local amenity	Likely / Moderate	MED	See section 7.2
27	General property maintenance (work force, transportation, equipment, materials	Excessive noise from vehicles and maintenance operations	Noise annoyance	Unlikely / Minor	LOW	NIL
		Damage to vegetation of conservation value	Diminished biodiversity values	Unlikely / Minor	LOW	NIL

Activity ID	Activity	Environmental Aspect	Potential Environmental Impact	Likelihood / Consequence	Risk Rating	Proposed Mitigation Measures
	– assumed no oversize equipment or transportation required)	Reduced air quality due to combustion engine fumes	Reduced air quality	Unlikely / Moderate	MED	See section 7.1
		Congestion and disruption due to construction traffic	Reduced local amenity	Likely / Moderate	MED	See section 7.2
Operation	**Infrastructure Zone**					
28	Desalination plant operation	Salinity Changes at outfall location	Diminished biodiversity values	Unlikely / Minor	LOW	NIL
		Incorrect disposal of contaminated waste	Contamination of land	Unlikely / Major	MED	See section 7.5
		Disposal of non-recyclable waste to landfill	Landfill space utilisation	Likely / Minor	LOW	NIL
29	Waste treatment plant operation	Incorrect disposal of contaminated waste	Contamination of land	Unlikely / Major	MED	See section 7.5
		Disposal of non-recyclable waste to landfill	Landfill space utilisation	Likely / Minor	LOW	NIL

7.0 Measures to manage key risks

7.1 Noise and dust

7.1.1 Introduction

The Nunduk Retreat is within a rural area where agricultural land uses predominate. The nearest residence to the works site is more than three kilometres away. However, construction traffic and construction activities may cause dust and air quality impacts to neighbouring properties under particular weather conditions.

7.1.2 Potential impacts

The key potential noise impacts are associated with vehicles bring materials and equipment to site and with the use of vehicles, equipment and machinery during the construction of the retreat. The potential impacts from noise include:

- Noise and dust annoyance to local residents,
- Noise and dust annoyance to recreational users of Lake Wellington,
- Reduced air quality, and
- Disruption of fauna breeding and usage habits.

7.1.3 Management measures

The management measures listed in Table 10 will be applied to reduce the noise and dust impacts from the construction and operation of the Nunduk Retreat.

Table 10 Management measures to reduce noise and dust impacts

Management measure	Responsibility
Construction phase and operation phase	
Construction hours Construction activities and deliveries to site will occur during between 7.00 and 18.00 on weekdays and between 07.00 and 13.00 on weekends in accordance with EPA Guidelines.	Construction Manager
Advice to residents Currently the closest residence is located further then three kilometres away from the work site or potential access roads between site and Longford-Loch Sport Rd. As such written advice to residents is not required at present. Should, in the future, any residencies be established within 500m of the footprint of the works site or potential access roads, written advice will be provided to these residents.	Nunduk Project Manager
Noise Complaints All noise complaints will be recorded, investigated and remedial action will be taken as required. A noise management strategy will be developed as part of the CEMP.	Construction Environmental Manager
Dust suppression The access track and bare earth construction areas will be watered down (preferably with recycled water) when winds are high or if it is observed that dust generation is occurring. Stockpiles of material will be covered if it is likely that they will remain unused for more than two weeks.	Construction Manager

7.2 Visual, Amenity and Access

7.2.1 Introduction

Visual, amenity and access are key issues to be considered during construction projects. Visual, amenity and access impacts have been considered in the design of the Nunduk Retreat and will be addressed through management actions during the construction and operation phase of the project. The issues relate to impacts from construction traffic, visual impact of work areas, and the potential for air quality impacts arising from work activities.

7.2.2 Potential impacts

The key potential impacts from these issues include:

- Congestion and disruption due to construction traffic,
- Unsightly work areas,
- Odour from decommission and commissioning of services, and
- Reduced air quality.

7.2.3 Management measures

The management measures listed in Table 11 will be applied to reduce the amenity and access impact potential from the construction and operation of the Nunduk Retreat.

Table 11 Visual, amenity and access management measures

Management measure	Responsibility
Construction phase and operation phase	
Traffic Management Plan Impacts associated with construction traffic and access in the local vicinity and wider road network will be addressed through the preparation and implementation of a Traffic Management Plan, which will be incorporated into the CEMP. This will include details of proposed access routes to and from site, parking locations on site for staff and visitors and hours of operation for construction haulage.	Construction Manager Construction Environment Manager
Avoidance of disturbance In order to minimise visual, amenity and air quality impacts, the following mitigation measures will be implemented: • All construction vehicles, equipment and machinery will remain on formed, existing roads to and from site at all times, and • All construction activities, including material and equipment storage, vehicle parking and contractor parking, must remain within the footprint of the project area as shown in **Figure 2**.	Construction Manager Construction Environment Manager
Odour In order to minimise odour impacts associated with services commissioning and/or decommissioning, Work Method Statements (or equivalent procedures) are to be specified within the CEMP.	Construction Manager
Dust suppression To minimise air quality impacts, haulage roads, access tracks and bare earth construction areas are to be maintained at all times. This will include watering down (preferably with recycled water) when winds are high or if it is observed that dust generation is occurring. Stockpiles of material will be covered if it is likely that they will remain unused for more than two weeks or if storm and/or extreme weather	Construction Manager Construction Environment Manager

Management measure	Responsibility
Construction phase and operation phase	
conditions are forecast. If stockpiles are not to be used in the short term (greater than 28 days), consideration should be given to covering the stockpile with mulch or seeding it with sterile grass.	
Visual amenity To minimise visual amenity impacts, all materials and equipment are to be confined to the designated areas on site. This includes mobile plant and equipment, car parking, stockpiles and waste collection points.	Construction Manager
Stockpiles To minimise amenity and dust impacts, the following should apply to stockpiles: • Minimise the number of stockpiles, • Minimise the area of stockpiles, • Minimise the time stockpiles are exposed, • Locate stockpiles where they will be least susceptible to wind erosion, and • Stabilise stockpiles that will remain bare for more than 28 days by covering with mulch or fabric or seeding with sterile grass (where possible).	Construction Manager Construction Environment Manager
Inspections Carry out fortnightly inspections of physical environmental protection measures such as dust suppression measures, cleanliness of work areas and stockpiles. Inspections should be conducted daily. Inspections should also be conducted after storm or extreme weather events. Any damage observed during inspections will be repaired as soon as possible and at most within two days of issue identification to ensure amenity impacts are contained.	Construction Environment Manager

7.3 Flora, fauna and ecological communities

7.3.1 Introduction

An Ecological Impact Assessment (Ecology & Heritage Partners, 2018) has been undertaken for the project area. The key findings were as follows:

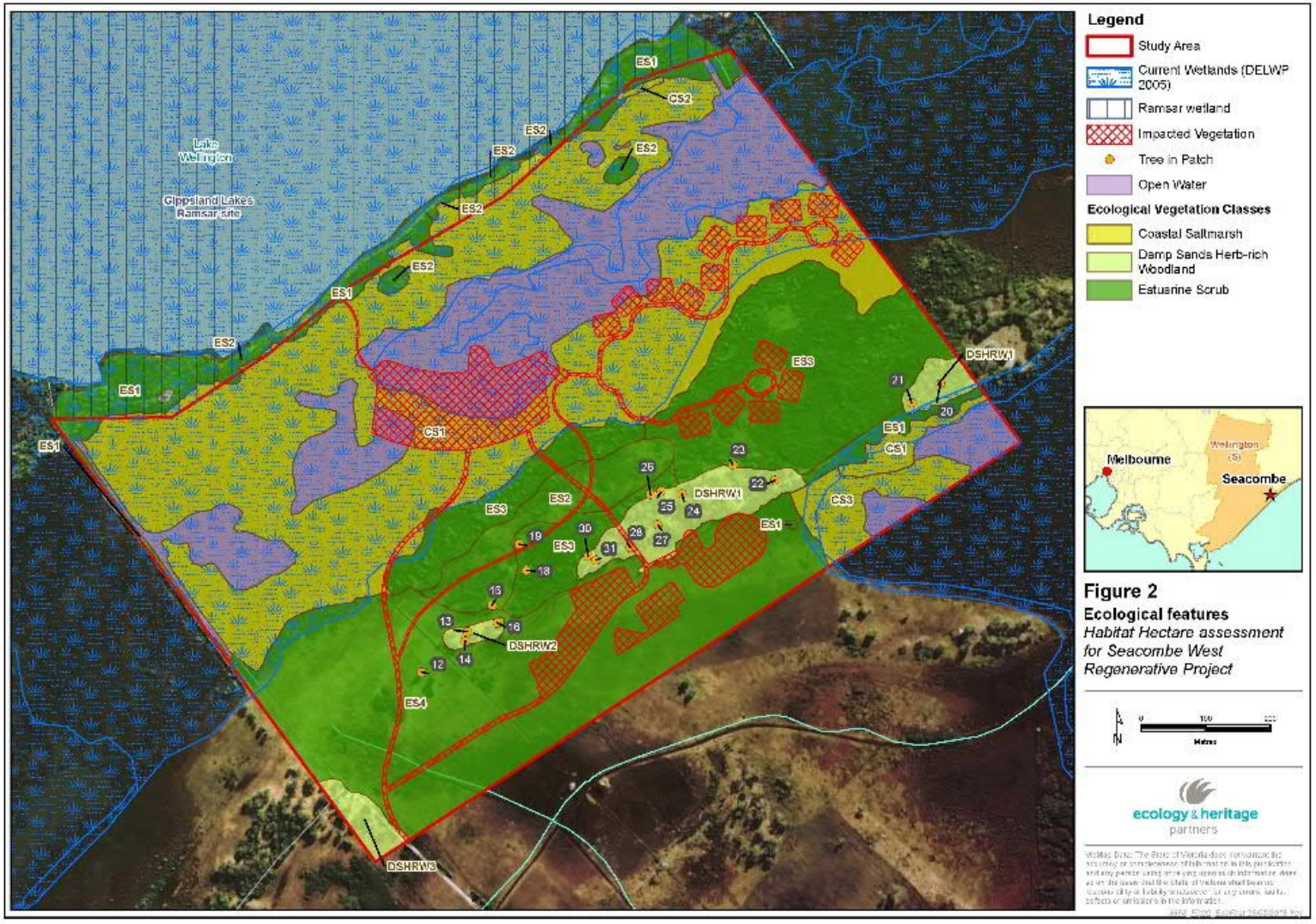
- Remnant patches of native vegetation cover the site,
- The native vegetation at the site is representative of three EVCs. One of the EVCs, Coastal Saltmarsh, is consistent with a vulnerable ecological community (Subtropical and Temperate Coastal Saltmarsh) listed under the EPBC Act (see Figure 4),
- No significant flora was recorded during the field assessments and there are no records of significant flora within the study area and few records within the last 10 years within 10km of the site,
- One EPBC listed bird species, the Common Tern *Sterna hirundo*, and one FFG listed bird species, the Eastern Great Egret *Ardea modesta*, were recorded during the avifauna species survey,
- There are no records of EPBC listed fauna species within the study area however there are multiple records of migratory birds (protected under the EPBC Act) along the shoreline of Lake Wellington approximately five kilometres east of the study area, predominantly in fringing wetlands of Lake Victoria and Lake Reeve, and
- No targeted surveys for significant mammals, fish, reptiles or amphibians were undertaken as it was considered unlikely that these species would be present at the site.

7.3.2 Potential Impacts

The key potential impacts to protected flora, fauna and ecological communities during the construction and operation phases of the project include:

- Native vegetation and habitat loss,
- An increase in weed and pest distribution,
- An introduction of pathogens and diseases,
- A decrease in water quality as a result of water pollution,
- Increased run-off leading to changes to water levels in Lake Wellington,
- Noise and air quality impacts causing disruption to breeding and usage patterns,
- Visual disturbance from vehicles, machinery or humans in close proximity to birds,
- Isolation of species and barriers to movement through landscape,
- Contamination, and
- Direct impacts from interactions with vehicles and machinery.

Figure 4 Location of Coastal Saltmarsh at Nunduk Retreat



7.3.3 Management measures

The management measures listed in Table 12 will be applied to reduce the potential impacts to flora, fauna and ecological communities during the project.

Table 12 Management measures to reduce impacts to flora, fauna and ecological communities

Management measure	Responsibility
Construction phase and operation phase	
Remnant Coastal Saltmarsh areas to be protected The design of the Nunduk Retreat has taken into account the location of Coastal Saltmarsh areas (see Figure 4), due to their protected status. Impacts to these areas have been avoided through micro-siting of facilities. These areas will be protected during the construction phase through the implementation of the following mitigation measures: • Temporary perimeter fencing must be erected at perimeter of the approved clearing footprint, and • 'No-go' zone signs must be erected at each extent of the protected area and at 50m intervals for the duration of the construction works in order to prevent additional pedestrian disturbances to the shoreline.	Construction Manager Construction Environment Manager
Reduce extent of vegetation removal The design of the Nunduk Retreat has, through an iterative process, reduced the required native vegetation removal extent to less than 10 hectares, The Nunduk Retreat and facilities have been micro-sited to avoid impacting areas of better quality native vegetation by utilising areas of existing bare ground. Isolation of species and barriers to movement through landscape has also been avoided through micro-siting.	Nunduk Project Manager Nunduk Retreat Architect
Induction A site environment and heritage induction will be undertaken by all site workers/contractors prior to commencing construction works. The induction will include the management measures in this EMP as well as in the CEMP. The induction is to include information on the importance of the area for migratory shorebirds and the measures to be adopted to protect them.	Construction Manager
Spotter during clearance works In order to prevent the death of animals during clearing of vegetation, a spotter (experienced ecologist) will be in attendance during clearing works to check if wombat burrows are active and to catch and relocate any fauna species disturbed during clearance works.	Construction Environment Manager
Recycled water management plan and Land Capability Analysis Indirect impacts associated with pollution from treated waste-water and irrigation of adjoining farming land will be addressed through the preparation of a Recycled Water Management Plan. The Plan will be prepared in accordance with EPA Guidelines and will be approved by the EPA prior to construction commencement. A Land Capability Analysis will be completed for use of treated waste water for irrigation on the identified farm in accordance with EPA Guidelines. Use of the treated waste water for this purpose will only proceed if approved by the EPA and if recommendations from the Land Capability Analysis are implemented.	Nunduk Project Manager

Management measure	Responsibility
Acid Sulphate Soil Management Plan It is understood from consultation with Seacombe West Pty Ltd that activities with the potential to disturb Acid Sulphate Soils have been excluded from the project and replaced with alternative methods that will not expose or dewater these soils. On this basis, it is understood that an Acid Sulphate Soil Management Plan is not required. If changes to construction methods or project scope occur that could result in exposure or dewatering of Acid Sulphate Soils, then an Acid Sulphate Soil Management Plan will be prepared in accordance with Industrial Waste Management Policy (Waste Acid Sulfate Soils) and Policy Impact Assessment, (EPA 2000).	Seacombe West Pty Ltd Nunduk Project Director
Stormwater Management Plan A stormwater management plan will be developed as part of the CEMP and will include mitigation measures to: • reduce sediment loads in runoff to Lake Wellington, • removal of gross pollutants from stormwater prior to water leaving the site, and • removal of nutrients through bioremediation or biofiltration prior to stormwater leaving the site.	Construction Manager
Noise and air quality management Noise and air quality management measures will be implemented. See Section 7.1 for further detail.	Construction Manager Construction Environment Manager
Weed and pest animal control Regular control of noxious weeds will be undertaken to manage the extent and density of weeds and reduce the likelihood of establishment of new weed species. Regular pest animal control will be undertaken and measures will be put in place to reduce the availability of food sources so as to manage the population size of pest animal species in the area.	Construction Environment Manager
Vehicle hygiene Hygiene controls will be put in place during the construction and operation phase of the project to prevent the introduction or spread of *Phytophthora cinnamomi.* The condition of healthy woodland will be regularly monitored for any signs of Phytophthora.	Construction Environment Manager
Inspections Regular inspections of physical environmental protection measures such as sediment fencing, temporary fencing around no-go zones and fencing of approved clearing footprint etc. will be inspected regularly and at a minimum of monthly. Inspections will also be conducted after storm or extreme weather events. Any damage observed during inspections will be repaired as soon as possible and at most within two weeks of issue identification.	Construction Environment Manager
Avoidance of disturbance In order to avoid disturbance of ground and the unintentional damage of sensitive areas, or disturbance of protected species, the following mitigation measures will be implemented: • All construction vehicles, equipment and machinery will remain on formed, existing roads to and from site at all times,	Construction Manager Construction Environment Manager

Management measure	Responsibility
• All construction activities, including material and equipment storage, vehicle parking and contractor parking, must remain within the footprint of the project area as shown in Figure 2, and • During operation the retreat will display information on the importance of the area for fauna, including migratory shorebirds, and what guests can do to protect them.	Operations Manager

7.4 Acid Sulphate Soil, erosion and hydrogeology

7.4.1 Introduction

A preliminary geotechnical assessment has identified a number of soil related aspects that may cause environmental impacts. These issues have been considered in the design of the Nunduk Retreat and will be addressed through management actions during the construction and operation phase of the project. The issues relate to Potential Acid Sulphate Soils (PASS), shallow groundwater, and presence of soils with high erosion potential.

7.4.2 Potential impacts

The key potential impacts from these issues include:

- Erosion,
- Oxidation of PASS,
- Mobilisation of heavy metals due to PASS oxidation,
- Release of acidic runoff to Lake Wellington, and
- Deterioration of steel and concrete building materials from contact with oxidised acid sulphate soils.

7.4.3 Management measures

The management measures listed in Table 13 will be applied to reduce the acid sulphate soil, erosion and hydrogeology impacts from the construction and operation of the Nunduk Retreat.

Table 13 Acid sulphate soil and erosion management measures

Management measure	Responsibility
Construction phase and operation phase	
Elevated villas, buildings, walkways and infrastructure **In order** to reduce the likelihood of oxidation of PASS and the impacts from PASS, the Nunduk Retreat has been designed so that the main building, villas, walkways and supporting infrastructure are mostly elevated and supported by piles. Services will be suspended from walkways so as to avoid the need for trenching. Piles will be driven so as to further reduce the risk of PASS excavation or disturbance.	Nunduk Project Manager Nunduk Architect
Stormwater Retention In order to reduce the amount of runoff from site and associated erosion and potential pollution impacts, stormwater will be captured in tanks and will be used for irrigation of green roofs or retained and treated through the use of swales.	Nunduk Project Manager Nunduk Architect
Acid Sulphate Soil Management Plan It is understood from consultation with Seacombe West Pty Ltd that efforts have been made to reduce the risk of disturbance of PASS and replaced with alternative designs and construction methods that will not expose or dewater these soils. The design has not yet been finalised as it will need to respond to any changes or conditions that are a result of the planning permit application process. On this basis, Seacombe West Pty Ltd have committed to the preparation of an Acid Sulphate Soil Management Plan (ASSMP) once the Nunduk Retreat design has been finalised. The ASSMP will be prepared in accordance with the Industrial Waste Management Policy (Waste Acid Sulfate Soils) (EPA 1999), and the “Managing Waste Acid Sulfate Soils: Industrial Waste Management	Nunduk Project Manager

Management measure	Responsibility
Construction phase and operation phase	
Policy (Waste Acid Sulfate Soils) and Policy Impact Assessment" (EPA 2000).	
Driven piles as structural support The design of the Nunduk Retreat has taken account of the PASS and will use driven piles as structural supports rather than excavated foundations.	Nunduk Civil Engineer
Drainage system design The Nunduk Retreat design includes an appropriate drainage system to prevent erosion from occurring due to surface run off from the green roof overlying the main Retreat centre. This may include the use of geosynthetic drains, geotextile fabric layers, granular filters or a combination of these techniques.	Nunduk Landscape Architect
Avoidance of disturbance In order to avoid disturbance of ground and the unintentional damage of sensitive areas, the following mitigation measures will be implemented: • All construction vehicles, equipment and machinery will remain on formed, existing roads to and from site at all times, and • All construction activities, including material and equipment storage, vehicle parking and contractor parking, must remain within the footprint of the project area as shown in **Figure 2**.	Construction Manager Construction Environment Manager
Impacts to ground water and hydrogeology The design of Nunduk Retreat and the supporting infrastructure (i.e. geothermal development) has included consideration and avoidance of impacts to ground water and the hydrogeology of the site. Water for geothermal spas, desalination and for use at Nunduk Retreat will be brought onto site via pipelines and will be reduce the potential for impacts to groundwater.	Nunduk Geothermal Engineer Construction Manager
Irrigation of farmland Irrigation of farmland will only proceed subject to a Land Capability Analysis to ensure no environmental impacts to soil, groundwater, and surface water. Soil moisture sensors will be used to prevent excess watering.	Construction Manager

7.5 Contamination Management

7.5.1 Introduction

Contamination management is a key issue to be considered during construction projects. Contamination issues have been considered in the design of the Nunduk Retreat and will be addressed through management actions during the construction and operation phase of the project. The issues relate to incorrect disposal of contaminated waste spoil, storage of chemicals and fuels and refuelling of vehicles and plant on site.

7.5.2 Potential impacts

The key potential impacts from these issues include:

- Incorrect disposal of contaminated waste spoil causing contaminated land,
- Incorrect disposal of contaminated waste causing contaminated land,
- A spill onto land from the storage of chemicals and fuels on site, and
- A spill onto land from refuelling of vehicles and plant.

7.5.3 Management Measures

The management measures listed in Table 14 will be applied to reduce the contamination potential from the construction and operation of the Nunduk Retreat.

Table 14 Contamination management measures

Management measure	Responsibility
Construction phase and operation phase	
Contaminated Land Management Plan Indirect impacts associated with disturbance of contaminated land will be addressed through the preparation and implementation of a Contaminated Land Management Plan which will be incorporated into the CEMP. This will include protocols for stockpiling of contaminated land, testing of contaminated land and collection and disposal procedures.	Construction Manager Construction Environment Manager
Avoidance of disturbance In order to avoid disturbance of contaminated land and the unintentional damage of sensitive areas, the following mitigation measures will be implemented: • All construction vehicles, equipment and machinery will remain on formed, existing roads to and from site at all times, and • All construction activities, including material and equipment storage, vehicle parking and contractor parking, must remain within the footprint of the project area as shown in **Figure 2** and away from any stockpiles.	Construction Manager Construction Environment Manager
Storage of chemicals and fuels The storage of chemicals and fuels on site will be managed through the implementation of a Chemicals and Fuel Storage Management Plan, which will be incorporated into the CEMP. This will include protocols for storage of chemicals and fuels including location, appropriate filing of Material Safety Data Sheets, location of spill kits and protocols to follow in the event of a chemical and/or fuel spill. All quantities of fuel, oil and chemicals greater than 200 litres shall be bunded in accordance with the EPA Bunding Guidelines.	Construction Manager Construction Environment Manager

Management measure	Responsibility
Construction phase and operation phase	
Refuelling of vehicles and plant Refuelling of vehicles and plant will be undertaken using a mobile tanker, located at a distance of 100 metres or more from Lake Wellington and any other watercourse. All large equipment and trucks will be refuelled offsite. No onsite refuelling facility will be located on site within the project area.	Construction Manager
Inspections Physical environmental protection measures such as sediment fencing, temporary fencing around no-go zones and contaminated land stockpiles will be inspected daily. Inspections will also be conducted after storm or extreme weather events. Any damage observed during inspections will be repaired as soon as possible and at most within two days of issue identification, to ensure contaminated land impacts are contained.	Construction Environment Manager

7.6 Waste Management

7.6.1 Introduction

During construction activities, waste is produced directly from construction activities and also from staff and visitors accessing the project site. Waste management has been considered in the design of the Nunduk Retreat and will be addressed through management actions during the construction and operation phase of the project. The waste management issues associated with the project relate to impacts from the disposal of construction waste to landfill, incorrect disposal of construction waste to landfill and appropriate sorting of waste on site.

A Waste Management Plan for the operational phase of the project is currently under development and will be finalised prior to planning permit application submission.

7.6.2 Potential impacts

The key potential impacts from these issues include:

- Disposal of construction waste to landfill,
- Incorrect disposal of construction waste to landfill (i.e. recyclable waste),
- Disposal and use of waste water,
- Greenhouse gas emissions, and
- Incorrect sorting of waste on site.

7.6.3 Management measures

The management measures listed in Table 15 will be applied to reduce the waste impacts from the construction and operation of the Nunduk Retreat.

Table 15 Waste management measures

Management measure	Responsibility
Construction phase and operation phase	
Waste Management Plan Impacts associated with construction waste and general waste produced by the labour force will be addressed and implemented through the preparation of a Waste Management Plan, which will be incorporated into the CEMP. This will include details of proposed waste sorting and the location of waste disposal bins, waste water management including usage and disposal, and construction waste sorting and disposal protocols.	Construction Manager Construction Environment Manager
Disposal of construction waste to landfill Testing procedures for waste spoil should be specified within the Waste Management Plan to provide assurance that waste is accurately classified and therefore disposed of appropriately. This should include a process for recycling and reuse of any material where possible including green waste, timber, concrete and metals in accordance with the waste minimisation principles and waste management hierarchy.	Construction Manager Construction Environment Manager
Wastewater Wastewater (including water from the geothermal facility) will be treated to Class C standards and stored above the 1 in 100 year flood level or in an area protected from flooding to the 1 in 100 year flood level. Treated waste water will not be used for irrigation on site. Irrigation of farming land approximately 1.5 kilometres south-east of the study area is proposed, subject to a full Land Capability Analysis and the approval of EPA Victoria and Council. Given the distance to Lake Wellington, the	Construction Manger Construction Environment Manager

Management measure	Responsibility
Construction phase and operation phase	
highly porous soils and depth to groundwater (approximately 100 metres), the potential for irrigating farming land with treated wastewater to impact Lake Wellington is low. For any excess waste water – in alignment and consideration with the waste management hierarchy - a plan for disposal of waste water should be specified in the Waste Management Plan.	
Greenhouse gas emissions An Environmental Sustainable Development report has been prepared for the Nunduk Retreat and includes measures to reduce the greenhouse gas emissions from the development. These measures will be implemented through the construction and operation phases to ensure greenhouse gas emission quantities are reduced.	Nunduk Project Manager
On site waste management Appropriate waste storage and disposal locations, including suitably covered waste bins to contain waste from site sheds (for general, green and recycling waste where possible) should be provided throughout the project area. The location of these waste bins will be outlined in the architectural plans for the project.	Construction Manager Construction Environment Manager
Inspections Carry out regular inspections of waste management measures such as waste bin locations and use, waste water storage and use, construction waste sorting and disposal techniques. Inspections should be conducted weekly. Any items observed during inspections will be repaired as soon as possible and at most within two weeks of issue identification, to ensure waste impacts are contained.	Construction Environment Manager
Waste audit A site specific contamination audit of each recycling stream is recommended annually. This audit is conducted internally and must be overseen by an independent and competent person. For two consecutive collections, the contents of the waste sample are to be audited to determine the level of “non-acceptable” items. The sample will consist of all bins normally presented for collection and non-acceptable items must be as advised by the receiving facility. The details of the waste audit have been included in the Waste Management Plan.	Construction Manager Construction Environment Manager

7.7 Water quality and soil erosion

7.7.1 Introduction

Water quality and soil erosion are common issues which need to be considered during construction of major projects. These aspects have been considered during the design of the Nunduk Retreat and will continue to be monitored on a day-to-day basis during construction activities and operation. The issues relating to water quality impacts from construction activities include the release of runoff or sediment laden runoff into waterways/drains, chemical and/or fuel spills, storm water use and disposal, and erosion from construction activities and stockpiles.

7.7.2 Potential impacts

The potential impacts associated with the proposed works include:

- Spills of fuels, oils or chemicals,
- Discharge of sediment laden runoff associated with trenching, excavation or stockpile storage areas,
- Discharge of water from the desalination plant to Lake Wellington,
- Release of slurry or waste water,
- Lake bed breakthrough during directional drilling,
- Soil erosion from construction activities; and
- Soil erosion from stockpiles.

7.7.3 Management measures

The management measures listed in Table 16 will be applied to reduce the waste impacts from the construction and operation of the Nunduk Retreat.

Table 16 Water quality and soil erosion management measures

Management measure	Responsibility
Construction phase and operation phase	
Water Quality and Soil Erosion Management Plan Impacts associated with water quality and soil erosion will be addressed through the preparation and implementation of a Water Quality and Soil Erosion Management Plan, which will be incorporated into the CEMP. This will include details of proposed water quality management protocols, water quality monitoring techniques and frequency of monitoring and soil erosion management protocols.	Nunduk Project Manager Construction Environment Manager
Water quality Potential impacts on water quality due to polluted surface water run-off, fuels, chemicals, pollution from treated waste-water, and irrigation of adjoining farming land will be addressed through a number of mitigation measures, including engineering solutions (e.g. plastic lining of water storage areas, infiltration swales for stormwater) and management plans (e.g. Recycled Water Management Plan and Stormwater Management Plan), The management plans will be prepared in accordance with EPA Guidelines and approved by the EPA and Council prior to the commencement of construction.	Nunduk Project Manager Construction Environment Manager
Chemical storage The storage of chemicals and fuels on site will be managed through the preparation and implementation of a Chemicals and Fuel Storage Management Plan, which will be incorporated into the CEMP. This will	Construction Manager

Management measure	Responsibility
Construction phase and operation phase	
include protocols for storage of chemicals and fuels including location, appropriate filing of Material Safety Data Sheets, location of spill kits and protocols to follow in the event of a spill. All quantities of fuel, oil and chemicals greater than 200 litres shall be bunded in accordance with the EPA Bunding Guidelines.	Construction Environment Manager
Refuelling of vehicles and plant Refuelling of vehicles and plant will be undertaken using a mobile tanker, located at a distance of 100 metres or more from Lake Wellington and/or any other watercourse. All large equipment and trucks will be refuelled offsite. No onsite refuelling facility will be located on site within the project area.	Construction Manager
Sediment and erosion controls Sediment and erosion control measures shall be installed in accordance with the EPA Construction Techniques for Sediment Pollution Control and the EPA Guidelines for Major Construction Sites (and as outlined in the Water Quality and Soil Erosion Management Plan).	Construction Manager Construction Environment Manager
Containment and handling of slurry and waste water Appropriate containment and techniques for the handling of slurry and wastewater arising from construction activities, such as directional drilling, should be specified in the Water Quality and Soil Erosion Management Plan (or equivalent procedures).	Construction Manager
Inspections Regular inspections of physical environmental protection measures such as sediment fencing, temporary fencing around no-go zones and stockpiles will be inspected daily. Inspections will also be conducted after storm or extreme weather events. Any damage issues observed during inspections will be repaired as soon as possible and at most within two days of issue identification to ensure water quality impacts are contained.	Construction Environment Manager
Desalination Plant waste water Water from an offsite bore will be extracted for use at the Desalination Plant however waste water will be treated and reused for irrigation purposes on an adjacent farm and will not be returned to the lake.	Nunduk Project Manager

7.8 Cultural heritage

7.8.1 Introduction

A Cultural Heritage Management Plan (CHMP) has been created for the project site (Retreat and Spa, Seacombe West, Victoria Cultural Heritage Management Plan 15323 - Sponsor: Seacombe West Pty Ltd) (Biosis, 2017).

As part of the development of the plan, the following has been undertaken:

- A desktop assessment of archaeological studies, previously recorded Aboriginal places and the environment in the vicinity of the site,
- Development of a prediction model for the Activity Area,
- An assessment of the Activity Area ground surface to determine areas of previous disturbance and to identify areas of archaeological potential,
- A complex Assessment to test the prediction model and areas of archaeological potential within the Activity Area, and
- Consultation with Aboriginal representatives for the area.

Two previously recorded places in the Victorian Aboriginal Heritage Register (VAHR) have been identified for the area:

- LWS 2 (VAHR 8321-0270) noting that the site investigation determined that the place has been determined to be destroyed by the natural erosive processes of Lake Wellington, and
- LWS 14 (VAHR 8321-0279).

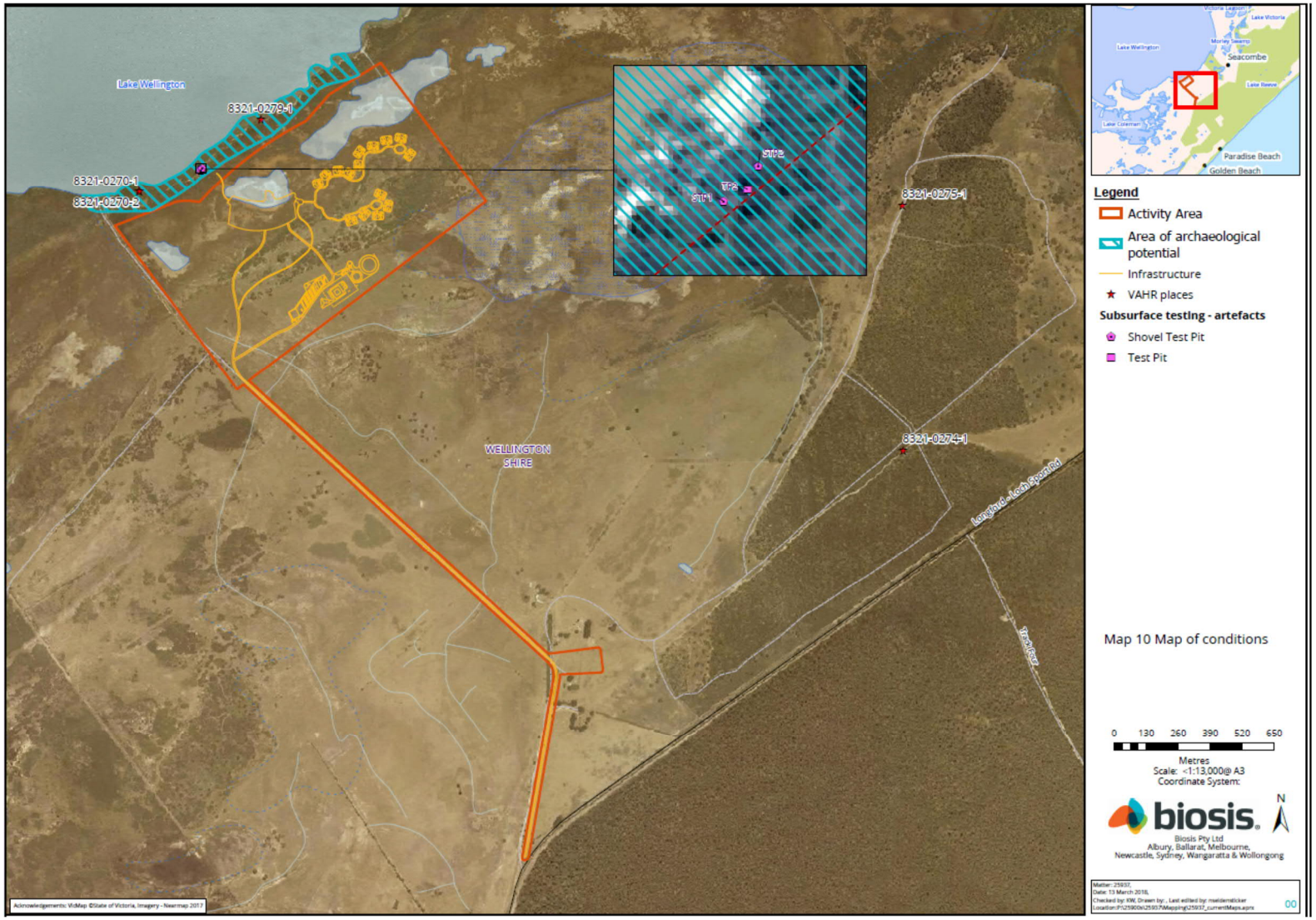
One new Aboriginal place was recorded during the CHMP Place ‘Lake Wellington Foreshore South LDAD’ (VAHR 8321-0471). The location of these sites is shown in Figure 5.

7.8.2 Potential impacts

The key potential impacts to cultural heritage during the construction and operation phases of the project include:

- Disturbance or destruction of known cultural heritage sites or material, and
- Disturbance or destruction of unidentified cultural heritage sites or material.

Figure 5 Cultural heritage sites at Nunduk Retreat



7.8.3 Management measures

The management measures listed in Table 17 will be applied to reduce the potential impacts to flora, fauna and ecological communities during the project.

Table 17 Management measures to reduce impacts to cultural heritage

Management measure	Responsibility
Construction phase and operation phase	
CHMP approval Prior to commencement of any construction activities the draft CHMP must be approved. Part of the approval process is an agreement of locations of specific management requirements (see Figure 5 for location of cultural heritage sites where no-go zones will be required).	Nunduk Project Manager
CHMP compliance Seacombe West Pty Ltd must comply with all management conditions as outlined in the Draft Retreat and Spa, Seacombe West, Victoria Cultural Heritage Management Plan 1532.	Seacombe West Pty Ltd Nunduk Project Director
Induction A site environment and heritage induction will be undertaken by all site workers/contractors prior to commencing construction works. The induction will include the management measures in this EMP as well as in the CEMP. A cultural heritage induction must be conducted with all site workers/contractors by representatives of the Gunaikurnai Land and Waters Aboriginal Corporation immediately prior to the commencement of ground disturbance activities.	Construction Manager
VAHR Place surface collection The VAHR places at the site will be subject to salvage by surface resurveying and collection prior to the commencement of construction works. The re-survey must be conducted by a member of the Registered Aboriginal Party (RAP) for the area and a heritage advisor is to collect all previously recorded material, and capture any newly identified material which may be present there, prior to the commencement of construction. The methodology is as follows: • The RAP must be provided with at least two weeks' notice of the requirement to participate in the salvage, • The surface collection may take place on the same day as the cultural heritage induction, prior to the commencement of construction, and • The collected material must first be recorded and appropriately analyzed by a registered heritage advisor, with updated place inspection forms submitted to the VAHR.	Nunduk Project Manager
CHMP copy to be available on site A copy of this approved CHMP must be kept on site during construction and be available for viewing by construction contractors.	Nunduk Project Manager
Culturally significant sensitive area to be protected The area of the Lake Wellington foreshore between the two inlet cuttings at the north of the Activity Area will be retained for its cultural heritage significance, environmental and aesthetic values. This area comprising the sand dune ridge and the shoreline and is considered to be a sensitive area (see Figure 5).	Construction Manager

Management measure	Responsibility
To protect this sensitive area, the following mitigations will be implemented: • Temporary perimeter bunting must be erected around the area extending over the sand dune rise from the shoreline on the north side, to the marshes on the south side and with a 5 metre buffer, • 'No-go' zone signs must be erected at each extent of the protected area and at 50m intervals for the duration of the construction works in order to prevent additional pedestrian disturbances to the shoreline.	
Relocation of cultural heritage material • All cultural heritage material collected during the fieldwork conducted for the CHMP assessment must be securely stored at the offices of the heritage advisor until it is reburied or relocated within the Activity Area, • Following adequate scientific analysis of the cultural heritage material, and at the completion of all ground disturbing works associated with the activity, the Aboriginal cultural heritage material must be reburied or relocated at a place that will not be disturbed in the future, as close as possible to the original place location, • The location for reburial will be chosen in consultation with the RAP, • The cultural heritage material must be appropriately labelled, if being reburied and exposed to the subsurface soil, with a label showing the relevant VAHR number to be placed with the material, • A potential area for reburial may occur within the existing sand dune ridge as shown in Figure 5 which will be retained by the Sponsor, and the reburial site will be located as close as possible to the original place location, • The reburial site should be protected from any future construction works in neighbouring properties, and • Further limitations to access the area by pedestrian traffic, which may cause harm to the place following the activity, must be discussed between the RAP and Nunduk Project Director.	Appointed Cultural Heritage Advisor
Use of cultural heritage material for exhibition and education at Nunduk Retreat In accordance with the specific management conditions for VAHR 8321-0279 and VAHR 8321-0471, the cultural material may be utilised by the Sponsor for the purposes of 3D modelling for exhibition and education at the Retreat. The method for the management of any cultural material handled in this way is as follows: • Any collected material within the Activity Area must first be recorded and appropriately analyzed by a registered heritage advisor, with updated place inspection forms submitted to the VAHR, • The collected material may then be used for the 3D scanning procedure for exhibition at the Retreat, only following agreement with the RAP, • The collected material must then be placed at a protected location away from the major activity work and off of access tracks along the Lake Wellington foreshore,	Nunduk Project Manager

Management measure	Responsibility
• The storage area for the collected material is to be physically marked and marked on maps as a 'no-go' area during the construction phase, • The location details of the reburied or relocated material must be recorded and supplied to the Victorian Aboriginal Heritage Registrar along with all other relevant documentation. • An Object Collection Form for the site card of the relevant Aboriginal places must then be updated to show the reburial location for each Aboriginal place, and • A VAHR place inspection form must be completed for each place.	
Interpretative Signage Interpretative signage will be installed in the vicinity of the relocated collected cultural heritage material. The content of the signage is to be discussed and agreed upon by the RAP and Nunduk Retreat.	Nunduk Project Director
Communication • Seacombe West Pty Ltd, the Nunduk Project Manager, the Construction Manager and any relevant personnel involved with supervision of works for the activity must read the approved CHMP and be aware of the legal conditions and contingency plans concerning Aboriginal cultural heritage within the Activity Area. • Seacombe West Pty Ltd, the Nunduk Project Manager, the Construction Manager and any relevant personnel are responsible for implementing any conditions contained within the cultural heritage management plan. • Where possible, the Sponsor and the Registered Aboriginal Party shall ensure that all communication and correspondence is responded to within five working days. • Contact details for representatives of the Sponsor and the Registered Aboriginal Party are as follows: <u>Seacombe West Pty Ltd</u> Contact: James Troedel, Chairman Board Phone: +61 418 544 326 E-mail: James.troedel@seacombewest.com.au Contact: Harry Troedel, Board Director Phone: +61 421 990 009 E-mail: harry@seacombewest.com.au <u>Gunaikurnai Land and Waters Aboriginal Corporation</u> Contact: Vikki Eldridge, Senior Administrator Postal Address: 27 Scriveners Road (Forestec) Kalimna West VIC 3909 Phone: 03 5152 5100 Email: reception@GLWAC.com.au	Seacombe West Pty Ltd Nunduk Project Manager Construction Manager
Chance Finds Procedures will be developed and outlined in the CEMP for what to do if Aboriginal Heritage artefacts are encountered during the construction	Nunduk Project Manager Construction Manager

Management measure	Responsibility
phase. These procedures should be agreed with the RAP prior to finalisation and should comprise the following minimum requirements. • Upon a suspected chance find, all construction activity within 50m of the artefact is to cease immediately, • The Construction Environmental Representative, Heritage Advisor/archaeologist, Construction Manager and Nunduk Project Manager will be contacted, • The potential significance of the remains will be assessed by the Heritage advisor / archaeologist and mitigation options will be identified, • Depending on the significance of the find, the Nunduk Project Manager in consultation with the Heritage Advisor/archaeologist and RAP will determine the appropriate course of action in line with the CHMP and applicable regulatory requirements and guidelines. • All site staff, including Project Manager, Construction Manager, Construction Environmental Representative, Work Crew and subcontractors must comply with the chance find procedures and report any suspected chance finds immediately.	Construction Environmental Manager Heritage Advisor
Avoidance of disturbance In order to avoid disturbance of ground and the unintentional damage of sensitive areas, the following mitigation measures will be implemented: • All construction vehicles, equipment and machinery will remain on formed, existing roads to and from site at all times. • All construction activities, including material and equipment storage, vehicle parking and contractor parking, must remain within the footprint of the project area as shown in Figure 2.	Construction Manager
Inspections Regular inspections of physical environmental protection measures such as (i.e.: sediment fencing, temporary fencing around no-go zones etc.) will be inspected regularly and at a minimum of monthly. Inspections will also be conducted after storm or extreme weather events. Any damage observed during inspections will be repaired as soon as possible and at most within two weeks of issue identification.	Construction Environment Manager

8.0 Operation Training

8.1 Environmental awareness induction

All contractor staff undertaking works on the project shall complete an environmental awareness induction prior to works commencement. Delivery of the induction is the responsibility of the appointed construction contractor during the construction phase. During the operations phase, delivery of the induction is the responsibility of the Operations Manager.

The induction program shall include an overview of the following:

- Nunduk's commitment to responsible and best practice environmental management,
- individual roles and responsibilities with respect to environmental management,
- key environmental areas of sensitivity in the vicinity of the works site including 'no-go' zones,
- EMP, including general requirements and location of on-site hard copy (as outlined in Section 2.1); all managing staff as outlined in Section 4.3 shall ensure their respective EMP related contractor responsibilities are met,
- procedures for reporting environmental incidents and non-conformances,
- key contacts whilst on site, and
- where to obtain further information.

The Project Manager and Operations Manager shall keep records of environmental awareness induction attendance throughout both the construction and operation phases of the project.

8.2 Staff competence and expertise

The Project Manager shall ensure that all personnel involved in construction works are suitably competent and experienced to ensure that environmental issues associated with construction activities are effectively minimised and managed. In particular, personnel employed to work on the project shall have the capacity to manage environmental issues associated with:

- vegetation trimming and removal,
- vegetation 'no-go' zones,
- operation and refuelling of vehicles and plant,
- management of site drainage including erosion control,
- waste collection, separation and disposal,
- designated areas for construction contractor and visitor parking,
- plant disease and weed management, and
- stockpile management.

Appropriate training shall be provided by the Project Manager (or delegate) as required, to ensure that all personnel working as part of the team meet the necessary competency standards.

9.0 Internal and external communications

9.1 Internal project communications

Internal project communications shall take place in the following ways:

- daily tool box meetings,
- via weekly and/or monthly project meetings; and
- via e-mail correspondence.

Daily tool box meetings shall be used as an informal discussion forum that focusses on the daily work tasks and safety. These meetings can also be used to promote safety culture and to facilitate daily health and safety discussion on site. Any issues specific to the labour force should be discussed at these sessions.

Weekly and/or monthly project meetings shall be used as a more formal forum that focus on project milestones and monthly safety and incident reporting. These should extend to a wider audience to include all staff working on the project.

All other internal project communication shall occur via e-mail correspondence to the project team. This may include items such as incident notification, complaint notification, a safety alert, or general project correspondence.

9.2 External communications process

The appointed construction contractor shall provide written details of the proposed works to all stakeholders including residents and public entities within 5 kilometres of the works site. Notification shall be given at least two weeks prior to commencement of the works and shall include:

- a summary of the construction activities,
- the proposed hours of operation,
- expected duration of works program,
- any relevant safety information, and
- contact details for relevant project officers to obtain more information.

Changes to road conditions and access as a consequence of the works shall be communicated to stakeholders in accordance with the Traffic Management Plan for the construction works.

Nunduk shall also provide updates on the Nunduk Retreat & Spa on the Nunduk website.

9.3 Complaint handling

The Project Manager shall take a lead role in capturing and responding to environmental complaints associated with the construction works. A Complaints Register shall be established and maintained for the project.

Environmental complaints received in relation to construction works shall be reported to the Nunduk Project Manager as soon as practicable. The reporting of complaints to Nunduk shall include details such as a description of the complaint, an evaluation of the level of impact and the corrective action taken or proposed.

The Project Manager shall coordinate a response (with the Nunduk Project Manager if necessary) to address the complaint. Planned follow-up actions to address the source of the complaint shall be monitored and once all planned follow up actions have been completed, the incident shall be closed. These steps should all be recorded in the Complaints Register.

10.0 Incident and emergency response

10.1 Incident management

Environmental incidents may be identified through workplace observations, environmental monitoring, environmental audits, review of environmental monitoring data and/or stakeholder complaints. Safety of staff and the public shall be the first priority when responding to environmental incidents. The identified hazards shall be contained immediately where safe to do so.

Environmental incidents associated with works shall in the first instance be managed in accordance with the incident management procedures established for the works by the construction contractor. However, significant incidents including those that have resulted in serious injury, significant property damage, offsite environmental release or involvement of the EPA shall be reported to the Nunduk Project Manager as soon as practicable. All other incidents shall be reported to the Nunduk Project Manager within 24 hours. An Environment Incident Register shall be established and maintained for the project.

The Nunduk Project Manager shall take a lead role in capturing and responding to significant incidents. The Nunduk Project Manager shall escalate incident notification and coordinate response in accordance with Nunduk procedures. Incident reports shall include a description of the incident, an evaluation of the level of impact and corrective action taken or proposed.

Environmental incidents shall be investigated in accordance with Nunduk procedures to ensure that appropriate follow up actions are taken where required, in order to prevent recurrence of the non-conformance. Follow up actions may include:

- changes to procedures,
- training,
- adoption of new controls, and,
- modifications to facilities.

The status of follow-up actions shall be monitored and once all planned follow up actions have been completed the incident shall be closed. The Nunduk Project Manager will review the Environment Incident Register on a monthly basis to ensure actions are completed and that controls are effective.

10.2 Emergency response

Emergency response is required when an unplanned incident occurs which has the potential to have a detrimental impact on the environment. These incidents can include chemical spills, disturbance of acid sulphate soils, damage to heritage values, and injury to fauna. Any minor incidents which can be contained on the site and removed within 24 hours do not require an emergency response.

A site specific Emergency Response Plan shall be developed by the appointed construction contractor and approved by the Nunduk Project Manager prior to construction. The Emergency Response Plan will be included in the CEMP and should include the following:

- site layout and fire protection drawing,
- dangerous goods locations,
- emergency contact list (including after-hours emergency contacts),
- evacuation system, and
- Safety Data Sheets (SDSs).

Any incidents requiring emergency response should be immediately reported to the Nunduk Project Manager. Following an emergency procedure the Nunduk Project Manager will review the success of existing emergency procedures and amend or provide additional training if necessary.

The standard emergency response procedure is as follows:

- clear the immediate area of any personnel,
- notify pedestrians and traffic if the incident has the potential to adversely impact traffic and access,
- prevent spread of the hazard,
- notify relevant authorities, and
- complete an Incident Notification Form.

All personnel will be inducted into the use of emergency procedures and provided emergency contact numbers via the general and site specific inductions. All incidents and details of corrective actions will be recorded as per the procedure explained in Section 10.1.

11.0 Monitoring, auditing and reporting

11.1 Monitoring

The Project Manger shall conduct daily monitoring of the works site to verify that the required management controls are in place and functioning effectively. The Project Manager (in consultation with the Construction Environmental Representative) shall prepare a checklist as a basis to check and evaluate the following items and any others relevant to environmental management at the works site:

- sediment and erosion control measures,
- evidence of erosion or scouring,
- dust,
- noise,
- odour,
- litter,
- condition of haul roads and access tracks,
- containment and separation of wastes,
- fencing of ecologically sensitive 'no-go' zones,
- integrity of perimeter fencing of approved clearing footprint to ensure vegetation removal has not exceeded approved clearing footprint,
- chemical and fuel storage arrangements,
- obstructions to property access points,
- material stockpiles,
- plant disease and weed management,
- site facilities such as parking, site sheds/compounds and toilet facilities,
- oil or fuel leaks from vehicles or plant, and
- location of spill kits.

Any issues or concerns highlighted in the daily checks should be addressed through appropriate management measures and if necessary, flagged with the Construction Environment Manager. Actions proposed and actions taken shall be documented. As appropriate, the checklist should be viewed as a live document and be updated to reflect any changes in the conditions on site that require ongoing monitoring.

All documentation will be filed in accordance with the established document control procedure. If required, the findings of audits will be reported to external stakeholders such as the Shire of Wellington (Council).

11.2 Auditing

Contractor conformance with the EMP and CEMP shall be verified through periodic environmental audits coordinated by the Nunduk Project Manager. Audits shall be conducted by suitably qualified and experienced environmental auditors.

An initial audit shall be conducted within two weeks of construction works commencement and quarterly (or more frequently if issues are identified) thereafter for the duration of the project. Audits shall be scheduled to coincide with phases of works with greatest environmental risk. Key phases to be audited include:

- site establishment,

- installation of utilities,
- pile driving,
- building construction including the desalination plant, and
- fencing, landscaping and revegetation works.

An environmental audit checklist shall be used to audit work practices with reference to the requirements of the EMP and CEMP. Evidence for completion of the checklists will be gathered by:

- interviews with staff,
- review of documentation, and
- observation of practices on site.

An audit report shall be prepared and submitted to the Nunduk Project Manager. All non-conformances identified during the audit shall be documented as environmental incidents in accordance with section 10.1 of the EMP and be submitted with the audit report.

Corrective actions required to address the non-conformance shall be specified in the audit report. For each corrective action, the responsible person and target completion date shall be specified. These non-conformances should also be re-visited in the following periodic audit to ensure further conformance.

All documentation will be filed in accordance with the established document control procedure. If required, the findings of audits will be reported to external stakeholders such as Shire of Wellington (Council).