Site Management Plan

East Beach decommissioned landfill sites, Port Fairy

December 2024

VICTORIA State Government | Energy, Environment and Climate Action

Acknowledgements

We thank staff from both Moyne Shire Council and the Department of Energy, Environment and Climate Action for their input in developing the Plan.

Author

Site Management Plan prepared by Alluvium Consulting Australia Pty Ltd for the Department of Energy, Environment and Climate Action.

We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it.

We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

DEECA is committed to genuinely partnering with Victorian Traditional Owners and Victoria's Aboriginal community to progress their aspirations.

Document Control

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Document History

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The following people were involved, to different extents, in the process of developing and finalising this document:

- Contribute – had input into the creation of the document
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Signatures constitute an acceptance and agreement of the document's content.

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Contents

1 Introduction

This Site Management Plan (SMP) has been developed by the Department of Energy, Environment and Climate Action (DEECA) in collaboration with Moyne Shire Council (MSC) for the short-term (5-10 year) management of contamination along the coastline adjoining two decommissioned landfill sites at East Beach, Port Fairy. Under the *Environment Protection Act 2017* (EP Act), land managers are required to proactively manage known contamination as per the 'Duty to Manage' environmental duty.

This SMP will assist land managers in meeting these requirements and mitigating environmental and human health risks associated with exposure of the landfills due, primarily, to coastal processes. This SMP provides:

- An overview of landfill sites and current understanding of the nature and extent of the waste at the sites
- A summary of the range of coastal values and uses in the vicinity
- An understanding of coastal processes impacting the sites and implications for risk of waste exposure
- A risk management framework and pathway to guide management actions
- Short term management actions and implementation arrangements
- Ongoing monitoring, evaluation, reporting and review provisions

East Beach, looking west. Source: Port Fairy Coastal Group

1.1 Purpose

The purpose of the SMP is to guide short term (5-10 year) management of the coastline comprising of and adjoining two former landfill sites at Port Fairy. It is intended as a risk management tool, to inform short-term actions to manage, and as far as is practicable, reduce environmental and human health risks associated with potential landfill exposure. This short-term plan provides a framework for active management of coastal processes at the site, whilst long-term adaptation planning for East Beach is developed and implemented.

This SMP is not intended to address longer-term coastal hazards associated with sea level rise and climate change. Efficacy of management actions under the SMP is also likely to diminish as these climate change and sea level rise impacts are realised. While landfill exposure through coastal processes are the focus, the SMP may provide helpful information in managing exposure due to other processes (e.g. wind, human disturbance, fire).

The objectives of the SMP are to:

- Effectively mitigate environmental and human health risks associated with landfill exposure from coastal processes in the short-term (next 5-10 years), whilst adaptation actions are developed and implemented to manage the site in the long-term,
- Align management with relevant legislative requirements and policy frameworks,
- Recognise and be guided by regional and place-based values,
- Be informed by the latest coastal hazard and contamination assessment information, and
- Address the need for both:
  - ongoing mitigation, planning and preparedness, and
  - event clean-up response and recovery.

Ongoing monitoring, evaluation reporting and review of the plan will inform adequacy of management actions to manage risk to tolerable levels and requirements for implementation of long-term adaptation actions.

1.1.1 Reading the document

This document is set out in sections as below:

Section 1: Introduction
Site area background and legislative context of the landfill sites.

Section 2: Nature of the waste and current controls
Description of the waste, contamination and current risk control measures.

Section 3: Coastal values, processes and hazard drivers
Current uses and values of the sites and broader region, including human and ecological values.
Coastal processes understanding and hazard drivers.

Section 4: Risk management pathway
Risk management approach and understanding of exposure and consequences/impacts of waste exposure.

Section 5: Management actions
Risk-mitigation measures, actions and controls.

Section 6: Action implementation
Implementation details such as roles, responsibilities, safety, permits, communication and engagement.

Section 7: Monitoring, evaluation, reporting and review
Arrangements for monitoring, evaluation, reporting and review of management actions and the Site Management Plan.

References and appendices

1.2 Site area and background

1.2.1 Management Area

The site area consists of the coastline fronting two former landfill sites located on East Beach, on the outskirts of the Port Fairy township, within Moyne Shire. The management area to which the SMP applies includes the two former landfill sites and adjoining coastline (see Figure 1):

1. The Port Fairy 'night soil' site, managed by DEECA (situated along Griffiths Street, part of land parcel ID 36A/PP5649), and
2. The Moyne Shire Council landfill, managed by MSC (situated along Skenes Road, part of land parcels ID 36A/PP5649, Lot 1/TP949995, and Lot 1/TP949932).

The DEECA site sits within Crown land and is bounded by private land to the west, Griffiths Street to the north, the ocean to the south, and Crown land to the east. The MSC site is on private land owned by Council and is bounded by Crown land to the east and west, Skenes Road to the North, and the ocean to the south.

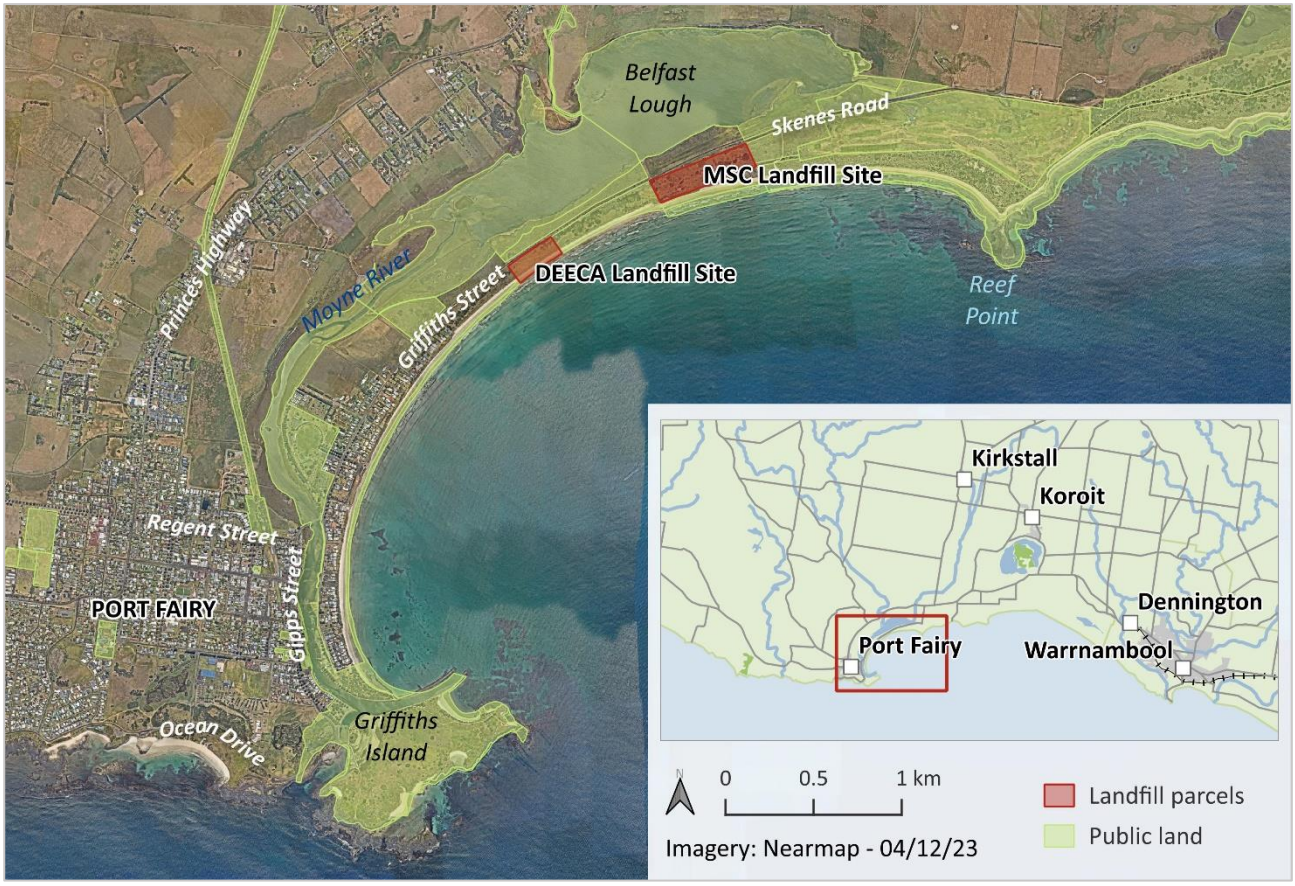


Figure 1. Location of the Port Fairy DEECA and Moyne Shire landfill parcels.

1.2.2 History of the site and need for management

Prior to the sewerage scheme completion for the Port Fairy township, the DEECA landfill site was used for the disposal of night soil originating from the township and its outlying rural households. The site was also used for the disposal of general household rubbish including asbestos sheeting. Following sewerage scheme completion in the early 1970's, the site serviced only a limited number of outlying rural households. It was eventually decommissioned in the early 1980's.

The MSC landfill site originally operated as a sand mine. From the mid-1970's it was utilised as a landfill site for municipal solid waste and general household (putrescible) waste, until being decommissioned in 1998.

In recent years, the landfill waste cells have been progressively exposed by coastal erosion impacting upon the East Beach dune system. These coastal erosion processes have led to instances of waste release onto East Beach, particularly following storm events. This waste exposure causes concern for local residents and visitors, with management intervention required to mitigate environmental and human health risks.

1.3 Legislative requirements

There are several key pieces of legislation and associated policy requirements that guide management of the landfill sites and adjoining foreshore. Figure 2 provides an overview of the legislative and policy context of the SMP. Management of the site must consider the relevant legislation, policy and guidance across:

- Marine and coastal management
- Environmental protection
- Planning
- Event-based planning (based on emergency management principles)
- Aboriginal heritage
- Threatened species

Appendix 1 provides further detail of this legislative context. This is not intended as an exhaustive list and additional requirements may apply.

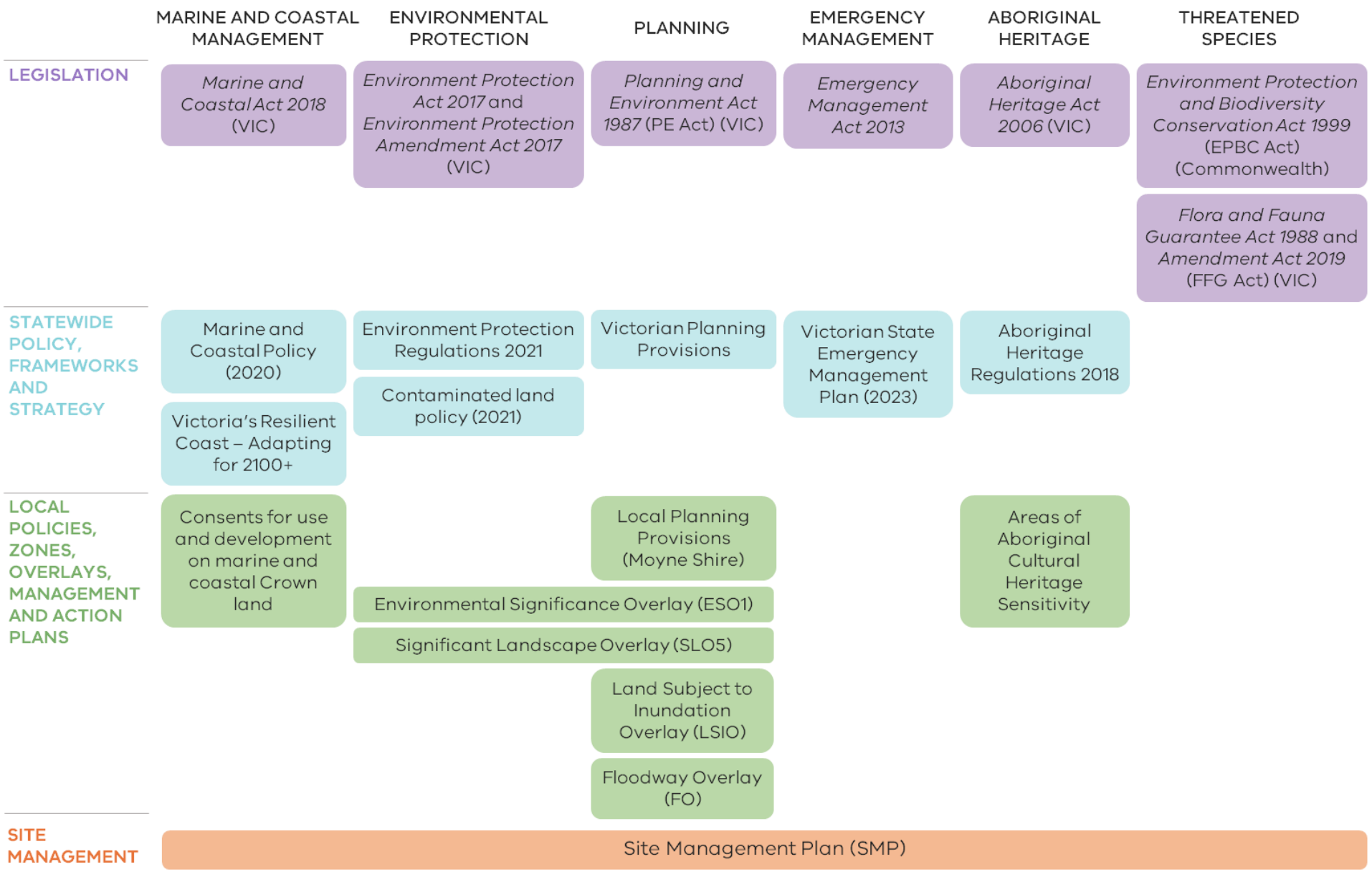


Figure 2. Legislative context for the Site Management Plan

1.3.1 Environmental duties

The *Environment Protection Act 2017* (the EP Act) outlines duties and obligations for managing contaminated land. Three key duties to address contaminated land risks sit within a broader risk management and response scheme under the EP Act:

- the general environmental duty,
- the duty to manage, and
- the duty to notify.

General environmental duty

Where no contamination is suspected, the general environmental duty (GED) covers risks from activities such as excavating and handling soil, whether for reuse or as waste. Through these activities, 'unexpected finds' may arise and a land manager must have a system for identifying and responding to such risks.

Duty to manage

As contamination has been confirmed at the landfill sites, in addition to their general environmental duty, land managers (DEECA and MSC) have a duty to manage the sites. Section 39 of the EP Act outlines the duty to manage contaminated land. The duty to manage requires land managers to take reasonably practicable measures to minimise risks of harm to human health and the environment from the contamination. The duty to manage contaminated land is limited to consideration of the current use of the land. The requirements for land managers to comply with the duty to manage include:

- identifying contamination you suspect is present
- investigating and assessing contamination, with professional help
- providing and maintaining measures to minimise risk. This may include:
  - interim controls while you assess the contamination
  - clean up to make the site suitable for its current use
  - review of controls to ensure they remain effective.
- providing information to others that the contamination may affect, where sharing that information will help control the risks.

This SMP provides for interim controls to manage risks associated with exposure of landfill material, associated with coastal hazards (largely erosion). This Plan assists DEECA and MSC in meeting these requirements.

Further investigations, risk mitigation measures and long-term planning for contamination at the sites is handled through separate DEECA and MSC processes.

Duty to notify

Land managers have a duty to notify the EPA when they become aware, or should be aware, of notifiable contamination. Notifiable contamination is limited to well-understood, routinely tested contaminants of concern.

The presence of contamination in notifiable circumstances does not in itself confirm an unacceptable risk of harm at that site. However, further assessment and management may be required to ensure the site is safe for its current use and is not adversely impacting on adjacent occupants or the environment.

The duty to manage, which applies to all contaminants of concern, whether notifiable or otherwise, is the primary means by which risks are addressed. Level of action required must be proportionate to the risks.

The extent and nature of contamination at the site has been assessed and classified by Tetra Tech Coffey (2022). Majority of the waste at the sites was classified as Category C waste, with Asbestos Containing Materials (ACM), fill material, with some areas of the Moyne Shire site classified as Category B waste. Asbestos exceeding human health investigation levels (as prescribed in National Environment Protection Measures (NEPM)) was reported within soils and on ground surface at both sites.

This report recommends risk control measures are documented in a Site Management Plan.

1.3.2 Coastal and marine management

The *Marine and Coastal Act 2018* (MAC Act) and Marine and Coastal Policy (DEECA, 2020) set out Victoria's approach to coastal and marine management. The MAC Act outlines several objectives and guiding principles for marine and coastal management. These include:

Adaptive management – decision-makers should learn from the outcomes of past management to inform changes to future practices.

Proportionate and risk-based management – management should be proportionate to the risk involved and risks should be assessed considering the likelihood and consequence of a threat affecting values.

Respect natural processes and ecosystem-based management - natural processes should be respected and worked with (not against) in planning for and managing current and future risks to people and assets from coastal hazards.

The Marine and Coastal Policy (DEECA, 2020) also sets out policies related to managing emergencies and natural hazard events that impact on the marine and coastal environment. Whilst coastal erosion and waste exposure is not classed as an 'emergency' under the State Emergency Management Plan, similar principles can be applied to site management.

These policies include that:

- Emergency management planning will take a *least-overall-harm* approach to detrimental marine and coastal environmental impacts resulting from emergencies and any response and recovery activities.
- Planning for emergencies and natural hazard events in the marine and coastal environment:
  - includes provisions for mitigating the risk of emergencies, as well as responses to and recovery from emergencies
  - specifies the roles and responsibilities of different agencies in relation to emergency management
  - assesses the long-term suitability of affected uses and assets in that location
  - seeks, where viable, to restore environmental values lost or damaged through the emergency event and emergency response activities.

Elements of this SMP reflect these principles and policies to provide for holistic coastal and marine management.

East Beach looking south west. Source: VCMP

1.3.3 Stakeholders

Effective management of these sites brings together a range of stakeholders including land managers, rightsholders and the community. Traditional Owners, State Government, Local Council, other land and asset managers, community groups, and the broader public all have a role to play in sustainable management of the sites. Table 1 describes key stakeholders and rightsholders related to the SMP and its implementation.

Table 1. Key SMP stakeholders and rightsholders

Stakeholders / rightsholders	Description	Role in site management
Eastern Maar Aboriginal Corporation (EMAC)	EMAC are the Registered Aboriginal Party representing Eastern Maar people, the Traditional Owners, as determined under the *Aboriginal Heritage Act 2006* (AH Act). Under the AH Act, EMAC must be consulted on any proposed land management activities and use of traditional knowledge. EMAC's RAP area extends from Aireys Inlet in the east to a shared RAP area with Gunditjmara People, west of Port Fairy. This area includes Port Fairy, the two landfill sites and stretches 100m out to sea from low tide.	Cultural Heritage Permits and approvals
Department of Energy, Environment and Climate Action (DEECA)	DEECA* is responsible for overseeing management of Crown land and marine areas for its environmental, conservation and recreational values. DEECA reformed coastal and marine management with the *Marine and Coastal Act 2018* and associated Policy (2020) and Strategy (2022). DEECA are the designated land manager of the 'night soil' site situated along Griffiths Street. * formerly known as the Department of Environment, Land, Water and Planning (DELWP) until January 2023	Develop, implement and review the SMP. Oversight and coordination of monitoring, risk assessment and management action implementation (including mitigation, clean up, recovery etc.) at the DEECA site. MACA consent approvals.
Moyne Shire Council (MSC)	Council is the freehold land owner for portions of coastal land across Port Fairy. Council are the designated land managers of the landfill site situated along Skenes Road. Council's role in coastal and marine management also includes (but is not limited to): • managing all Council-owned foreshore infrastructure and facilities • administering the Planning Scheme and reviewing planning applications • facilitating advocacy with other organisations and liaising with the community.	Develop, implement and review the SMP. Oversight and coordination of monitoring, risk assessment and management action implementation (including mitigation, clean up, recovery etc.) at the MSC site.
Environmental Protection Authority (EPA)	The EPA is Victoria's environmental regulator. It is an independent statutory authority with a role to prevent and reduce the harmful effects of pollution and waste on Victoria's environment and people. The EPA issued a Clean Up Notice in 2010 to DEECA with the requirement for a Site Management Plan to manage the ongoing contamination risk. The EPA can provide technical support in the prevention, mitigation and risk reduction of pollution and waste emergencies by applying and enforcing the *Environmental Protection Act 2017*.	Technical advice and input into SMP development, implementation and review. Regulatory role in promoting compliance and enforcing environmental protection legislation and policy.

Stakeholders / rightsholders	Description	Role in site management
Parks Victoria	Parks Victoria is the Victorian Government agency responsible for managing protected areas of land, marine parks and reserves under the *Parks Victoria Act 2018*. Parks Victoria manage National Parks, marine protected areas, and other Crown land reserves and assets. This includes the neighbouring Belfast Coastal Reserve.	Provide input and advice to guide any ecological assessments and management of Belfast Coastal Reserve.
Department of Climate Change, Energy, the Environment and Water (DCCEEW)	DCCEEW is the Australian Government department responsible for protecting threated species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). At the landfill sites, these species include Eastern Hooded Plover, Orange-bellied Parrot and Southern Right Whale.	EPBC Act permits, approvals and enforcement.
Birdlife Australia	BirdLife Australia is a not-for-profit organisation advocating for native birds and the conservation of their habitats across Australia. It is a member of Birdlife International. Areas adjoining the landfill sites are designated within the ~14 km^2 Port Fairy to Warrnambool Important Bird Area. The area supports Orange-bellied Parrot and Hooded Plover.	Monitoring of bird populations. Input to ecological studies and informing management approaches.
Community organisations, environmental groups	A range of community organisations and environmental groups have an interest in the landfill sites, surrounding foreshore, and ecological and recreational values of the region. These groups include: • Port Fairy Coastal Group • Port Fairy Surf Lifesaving Club • Belfast Coastal Reserve Action Group • Friends of the Hooded Plover Far West Victoria • Beach Patrol 3280-3282	The roles of these groups varies and includes on-ground environmental management works, advocacy, monitoring, public safety and communication.
Adjoining private landholder/s and the broader Port Fairy community	Nearby residents, landholders and the broader Port Fairy community have an interest in management of the site. This interest may be in minimising human and environmental health risks, or concern over impacts to cultural, ecological or recreational values and the broader economy of the town. The Port Fairy community, including residents and visitors also have a responsibility to adhere to directions from management agencies, including access and land management controls.	Adherence to access controls and land management measures. Monitoring and notification of waste exposure events.

Further information on the roles, responsibilities, permit requirements and shared management arrangements is available in Section 6.

1.3.4 Community stewardship

Community members are actively involved in management and monitoring activities at the site. A 4 km stretch of East Beach is monitored regularly for erosion by members of the volunteer community group, the Port Fairy Coastal Group (PFCG). The group has been conducting surveys of the beach every 6-8 weeks since 2013. As part of the Victorian Coastal Monitoring Program (VCMP), the Group has included drone surveys since March 2018.

The surveys along East Beach include the two former landfill sites. In addition, manual measurements of sand dune levels are taken on the ground against twelve fixed monitoring posts. A number of the monitoring posts directly abut the eroding dune face of the two waste cells.

East Beach monitoring post. Source: PFCG

Figure 3. VCMP drone survey, 2nd February 2024

2 Nature of the waste and current controls

2.1 Waste and hazards

Recent soil sampling and geotechnical investigations (TetraTech Coffey, 2022) have characterised the nature and extent of the waste across the two landfill sites. Table 2 provides estimates of the surface area and volume of waste.

Table 2. Estimates of extent and volume of waste (TetraTech Coffey, 2022)

Site	Estimated surface area	Estimated waste volume
DEECA Landfill	8,960 m^2	21,730 m^3
MSC Landfill	74,700 m^2	145,550 m^3

Waste at both sites includes a mix of soil and domestic waste - concrete, glass, brick, charcoal, timber fragments, metal fragments, rubber and bone. Asbestos bonded in cement sheeting is present at both landfills and on the ground surface and eroding face at the DEECA landfill. Elevated concentrations of lead and antimony have been reported in samples near the ground surface.

If waste soil were to be taken offsite for disposal, it would be classified as ‘Category C with asbestos' priority waste. This Category is one level up from what EPA considered to be ‘fill material’ or ‘clean fill’. Material surrounding and below the waste is classified as clean fill.

The landfill capping is very thin. The surface of the site is rough, and in some areas hard rubbish is exposed. The waste is covered with a thin (10-20 cm) layer of dark brown sand. In some locations only thick vegetation covers the waste. Neither landfill is lined along its base or sides, however site investigations do not suggested groundwater has been significantly contaminated by the landfills.

Figure 4. Looking north from the DEECA landfill site - November 2020.

Findings from recent investigations, can be summarised, as below:

Human health hazards

Soil testing results are compared against Health Investigation and Screening Levels (HILs and HSLs, derived by the National Environment Protection Council) relevant for the site land use (in this case recreation and public open space use, known as HIL-C). The human health risks identified at the site include:

- Sharp objects which lie on the surface directly below the vegetation layer and may cause injury including cuts or abrasions.
- Human exposure to lead, antimony and asbestos via direct contact with soil (ingestion / skin contact) or inhalation of dust
- Asbestos in the form of broken pieces of wall and roof sheeting - no fibrous asbestos has been found at the site to date, meaning an overall low risk to human health

Existing risk control measures for these human health hazards include limiting access to the site for the general public and safe work methods for construction / maintenance workers who access the site.

Ecological impacts

Soil testing results are compared against Ecological Investigation and Screening Levels (EILs and ESLs, derived by the National Environment Protection Council) for both Urban Residential and Public Open Space and Areas of Ecological significance (often more than one set of investigation values are compared to capture the diverse values of the sites) to determine if further investigation or management strategies are required. EILs consider physiochemical properties of soil and capacity of local ecosystems to accommodate increased contaminant levels above background concentrations. They vary based on the use of the land and apply to the top 2 metres of soil.

Concentrations of lead, arsenic, cadmium, chromium, copper, nickel, zinc and total recoverable hydrocarbons across the landfill sites exceed the determined EILs/ESLs. This exceedance is not necessarily a trigger for immediate clean-up remediation. However, exceedance of these levels signifies a need for further investigation (e.g. ecological risk assessment) and appropriate management strategies.

Groundwater and landfill gas

Landfill waste at the DEECA site is located several metres above the groundwater table, however it is closer (potentially within 1 m) to the watertable at the MSC site. Groundwater flow direction is both towards Belfast Lough and the ocean. Risk of impacts of contaminated groundwater on beneficial uses (e.g. water extraction for stock, domestic and recreational purposes) and recent monitoring has shown it’s currently low risk. Evidence of detrimental impacts to Belfast Lough or the ocean from elevated nutrients, such as algal blooms, fish kills or acidification of waters have not been reported to date.

Interactions between groundwater and the landfill sites is complex and somewhat unknown. Further groundwater modelling and investigation is needed to better understand groundwater hydrology and the contamination risks posed by the presence of unlined landfills, especially in deeper areas of each landfill pit. The influence of rising sea levels on the groundwater levels and quality must also be considered.

Landfill gas emissions are tested at the sites. Results indicate that no treatment is required for landfill gas.

2.2 Current risk control measures

Risk control measures are implemented at the site to mitigate human and environmental exposure to contamination. These risk control measures include:

Access management

Access at the sites is managed to mitigate human health risks. Access from the beach is difficult, with a steep eroding dune, providing a natural barrier (deterrent). Hazard signage is also maintained along the toe of the dune adjacent to the landfill sites. The site is relatively isolated and is not within easy walking distance of the main township area (approximately 2.5 km to the southwest).

The car park and beach access point at the DEECA site (previously accessed from Griffith Street) were closed in October 2011. Fencing and safety signage were installed and remain in place at this location, preventing access. The closest access point to the section of beach fronting the DEECA landfill site is now gained from the Connolly Street beach access point, situated approximately 700 m to the southwest.

Figure 5. Signage installed along landward fence

Road access to the MSC landfill site from Skenes Road is restricted to private access. The closest public access point to the section of beach fronting the MSC landfill site is gained from a car park situated 450 m to the northeast of the site, accessed from further along Skenes Road. It is noted that, despite access controls, illegal access does occur from the beach.

Monitoring and beach inspections

Figure 6. Asbestos fragments and glass waste

Several aspects of the landfill sites are monitored, including:

- Dune photo and elevation monitoring through drone surveys every 6-8 weeks
- Yearly groundwater and landfill gas monitoring
- Visual inspection and photo point monitoring

More regular inspections occur prior to and during holiday periods and after high swell or storm events.

Exposure to asbestos is controlled by scheduled beach inspections and clean-ups when required, with clean ups undertaken by accredited asbestos handlers.

Safe work methods

Safe work methods apply to guide any inspections, clean-up activities or other required site access and maintenance. These methods respond to:

- potential risks of human exposure to waste, including sharps on the ground surface,
- asbestos sheeting fragments and handling procedures
- precautionary measures for fires or explosions related to landfill gas
- asphyxiation risks associated with oxygen exclusion in confined or poorly ventilated excavations

3 Coastal values, processes and hazard drivers

Natural coastal processes move sediment to, from and along the coastline. The interaction between tides, currents, winds and waves shapes and reshapes the coast, with changes seen every day. Sometimes, these natural coastal processes can interact with the way in which we value and use the coast. When these processes impact on human values, uses or assets, we call them coastal hazards.

This section highlights the coastal values and uses across East Beach, the coastal processes acting on the beach and the drivers of coastal hazards. This shared understanding of values and uses, coastal processes and likely impacts helps determine levels of risk, tolerance to risk, and appropriate management actions.

3.1 Current uses and values

This section provides an understanding of local community and stakeholder values and uses across the landfill site and broader East Beach area.

The duty to manage contaminated land is limited to consideration of the current use of the land. For the purposes of assessing impacts of contamination, the land use of both sites is classified as urban residential and public open space, with areas of ecological significance (TetraTech Coffey, 2022). This recognises the recreational, open space and ecological values found across the sites.

3.1.1 Recreation and open space

East Beach is a popular area for many local beach users and visitors to Port Fairy. The beach area patrolled by Port Fairy Surf Life Saving Club is around 1.6 km southwest of the landfill sites. As the main beach servicing the township, this popular sandy area attracts families, swimmers, surfers, recreational fishers and snorkelers, especially during peak summer season. As a popular destination for visitors, East Beach is important to the visitor economy of Port Fairy.

The north-eastern section of East Beach immediately fronting the decommissioned landfill sites is more secluded from the Port Fairy township. This section of beach is not within easy walking distance of the main township area, situated approximately 2.5 km to the southwest. Direct road access is also restricted. Public access can be gained indirectly from the Connelly Street beach access point in the southwest, or from a car park off of Skenes Road in the northeast. Consequently, public recreational use of the beach adjacent to the landfill sites is relatively infrequent. It is rarely utilised by family groups, with the main users primarily consisting of beach walkers, recreational fishers, and surfers.

East Beach storm. Source: PFCG

3.1.2 Ecological values

A flora and fauna assessment of the two landfill sites undertaken in April 2021 (AECOM 2021) found various ecological values across the site. Coastal Dune Scrub (EVC 160) was the sole Ecological Vegetation Class (EVC) identified, found within 28 discrete habitat zones across the two sites. Coastal Dune Scrub has a bioregional conservation status of Depleted within the Warrnambool Plain bioregion, in which Port Fairy sits. The combined area of this native vegetation was found to total just over 7 Hectares (1.3 Hectares at the DECCA site and 5.7 Hectares at the MSC site). Within the DECCA site, three flora species listed as Protected under the *Flora and Fauna Guarantee Act 1988* (FFG Act) were identified: Coast Wattle, Coast Beard-heath, and Coast Everlasting.

The assessment also recorded Hooded Plovers (eastern) within the intertidal zone of East Beach fronting both the DECCA and Moyne Shire Council sites. This migratory species is listed as Vulnerable under both the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the FFG Act. A further two migratory bird species (Ruddy Turnstone and Short-tailed Shearwater) were assessed as likely to infrequently visit or overfly the area. For any future activities and management action that may impact upon the beach or foredune habitat, a Significant Impact Assessment may be required under the EPBC Act. It is recommended that any dune management activities be performed outside of the Hooded Plover nesting and fledging season (August to March).

Figure 7. Left: East Beach and restored foredune - Hooded Plover habitat, Right: EVC 160 - Coastal Dune Scrub. Source: AECOM (2020).

An area from Skenes Road in Port Fairy to Warrnambool, including the Port Fairy Gold Club, is designated as an Important Bird Area. This area supports a non-breeding population of the EPBC-listed critically endangered Orange-bellied Parrot as well as the breeding population of near threatened Hooded Plover (Birdlife International, 2024).

The Southern Right Whale is also seasonally present along the Australian coast between late April and early November. It has been recorded in the coastal waters fronting Port Fairy and listed as Endangered under the EPBC Act and Threatened under the FFG Act.

Figure 8. Orange-bellied Parrot (Birdlife International, 2024)

3.1.3 Coastal hazard risk mitigation and human safety concerns

Coastal hazard risk mitigation is also important to the local community. Many community members and groups express concern of the impacts of coastal hazard and landfill waste exposure on the environment and human health.

The East Beach dune system and vegetation found within it contributes to mitigating the risk of further erosion along this stretch of coastline, particularly during storm events. This natural dune buffer acts in addition to the Wave Energy Dissipation Structure (WEDS) at the MSC site.

In recent years, the foredune area bordering the two landfill sites has been re-established and revegetated to strengthen the level of nature-based protection provided by these natural features. Stabilisation matting and fencing has also been implemented to further stabilise and protect the dune.

A healthy and functioning dune system provides an essential buffer to the impacts of coastal erosion. The presence of vegetation can also act as a wind breaker to protect the sand from wind erosion. Dune re-establishment and protection forms a key part of mitigation measures at the site.

Recent community engagement as part of longer-term adaptation planning at the sites found several coastal hazard management and landfill waste exposure concerns:

- Waste polluting the beach and ocean
- Environmental impacts
- Loss of beach
- Economic impact if tourism is affected
- Uncertainty about climate change impacts
- Continued illegal rubbish dumping on the sites
- Biohazards from the waste

3.2 Coastal processes

3.2.1 Erosion processes

Coastlines are dynamic environments. One of the more challenging aspects of the coastal landscape is that it experiences constant and sometimes rapid change.

Drivers of change such as wind, waves and tides continually work to move sand and shape the shoreline and adjacent coastal land. When these processes interact with the ways we use, value or enjoy the coast, they become coastal hazards. In this instance, historic use as landfills at Port Fairy sees these processes become a hazard.

Coastal erosion – The process of winds, waves and coastal currents shifting sediment away from a localised area of the shoreline.

Figure 9. Exposed dune scarp and coastal dune scrub (Source: AECOM, 2020)

Across East Beach, coastal erosion can increase exposure of landfill material and has the potential to impact on human health and environmental values. Erosion likely to expose landfill material at the sites is generally associated with storm events (in the short to medium term).

As with many coastlines across Australia, sand is eroded away in storm events across East Beach and then gradually builds up again in calmer periods. The dune crest is expected to move in infrequent 'jumps', eroding only during the most extreme storm events, then rebuilding very slowly (Figure 10). If there is not enough time between storm events for the shoreline to rebuild, or larger storms occur in quick succession, the shoreline will retreat over the long term.

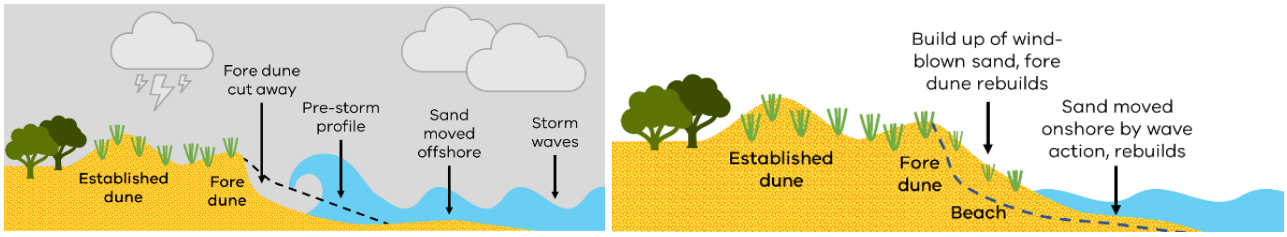


Figure 10. Coastal erosion processes in storms (left) and calmer periods (right)

Over the last century, various coastal protection structures have been implemented across East Beach and the Port Fairy foreshore. These structures have altered the natural coastal processes across the bay. This includes changed wave refraction patterns and sediment transport across East Beach. Periodic dredging of the Moyne River also occurs with dredge material placed at the western end of East Beach.

A low rock revetment structure, referred to as a wave energy dissipating structure (WEDS), sits directly in front of the MSC landfill site. Wooden sand trap fencing was installed on both ends of the WEDS but has since been lost to coastal processes.

This structure was constructed in 2015 as an immediate response to the erosion being experiencing at the dune fronting the MSC landfill and has an estimated design life of 10-15 years (SMEC, 2022).

A wattle and wire fence is buried under sand and vegetation fronting the DEECA landfill site. This structure offers little protection from a severe storms.

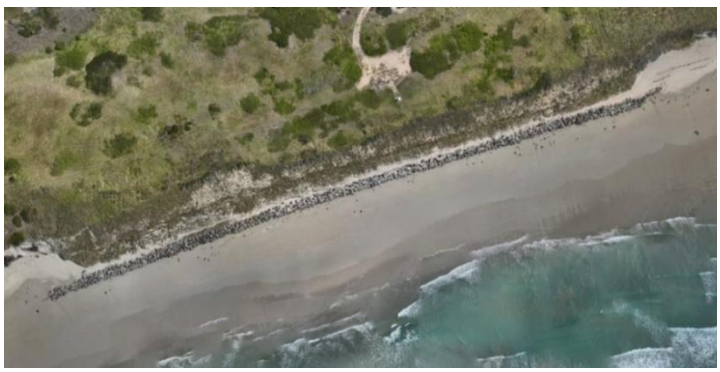


Figure 11. Wave Energy Dissipation Structure (WEDS), Source: VCMP survey February 2024

3.2.2 Coastal hazard drivers

The coastal landscape setting and regional climate determines the coastal processes act at East Beach. Recent investigations, observations and monitoring characterise these processes as summarised below:

Wind and waves

- Peak wave direction is from the south west between 180° and 220°
- Waves are refracted into the bay, with Griffiths Island and Moyne River training walls providing some protection to western portions of East Beach
- Average wave heights are slightly lower in summer (Nov to Feb) than in winter (Mar to Oct)
- In addition to wave action, wind erosion is also thought to contribute to sand loss across the dunes

Extreme storm events*

- Extreme storm events can occur at any time of year, but are more likely during winter months
- In extreme storm events, breaking waves can reach >4 m at the DEECA site and >5 m at the MSC site
- A single 1% AEP# storm event has the potential to cause up to 15 m of erosion of the dune
- Three consecutive 1% AEP# storm events could erode the dune up to 25 m.

Sediment movement and shoreline change

- Approximately 5,000 – 10,000 m^3/yr of Moyne River dredge sediment is nourished south of East Beach
- Around 10,000 to 20,000 m^3/yr is lost from the system as sand moves around the Reef Point headland
- Unprotected sections of the coast are receding at an underlying rate of around 0.1-0.7 m/yr

Further information about these coastal processes is detailed in Appendix 2.

This SMP seeks to actively mitigate environmental and human health risks associated with landfill exposure in the short term (5-10 years). Over this timeframe, short-term shoreline change is associated with storm events.

An understanding of the expected scale of short-term shoreline change in response to storm events provides a basis for assessing risk of landfill exposure. This is further described in Section 4, below.

Shoreline changes associated with sea level rise and climate change impacts are expected across East Beach into the future. As a short-term plan, actions in this SMP do not seek to address adaptation to these changes and longer-term site management approaches.

***Event** – Where weather conditions affecting a specific place are notably different from typical day-to-day conditions normally experienced at that location (e.g. a storm event)

Coastal storm events are driven by a wide variety of natural processes, combining meteorology (weather) such as wind, rainfall and temperature, and oceanography (conditions of the sea) such as tides, currents, and waves.

Events vary in magnitude (size) and duration (time). They may last from hours up to several days

#**Annual Exceedance Probability (AEP)** – on average, the probability of an event occurring in any given year. A higher AEP means it is more likely the event will occur in any one year. A 1% AEP event has a 1% chance of occurring in any given year.

While coastal processes are deemed the main driver of waste exposure, other processes such as wind erosion, vegetation loss due to fire, and human intervention could lead to waste exposure. The risk-based management approach and management actions in the SMP can be applied to waste exposure caused by these circumstances.

4 Risk management pathway

An adaptive management pathway is required to mitigate short-term risk of landfill exposure, while assessments and planning for longer term management of the site is undertaken and implemented. This pathway allows land managers to actively manage risk at the site as far as is practicable and quickly respond to landfill exposure events. The approach to short-term management of the site brings together understanding of:

- The coastal processes acting on the site and potential for short term shoreline change (likelihood of landfill exposure)
- The nature of the waste, key values and threats to values at the site posed by landfill exposure (consequence of exposure)

The management approach has been structured around three key elements, arranged as a simple pathway (Figure 12) and relates to the risk management process. Table 3 describes these elements of the pathway.

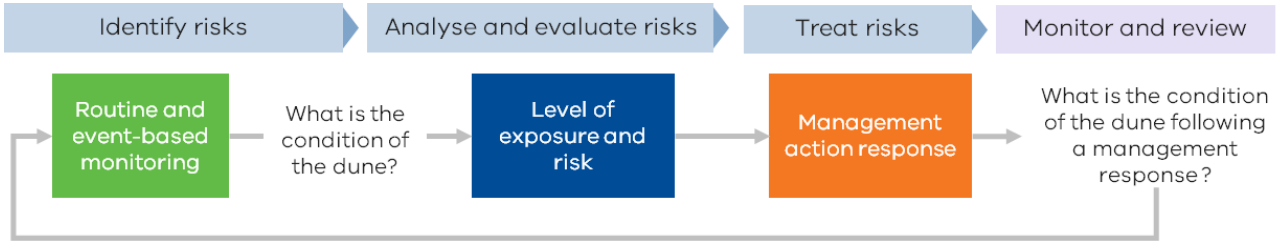


Figure 12. Risk management pathway overview

Table 3. Description of pathway elements.

Routine and event-based monitoring	Routine and event-based monitoring is used to inform understanding of level of waste exposure and risk. At a minimum, this should include: – VCMP drone survey ~ every six to eight weeks – Yearly groundwater monitoring – Ongoing visual inspection and photo point monitoring, including following storm events or other disturbances Inspection includes a simple template assessment to provide sufficient information to identify level of exposure and risk, and requirements for further management action. Visual inspection is to be at beach level (with photos), of the dune, vegetation and structure condition. Includes monitoring points to track position of the dune crest in relation to waste areas. Georeferenced drone survey may also provide information on distance of the landfill to the dune crest.
Level of exposure and risk	Level of exposure and risk is to be determined by monitoring dune condition. This level of risk is to be used as a 'trigger', as part of the management pathway, to prompt an appropriate management response. Descriptions of exposure and risk levels are outlined below. Distance of the landfill from the dune crest and visibility of landfill waste is the key driver for higher risk ratings (significant and above). This relies on clear physical markers for loss of sand from the dune. Sand cover acts as a sacrificial buffer during storm events, lessening the likelihood of landfill exposure. Reduction in buffer width means higher risk of landfill exposure.
Management action response	Management actions are to be implemented in response to the identified level of exposure and risk. Each identified management action is described further in Section 4, outlining what the action involves, further requirements – such as planning, approvals, design, assessments to undertake this action, and roles and responsibilities in the implementation of this action. Actions are categorised as: – Mitigation, prevention and preparedness actions – Event clean-up response and recovery actions

With these three elements as the basis, the next sections describe the approach to assessing and managing risk at the sites.

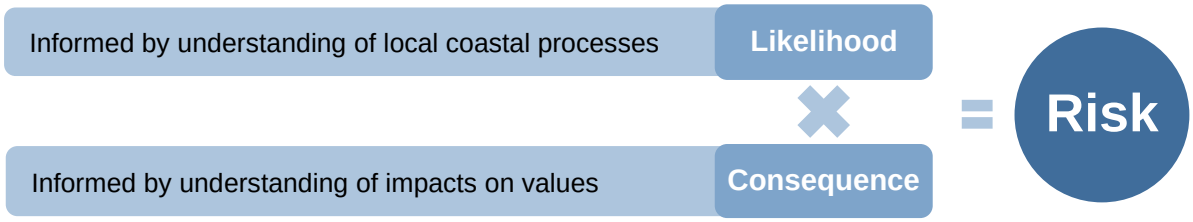
Note: This risk management pathway is designed to manage risk as far as is practicable in the short term (5-10 years). In the broader coastal setting of the landfill sites, coastal hazards and frequency of landfill exposure events are likely to increase with sea level rise. Risk reduction will be increasingly challenging into the future. Longer term adaptation planning needs be undertaken to manage risks to tolerable levels, in the event that management actions under the SMP are ineffective

4.1 Risk assessment

The risk assessment is based on the risk of landfill waste exposure at the site. This risk may be caused by coastal processes, wind erosion processes, or a combination of both. This could result in impacts to:

- human health, wellbeing and safety
- political attention and reputation – for DEECA and/or MSC
- legal and regulatory compliance
- environmental values
- economy and economic growth
- cultural heritage

Risk is defined as the combination of likelihood of occurrence of landfill exposure and the consequence if exposure occurs.



4.1.1 Likelihood

Likelihood of exposure to coastal hazards is determined by the probability (chance) of landfill exposure occurring. Understanding of coastal hazard drivers, dune condition and likely short term shoreline change forms the basis of assessing likelihood of landfill exposure. Exposure could also occur through other processes (human intervention, fire, wind erosion, etc.)

Likelihood categories (Table 4) are based on:

- the distance of the landfill to the dune crest;
- the chance of a storm event or series of storm events causing landfill exposure, and
- visible waste exposure at the site/s.

Distances have been set based on current understanding of short-term shoreline responses to storm events, further detailed in Appendix 2. Likelihood also incorporates the dune condition and visual exposure of waste which may occur through coastal erosion, wind erosion, or a combination of both.

Table 4. Categorisation of distances between landfill waste and dune crest (further detail in Appendix 2)

Landfill distance from dune crest	Description
>25 m	Landfill outside the area where three consecutive 1% AEP storm events would impact the dune.
Between 25 and 15 m	Landfill within the area where three consecutive 1% AEP storm events would impact the dune, but outside the area where a single 1% AEP storm event would impact the dune.
<15 m	Landfill within the area where a single 1% AEP storm event would impact the dune.

Likelihood has been categorised into five bands. Each band includes criteria which act as triggers for the likelihood rating (Table 5). Routine and event-based monitoring to assess the dune condition underpins assessment of likelihood.

Table 5. Likelihood categorisation and criteria

Likelihood	Description	Criteria
Rare	Landfill unlikely to be exposed by a series of extreme storm events	Dune toe is >25 m seaward of landfill area **AND/OR** Accretion of dune is evident since last inspection **AND/OR** Landfill located behind WEDS - structure in good condition
Unlikely	Landfill could be exposed by a series of extreme storm events	Dune toe is between 15 and 25 m seaward of landfill area **AND/OR** Landfill located behind WEDS - structure in fair condition
Possible	Landfill could be exposed by one extreme storm event	Dune toe is <15 m seaward of landfill area **AND/OR** Landfill located behind WEDS - structure in poor condition
Likely	Landfill partially or imminently exposed	Partial failure – landfill area seaward of dune crest **AND/OR** Visual partial exposure (less than 2 m^3) of landfill material **AND/OR** Landfill located behind WEDS - structure in very poor condition
Almost certain	Landfill exposed	Total failure – landfill front is seaward of dune toe **AND/OR** Extensive visual exposure of landfill material (>2 m^3) **AND/OR** Landfill located behind WEDS - structure in very poor condition

4.1.2 Consequence

To categorise the consequence of landfill exposure, a tailored set of consequence categories have been developed and apply to the assessment of risk at the site (Table 6). These categories are informed by:

- DEECA's risk management guidelines
- Similar assessments for coastal hazard risk assessment
- Values identified at the site

Consequence classifications are general in nature and land managers own judgement should be exercised in determine consequence levels. This table is a guide only. When using this table, the highest consequence rating should be selected across the criteria (i.e. if a risk is considered both a moderate legal risk and a major risk to environmental values, the consequence should be assigned as 'major'.

Table 6. Consequence ratings

Consequence	People, wellbeing, safety	Political / Reputational	Legal	Environmental values	Economy and growth	Cultural Heritage
	Threats to human health, safety and wellbeing	Adverse public and political attention	Legal and regulatory impacts including compliance with Acts	Impacts on regionally and nationally significant environmental values and ecosystem services	Local business, tourism and economic growth impacts	Threats to Traditional Owner cultural values and connection to Country.
Negligible	On-site first aid treatment required for staff, visitor, contractor or member of the public.	Very limited public and political interest Minimal adverse local attention Complaint from one stakeholder	Non-compliance with legislation, identified internally and resulting in internal acknowledgement and process review	Negligible effect on the natural environment Environmental recovery is negligible and/or under 1 year Contained locally within a single site/area	Insignificant localised impact affecting a single community Insignificant financial loss to local economy, industry, stakeholder	Negligible effect on significant heritage or Aboriginal sites/artefacts. Contained locally within a single site/area.
Minor	Minor injuries or illness (physical/ mental) requiring medical attention for staff, visitor, contractor or member of the public.	Adverse localised public and political interest Limited attention in local media over a short period	Non-compliance with legislation or breach of duty to manage and either: • resolved internally with no further escalation; or • resulting in prosecution or civil action involving exposure to minor compensation, and/or minor negative precedent	Limited effect on the natural environment and/or the environment suffers harm for 1-5 years Environmental recovery on minor scale up to 5 years Restricted to single township or locality	Minor financial loss to local economy/ industry/ stakeholder	Limited impact on significant heritage sites/artefacts Restricted to single Traditional Owners or site
Moderate	Significant injury or illness (physical/ mental) requiring in-patient hospitalisation of staff, visitor, contractor or member of the public.	Adverse localised negative public and political attention Short term negative local media attention Local community concern over a sustained period	Non-compliance with legislation or breach of duty to manage resulting in: • external investigation or report to responsible authority; and/or • prosecution or civil action, with one of moderate level of compensation or moderate level of negative precedent	Moderate effect on the natural environment and/or environment suffers harm for 5-10 years Environmental recovery on a small scale and/or over a period 5-10 years Impacts on a municipality or multiple localities	Significant financial loss to region/ industry/ stakeholder	Moderate impact on significant heritage or Aboriginal sites/artefacts/sacred objects. Impacts on an Aboriginal group or multiple Aboriginal groups
Major	Extensive and/or permanent injury or illness (physical/ mental) of staff member, visitor, contractor or public.	Serious adverse public attention at State/ National level Negative State/National media over a prolonged period Medium-term negative public interest and political interest (in Parliament)	Non-compliance with legislation or breach of duty to manage resulting in: • external investigation or report to responsible authority public enquiry • prosecution or civil action with high level compensation and high-level negative precedent • sanctions imposed by external regulator	Major effect on natural environment and/or environment suffers harm for 10-20 years Environmental recovery on a large scale and/or over 10-20 years Impacts on a region or multiple municipalities	Major financial loss to region/ industry /stakeholder	Major impact on: • Aboriginal highly sensitive cultural heritage such as sacred sites/artefacts, heritage, environment and/or traditional food source. • Aboriginal spiritual, social and cultural connection and cultural values (tangible and/or intangible) with country. Impacts on a region or multiple areas under custodian of many Traditional Owners.
Extreme	Single or multiple deaths or severe permanent disability or illness (physical/ mental) of staff, visitor, contractor, or public.	Very serious public outcry at State/National level Negative State/National media over a prolonged period Breakdown of public confidence in the Government / department On-going or prolonged negative public interest and political interest (in Parliament)	Non-compliance with legislation or breach of duty to manage resulting in: • prosecution or civil action leading to imprisonment of an officer • public enquiry • uninsured compensation payments • negative precedent requiring very serious impact and major reform to the department • severe sanctions imposed by external regulator	Very serious effect on natural environment and/or environment suffers long term harm (20+ years) Environmental recovery on a very large scale and/or over 20+ years Impacts on state or multiple regions	Very serious financial loss to region/ industry/ stakeholder or the state	Very serious impact on significant Aboriginal heritage sites/artefacts/ environment suffers long term harm (20+ years). Impacts likely result in highly significant Aboriginal cultural values to be lost, degraded, or damaged, and notably altered, modified, obscured or diminished. Impacts on state or multiple Traditional Owners custodians of land and water

4.1.3 Risk classification and response

Once consequence and likelihood ratings have been determined, a risk matrix is used to assess the overall level of risk (Table 7).

Quantifying risk in this way provides a basis to determine and strategically prioritise management actions to mitigate risk. Some level of risk associated with the site is inevitable. Consideration of risk tolerance is provided for each risk category with the corresponding action that may be required (Table 8). Further details of management actions are provided below.

Table 7. Risk assessment matrix for the SMP

		Consequence				
		Negligible	**Minor**	**Moderate**	**Major**	**Extreme**
Likelihood	**Almost certain**	Significant	Significant	High	High	High
	Likely	Medium	Medium	Significant	High	High
	Possible	Medium	Medium	Medium	Significant	High
	Unlikely	Low	Low	Medium	Medium	Significant
	Rare	Very low	Very low	Low	Medium	Significant

Table 8. Risk ratings, criteria, tolerance and management actions.

Risk	Risk tolerance	Action required	
Very low	**Well within risk tolerance:** a risk that, following an understanding of likelihood and consequence, is sufficiently low to require no new treatments or actions to reduce the risk further. Individuals and society can live with this risk without feeling the necessity to reduce the risks any further.	MONITOR + MITIGATE Ongoing mitigation, planning and preparedness actions are sufficient to manage this level of risk. Risk levels are monitored routinely.	PLANNING and PREPAREDNESS
Low			
Medium	**Within risk tolerance:** a risk that, following an understanding of likelihood and consequence, is low enough to allow the exposure to continue, and at the same time high enough to require new treatments or actions to reduce the risk. Society can live with this risk but believe that as much as is reasonably practical should be done to reduce the risks further.	MONITOR, MITIGATE and MINOR RECOVERY Mitigation, planning and preparedness actions are sufficient to manage this level of risk. Some maintenance clean-up and additional dune recovery and re-establishment measures may be needed to reduce the risk of potential landfill exposure to acceptable levels.	
Significant	**Outside risk tolerance:** a risk that, following an understanding of likelihood and consequence, is so high that it requires actions to avoid or reduce the risk. Event clean-up procedures are triggered. To be managed to a level that is as low as reasonably practicable based on resource, cost and practicality.	MONITOR, MITIGATE, RESPONSE and RECOVERY Event clean-up response and recovery is required to treat, eliminate, or reduce risk to acceptable levels. Mitigation, planning and preparedness actions continue, with additional mitigation actions considered as part of site recovery.	
High			

4.2 Management action approach

Management actions are to be implemented in response to the identified level of risk. This ensures the management approach is proportionate to the risk. Actions aim to mitigate, plan and prepare for, respond and recover from waste exposure events, i.e. event-based management.

4.2.1 Event-based management

Coastal erosion and waste exposure are not deemed an 'emergency' under the State Emergency Management Plan, however, an emergency management framework can be helpful to guide 'event-based' management. The Victorian State Emergency Management Plan (SEMP) outlines five emergency management phases (Figure 13) that can be used in the SMPs event-based management framework.

For the SMP, the event-based framework includes:
Mitigate - elimination or reduction of the incidence or severity of landfill exposure emergencies and the minimisation of resulting effects.
Plan – the SMP provides for an integrated, coordinated and comprehensive approach to emergency management
Prepare - the activities of land managers and agencies to prepare for and reduce the effects of landfill exposure emergencies by having plans, capability and capacity for response and recovery.
Respond - the event-based clean-up actions taken during and in the first period after a landfill exposure event to reduce the effects and consequences of the landfill exposure on people and the environment.
Recover – actions to assist in dune recovery and reestablishment to achieve an effective level of function and increased mitigation.

Figure 13. Emergency management phases.

Risk management must be embedded in all five emergency management phases and is underpinned by both routine and event-based monitoring. Actions in the SMP are categorised by the five phases of emergency management as well as ongoing/routine and event-based monitoring.

Table 9 describes each management phase and example actions for each phase. Management phases can be concurrent.

Table 9. Management approaches description and example actions.

Management phase	Description	Example actions
MONITOR	Routine and event based monitoring of dune condition, distance from the landfill and observations of recent coastal change to determine risk levels.	• Routine monitoring (drone, groundwater, inspection) • Frequent, targeted monitoring (inspections following events)
MITIGATE	Actions to mitigate or reduce the incidence or severity of landfill exposure and minimise resulting effects.	• Access management and maintenance • Dune stabilisation and enhancement • Ongoing engagement and communications
PLANNING	Planning for an integrated, coordinated and comprehensive approach to management.	• SMP development and review • Event clean-up response planning
PREPAREDNESS	Preparing for the impacts of landfill exposure including planning and building capability and capacity for response and recovery.	• Confirming required permits/consents • Event-based engagement procedures and planning • Building land manager capacity through SMP development • Developing a service agreement with a local contractor to enact when required
RESPONSE Including: Event clean-up	Event-based clean-up actions in the first period after a landfill exposure event to reduce the effects and consequences of the landfill exposure on people and the environment.	• Clean-up activities (waste removal and remediation) • Communications to site users and local community (local media, onsite signage etc) • Targeted access management and controls • Safety inspections and controls
RECOVERY	Actions to assist in dune recovery and reestablishment to achieve an effective level of function and increased mitigation. Recovery can be scaled, based on the level of exposure and re-occurrence of exposure.	*Minor recovery:* • Dune re-establishment • Additional protection, access management, vegetation enhancement *Medium recovery:* • Small-scale sand management (scraping) and dune enhancement *Major recovery:* • Larger-scale sand management (dredging/ renourishment) • Interim protection measures (e.g. sand fencing)

Figure 14 presents a detailed risk management pathway for the sites, which combines the three elements of dune condition, level of risk and possible management actions. It identifies and plans out the range of management responses (at a high level), based on triggers/thresholds linked to dune condition and risk.

Further detail on management actions and implementation arrangements is detailed in sections below.

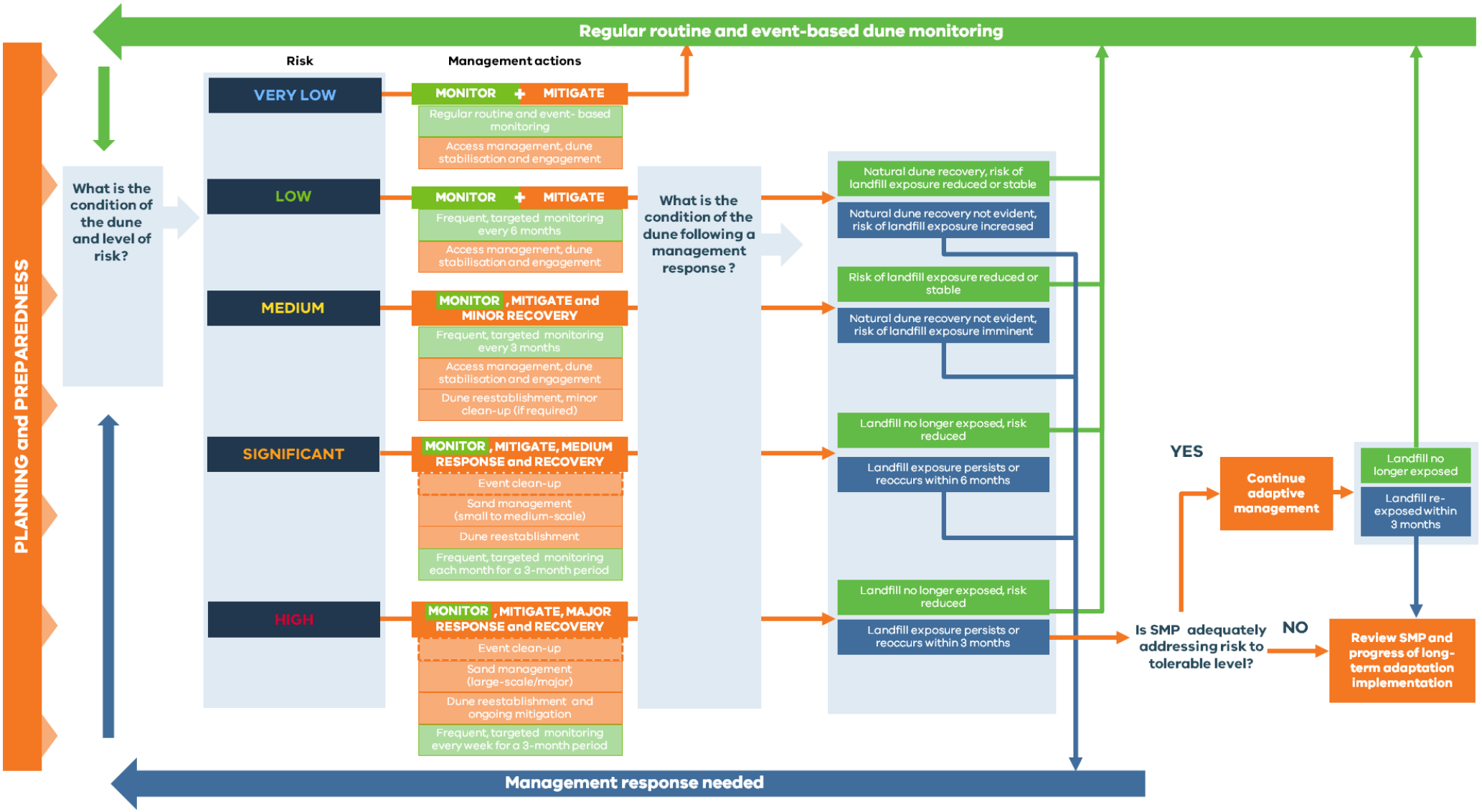


Figure 14. Site management pathway for landfill site management

5 Management actions

Management actions are categorised by the five phases of emergency management and grouped as follows:

- **Mitigation, planning and preparedness actions** to mitigate the risk of waste exposure and plan and prepare for events where exposure may occur
- **Event clean-up response and recovery actions** to ensure that should waste exposure occur, risks are managed quickly to reduce the consequences of landfill exposure and ongoing recovery reduces the likelihood of exposure

Site management is also underpinned by monitoring at the site. This includes routine and targeted monitoring to determine the risk rating and level of landfill exposure.

5.1 Site monitoring

Table 10 presents monitoring actions to be undertaken at the site on a routine, ongoing basis and following storm events or reports of increased risk at the site.

Site inspection and photo-based monitoring should include examination of:

- current dune condition and formation including any visible erosion or accretion since last inspection
- site rehabilitation and vegetation reestablishment efforts as part of mitigation or dune recovery actions
- access points and access management arrangements

The current dune condition and distance of the dune crest to the landfill should be assessed based on georeferenced markers of the landfill location. This may include mapping the landfill area against VCMP drone data and physical monitoring posts or reference points installed to mark landfill locations.

Table 10. Monitoring actions

Action theme	Action	Further detail	Responsibility	Consent / approvals
Data / record management	Establish and maintain log of monitoring activities undertaken, including centralised collation of monitoring records and results.	• Log monitoring activities in central database for each site • Collation and storage data and records collection • Yearly review of activities undertaken • Summarised communications on activities undertaken throughout year	Moyne Shire (Environment services) DEECA (Barwon South West LBE) (each responsible for own managed site)	n/a
Routine monitoring	Continue regular Port Fairy Coastal Group/ VCMP monitoring and interpretation	• 6-8-weekly drone survey through VCMP	DEECA (Regional Coastal Adaptation and Planning) Port Fairy Coastal Group (support) DEECA (VCMP)	General consent
		• Periodic collation, review and reporting of drone data every 1-2 years to determine trends and inform management	DEECA (Regional Coastal Adaptation and Planning)	n/a
	Monitoring of local weather conditions and enactment of additional event-based monitoring following storm events or other disturbances (fire, flood, landslide, etc.)	• Ad hoc monitoring of local weather conditions, particularly large storm events likely to cause dune erosion • Monitoring of Bureau of Meteorology forecast and warnings	DEECA (Barwon South West LBE) Moyne Shire (Environment services)	n/a
	Groundwater monitoring	• Yearly monitoring of groundwater • Interpretation of groundwater monitoring	Moyne Shire (Environment services) DEECA (Barwon South West LBE) (support)	General consent
	Site inspection and photo monitoring against georeferenced markers of landfill location	• 6-monthly site monitoring (see Appendix 3 for method).	DEECA (Barwon South West LBE) Moyne Shire (Environment services) (each responsible for own managed site)	General consent
	Monitoring of Wave Energy Dissipation Structure	• Inspection of the structure every 2-3 years and following significant storm events (in alignment with above action and Appendix 3)	DEECA (Coastal Protection Assessment and Management) DEECA (Barwon South West LBE) Consultant support as required	
Post-event / report monitoring	Monitoring following a significant storm event or report of waste exposure	• Site monitoring (see Appendix 3 for method) within 48 hours of a storm event or other disturbances (fire, flood, landslide, etc.)	DEECA (Barwon South West LBE) Moyne Shire (Environment services) (support)	
Frequent targeted monitoring	Following periods of waste exposure - Site inspection and photo monitoring against georeferenced markers of landfill location	• Weekly to monthly monitoring for a 3-month period following increases in risk or waste exposure events. • Site monitoring in alignment with Appendix 3 method.	DEECA (Barwon South West LBE) Moyne Shire (Environment services) (support)	

LBE – Land and Built Environment

5.2 Mitigation, planning and preparedness

Mitigation, planning and preparedness actions aim to reduce incidence or severity of landfill exposure and plan / prepare for clean-up response and recovery, should exposure occur. Table 11 outlines mitigation, planning and preparedness actions.

Table 11. Mitigation, planning and preparedness actions

Action theme	Action		Further detail	Responsibility	Consent / approvals
Mitigation	Access control	Manage access including fencing to limit exposure to waste and disturbance to dune vegetation.	• Maintain exclusion fencing at Griffiths St/ Skenes Rd access point (DEECA site) and Skenes Road (Moyne Shire site)	DEECA (Barwon South West LBE) Moyne Shire (Environment services)	General consent
		Install and maintain signage to communicate access controls and hazards from road access	• Install and maintain signage at Griffiths St/ Skenes Rd access point (DEECA site) and along Skenes Road (Moyne Shire site) • Communicate hazard risks and provide referral to relevant contacts on signage	DEECA (Barwon South West LBE) Moyne Shire (Environment services)	General consent
		Install and maintain signage to communicate access controls and hazards from beach/dune access	• Install signage at ~ 200 m intervals along dune face • Communicate hazard risks and provide contact information for reporting waste exposure	DEECA (Barwon South West LBE) Moyne Shire (Environment services)	General consent
	Dune enhancement / stabilisation	Stabilise and enhance dune ecosystem through vegetation protection, planting and maintenance.	• Promote vegetation protection through access controls (as actions above) • Manage and enhance vegetation through planting of approved species • Undertake weed management activities • Ongoing activity but may require additional stabilisation or dune establishment on an 'as needs' basis.	DEECA (Barwon South West LBE) Moyne Shire (Environment services) Port Fairy Coastal Group or other community groups (support)	General consent
		Install and maintain additional low-impact dune enhancement and stabilisation matting	• Install and maintain stabilisation matting	DEECA (Barwon South West LBE) Moyne Shire (Environment services)	General consent
	Waste clean-up	Minor clean-up of waste material (<2 m^3) with no hazardous waste (e.g. asbestos) removal required	• Manual clean-up of small areas of waste exposure • No heavy machinery or major disturbance to dune face	DEECA (Barwon South West LBE) Moyne Shire (Environment services) Pre-arranged contractors	General consent Contractor procurement
	Communications and engagement	Plan and deliver engagement and communication, including key messaging and communication of public responsibilities in mitigating risk	• Develop key messages, FAQs and content for communication of site management process and procedures • Communicate risk management roles and responsibilities through SMP	DEECA (Barwon South West LBE and Regional Coastal Adaptation and Planning) Moyne Shire (Environment services)	Comms approvals (DEECA and Moyne Shire)
Planning and preparedness	Admin, logistics and approvals	Plan and prepare for event response including event clean-up plan and contracting	• Maintain Event clean-up response plan (Appendix 4), including review after events to improve plan activities and delivery	DEECA (Barwon South West LBE and Regional Coastal Adaptation and Planning) Moyne Shire (Environment services)	n/a
			• Develop ongoing contract arrangements with suppliers for clean-up response (Appendix 6).	DEECA (Barwon South West LBE) Moyne Shire (Environment services)	Contractor procurement
		Confirm required planning, consents, permits or exemptions required to undertake clean-up response	• Apply for general consent to undertake maintenance and management works under the SMP, include consideration to vegetation management and cultural heritage	DEECA (Barwon South West LBE)	Obtain general consent – See section 6.3
			• Develop pro-forma / pre-filled MACA consent form, where possible, to streamline approvals processes	DEECA (Barwon South West LBE and Regional Coastal Adaptation and Planning)	To be informed by MACA consent process
			• Discuss approvals and consent requirements with relevant approval officers/staff	DEECA (Barwon South West LBE and Regional Coastal Adaptation and Planning)	n/a
		Review and evaluate SMP every 5 years or following major changes in conditions	• Review efficacy of SMP arrangements and progress of long term adaptation	DEECA (Barwon South West LBE and Regional Coastal Adaptation and Planning) Moyne Shire (Environment Services) (support)	DEECA and Moyne Shire approval of updated plan
	Monitoring	Maintain log of monitoring and management activities undertaken, including collation of monitoring results.	• Log maintenance and monitoring activities in central database • Yearly review of activities undertaken • Summarised communications on activities undertaken throughout year	DEECA (Barwon South West LBE)	n/a
	Communications and engagement	Develop event-based engagement and communication procedures including process for EPA and public notification of exposure incidents	• Confirm EPA notification protocols and process • Develop public event-based communications and messaging guidelines / template	DEECA (Barwon South West LBE and Regional Coastal Adaptation and Planning) Moyne Shire (Environment Services)	Comms approvals (DEECA and Moyne Shire)

5.3 Event clean-up response and recovery

An extreme storm event or other disturbance has the potential to cause dune erosion and release contaminated material onto East Beach and into the ocean in a short period of time. An event clean-up response is triggered when landfill waste becomes visible, generally following a storm erosion event. An event clean-up response and recovery actions may also be triggered through reports and site inspections confirming presence of visible surface materials that are unsafe and at risk of coming into contact with beach goers. Table 12 outlines event clean-up response and recovery actions.

Table 12. Event clean-up response and recovery actions

Action theme	Action		Further detail	Responsibility	Consent / approvals
Event clean-up response*	Site inspection /risk assessment	Assess any immediate public safety risks through undertaking safety audit	• Undertake safety audit/inspections by trained safety auditor	DEECA (Barwon South West LBE) Moyne Shire (Environment Services)	General consent
	Access control	Prevent any immediate public safety risks through access management	• 'no-go' fencing established • Signage installed	DEECA (Barwon South West LBE) Moyne Shire (Environment Services)	General consent
	Clean-up and remediation	Clean-up and remediation activities in alignment with event clean-up plan, detailed below and in Appendix 4.	• Initial access management • Waste treatment / removal • WEDS and landfill condition assessment	DEECA (Barwon South West LBE) Moyne Shire (Environment Services) Pre-arranged contractors	MACA consent Ongoing contractor procurement
	Communications and engagement	Communicate notification of waste exposure event and confirmation of clean-up process	• In alignment with communication and engagement plan / template, notify public of exposure event and clean-up process	DEECA (Barwon South West LBE) Moyne Shire (Environment Services)	Comms approvals (DEECA and Moyne Shire)
Recovery and continued mitigation	Dune enhancement / stabilisation	Targeted dune re-establishment, following storm events or other disturbance. Dependent on scale of sand loss / waste exposure	• Manual (by hand) restoration of dune scarp face • Dune stabilisation matting • Approved vegetation management and stabilisation • Continued access management / no-go areas	DEECA (Barwon South West LBE) Moyne Shire (Environment Services) Port Fairy Coastal Group (support)	General consent
		Sand management and dune enhancement (small-scale/minor#)	• Moving small volumes of sand from lower beach or across the beach to upper beach areas, placing it at dune toe, in front of landfill sites. • Requires MACA consents, scaping/ nourishment plan and approvals	DEECA (Regional Coastal Adaptation and Planning) Moyne Shire (Environment Services) Approved contractors	MACA consent
		Sand management and dune enhancement (large-scale/major#)	• Importing larger volumes of sand from lower beach or other sand sources, placing it at dune toe, in front of landfill sites. • Requires MACA consents, sand sourcing plan and approvals	DEECA (Regional Coastal Adaptation and Planning) Moyne Shire (Environment Services) Approved contractors	MACA consent
	Major engineering (incl. protection)	Establish further interim protections	• Implement temporary management and/or protection structures, e.g. sand fencing, or other adaptable/ moveable options • Requires options assessment and engineering design (if required)	DEECA (Regional Coastal Adaptation and Planning) Moyne Shire (Environment Services) Approved contractors	MACA consent

*Further details of event clean-up response arrangements are provided below and in Appendix 4.
#Further details of sand management arrangements (sand nourishment and dune enhancement) are provided below.

5.3.1 Event clean-up response

An event clean-up response is triggered through monitoring activities confirming presence of visible waste that is unsafe and at risk of coming into contact with the public. These contaminants may include, but are not limited to:

- Asbestos (sheeting / fragments = bonded and non-friable)
- Broken glass
- Metal pans
- Drums
- Tiles and building waste (brick, concrete, and glass)
- Metal sheeting
- Plastic containers
- Chemical waste and drums/vessels
- Glue waste

Table 13 outlines key tasks to be undertaken during event clean-up. Further details on clean-up activities are provided in Appendix 4.

Table 13. Event clean-up response tasks

Task	Responsibility
Undertake a site inspection by appointed DEECA officer immediately following the event (if safe to do so)	Land and Built Environment (LBE) Far South West
Report incident through the Barwon South West Land and Built Environment Group	Contaminated Land Project Officer and LBE Officer
Trigger Communication Plan and public notice	Contaminated Land Project Officer and LBE Officer
Restrict public access to the area including fencing, signage and traffic management	Contractor
Clean-up tasks as detailed in Appendix 4.	Contractor
Provide clean-up plan updates including community feedback to LBE Regional Manager	Contaminated Land Project Officer

5.3.2 Sand management

Sand nourishment as part of recovery and mitigation actions can be scaled based on the level of risk at the site and the rate at which sand is depleted or rebuilds during and after storm events. Any sand management activities will require a MACA consent (see Section 6.3 for further information).

Scale	Description and considerations	Implementation arrangements
Small scale beach scraping and dune nourishment	• Movement of sand from the lower part of the beach to the upper beach or dune. • Mimics the natural beach recovery process by accelerating beach and dune recovery from short-term erosion (storm bite). • An additional erosion buffer is created by increasing the sand volume on the upper beach and dunes. • Reduction in sand level lower down the beach means the dunes may be more vulnerable to wave attack • No new sand is introduced to the site • Must be undertaken outside of hooded plover breeding/ nesting season, or on advice from DEECA and Birdlife.	Beach scraping is typically undertaken by earth moving plant such as bull dozers and excavators. Costs for beach scraping are typically low (less than $10,000)
Medium- to large-scale beach nourishment	• Involves providing additional sand to the beach system • Design of beach nourishment programs involve consideration of sand source, transport, and placement • Sand may be sourced from accreting areas and offshore sources (dredged). • Suited to settings where nourishment will be supported by local coastal processes and may impact on natural processes • Ongoing programs of nourishment are typically required to maintain beach and dune volumes for a period • Must be undertaken outside of hooded plover breeding/ nesting season, or on advice from DEECA and Birdlife.	Beach nourishment can be undertaken via pumping from offshore as a slurry, 'rainbowed' from a dredge to the nearshore, and moved around the beach via excavator. Costs for beach nourishment campaigns can be highly variable, depending on the volume of sand and frequency of nourishment.

Considerations for designing beach nourishment activities include:

- Sand source including:
  - Source locations – regular Moyne River dredging could provide a source of material
  - Source properties – grain size, contaminants, organic matter
  - Sourcing methods (scraping, relocating, dredging)
- Scheduling around flora and fauna conditions (e.g. bird nesting periods)
- Permits and consent under *Marine and Coastal Act 2018* (see Section 6.3)
- Procurement arrangements and costing

Further detail of implementation considerations for sand nourishment are provided in the Victoria's Resilient Coast - Adaptation Actions Compendium (BMT, 2023).

5.4 Applying the SMP – worked examples

To further demonstrate how the SMP will be implemented, worked examples of applying the management framework are detailed below. These are indicative scenarios and are intended as examples only.

Further information on action implementation is provided in Section 6.

Scenario 1: *A visitor to the area was walking along East Beach and has contacted Council to report that they have seen waste on the beach. They are worried about the impacts the waste exposure might have and have asked if they should clear it up themselves.*

Risk management pathway	Identify risks Routine and event-based monitoring → What is the condition of the dune?	Analyse and evaluate risks Level of exposure and risk **MEDIUM**	Treat risks Management action response **MONITOR, MITIGATE and MINOR RECOVERY** Frequent, targeted monitoring every 3 months Access management, dune stabilisation and engagement Dune reestablishment, minor clean-up (if required)	Monitor and review What is the condition of the dune following a management response? Frequent, targeted monitoring every 3 months

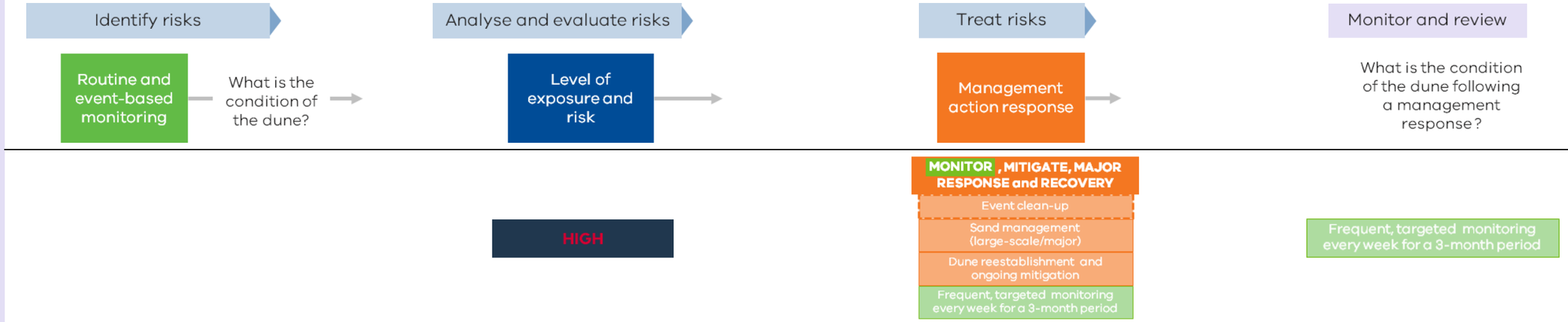
Management actions	DAY 0-2
	• Notification recorded
	• Site monitoring - Moyne Shire and Regional DEECA staff organise inspection within 48 hours.
	• Site monitoring – Moyne Shire and Regional DEECA staff to undertake site inspection (walk over) and photo monitoring of exposed waste.
		DAY 2
		• Inspection confirms:
		  ○ Small volumes (<2 m^3) of waste exposed – Likelihood = **Likely**
		  ○ No presence of asbestos- Consequence = **Minor**
		• Resulting in **Medium** risk.
		• Minor mitigation response required.
			WEEK 1
			• Moyne Shire and Regional DEECA deploy staff to complete clean up within 2 weeks.
			• Minor clean-up activities undertaken to ensure public safety, covered under general maintenance consent.
			WEEK 2
			• Dune restoration works (stabilisation matting, revegetation) – in alignment with general management consent
				• Ongoing site monitoring – Every 3 months.

Communications and engagement	• Complaint acknowledged and process communicated – includes communications of inspection arrangements, access controls, timeframes. • Reiterate risks to public health and key messages to encourage compliance with access management.	• Update to original contact provided confirming results of monitoring and next steps for site clean-up.	• Update to original contact confirming clean-up response and communicating ongoing maintenance works to minimise risk. • Notification of completed dune restoration activities Council news website. Includes confirmation of waste exposure, timelines for clean-up and access restriction arrangements. Reiterate importance of access control and key messages in alignment with SMP.	• Ongoing updates with outcomes of monitoring • Reiterate management approach under SMP, risks to public health and key messages to encourage compliance with access management.

Scenario 2: *Following a storm event, a local resident and community group member has contacted Council to report that they have seen a large quantity of waste on the beach that they believe includes asbestos. They have expressed frustration at the timeframes for previous clean ups and are organising a group of volunteers to clean up the waste themselves.*

Risk management pathwayy	Identify risks Routine and event-based monitoring → What is the condition of the dune?	Analyse and evaluate risks Level of exposure and risk	Treat risks Management action response	Monitor and review What is the condition of the dune following a management response?
		SIGNIFICANT	MONITOR, MITIGATE, MEDIUM RESPONSE and RECOVERY Event clean-up Sand management (small to medium-scale) Dune reestablishment Frequent, targeted monitoring each month for a 3-month period	Frequent, targeted monitoring each month for a 3-month period
Management actions	DAY 0-2 • Notification recorded • Site monitoring - Moyne Shire and Regional DEECA staff organise inspection within 48 hours. • Site monitoring – Moyne Shire and Regional DEECA staff to undertake site inspection (walk over) and photo monitoring of exposed waste.	DAY 2 • Inspection confirms: ○ Large volumes of waste exposed (>2m³) – Likelihood = **Almost certain** ○ No presence of asbestos – Consequence = **Minor** • Resulting in **Significant** risk. • Event clean-up response triggered.	WEEK 1 (Day 3) • Moyne Shire/DEECA deploy contractors to install 'no-go' fencing and signage in areas of waste exposure. (Day 4-7) • Access restrictions through fencing and signage installed • Organisation and contracting of clean-up contractors WEEK 2-4 • Event clean-up activities undertaken to ensure public safety, covered under general maintenance consent • Waste separated (where possible) and removed WEEK 5 • Waste clean-up complete • Dune restoration works – in alignment with general maintenance consent (minor sand scraping, revegetation and stabilisation matting)	• Site monitoring - Monthly monitoring activities for a 3 month period.
Communications and engagement	• Complaint acknowledged and process communicated – includes communications of inspection arrangements, access controls, timeframes. • Reiterate management approach under SMP, risks to public health and key messages to encourage compliance with access management.	• Update provided confirming results of monitoring and next steps for site clean-up	• Notification via social media, Council news website and local print media. Includes confirmation of waste exposure, timelines for clean-up and access restriction arrangements. Reiterate importance of access control and key messages. • Weekly update of clean-up progress and expected timeframes via social media, Council news website and local print media. • Follow up notification of outcomes of monitoring – no further exposure of waste material.	• Ongoing updates with outcomes of monitoring • Reiterate management approach under SMP, risks to public health and key messages to encourage compliance with access management.

Scenario 3 *There are reports of a major storm event that is forecast to impact the Port Fairy area. The storm will generate strong south westerly winds, higher water levels and wave action. The community is nervous about the potential for waste exposure at the landfill sites. It is apparent the storm event has resulted in a major spill of waste onto the beach. The event has occurred in winter, outside of the hooded plover nesting season.*

<table>
<tr><td>Risk management pathwayy</td><td colspan="4"> 
</td></tr>
<tr><td>Management actions</td><td>DAY 0-2
• Monitor Bureau of Meteorology forecast to understand characteristics and magnitude of storm event.
• Plan for monitoring activities within 24 hours of storm event.
• Site monitoring – Moyne Shire and Regional DEECA staff to undertake site inspection (walk over) and photo monitoring of exposed waste.</td><td>DAY 2
• Inspection confirms:
○ Large volumes of waste exposed – Likelihood = Almost certain
○ Presence of asbestos – Consequence = Moderate
• Resulting in High risk.
• Event clean-up response triggered.</td><td>WEEK 1 (Day 3)
• Moyne Shire/DEECA deploy contractors to install ‘no-go’ fencing and signage in areas of waste exposure.

(Day 4-7)
• Access restrictions through fencing and signage installed
• DEECA and Moyne Shire investigate requirements for sand scraping/ nourishment and dune rehabilitation works including potential sand sources and volume estimates
• Sand scraping deemed necessary to stabilise dune

WEEK 2-4
• DEECA submit MACA consent to initiate sand scraping and dune rehabilitation activities.
• Organisation and contracting of approved asbestos handers and waste clean-up.
• Event clean-up response progresses. Waste separated (where possible) and removed.
• Investigate contracting and design of sand scraping activities.

MONTH 2-3
• Waste clean-up activities complete
• MACA consent granted and sand scraping contractors arranged
• Sand scraping and dune enhancement activities commenced – including dune stabilisation through vegetation and stabilisation matting.</td><td>• Site monitoring - Weekly monitoring activities for a 3 month period.</td></tr>
<tr><td>Communications and engagement</td><td>• Respond to any community contact by communicating management approach and Site Management Plan. Reiterate commitment to post-event monitoring and relevant clean-up activities.</td><td></td><td>• Notification via social media, Council news website and local print media. Includes confirmation of waste exposure, timelines for clean-up and access restriction arrangements. Reiterate importance of access control and key messages.
• Weekly update of clean-up progress and expected timeframes via social media, Council news website and local print media.
• Notification of completed clean-up activities and next steps in dune restoration via social media, Council news website and local print media.</td><td>• Ongoing updates with outcomes of monitoring
• Reiterate management approach under SMP, risks to public health and key messages to encourage compliance with access management.</td></tr>
</table>

Scenario 4 *A storm event has occurred across the Port Fairy region. Post-event monitoring has found large quantities of waste exposed on the beach. It is currently hooded plover nesting season and residents are concerned about the impact to birdlife and the potential for waste to enter the water.*

Risk management pathwayy	Identify risks Routine and event-based monitoring What is the condition of the dune?	Analyse and evaluate risks Level of exposure and risk HIGH	Treat risks Management action response MONITOR, MITIGATE, MAJOR RESPONSE and RECOVERY Event clean-up Sand management (large-scale/major) Dune reestablishment and ongoing mitigation Frequent, targeted monitoring every week for a 3-month period	Monitor and review What is the condition of the dune following a management response? Frequent, targeted monitoring every week for a 3-month period
Management actions	DAY 0-2 • Monitor Bureau of Meteorology forecast to understand characteristics and magnitude of storm event. • Plan for monitoring activities within 24 hours of storm event. • Site monitoring – Moyne Shire and Regional DEECA staff to undertake site inspection (walk over) and photo monitoring of exposed waste. • Monitoring to take note of any hooded plover activity/sightings.	DAY 2 • Inspection confirms: ○ Large volumes of waste exposed – Likelihood = **Almost certain** ○ Presence of asbestos – Consequence = **Moderate** • Resulting in **High** risk. • Event clean-up response triggered. • Hooded plovers have been seen in the area	WEEK 1 (Day 3) • Birdlife Australia contacted to provide advice and guidance on Hooded Plover nesting. • Moyne Shire/DEECA deploy contractors to install ‘no-go’ fencing and signage in areas of waste exposure.	
			(Day 4-7) • DEECA/Moyne Shire engage Birdlife Australia to provide hooded plover spotters for works periods • Access restrictions through fencing and signage installed, ensuring fencing/bunting and signage complies with Birdlife requirements • DEECA and Moyne Shire investigate requirements for sand scraping/ nourishment and dune rehabilitation works including potential sand sources and volume estimates • Sand scraping deemed necessary to stabilise dune, but cannot be undertaken during hooded plover nesting season	
			WEEK 2-4 • Organise and contract approved asbestos handers and waste clean-up • DEECA/Moyne Shire initiate waste exposure event clean-up response, clearing waste to ensure public safety, in alignment with general maintenance consent • DEECA submit MACA consent to include sand scraping and dune rehabilitation activities, post hooded plover nesting season. • Event clean-up response progresses. Waste separated (where possible) and removed. • Investigate contracting and design of sand scraping activities	
			MONTH 2-3 • Waste clean-up activities complete • MACA consent granted and sand nourishment contractors arranged	• Site monitoring - Weekly monitoring activities until sand scraping can occur
			MONTH 4-5 • Hooded plover nesting season over - Sand scraping and dune enhancement activities commenced – included dune stabilisation through vegetation and stabilisation matting	• Site monitoring - Weekly monitoring activities for a 3 month period.
Communications and engagement	• Respond to any community contact by communicating management approach and Site Management Plan. Reiterate commitment to post-event monitoring and relevant clean-up activities.		• Notification via social media, Council news website and local print media. Includes confirmation of waste exposure, timelines for clean-up, access restrictions and bird life considerations. Reiterate importance of access control and key messages. • Weekly update of clean-up progress and expected timeframes via social media, Council news website and local print media. • Notification of completed clean-up activities and next steps in dune restoration via social media, Council news website and local print media.	• Ongoing updates with outcomes of monitoring • Reiterate management approach under SMP, risks to public health and key messages to encourage compliance with access management.

6 Action implementation

To ensure efficient, timely and safe implementation of the SMP, there are several implementation considerations. These include:

- Roles and responsibilities
- Safe work methods
- Approvals and permits
- Engagement and notification

This section details further elements of implementing the SMP.

6.1 Roles and responsibilities

Many stakeholders, rightsholders and the broader community have a role to play in successfully implementing the SMP and reducing risk at the landfill sites. Table 14 outlines these roles and responsibilities.

Table 14. Roles and responsibilities in implementing the SMP.

Stakeholder	Role and key responsibilities
Department of Energy, Environment and Climate Action (DEECA)	Primary land management agency for the DEECA site with responsibilities to develop, implement and review the SMP. Includes oversight and coordination of monitoring, risk assessment and management action implementation.
Moyne Shire Council (MSC)	Freehold land owner and primary land management agency for the MSC landfill site with responsibilities to develop, implement and review the SMP. Includes oversight and coordination of monitoring, risk assessment and management action implementation. Moyne Shire also has a role in facilitating engagement and communication of SMP implementation with the broader community.
Eastern Maar Aboriginal Corporation (EMAC),	Provide input and advice to guide Cultural Heritage Permit requirements and any disturbance of Aboriginal Cultural Heritage likely through management action implementation.
Environmental Protection Authority	Technical advice and input into SMP development, implementation and review. Regulatory role in promoting compliance and enforcing environmental protection legislation and policy.
Department of Climate Change, Energy, the Environment and Water (DCCEEW)	Promoting protection of threatened species and compliance / enforcement of the EPBC Act.
Birdlife Australia and Friends of the Hooded Plover Far West Victoria	Monitoring changes in bird populations, particularly Orange-bellied Parrot and Hooded Plover. Advocacy and informing management approaches to protect shorebird habitat and nesting sites (e.g. access controls)
Port Fairy Coastal Group	Assist with ongoing drone and on-ground monitoring at the site in collaboration with DEECA and the VCMP program. Public communication of and adherence to mitigation actions (e.g. access controls)
Other community groups	Public communication of and adherence to mitigation actions (e.g. access controls)
Broader Port Fairy community (residents and visitors)	Adherence to mitigation actions (e.g. access controls)

6.1.1 Shared management arrangements

The purpose of shared management arrangements is to facilitate collaboration and strong working relationships between DEECA, and Moyne Shire as land managers of the landfill sites. These shared management arrangements aim to:

- Communicate how land managers will work together.
- Facilitate compliance with relevant legislation, approvals requirements, permits and responsibilities.
- Describe the negotiables and non-negotiables of working together including clear roles and responsibilities for managing waste exposure at the two landfill sites.

These shared management arrangements are not intended to create legally enforceable obligations or restrict land managers from making further/additional agreements (e.g. Memorandums of Understanding).

To implement effective site management at the landfill sites, land managers (DEECA and Moyne Shire) agree to:

- Effectively co-operate and communicate with each other in the administration and implementation of their respective obligations and responsibilities in relation to the SMP.
- Enter into early and constructive engagement (e.g. SMP development/review engagement, pre-event engagement, as relevant) to identify and resolve issues.
- Assist in the implementation of the SMP management actions for which DEECA and MSC are jointly responsible.
- Collaborate, share learnings and promote best practice to meet (or exceed) requirements in:
  - contaminated land management
  - marine and coastal management
  - Traditional Owner rights and self determination
  - Protection of threatened species
  - Identification, management and mitigation of human/social, cultural, environmental and economic impacts of waste exposure
  - Minimising liabilities that may arise from management actions that are unsafe, unsuitable or unsustainable.

Responsibilities for exposure event management actions, including clean up and recovery works, vary depending on which landfill experiences waste exposure. Table 15 summarises these responsibilities.

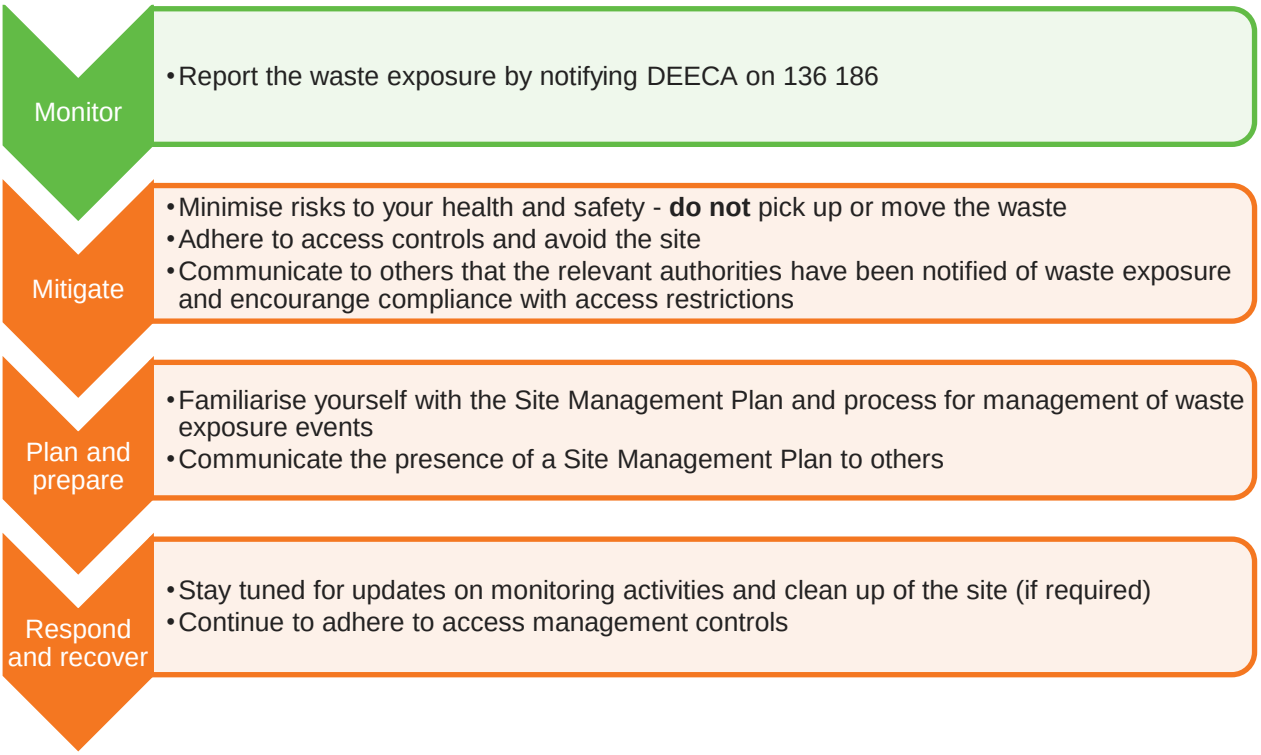
Table 15. Land manager responsibilities under shared management arrangements

Scenario	DEECA responsibilities	MSC responsibilities
Waste exposure occurs solely on DEECA managed (Crown) land.	Primary agency for enacting clean up and remediation works, including coordination and funding of management actions / works.	Provide support such as: • Ad hoc advice and guidance, as required • Engaging local contractors • Communicating key messages locally
Waste exposure occurs solely on MSC managed (freehold) land but may impact broader coastal and marine Crown land.	Provide support such as: • Ad hoc advice and guidance, as required • MACA consents, approvals and advice, as required DEECA will not fund works on freehold land.	Primary agency for enacting clean up and remediation works, including coordination and funding of management actions / works.
Waste exposure occurs from both DEECA managed (Crown) and MSC managed (freehold) land.	Develop a shared management model with MSC to coordinate and fund clean-up and remediation works. MACA consents, approvals and advice for impacts or works on Crown land, as required.	Develop a shared management model with DEECA to coordinate and fund clean-up and remediation works. Support in engaging local contractors and communicating key messages.

6.1.2 How can the community play a role

The general public and various community groups have an active interest in management of the Port Fairy landfill sites. The Port Fairy Coastal Group are involved in ongoing monitoring at the site. To manage risk to human health and safety at the site, it is important that the general public adheres to direction from management authorities.

If you see waste material exposed at the landfill sites:



6.2 Safe work methods

Contractors undertaking works on this site are required to develop a Safe Work Method Statement (SWMS) prior to the commencement of works. The SWMS must address risks associated with the following:

- sharps on the ground surface
- asbestos sheeting fragments
- gas emissions (as a precaution)

The department has developed a SWMS for its own staff who may be required to inspect the site from time to time. This SWMS is available in Appendix 5.

6.2.1 Gas emission precautions

Gas emissions were tested at the site. All landfill gas monitoring results are, as of publication, below the EPA action levels for landfill gas. No treatment is required for landfill gas. However, as a precautionary measure, any works on site must be supported by an authorised Safe Work Method Statement (SWMS) which responds to the following potential risks to human health:

- fire and explosion during ground disturbing works
- asphyxiation associated with oxygen exclusion in confined or poorly ventilated excavations.

The SWMS should be prepared according to WorkSafe Victoria's template: worksafe.vic.gov.au/safe-work-method-statements-swms

Excavations of 1.5 meters or deeper require the use of gas (methane, carbon dioxide, oxygen) monitoring equipment.

6.2.2 Asbestos

Clean-up of identified asbestos must be undertaken by accredited asbestos handlers. Members of the public, employees and staff are not to touch, move or otherwise handle asbestos. All staff must follow DEECA's *Asbestos management in the field guide*.

Following monitoring or inspections that have confirmed the presence of asbestos, DEECA/MSC will deploy accredited asbestos handlers to undertake a clean-up. Refer to the EPA website for more information, www.epa.vic.gov.au

An annual contract is in place for asbestos clean-up and small remediation works. Asbestos is separated and prepared for transfer to an accredited disposal point at Portland. Other waste is taken to a Moyne Shire Council transfer station.

Volumes and nature of asbestos material collected are recorded in a central database spreadsheet and reviewed by DEECA. An example of this waste log is provided in Appendix 4.

6.3 Approvals and permits

Maintenance, minor clean-up response (<2 m^3), fencing, signage and dune rehabilitation works described in the SMP fit within the general Consent for Use and Development of Coastal Crown Land issued on 27 August 2013 (Government Gazette No. G36, 5 September 2013 – see Appendix 4). For response and recovery works outside of the Gazette description, the permits and approvals detailed in Table 16 may apply.

Table 16. Permit and approvals requirements

Action	Approval permit required	Approval agency
Works occurring on coastal Crown land within the gazetted description, including: • Repairs and maintenance of fences and signs (including temporary fencing or signs for public safety) • Vegetation management (including revegetation, erosion stabilisation works, pest plant control or trimming/pruning to improve ecological health) • Temporary risk mitigation measures to ensure public safety Full details are provided in Appendix 4.	n/a Covered under general Consent for Use and Development of Coastal Crown Land.	DEECA
Works occurring on coastal Crown land outside of the gazetted description Movement of sand that may impact on local coastal processes – e.g. sand scaping, sand nourishment	Consent under the *Marine and Coast Act 2020*	DEECA
Removal, destruction or lopping of native vegetation, including dead native vegetation	Native vegetation removal permit under the *Planning and Environment Act 1987*	Moyne Shire Council
Removal, destruction or lopping of vegetation listed under the Flora and Fauna Guarantee Act	Native vegetation removal permit under the *Flora and Fauna Guarantee Act 1988*	DEECA
Disturbance or excavation of Aboriginal Cultural Heritage Activities that will or are likely to harm Aboriginal cultural heritage Rehabilitate land at an Aboriginal place	Cultural Heritage Permit under the *Aboriginal Heritage Act 2006*	Aboriginal Victoria & Eastern Maar Traditional Owner Corporation

6.4 Communication and engagement

It is important stakeholders and interested community members are kept informed of site management activities. This includes notification of waste exposure and site clean-up actions.

Communication methods and key messages will be detailed in a Communication and Engagement Plan.

At a minimum communication and engagement activities include those detailed in Table 17.

Table 17. Communication activities

Communications activity	Methods	Responsibility
Regular updates of monitoring results, site management activities and notable events	• Publish VCMP drone monitoring results as surveys are undertaken • Periodic collation, review and reporting of VCMP drone monitoring data every 1-2 years • Regular maintenance and annual publishing of activity log detailing activities undertaken	Port Fairy Coastal Group DEECA
Ad-hoc communication of dune condition and risk levels	• Communication of event-based monitoring outcomes (e.g. post-storm events) and corresponding risk levels • Via social media, Council news website and local print media	DEECA Moyne Shire Council
Notification of event clean-up response	• Public communication of event clean-up response. Includes: – Condition of the dune – Clean-up response and timeframes – Public safety controls – Key messaging and referral to SMP • Via social media, Council news website and local print media	DEECA Moyne Shire Council

Communications are to be distributed to key stakeholders and community groups, as well as published on the DEECA and/or Moyne Shire Council website.

These communication activities also form part of reporting arrangements, detailed in Section 7.

6.4.1 Frequently Asked Questions

A series of frequently asked questions have been developed in Table 18 and will be updated as further information needs become apparent.

Table 18. Frequently asked questions

Question	Response
If I see waste exposed from the landfill, who do I contact?	Report the waste exposure by notifying DEECA on 136 186
Why are certain areas fenced off?	Access controls have been implemented across the landfill sites to: • Minimise the risk of injury (cuts or abrasions) and human exposure to waste material, access controls are in place across the landfill sites. • Protect the dune system and vegetation in order to provide a buffer to the impacts of coastal erosion. The presence of vegetation can also act as a wind breaker to protect the sand from wind erosion. Adherence to these access controls helps us manage risk at the site effectively.
How long will it take for you to clean up exposed waste?	DEECA and Moyne Shire will organise inspection of the site within 48 hours following notification of waste exposure. Depending on the scale and nature of the waste exposed, a clean-up response will be enacted. For smaller areas of waste exposure (<2 m^3) clean-up will be completed within 2 weeks. For larger waste exposure events, relevant approvals and organisation of clean up may take longer. Communications will be provided.
How will I be notified that clean-up has been completed?	Moyne Shire Council and DEECA will notify the community of clean-up activities and management actions undertaken through local social media, Council's news website and local print media.
What are you doing to treat the site in the long term?	This SMP seeks to manage risk at the site in the short term. DEECA and Moyne Shire Council are also investigating long-term options for management of the site as part of a Coastal Adaptation Plan. Further details of investigations into long term options at the site can be found at engage.vic.gov.au/port-fairy-landfill-management

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6.4.2 Duty to notify

The *Environment Protection Act 2017* requires land managers to notify EPA of certain types of contamination of land (which includes groundwater) in certain circumstances. EPA provides further guidance on identifying notifiable contamination refer to the EPA website www.epa.vic.gov.au for more information.

7 Monitoring, evaluation, reporting and review

7.1 Monitoring and evaluation

Routine and targeted, event-based monitoring for a core part of the site management pathway. Further monitoring and evaluation of SMP implementation includes reflection on impact, effectiveness, efficiency, and appropriateness of implementation.

In addition to the monitoring of physical coastal changes, monitoring can also include:

- changes in condition of values or community priorities
- changes in risk exposure criteria and tolerance to risk
- funds expended
- actions implemented
- benefits and co-benefits delivered
- community sentiment

Evaluation of the SMP should consider the following key evaluation questions:

Impact/ effectiveness	The extent to which the Plan has achieved its desired purpose

- How has the plan addressed environmental and human health risks associated with landfill exposure?
- Has the Plan been implemented in alignment with relevant legislative requirements and policy frameworks, including the duty to manage?
- Is the plan guided by regional and place-based values?
- Has plan development and implementation been informed by the latest coastal hazard and contamination assessment information?
- To what extent has the SMP addressed ongoing and event-based management needs?

Efficiency	The degree to which resources (cost, time, staff) were efficiently used to achieve the desired purpose

- How has implementation of the SMP ensured value for money?
- Have management actions been undertaken in a timely manner?
- Has implementation of the plan utilised available resources (knowledge, skills and staff) in an efficient manner?
- What factors impacted (positively or negatively) on the cost, timeliness or use of resources?
- Were management agencies effective in working together?
- What aspects of the site management have worked well, what aspects haven't?

Appropriateness	The degree to which management actions were suitable in achieving the desired purpose

- How has the SMP addressed risk to values associated with landfill exposure?
- Were management actions used suitable and the best option available to manage short-term risk of landfill exposure?
- How has the SMP met the duty to manage obligations under the *Environmental Protection Act 2017*.
- How have management actions aligned with objectives and guiding principles of the *Marine and Coastal Act 2018*?
- How does the SMP meet the needs of the community and reflect obligations of land managers in managing contamination?

7.2 Reporting

Reporting arrangements under the site management plan include:

- Recording waste materials collected including volume and nature of waste in a central database spreadsheet
- Annual reporting of activities undertaken as part of the SMP, including:
  - Dune condition and monitoring results
  - Weather conditions and outlook
  - Any management actions undertaken
- Reporting notifications through the Duty to notify, as required

7.3 Review

The SMP will be evaluated annually, in June for the following financial years contracting requirements. A review of the full SMP will occur every 5 years. Earlier reviews may be triggered by the following events:

- Management actions are ineffective in reducing risk to tolerable levels
  - Landfill exposure persists or reoccurs within 3 months (extreme risk)
- Significant increases in the rate of dune erosion adjacent to the landfill site
- Significant increases in the volumes of waste exposed and collected
- Issuing of another Pollution Abatement Notice

Any review of the SMP should occur in conjunction with review of the status and timelines for long-term adaptation planning and option implementation.

Note: The purpose of the SMP is to manage risk to tolerable levels, as far as is practicable in the short term (5-10 years). With sea level rise and increasing coastal hazard impacts, actions in the SMP will become increasingly ineffective at managing risk. Review of the SMP should be undertaken in conjunction with planning and implementation for longer-term coastal hazard adaptation measures.

8 References

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WRL, 2013. *Future Coasts – Port Fairy Coastal Hazard Assessment*, prepared by Water Research Laboratory, University of New South Wales.

9 Appendices

Appendix 1. Relevant legislation and policy

Table 19. Overview of relevant policy and legislation

Document	Description
Commonwealth	
Environmental Protection and Threatened Species	
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	The EPBC Act provides a legal framework to protect and manage unique plants, animals, habitats and places. Under the Act, a person must not take an action that has, will have, or is likely to have, a significant impact on a listed threatened ecological community, without approval from the Minister. The Hooded Plover (eastern) has been recorded within the inter-tidal zone of East Beach across both the DEECA and MSC sites. The Hooded Plover is listed as Vulnerable (Migratory) under the EPBC Act. Key threats to the Hooded Plover include human physical disturbance of beach nesting sites. Areas surrounding the site also provide habitat for other listed species including: • Orange-bellied Parrot (Critically endangered) • Southern Right Whale (Endangered)
Victoria	
Environmental Protection	
Environment Protection Act 2017 and *Environment Protection Amendment Act 2017*	These environment protection Acts establish both a General Environment Duty (GED) and Duty to Manage (DTM) contaminated land. Under Section 39 of the Act, the DTM creates an obligation on persons in management or control of land to minimise, so far as reasonably practicable, the risks of harm to human health and the environment from contamination. This includes obligations to: • Identify any contamination a person should reasonably know about and investigate/assess that contamination. • Manage the contamination by minimising risks to human health and the environment so far as reasonably practicable. • Notify people who may be affected by the contamination. These obligations are outlined in the 'Guide to the duty to manage contaminated land' (EPA, 2022). To determine what is reasonably practicable, a risk-based approach is taken, during which regard must be had to: • the likelihood of those risks eventuating; • the degree of harm that would result if those risks eventuated; • what the person concerned knows, or ought to reasonably know, about the harm or risks of harm; • the availability and suitability of ways to eliminate or reduce those risks; • the cost of eliminating or reducing those risks.
Environment Protection Regulations 2021	The Regulations support the objectives of the legislation. This includes by imposing obligations in relation to environmental protection, pollution incidents, contaminated land and waste, including in relation to on-site wastewater management systems.
Contaminated land policy (2021)	This policy explains the contaminated land duties in the Environmental Protection Act 2017 and their role in minimising contaminated land risks of harm. It describes how EPA will implement the duties, and how EPA expects duty holders to approach compliance.

Document	Description
Environmental Reference Standards (ERS)	The ERS acts as a benchmark and state of knowledge for assessing potential impacts on human health or the environment. It guides evaluation of the significance of these impacts to inform obligations under the GED and DTM. Standards for environmental values identified in the ERS comprise indicators and objectives for those indicators (levels, loads, concentrations or amounts).
Coastal and marine management	
Marine and Coastal Act 2018	The spearhead of recent coastal management reforms is the *Marine and Coastal Act 2018* (the Act). The Act sets out objectives and guiding principles for planning and management of the marine and coastal environment. The guiding principles are: • Integrated coastal zone management • Ecosystem-based management • Ecologically sustainable development • Evidence-based decision-making • Precautionary principle • Proportionate and risk-based principle • Adaptive management The Act is supported by the Marine and Coastal Policy (2020) and Strategy (2022). Consent under the Act is required to use or develop any marine and coastal Crown land. Consents are assessed against the Policy, Strategy, objectives and guiding principles to ensure that public values are protected.
Marine and Coastal Policy 2020	The Marine and Coastal Policy guides all planning and decision making under the *Marine and Coastal Act 2018*. The Policy sets out a 'Planning and Decision Pathway' that outlines how the objectives and guiding principles of the *Marine and Coastal Act 2018* are to be used in decision making for the marine and coastal environment.
Victoria's Resilient Coast – Adapting for 2100+ framework (VRC framework)	Informed by the Marine and Coastal Policy, DEECA has recently developed the VRC framework, a state-wide approach to long-term coastal hazard risk management and adaptation. The framework and its guidelines support local governments, land and asset managers, and communities to adapt to climate change impacts on the coast. This includes guidance for using an adaptation pathways approach to help inform decision making, planning, triggers, and timing of actions in a strategic manner.
Planning	
Planning and Environment Act 1987 (PE Act)	The PE Act establishes a planning framework for the use, development, and protection of land in Victoria. It guides local governments in their use of the Victoria Planning Provisions and administration of municipal planning schemes. This includes guidance on administering planning overlays and regulations regarding the removal of native vegetation.
Victorian Planning Provisions (VPP)	The VPP are established under the *Planning and Environment Act 1987* as a statewide reference document or template from which a planning scheme or planning scheme provision must be sourced or constructed. The VPP is not a planning scheme and does not apply to any land.
Emergency management	
Emergency Management Act 2013	The Emergency Management Act 2013 provides the legislative direction and basis for emergency management in Victoria. It is supported by the State emergency management priorities, sub-plans for specific emergencies, and state guidelines. An emergency, as defined under the *Emergency Management Act 2013*, encompasses an actual or imminent event that may endanger the health or safety of any person in Victoria, destroy or damage property, or endanger or threaten to endanger the environment.

Document	Description
Victorian State Emergency Management Plan (SEMP) (2023)	The Victorian SEMP contains provisions providing for the mitigation of, response to and recovery from emergencies, and specifies the roles and responsibilities of agencies in relation to emergency management. The SEMP provides details of arrangements for an integrated, coordinated and comprehensive approach to emergency management at a state level.
Aboriginal Heritage	
Aboriginal Heritage Act 2006	The Act provides protection for Aboriginal cultural heritage in Victoria. It applies to all Aboriginal places and objects, regardless of their inclusion on the Victorian Aboriginal Heritage Register, or whether they are located on public or private land.
Aboriginal Heritage Regulations 2018	The Regulations define 'high impact activities' and 'areas of cultural heritage sensitivity'. When carrying out any activities that will, or are likely to, cause harm to Aboriginal cultural heritage, a cultural heritage management plan must be prepared to assess the likelihood of, and mange harm to, any Aboriginal cultural heritage. A Cultural Heritage Permit is also required, for which the approval body is the relevant Registered Aboriginal Party. For the Port Fairy sites, this is the Eastern Maar Aboriginal Corporation.
Threatened Species	
Flora and Fauna Guarantee Act 1988 and *Flora and Fauna Guarantee Amendment Act 2019* (FFG Act)	The FFG Act is the key piece of Victorian legislation for the conservation of threatened species and communities, including the management of potentially threatening processes. A Flora and Fauna Assessment of the landfill sites (AECOM 2020) identified 85 FFG-listed species, including 81 fauna species and 4 flora species from the Victorian Biodiversity Atlas, inclusive of the Hooded Plover.
Moyne Shire Council	
Planning	

Planning scheme and overlays	Local Planning Provisions are guided by the Victorian Planning Provisions and are applied through the Moyne Shire Planning Scheme.
	The relevant planning overlays and their permit requirements for the DEECA and MSC landfill sites are listed below:
	Environmental Significance Overlay (ESO1):
	• *DEECA site:* in accordance with Schedule 1 to Clause 42.01 Environmental Significance Overlay, a permit is not required to carry out works undertaken by DEECA, or the appointed committee of management, on coastal Crown land under the relevant legislation.
	• *MSC site:* a permit is required by MSC to carry out works.
	Significant Landscape Overlay (SLO5):
	• *DEECA site:* not applicable.
	• *MSC site:* in accordance with Schedule 5 to Clause 42.03-3 Significant Landscape Overlay, a permit is required from the relevant authority to remove, destroy or lop any vegetation, except where:
	  • The vegetation is recognised as an environmental weed.
	  • The vegetation is dead.
	  • The vegetation has been planted for gardens or for horticultural purposes
	Land Subject to Inundation Overlay (LSIO) and Floodway Overlay (FO)
	These overlays cover areas near Griffiths Street and Skenes Road. The Local Planning Provisions should be reviewed for any works adjacent to the roadside.

Appendix 2. Coastal processes understanding

Defining the local coastal setting and landscape including geology, wave climate, and artificial coastal protection structures, allows us to assess how natural coastal processes interact with the coastline. This knowledge helps land managers understand how coastal processes such as erosion may impact upon these areas and potentially pose a hazard. An understanding of coastal processes also helps inform how coastal hazard risk can be managed through management actions.

Coastal landscape setting

East Beach is located to the west of Port Fairy township on Victoria's south west coast. The 5.8 km stretch of sandy beach extends in a broad arc from the rocky basalt shore at Reef Point in the northeast, south to the North Mole harbour entrance wall. At the harbour, the Moyne River empties into the Bass Strait amongst intertidal platforms at Griffith Island.

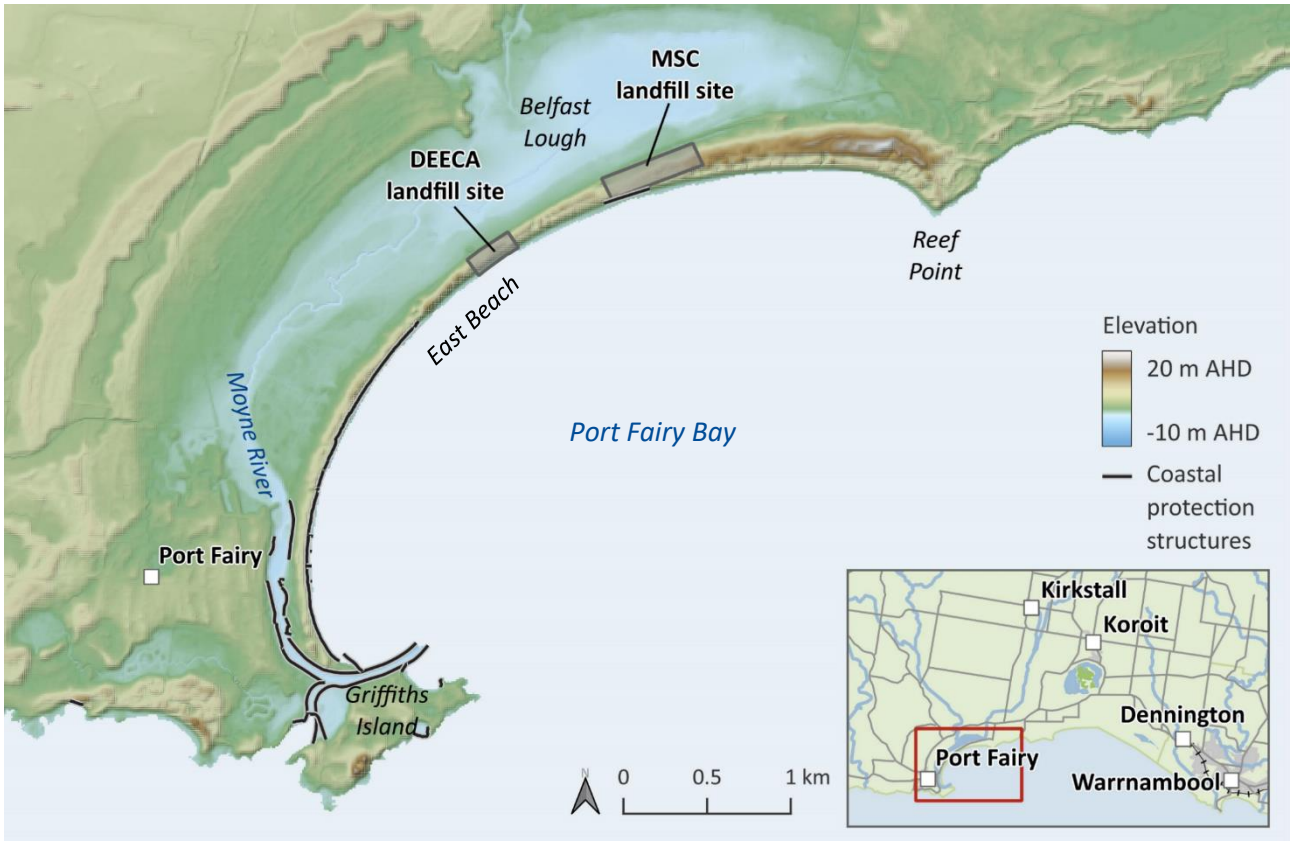


Figure 15. Coastal landscape setting and elevation across East Beach

East Beach is made up of medium grain, white sand. The landfill section of East Beach is backed by dunes typically 5-10 m high with some vegetation cover. Bedrock depths along East Beach are >10 m below beach level in the section adjacent to the two landfill sites. This means erosion will not be limited in these areas by the presence of bedrock.

Winds and therefore waves across south west Victoria are high energy and predominantly come from the south and southwest. This means the south facing eastern end of the beach is more exposed to ocean swells. The southwestern corner of the beach faces a more easterly direction, with greater protection from ocean swells provided by Griffiths Island and the training walls of the Moyne River. The northern end of the beach is more exposed to wave action. Wave energy, dune extent and dune height all increase towards the north east of the beach, with dune heights reaching around 7.5 m high.

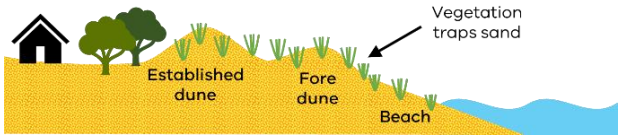
At the DEECA landfill site, the dune system extents between 60-70 m in width. The dune front has eroded across the front of the site, with a clear and steep scarp extending from the beach level (1-2 m AHD) to the dune crest, with typical elevation levels 8-12 m AHD.

Erosion of sandy coasts

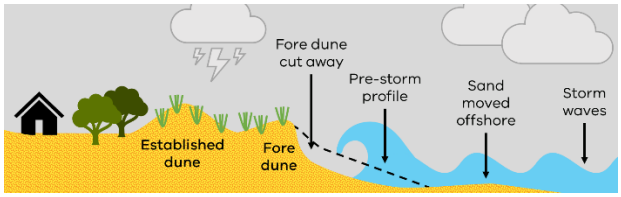
As with many coastlines across Australia, sand is eroded away in storm events across East Beach and then gradually builds up again in calmer periods. The dune crest is expected to move in infrequent ‘jumps’, eroding only during the most extreme storm events, then rebuilding very slowly. If there is not enough time between storm events for the shoreline to rebuild, it will retreat over the long term.

Erosion of sandy coasts

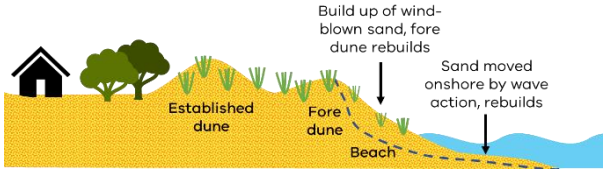
Natural dune systems go through periods of erosion and accretion. Dune vegetation has a key role in assisting dune growth, by helping to trap sand.



Erosion can occur when winds, waves and coastal currents shift sediment away or along the shoreline, sometimes just offshore. Short term erosion (storm bite) is associated with big storms.

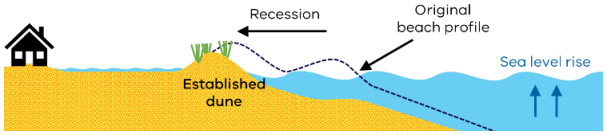


In calm conditions, wind and waves act to transport sand onshore, building up the dune. For a stable beach, all the sand moved offshore in a storm eventually moves back onto the beach, and overall shoreline position stays the same over time.



In some cases, changes in sediment supply or climate conditions (such as bigger or more frequent storms), means the beach may not rebuild fully between storm events.

With less sand retained on the beach over time, long-term erosion (recession) may occur; this means the shoreline position (e.g. vegetated dunes and high tide beach) moves incrementally landward (over several decades).



Coastal protection structures and historic management

Over the last century, various coastal protection structures have been implemented across East Beach and the Port Fairy foreshore. These structures alter the coastal processes across the bay. This includes changed wave refraction patterns and sediment transport. These shoreline modifications and coastal protection structures include:

- joining of Griffiths Island and Rabbit Island as early as 1870, potentially with dredge spoil from the Moyne River,
- training walls at the Moyne River entrance, constructed in the late 1800s,
- a basalt breakwater at the south west end of the beach, constructed in the 1910s,
- a boulder seawall across the foreshore, originally constructed in the 1950s and gradually extended since, now reaching around 2 km in length,
- timber groynes, constructed in the 1970s, and
- a low seawall, constructed in front of the MSC landfill site in 2015

Without the training walls and breakwaters, the Moyne River would meander and migrate across a large area. The southwest exit passage of the Moyne River is also held permanently closed by a series of seawalls and revetments. These modifications and structures have influenced sediment transport along East Beach and around Griffiths Island. Dredging of the Moyne River entrance is thought to have started in the 1870s and continues today. This dredging maintains the depths of the river for safe navigation. Dredged material is placed near the southern end of East Beach and is around 5,000 – 10,000 m^3/yr.

Directly in front of the MSC landfill site is a low revetment structure referred to as a wave energy dissipating structure (WEDS). This structure was constructed in 2015 as an immediate response to the erosion being experiencing at the dune fronting the MSC landfill and has a design life of 10-15 years (SMEC, 2022). Wooden sand trap fencing extending out on the northeast end of the WEDS was also installed but has since been lost to coastal processes.

Figure 16. Construction of the wave energy dissipation structure.

Coastal processes and hazard drivers

Analysis of aerial imagery, satellite data and elevation surveys since 1948 has shown that the shoreline was relatively stable from 1948 to 1986. A period of erosion was observed from 2011 to 2012, with 5-10 metres of dune erosion. Partial exposure of the landfill occurred at this time. Longer term (decadal) erosion rates can be estimated based on aerial imagery of the vegetation line and satellite imagery analysis (Table 20).

Table 20. Estimated erosion rates, lower and higher rate estimates. Source: McCarroll (2023).

	Lower erosion rate	Higher erosion rate
	1948-2013 aerial imagery vegetation line	1988-2016 DEA satellite shorelines
MSC landfill site	-0.14 m/yr	-0.71 m/yr
DEECA landfill site	-0.25 m/yr	-0.33 m/yr

Since 2018, regular drone (VCMP) surveys have indicated that greatest erosion is towards the east, fronting the MSC landfill site (excluding the revetment) (Figure 17). Some studies suggest there is a change in net sediment transport direction along the beach (DHI, 2021). Net sediment movement is modelled to 'diverge' southwest of the DEECA landfill site and sediment moves to the north east across the two landfill sites.

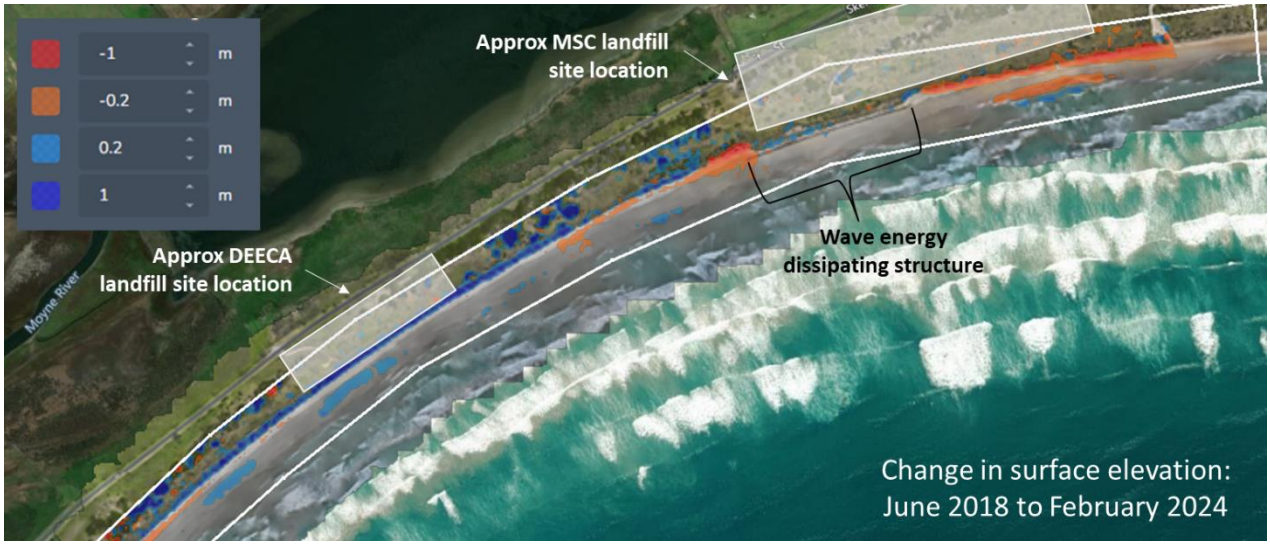


Figure 17. Change in surface elevation from 5th June 2018 to 2nd February 2024 (Source: VCMP drone survey)

Figure 18 summarises coastal processes across the site. Understanding these processes allows managers to understand what type of weather conditions may result in accelerated erosion of the dune fronting the landfill sites. We know that storms generating waves from the south west are likely to contribute to an erosion event. The severity of erosion is dependent on the specific weather conditions and magnitude (size) of the storm.

In the short-term (5-10 year timeframe), managing risk at the site is focussed on managing the risk of landfill exposure as a result of storm event erosion. Understanding the potential extent of shoreline change in response to a storm event (or series of events) helps to identify the likelihood of landfill exposure and subsequent levels of risk at the sites.

Observations, monitoring data and various coastal processes and hazard investigations help to characterise the likely extent of shoreline change. Table 21 summarises these sources of information and estimated distance of short-term shoreline change.

Table 21. Available information to inform likely short-term shoreline change

Source	Description	Distance of short-term shoreline change	
		DEECA site	MSC site
Future Coasts - Port Fairy Coastal Hazard Assessment (WRL, 2013)	Present day erosion hazard line incorporating short term storm erosion from three consecutive 1% AEP storm events and dune stability (SBeach modelling)	22 metres	25 metres
Port Fairy landfill sites coastal hazard assessment (McCarroll, 2023)	Short term storm erosion from a single 1% AEP storm event (using ShoreTrans)	~12 metres*	~15 metres*
	Short term storm erosion from three consecutive 1% AEP storm events (using ShoreTrans)	~18 metres*	~22 metres*
DEA coastlines	Greatest landward movement of shoreline location between successive years	25 metres	22 metres

*Estimated from Figures 7-3 and 7-4 of McCarroll (2023)

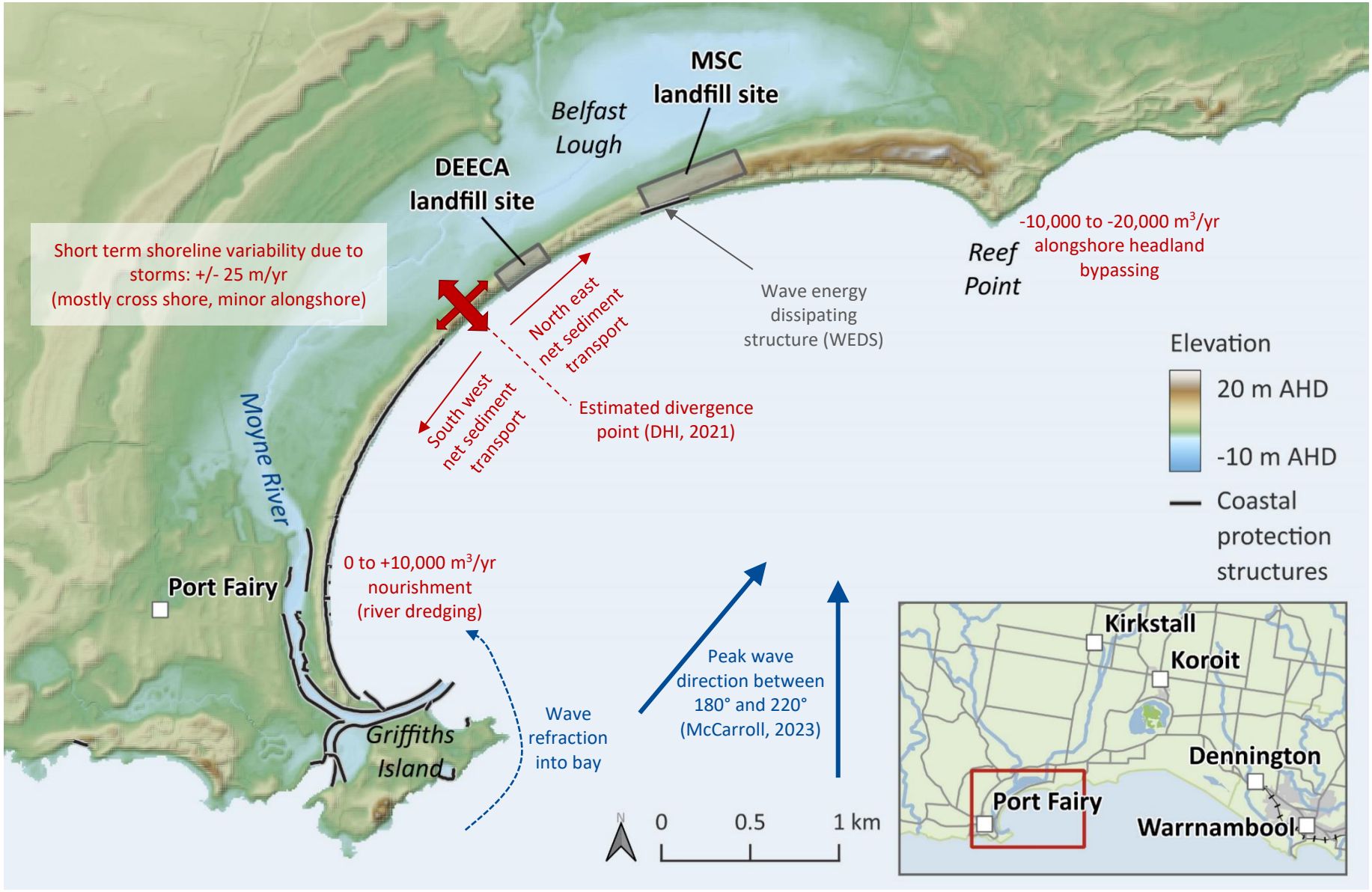


Figure 18. Coastal processes understanding, summarised from McCarroll (2023), DHI (2021) and WRL (2013).

Appendix 3. Example monitoring sheet

Example site monitoring sheet

Inspection date:	*XX/XX/XX*
Inspection personnel:	*Sample Sample*
Inspection type (routine, event-based):	*Event-based – following storm tide conditions on XX/XX/XX*
Conditions:	*Overcast with a NNW wind at 15kph with gusts up to 40km/ph. Swells were at 0.6m which increased to 1.5m.*

DEECA site			**Moyne Shire site**		
Location 1	**Location 2**	**Location 3**	**Location 1**	**Location 2**	**Location 3**
Dune condition in front of landfill					
EXAMPLE ONLY: *Evidence of dune toe erosion, ~3 m high erosion scarp with evidence of undercutting and slumping* *No waste exposure*			*EXAMPLE ONLY:* *WEDS in good condition with no evidence of material loss behind. Erosion evident at end of structure ~ 1 metre of recession since last inspection* *No waste exposure*		
Landfill distance from dune crest					
10 m			*10 m – behind WEDS*		
Level of exposure and risk					
Medium			*Negligible*		
Photos					

Wave Energy Dissipation Structure inspection

A Level 2 Coastal Protection Structure (CPS) Condition Assessment of the Wave Energy Dissipations Structure (WEDS) should by undertaken by a suitably trained professional every 2-3 years. This assessment should monitor the deterioration of the structure and recession of the coastal dunes.

This inspection should typically include tracking of:

- ☐ Rock displacement - Changes to rock revetment structural integrity since last inspection, noting any failed sections
- ☐ Toe scour and undermining - any recession of the dune behind the structure
- ☐ Terminal scour - any recession of the dune at the ends of the structure (terminal scour)
- ☐ Dune erosion - the width between the boundary of the landfill site and the dune escarpment edge

Appendix 4. Event clean-up response

An event clean-up response is triggered through monitoring activities confirming presence of visible waste that is unsafe and at risk of coming into contact with the public.

A clean up methodology using a 3 tonne dozer and trailer has been trialled and approved. In order to cope with larger volumes of waste the approved clean-up method could be up scaled. The process should be repeated as often as required. Golfies Car Park is to be used as the base of clean-up operations and the car park to be closed during works.

Table 22 details the tasks involved in the event clean-up response process

Table 22: Event clean-up response process

Task	Activity	Responsibility	Timing
Inspection and notification	Undertake a site inspection by appointed DEECA officer immediately following the event (if safe to do so)	Land and Built Environment Far South West	Within 48 hours
	Report incident through the Barwon South West Land and Built Environment Group	Contaminated Land Project Officer	Following site inspection
	Trigger Communication Plan and public notice	Contaminated Land Project Officer	Within 72 hours
Initial public safety management	Secure the site and prevent public access – establish temporary 'no-go' fencing, signage and traffic management	Contractor	Within 1 week
	Golfies car park closure notification and signage	Contractor	
Asbestos management (if required)	If required, accredited asbestos handlers clear asbestos ahead of additional works.	Accredited asbestos handler	Within1 week
	Where possible, asbestos is separated, collected, placed into marked plastic bags, stored and disposed of, separately to bulk waste.	Accredited asbestos handler	
Bulk waste clean up	Use the 3 tonne dozer with all terrain tracks to tow trailer.	Contractor	Within 2 weeks
	Locate 3 or 4 trailers in the Mills Reef car park.	Contractor	
	Each trailer to be loaded with 2 or 3 palletised steel mesh bins.	Contractor	
	Bulldozer to tow trailer	Contractor	
	20 tonne excavator to load beach waste onto the bins on trailer.	Contractor	
	When bins are full bulldozer tows trailer back to Mills Reef car park and decouples trailer and hooks up new trailer with empty bins.	Contractor	
	Forklift loads full palletised bins onto truck and material is carted to authorised waste disposal site.	Contractor	
Reporting	Volumes of asbestos and bulk waste recorded separately in waste log	Contractor Asbestos handler	
	Public notification of clean-up activity completion. Reporting of clean-up activities through Barwon South West Land and Built Environment Group	Contaminated Land Project Officer	

Contractors undertaking works on this site are required to develop a Safe Work Method Statement (SWMS) prior to the commencement of works. The SWMS must be submitted to the Contaminated Land Project Officer.

An annual contract is in place for clean-up and small remediation works (Appendix 6) – please note any variations to this contract and supplier must be approved via DEECA's Procurement processes.

Asbestos

Following monitoring or inspections that have confirmed the presence of asbestos, DEECA will deploy accredited asbestos handlers to undertake a clean-up. The asbestos clean-up contractors consist of a team of two fully protected operators. Waste is collected manually and deposited into the tray of a 4 wheel drive vehicle. Where possible, asbestos is separated so that it can be prepared for transfer to an accredited disposal point at Portland. Other waste is taken to a Moyne Shire Council transfer station.

Members of the public, employees and staff are not to touch, move or otherwise handle asbestos.

Example waste log

Through each clean-up event the volume and type of material collected should be recorded in the following log

Date	With or Without Machinery	Type of Material	Weight collected (kg)		Cumulative weight (kg)		Weather / Swell / Tide details	No of people observed on beach during work
			Asbestos	Other	Asbestos	Other		
7/11/2011	*Without*	*Night soil containers/scrap metal, asbestos, glass*	*150*	*50*	*150*	*50*	*Overcast with a NNW wind at 15kph with gusts up to 40km/ph. Swells were at 0.6m which increased to 1.5m.*	*8*

General consent for use and development of Coastal Crown Land

Maintenance, clean-up response, fencing, signage and dune management works described in the SMP fit within the general Consent for Use and Development of Coastal Crown Land issued on 27 August 2013 (Government Gazette No. G36, 5 September 2013 - below). For works outside of the Gazette description additional permits and approvals may apply.

Coastal Management Act 1995

CONSENT FOR USE AND DEVELOPMENT OF COASTAL CROWN LAND

I, the Hon Ryan Smith MP, Minister for Environment and Climate Change under section 40(1)(b) of the **Coastal Management Act 1995**, hereby consent to the following uses and developments on coastal Crown land, subject to the conditions and limitations contained herein:

1) Existing Uses

   a. Any use or development of land that was lawfully commenced prior to the commencement of Part 2 of the **Coastal Management Act 1995** (26 April 1995).

   b. Any use or development where all necessary approvals were obtained prior to the commencement of Part 2 of the **Coastal Management Act 1995** and have not yet expired.

   c. Any use of the land that is a normal permitted use of the land under the relevant instrument of management.

      i. Instrument of management is defined for the purpose of this consent as any reservation, appointment, regulations, Act of Parliament or tenure that provides for the control and management of the land by a land manager for defined purpose.

   d. Any use of the land that the land manager has the authority to permit. Such consent does not extend to:

      i. Any occupation of the land; or

      ii. A use that would detrimentally affect the normal use and enjoyment of the land by other users.

   e. Any use of the land consistent with a current lease or licence issued under the **Crown Land (Reserves) Act 1978** or the **Land Act 1958**.

   f. Consent under this section does not apply to any use of the land that involves the erection of structures or excavation of land.

2) Buildings and Structures

   a. Repairs, maintenance, restoration and renovation of existing buildings that do not occur outside of the:

      i. existing building footprint; or

      ii. existing building height; and

      iii. Do not involve the excavation of any land.

   b. Repairs and maintenance of fences that does not involve:

      i. Increasing the length or size or height of fencing; or

      ii. Re-alignment of fencing.

   c. Sub-clauses (b)(i) and (b)(ii) do not apply to the installation of emergency or temporary fencing that is required for the purposes of public safety.

   d. Repairs, maintenance and replacement of signs that does not involve increasing the number or size of signs.

   e. Sub-clause (d) does not apply where signage is required for emergency or public safety purposes.

f. Repairs, maintenance or replacement of navigational aids by the relevant port authority.

g. Repairs, maintenance and replacement of any other structure that does not include:

i. Increasing the size of the structure;

ii. Altering the location of the structure; or

iii. Altering the nature of the structure so the purpose of the structure is varied.

h. For the purposes of this consent a structure is defined as any built asset fixed to the land that does not include, buildings, services, roads, fences or signs.

3) Roads and Tracks

a. Maintain and repair roads where the works occur within the alignment of an existing formed road.

b. For the purposes of sub-clause (a) a road includes roadways, road surfaces, kerbs, gutters, footpaths, boardwalks, bridges, stairways, safety barriers adjoining roads, round-abouts, car parks and median strips.

4) Services

a. Repair and maintenance of existing gas, electricity, water, navigational, drainage, sewerage and telecommunications infrastructure.

b. Consent does not apply where the repair or maintenance works requires the clearance of vegetation or the breaking of soil.

c. Sub-clause (b) does not apply where emergency repairs are required.

5) Management of Plants and Animals.

a. Maintenance of vegetation which includes:

i. Trimming and pruning of vegetation to improve ecological health or to maintain paths, roads, fire access tracks, existing buildings and structures, signs and overhead services;

ii. Mowing of grass;

iii. Removal of dangerous trees and tree limbs for public risk management;

iv. Revegetation using indigenous plant species;

v. Erosion stabilisation works;

vi. Control and removal of pest plants.

vii. Maintenance of vegetation does not include:

1. clearance of vegetation

2. increasing the area of exotic plantings; or

3. altering the contours of the land.

b. Control and eradication of pest animals.

6) Estuary openings

a. Any works undertaken to artificially open an estuary where a licence has been issued under section 67 of the **Water Act 1989**.

7) Emergency Services and Works

a. Any actions carried out that falls within the provisions of the **Emergency Management Act 1986** and is carried out by a person or body that is empowered to carry out functions under that Act.

b. Any emergency or temporary risk mitigation works undertaken by a land manager to ensure the safety of the land users or general public, including the demolition of dangerous structures, buildings and roads.

c. The removal or burying of dead animals that pose a risk to public health.

8) Conditions on consent

a. Prior to any use or development commencing, all procedural requirements under relevant native title legislation must be met.

b. This consent does not apply to any use or development of coastal Crown land that is in contradiction of any approved coastal action plan, management plan, works plan, pest management plan or fire management plan.

c. This consent does not apply to any use or development of coastal Crown land that is in contradiction of any local coastal recommendation or the purpose for which the land is reserved under the **Crown Land (Reserves) Act 1978**.

d. This consent is given without prejudice and only constitutes consent under the **Coastal Management Act 1995**. Where any use or development that is consented to here is subject to a planning process under the provisions of the **Planning and Environment Act 1987**, any requirement for the Department of Environment and Primary Industries' consent as land owner, public land manager or referral authority is still required.

e. Consent under clauses 2(a), 2(b), 2(g), 3(a) and 4(a) is limited to developments and works under the value of $100,000.

f. Right is reserved for this consent to be withdrawn where a particular use or development is deemed worthy of special consideration.

Revocation

The earlier general consent issued on 14 March 2000 by the then Minister for Environment and Conservation, the Hon Sheryl Garbutt MP, and published in the Victoria Government Gazette on 13 April 2000, is revoked.

Dated 27 August 2013

THE HON RYAN SMITH MP
Minister for Environment and Climate Change

Appendix 5. Job Safety Planning and Safe Work Method Statements

The following appendix provides DEECA requirements for job safety planning and safe work methods statements. These processes should be completed when conducting any fieldwork, inspection or works at the sites.

What is covered by this procedure?

Job safety planning

The following process outlines the safety and wellbeing requirements to be undertaken when conducting fieldwork.

Step	Activity	Who
1	Complete **Part 1** of the Job Safety Plan form including: • description of the type of fieldwork to be carried out • the fieldwork location • the communication and site specific emergency response arrangements. **Note:** The Works Management System, which is available on Tarnook can also be used as a tool to record Job Safety Planning.	Manager Supervisor
2	Check if current versions of Safe Work Procedures (SWPs) and Safe Operating Instructions (SOIs) are available for the fieldwork to be undertaken. **Note:** Current versions of SWPs and SOIs are accessible via the links on the Ask Ada Job safety planning page.	Manager Supervisor
3	Arrange for a Safe Work Method Statement (SWMS) form to be completed by staff who will be performing and/or supervising the fieldwork if a SWP does not exist. **Refer to:** *Safe work procedure development guideline* for information on how to complete a SWMS.	Manager Supervisor Employee Other workplace participant
4	• Determine if fieldwork involves working alone or in isolation. • Refer to the *Working alone or in isolation guideline* to determine the risk factors, mitigations and agreed regular check-in/check-out requirements via the JourneyMate App. • Determine the responsible person and confirm the check-in/check-out arrangements via the JourneyMate app. • Determine the need for utilisation of other departmental approved communication devices or support by the 24/7 call centre.	Manager Supervisor
Prior to commencing the job		
5	Complete **Part 2** of the Job Safety Plan Form and confirm: • materials and equipment described in the SWP, SOI or SWMS are available • assigned employees are able to perform the work safely.	Supervisor

Step	Activity	Who
6	• Conduct job briefing/toolbox meeting (**refer to:** *Toolbox meeting template*). • Check employees and other workplace participants have knowledge and understanding of current SWPs and SOIs for the jobs they are required to undertake. **Note:** SWPs and SOIs are to be revisited if there has been an update or if the job has not been undertaken for some time. • Confirm working alone or in isolation check-in/check-out requirements are in place and understood. **Note**: A workplace register of employees who have knowledge and understanding of SWPs and SOIs is recommended to assist those employees who develop Job Safety Plans.	Supervisor
On site before work starts		
7	• Make sure the Job Safety Plan Form has been completed and discussed with the staff who will be performing the fieldwork. • Complete **Part 1 and 2** of the Site Safety Survey form making sure all hazards and safety and wellbeing risks in the environment that are not covered by the SWP/SWMS are identified and risk control measures are in place. **Note:** The Site Safety Survey is to be: • reviewed if conditions change during the job • completed each day for jobs that continue over multiple days • retained at the worksite.	• Onsite supervisor • Employee • Other workplace participant
On completion of the job		
8	Complete **Part 3** of the Site Safety Survey form at the end of the job and at the end of each day on a multi-day job.	• Supervisor • Employee • Other workplace participant
9	Notify manager or supervisor about any incidents, hazards or faulty equipment.	• Employee • Other workplace participant
10	Retain any hard copy job safety planning documentation, including records of briefings/toolbox meetings at the workplace, for a minimum of 12 months.	• Manager • Supervisor
11	Arrange for SWMS that have been developed to be converted to SWPs (or amend the existing SWP) if the task will be ongoing.	• Manager • Supervisor
Monitoring and review		
12	Perform a Job Safety Observation, using the Job Safety Observation form, at regular intervals to check compliance with the Job Safety Plan and identify areas for improvement. **Note:** Job Safety Observations (JSOs) should be undertaken while the job is in progress. This assists to demonstrate the requirements to provide supervision.	• Manager • Supervisor
13	Check JSOs are being completed by managers/supervisors as part of the Safety Assurance Review Program.	Safety & wellbeing advisor

Step	Activity	Who
14	Ensure the Tarnook SWP and SOI banks are regularly checked for any SWP and SOI updates and communicate these updates to their team. **Note:** Completion of the toolbox meeting template supports the documentation of this process.	• Manager • Supervisor

Key related policy, legislation and other documents

Policies

Working alone or in isolation policy

Procedures

Working in outdoor environments safety procedure

Forms

- First aid needs assessment – fieldwork
- Job safety observation form
- Job safety plan form
- Safe work method statement form
- Site safety survey form

Templates

- Emergency response plan template
- Safe work procedure template
- Toolbox meeting template

Supporting documents

- Communication and tracking equipment guide
- How do I manage job safety planning
- Safe work procedure development guideline
- Working alone or in isolation guideline
- Working outdoors environmental risks guideline

Definitions

The key terms underlined and used throughout this procedure are defined in the Policies and procedures online glossary.

Approval and review

Procedure owner	People and Culture
Contact	safety.feedback@delwp.vic.gov.au
Date issued	AUGUST 2022
Last review date	AUGUST 2022
Review schedule	Annual
Replaces	N/A

Job Safety Plan Form

Part 1: Information to be completed by person planning the job	
Name:	**Work centre:**
Job/s	**Job start date:** **Job completion date:**
Job number (office use only)	**Other relevant information** (e.g. contractors)
Locations/s (description and GPS or grid references) Supporting document attached: ☐ Maps	
Work to be done (description of job) Supporting documents attached: ☐ Roading Plan ☐ Detailed Job Plan ☐ Pre-work photos ☐ Risk assessments – e.g., manual handling, slips, trips, falls, chemicals, other (provide details)	
Communications (specify the required communication arrangements **OR** refer to communications plan) Supporting documents attached: ☐ Communications Plan	
Emergency response plan (specify the arrangements **OR** refer to emergency plan) Supporting documents attached: ☐ site specific emergency response plan	

Job Safety Plan Form

List Safe Work Procedures (SWP), Safe Operating Instructions (SOI) and Safe Work Method Statements (SWMS) required for the job	
Name of SWP, SOI or SWMS	**Reference number**

Complete checklist below			
Question	**Yes**	**No**	**Actions required**
Are all risks covered in the SWPs and SOIs and can the risks be effectively controlled?			**If yes**, proceed to next question. **If no**, develop a SWMS and attach to the JSP, then proceed to the next question.
Have employees participated in a job briefing or toolbox meeting and received information and instruction on SWPs and SOIs?			**If yes,** document details of the briefing/meeting and reference SWPs /SOIs used for the job. Maintain the records locally. **If no,** convene a job briefing/toolbox meeting before proceeding to the next question.
Does the job involve any high-risk work e.g. work at height that involves fall hazards, trenching > 1.5m, cranes lifting large culverts/crown units etc, using explosives, confined space entry, vertical access involving rope access, tree management involving rope access, working within railway networks?			**If yes,** contact your Safety & Wellbeing Advisor before the job commences. **If no,** proceed to the next question.
Do the employees have an understanding and knowledge of the hazards and required controls, and do they have relevant competencies/ licences to perform the work safely?			**If yes**, detail the materials, equipment, licences/competencies and supervision in the section headed 'Specific safety resources required'. **If no**, do not proceed. Contact the supervisor or person responsible for planning the job
Will the job involve working alone or in isolation?			**If yes**, ensure communication and emergency response plans are developed and documented and the JourneyMate app is used to monitor agreed check-in and check-out times through to job completion. Note: Confirm if other departmental approved devices or the 24/7 call centre are to be utilised. **If no**, proceed to the next question.
Have first aid requirements, including the need for any individual first aid plan, been assessed?			**If yes**, proceed to next question. **If no**, conduct a first aid needs assessment then proceed to the next question.
Will appropriate supervision be available on the day?			**If yes**, detail the materials, equipment, licences/competencies including additional supervision required on the day. **If no**, stop and escalate to Manager.

Job Safety Plan Form

Controls for critical safety issues (refer to SWPs, SOIs or SWMS)

Specific safety resources required	
People	
Licences/ competencies	
Plant and equipment	
Materials	
Supervision	

Manager/supervisor signature:
Date:

Part 2: This review is to be completed by the supervisor on the day immediately before the job commences

***Onsite supervisor:** (**must be completed)*

***Other employees:**

Question	Yes	No	Actions required or list other actions taken
Do the employees have knowledge and understanding of the SWPs, SOIs or SWMS relevant to this job?			**If yes**, proceed to next question. **If no**, do not proceed. Contact the relevant supervisor or person planning the job.
If there is a SWMS, have employees read, discussed and signed the SWMS?			**If yes**, proceed to next question. **If no,** brief employees and where required sign off SWMS before proceeding to the next question.
Are the required materials, equipment, licences/ competencies and supervision (as described in the JSP Part 1, SWP/SOI or SWMS) available?			**If yes**, proceed to next question. **If no**, do not proceed. Contact the supervisor or person responsible for planning the job
Are controls in place for critical safety issues identified?			**If yes**, proceed to the next question **If no**, do not proceed. Contact the relevant supervisor or person planning the job
Are first aiders and first aid kits available and has the need for any individual first aid plan been checked?			**If yes**, alert the first aider about any individual plan and proceed to next question. **If no**, do not proceed. Contact the relevant supervisor or person planning the job.
Is the appropriate supervision available to undertake the job?			**If yes**, proceed. **If no**, contact the supervisor or person responsible for planning the job.

Job Safety Plan Form

Onsite supervisor's signature: Date:

For jobs lasting more than a day		
1. Review Part 2 of the Job Safety Plan each day of the job. 2. Record any changes in crew, equipment, SWPs, SOIs or SWMS. **Note:** Site Safety Surveys must be completed for each day before commencing the job and if there are significant changes in conditions or the environment.		
Date	**Notes**	**Onsite supervisor's signature**

Safe Work Method Statement

To be completed when a Safe Work Procedure does not exist for the job or the planned job involves hazards/risks not covered in the SWP or an unplanned job arises

Job name:	**Date prepared:**	**Supervisor approving:**
Prepared by (list all participants and role)		**Manager approving:**
Description of the job:		
Name and signature of employees performing the job. Indicates received briefing and fully understand hazards and risk controls.		

Steps for filling out
1. Discuss the tasks, associated hazards, risks and controls with relevant employees, contractors and Health and Safety Representatives.
2. In the 'Job Steps' column list the work tasks in the sequence they will be carried out.
3. In the 'Potential hazards and risks' column, list the hazards and risks for each work task.
4. In the 'Risk Control Measures' column, select the hazard or risk and then work through the control levels, as detailed below, 1 – 4 from top to bottom. Choose a control measure (and how it is to be used) that is as close to level 1 as is reasonably practicable.
Control levels and requirements
1. **Eliminate** any risk to health or safety associated with the work and provide ongoing monitoring of controls during activities to make sure they are effective. 2. **Reduce** the risk to health or safety by any one or any combination of the following. • **Substituting** a new activity, procedure, plant, process or substance and ongoing monitoring of controls during activities to make sure they are effective. • **Isolating** persons from the hazard by methods such as barricading, fencing or guard railing or by using **engineering controls** such as mechanical or electrical devices. Controls should be checked prior to commencing activity with ongoing monitoring undertaken during the activities to ensure continued effectiveness. 3. **Use administrative controls** such as changing the way the work is done and/or provide and use **personal protective equipment**. Specific instruction on risk and controls, including correct usage, should be provided and the PPE should be checked prior to commencement of the activity with ongoing monitoring undertaken during the activities to make sure continued effectiveness.
4. Brief each team member on this SWMS before commencing work. Make sure the team knows that work is to immediately stop if the SWMS is not being followed.
5. Observe work being carried out. If controls are not adequate, stop the work, review the SWMS, adjust as required and re-brief the team.
6. Retain this SWMS for the duration of the work.

Safe Work Method Statement

Job steps List the basic steps required to perform the job in the sequence they are carried out.	Potential hazards/Risks Against each step list the hazards and risks that could cause	Risk control measures Described the preferred risk control measures. Apply the Hierarchy of Control: Elimination, Substitution, Engineering, Administration, PPE	Who is responsible List the role or person responsible for the risk control

Safe Work Method Statement

Job steps List the basic steps required to perform the job in the sequence they are carried out.	**Potential hazards/Risks** Against each step list the hazards and risks that could cause	**Risk control measures** Described the preferred risk control measures. Apply the Hierarchy of Control: Elimination, Substitution, Engineering, Administration, PPE	**Who is responsible** List the role or person responsible for the risk control

List materials, plant and equipment required to complete the task:	**Employee skills / competencies required for safe operation of plant, tools and equipment:**	**List documentation referenced in the SWMS** e.g., SWP, SOI, safety policy, safety procedure, risk assessments, previous JSA etc

Safe Work Method Statement

Examples of some hazards to be considered (list is not exhaustive, other hazards may be present)				
Manual handling Repetitive or sustained force	Manual handling High or sudden force	Manual handling Repetitive or sustained awkward postures	Manual handling Repetitive movements	Manual handling Handling live people or animals
Manual handling Handling unbalanced, unstable or hard to grasp loads	Site conditions (dusty, slippery, access and egress, terrain)	Hazardous materials (dust, fumes, vapours, mist, asbestos, PCBs, lead)	Working alone/isolation (emergency procedures, communication)	Physical condition (fatigue, stress, dehydration)
Impacted by work (contractors, general public)	Weather conditions (heat, cold, storms, wind)	Hazardous substances (including poisons)	Workers (experienced, new, competent)	Working at night, in low light
Traffic (pedestrian, vehicular, other work plant and equipment)	Noise (above 85 dbA, long duration, peak)	Liquids and gases under pressure (i.e. hydraulic fluid, compressed air)	Working in remote locations (emergency procedures, communication)	Building and structures (presence, stability, object to avoid)
Unauthorised access (contractors, general public)	Radiation (UV, other sources)	Dangerous goods (fire, explosion, reaction)	Animal bites (bees, insects, spiders, snakes)	Struck by object (dislodged rocks on slopes)
Plant and equipment (entanglement, crushing, cutting, striking, loss of power, unexpected start up or movement, hot parts)	Exposure to heat, cold (fire, radiant heat, snow, water)	Electricity (overhead, underground wires, fields, static)	Ergonomics (bench heights, working position, office setup)	Fall from height
Vehicle, plant, tools, equipment (defective, broken, damaged, not fit for purpose)	Communications (frequency, timing, type)	Biological hazards (animals, human, infectious diseases)	Sharp objects, edges (cuts, abrasions, lacerations, amputation)	Falling objects (hazardous trees)
Situational awareness	Confined spaces	Lightning	Vibration	Slips. trips or falls

Proposed list of PPE required:							
	Glove – *specify type*		Cut proof trousers /chain saw chaps		Footwear – *specify type*		UV protection - *specify type*
	Eye protection – *specify type*		Hearing protection – *specify type and dBA reduction*		Respiratory protection - *specify type*		Other – *specify type*
	Hard hat		Overalls		High visibility clothing		

Appendix 6. Clean up contract with schedule of rates

To be inserted when contract available.