

SITE CONTAMINATION MANAGEMENT PLAN

June 2020
J165588

DRAFT FOR REVIEW

CITY OF PORT PHILLIP

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Site Contamination Management Plan

City of Port Phillip

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1 Introduction

Greencap Pty Ltd (Greencap) was engaged by the City of Port Phillip (CoPP) to prepare a Site Contamination Management Plan (SCMP) for managing contaminated (or potentially contaminated) land on sites over which CoPP has control or management.

The SCMP facilitates CoPPs compliance with the Environment Protection Act 2017, as amended 2018 (EP Act), and is accompanied by the Site Contamination Risk Register (Risk Register) which assesses Council-owned or managed sites for their respective contamination risk, including ranking sites by their contamination risk and by priority for further investigation and/or remediation.

2 Purpose of the Site Contamination Management Plan (SCMP)

The purpose of the SCMP is to enable CoPP to effectively and proactively manage contaminated sites over which it has management or control, in accordance with Council policy, legislation and regulatory requirements. The SCMP does this by describing the process by which sites that CoPP has management or control over should be assessed to:

- Identify contamination;
- Prioritise for additional assessment, where required;
- Describe triggers for site remediation, where required; and
- Manage contamination to reduce risk of exposure to staff, contractors and the community.

It also provides:

- Statements outlining the strategic directions, policy, legislative and compliance framework to outline the purpose of this SCMP, with alignment to relevant legislation and Council policies;
- Guidance to project managers regarding management controls and procedures to ensure site contamination exposure is minimised to all staff and contractors;
- Guidance on how to undertake appropriate site assessment/testing and how this information is to be recorded within the Risk Register;
- Guidance on triggers for remediation once further site investigations are conducted;
- The ongoing monitoring and reporting requirements for the Risk Register; and
- A case study of best practice site management.

2.1 Outline of the SCMP

The SCMP and Risk Register¹ use risk-based prioritization principles and the CoPP Risk Management Framework to assign a risk ranking to each Council owned/managed site. Together, they enable CoPP to effectively and proactively prioritise and manage their contaminated sites.

The SCMP will be updated as per CoPP guidance to:

- Reflect and keep references to current legislation, standards, or policies and guidance, applicable to contaminated land management, updated including:
 - Environment Protection Act 2017² (EP Act) and Regulations;
 - National Environmental Protection (Assessment of Site Contamination) Measure (ASC NEPM) as amended 2013 and updated over time;
 - The Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE) technical reports;
 - Australian Standards (AS); and
 - International Organization for Standardization (ISO) standards.
- Make best use of and integrate with CoPP Information Management Systems.

¹ Greencap report J165588 R01 Risk Register User Guide, June 2020.

² Environment Protection Act 1970 and EP Act 2017, as relevant at the time.

Appendix A contains a list of regulations and guidelines which relate to contaminated land and health and safety.

3 Regulatory and Council Policy Framework

3.1 Alignment with State Legislation

The SCMP aligns with the EP Act which requires that Council proactively manage contamination for sites over which it has management or control. The EP Act includes seven new duties:

General Environmental Duty (GED)

This duty requires a person engaging in an activity that may give rise to risks of harm to human health or the environment from pollution or waste to minimise those risks *so far as reasonably practicable*. The GED is similar in intent to existing duties under the Occupational Health & Safety Act 2004³.

Duties to Notify and Manage Contaminated Land

These duties require notification to EPA Victoria (EPA) of certain contaminated sites (with contamination above a certain threshold, to be established in the Environment Protection Regulations 2020) AND to manage risks of harm to human health and environment from contamination. *These duties apply to all landholders (owners, managers and/or occupiers) regardless of who is at fault or when contamination took place.*

More information on the contaminated land duties is available in EPA guidance.⁴

Duties to Notify and Respond to Pollution

These duties require notification to EPA of pollution incidents AND to respond to any harm caused, for a leak, spill or other unintended or unauthorized deposit or escape where *material harm* is caused or threatened.

Duties to Manage Waste (Disposal of Industrial Waste and Duties for Priority Waste)

These duties apply to managing Industrial waste, including waste soil, and to ensure it only goes to a lawful place (i.e. a place authorised to receive it) and the waste is tracked. The duties apply to the waste generator, transporter and receiver. The EP Act also introduces a new Waste Framework with additional categories for Industrial and Priority Wastes, including contaminated soil.

3.2 Alignment with CoPP Council Plan

The SCMP, including the Site Contamination Risk Register, relates to Strategic Direction 4 of the CoPP Council Plan: *We are growing and keeping our character*, and delivers on the third priority of Outcome 4.1: to manage site contamination.

The SCMP allows CoPP to manage site contamination by:

- Providing the framework to understand, and make informed decisions about managing contamination risks under the EP Act;
- Informing the development of assessment, testing and remediation strategies across the municipality's owned or managed properties; and
- Maintaining an up-to-date database of Council owned or managed properties and their potential environmental liabilities to enable forecasting potential future requirements.

³ <https://www.worksafe.vic.gov.au/occupational-health-and-safety-your-legal-duties>

⁴ <https://www.epa.vic.gov.au/for-business/new-laws-and-your-business/manage-contaminated-land>

4 Implementation of the SCMP

4.1 Implementation Action Plan

An Action Plan will be developed and updated as required to include procedures and responsibilities to:

- Plan and undertake assessments as relevant for sites identified in the Risk Register as Rank 0, 1 & 2 in Year 1, and Rank 3 in Year2;
- Prepare a protocol for additional future assessments, based on review of initial assessment program;
- Participate in Council capital works portfolio development, to ensure that any redevelopment is included in the planning process and additional assessments, including assessing the potential for creating new exposure pathways and new potential exposures (to people and/or the environment) in the end use and through the site works. The Risk Register is based on the current land use and site management, and states that any redevelopment or changes to the management measures will change the risk profile. The SCMP acknowledges that the overall programme must reflect property portfolio development, including purchase, sale, and redevelopment of land and allow for relevant contamination assessment during those processes;
- Develop a GIS layer for sites in the Risk Register, indicating known or suspected contamination status, including investigation of integrating the GIS layer with the Victoria Unearthed GIS data⁵;
- Develop Standard Operating Procedures (SOPs) for soil testing and disposal;
- Identify and review safe work methods (SWMs) for teams that undertake intrusive site works; the SOPs and SWMs will assume that soil is likely to be contaminated (in most cases related to contaminated fill material) unless demonstrated otherwise. The SOPs and SWMs should also cover contractors working on site and should be covered in site meetings, e.g. toolbox talks or similar⁶;
- Train teams in new safe work methods and SOPs;
- Update OH&S systems with soil contamination protocols;
- Communicate with infrastructure stakeholders about their responsibilities under the SCMP (e.g. VicRoads and utility companies); see Section 6.3.2 - Management of Infrastructure in Road Reserves;
- Develop a soil tracking database for soil moved off-site that does not go to landfill; and
- Other actions as identified during SCMP implementation and/or as new legislative requirements or guidance becomes available, e.g. from EPA.

4.2 Organisational Responsibilities for Implementing this SCMP

The responsibilities for implementing the SCMP and maintaining the Risk Register are outlined in Table 1.

⁵ Available via DELWP Spatial Datamart or as updated; assistance available from the DELWP GIS team.

⁶ For information on toolbox talks and other work health & safety consultation, see <https://www.worksafe.vic.gov.au/consultation-safety-basics>

Table 1: Organisational Responsibilities			
Task	Person/Role Responsible	Reporting to	Frequency
Approval of the SCMP	Council	NA	Every four years
Monitoring and reporting on the implementation of the SCMP	Site Contamination Management Officer	ELT/SRIA	Monthly
Implementing the SCMP	Site Contamination Management Officer (SCMO), in collaboration with relevant internal departments	Coordinator Waste Futures/ELT/Climate Emergency PCG	Ongoing
Identifying relevant site-specific stakeholders and communicating with them	Site Contamination Management Officer	Coordinator Waste Futures	Ongoing
Tracking Risk Register impacts on the annual budget and project portfolio build	Site Contamination Management Officer	EPMO	Annually
Implementing the communications and engagement plan	Site Contamination Management Officer	Communications and Engagement Department	Ongoing
Adding or updating site specific information to the Risk Register	Site Contamination Management Officer	Coordinator Waste Futures	Ongoing
Monthly QC checks on the currency and the accuracy of information in the Risk Register	Site Contamination Management Officer	Coordinator Waste Futures	Monthly
Producing relevant and required reports from information in the Risk Register	Site Contamination Management Officer	Coordinator Waste Futures, Strategic Risk and Internal Audit Committee (SRIA)	As needed
Scoping and specifying site investigation, remediation or monitoring and management tasks	Site Contamination Management Officer or relevant Project Manager; OR External environmental consultants, to be managed by the SCMO or relevant CoPP Project Manager	Coordinator Waste Futures, or relevant Manager	Ongoing / as needed
Obtaining and evaluating quotations for investigation, remediation or monitoring and management tasks	SCMO or relevant project manager	Coordinator Waste Futures, or relevant manager	As needed
Project management of commissioned investigation, remediation or monitoring and management tasks	SCMO or relevant Project Manager	Coordinator Waste Futures, or relevant Manager	As needed
Tracking the movement of soil to/from Council managed land or projects	Project Manager	SCMO	As needed
Developing and implementing Standard Operating Procedures (SOPs) and Job Safety Analysis (JSA) templates for relevant Council activities	SCMO with relevant Department Coordinators and Managers	OH&S Department	As needed
Ensuring OH&S risks related to contaminated soil are incorporated into Council's Safety Management System	SCMO & OH&S Department	SRIA	As needed

4.3 Forms and Records

The Risk Register, and completed site risk assessments/investigation reports, are to be readily available and linked to individual sites within CoPP's document management system, asset management systems and GIS database as standalone layer.

4.4 Induction and Training

The Site Contamination Management Officer (SCMO) is responsible for inducting Project Managers to the SCMP, Risk Register, and relevant associated training.

4.5 Information Management and Access Control

Version control of the SCMP and Risk Register is managed within the CoPP document management system. Access to rankings of individual sites shall be restricted to the SCMO and relevant supervisors and Council officers.

4.6 Ongoing Monitoring and Reporting Requirements

Periodic reporting of the status of the Risk Register and status of priorities is to be made to ELT and SRIA (as determined). Reporting requirements to include basic metrics of the Risk Register, such as:

- Total number of sites, and a breakdown of their status, i.e. number requiring assessment, number with contamination, clean sites etc.;
- The percentage of priority sites being assessed, with a brief description of assessment results and timelines;
- An estimated cost to complete assessments and testing, where required;
- Impact on operational activities and project budgets;
- Compliance with OH&S obligations; and
- Number of sites reported to EPA as part of management duties under the EP Act, Part 3.5—Duties relating to contaminated land.

5 Contamination Assessment Guidance

5.1 Introduction

Council staff and/or contractors have encountered contaminated soil on a range of sites owned or managed by council during site redevelopments or upgrades, garden maintenance, in road and subsurface infrastructure repair and maintenance works. Such soil requires assessment to determine if it is suitable to remain on site, with or without management, or if it needs to be disposed off-site as industrial waste.

Background

The City of Port Phillip (CoPP) comprises the former cities of South Melbourne, St Kilda and Port Melbourne. European settlement – and associated industrial activity - dates from the mid-19th century, The CoPP consists of approximately 2,058 ha (21 km²) of land and contains a mix of residential and commercial areas with substantial industrial and office land use, and significant parks, gardens and foreshores.

The southern and eastern areas are generally residential in nature, while the central part of the City is dominated by Albert Park. The northern and western areas are dominated by employment uses and commercial areas, including shopping and lifestyle strips along several of the main roads. Approximately one-third of the City's land is parks and open space.⁷

⁷ <https://profile.id.com.au/port-phillip/about>

Contaminated land is a common occurrence across the municipality, particularly on or near locations that have had a historic industrial or commercial use, or where land has been reclaimed using industrial fill.

Contamination types and sources

The CoPP includes several areas where reclamation of low-lying land (primarily in the southern and western areas, nearest to Port Phillip Bay) coincided with early industrial activities, such as gasworks, steam railway, abattoirs and tanneries. Waste products from these industrial activities, as well as miscellaneous wastes from early settler communities were frequently used as fill or foundation material during redevelopment works or reclamation works in the 19th and early-mid 20th centuries.

These historic activities have resulted in contaminated soils being present in many areas of CoPP and other parts of inner urban Melbourne, and typically include polyaromatic hydrocarbons (PAHs) and benzo-a-pyrene (BaP) from gasworks waste and coking operations (e.g. from historical railway), and various heavy metals (particularly lead) from industry, paint and fuel additives. Due to its age and subsequent site developments, in many cases this historical contamination poses a low risk to human health unless it is disturbed by digging or excavation work.

There have been several instances where Council or contractors have encountered contaminated soil during site redevelopments/upgrades, in road and subsurface infrastructure repair and maintenance works.

In addition, the municipality contains areas of Coastal Acid Sulfate Soils (CASS) which occur naturally along many parts of Victoria's coast.⁸ When CASS are disturbed they can react with oxygen to produce sulfuric acid. This can result in environmental impacts including: acidification of water and soil, de-oxygenation of water, poor water quality, dissolution of metals from soil and corrosion of concrete and metal structures.

Such incidents have the potential to result in human or environmental exposure to contaminated soil, work stoppage and/or delays and unexpected additional costs. Excess contaminated soils and/or CASS which are generated during infrastructure projects must be managed in accordance with EPA regulations for contaminated site management and for industrial waste.

The need for contamination assessment

If sites are effectively and properly assessed for potential contamination issues prior to such developments occurring, these risks can potentially be avoided.

A well characterised site, with representative and suitable sampling undertaken, reduces the risk of encountering unexpected contamination. In addition, management can be planned, in line with best practice.

Soils remaining on-site are assessed using a different framework than soils being disposed off-site. Soils remaining on-site are assessed according to the *National Environment Protection (Assessment of Site Contamination) Measure 1999 as amended 2013* (ASC NEPM 2013) and compared against screening criteria for soil, groundwater and soil vapour, developed to protect human health and the environment where applicable; if the screening levels are exceeded they may go through a site-specific health or environmental risk assessment to determine if they are acceptable to stay on-site. This is discussed further in Section 5.6 - Site Remediation Triggers.

Soils being disposed off-site are assessed using the EPA Victoria Industrial Waste Framework and have different sampling methods and screening levels to classify soil into the relevant Waste Category. This is discussed further in Section 6.2 - Off-Site Disposal.

⁸ Acid sulfate soils are naturally occurring soils, sediments or organic substrates (e.g. peat) that are formed under waterlogged conditions. These soils contain iron sulfide minerals (predominantly as the mineral pyrite) or their oxidation products. In an undisturbed state below the water table, acid sulfate soils are harmless. However, when exposed to air, through drainage or excavation, the iron sulfides in the soils react with oxygen and water to produce iron compounds and sulfuric acid. This acid can release other substances, including heavy metals, from the soil and into the surrounding environment and waterways.

5.2 Site Contamination Management Officer

The Site Contamination Management Officer (SCMO) is responsible for the development, delivery, reporting and evaluation of the SCMP Implementation Action Plan, including coordination of the proactive site testing schedule. The SCMO requires experience and knowledge in contaminated site assessment and management, and the SCMP and Risk Register is not intended to replace the professional judgement of the Site Contamination Management Officer.

This SCMP describes the general process of how a site should be assessed, managed and remediated, and the SCMO provides professional judgement to assess and prioritise site assessment and remediation based on site specific circumstances. The SCMO should be a resource for all teams dealing with site contamination.

Project Managers for CoPP site works projects should refer to the Risk Register for information about their site and its known or likely contamination status. Project Managers should also consult with the SCMO for more details about site contamination, site assessments and site remediation and/or management plans or works. For large or complex projects involving contaminated soil, the SCMO will be included in the project team as required.

For operational activities such as tree planting and road maintenance, relevant supervisors and managers will be responsible for ensuring the work is delivered in accordance with Standard Operating Procedures (SOPs)- to be developed; see Section 6 - Guidance for Project Managers and Operations Supervisors.

5.3 Approach to Contaminated Land Assessment – Site Characterisation

To effectively manage contaminated sites, the contamination status of a site must be assessed and understood. The process of assessing a site for contamination is referred to as site characterisation, which is described in Schedule B2 of the ASC NEPM⁹.

In general, site characterisation is an assessment which occurs in the following stages, as required:

- Preliminary Site Investigation (PSI) – with or without soil testing: generally, a desktop assessment of a site to gain an understanding of the site history to identify potential contaminating activities which may have occurred, and to identify the potential contaminants of concern and physical setting of the site (local geology/hydrogeology, etc.). The desktop assessment may be supplemented with some limited soil sampling with the aim of providing more evidence of the general contamination status. This information is used to develop a preliminary conceptual site model (CSM) which describes the potential sources, pathways and receptors of contamination identified in the assessment. If no potential on-site or off-site sources of contamination are identified, then a site is likely to have a low risk of contamination and may not require further intrusive assessment. Council has already conducted PSI's for many sites and it will typically be the responsibility of the SCMO to conduct any further PSI work required.
- Detailed Site Investigation (DSI): an intrusive phase of assessment where soil, groundwater and/or soil vapour samples are collected and analysed, where required. Sampling locations, sample depths, and sample analysis are based on the preliminary CSM (see description above in PSI) and field observations to target potential sources of contamination and to understand if potential contamination exposure pathways exist. Based on results of the assessment, the site is either confirmed as being impacted by contamination or is considered likely to have low or limited contamination.

⁹ National Environment Protection (Assessment of Site Contamination) Measure, Schedule B2 – Site Characterisation

The DSI stage may take several rounds of sampling to identify and characterise contamination (in soil, groundwater or soil vapour). If groundwater or soil vapour contamination is identified, it should be noted that multiple sampling rounds may be required (ideally several weeks or months apart) to understand how seasonal variability impacts groundwater and/or soil vapour concentrations¹⁰.

The DSI stage is where the need for site remediation will be decided (this is discussed further in Section 5.6), with information from the DSI used to define where and how a site can potentially be remediated or managed. Information required to remediate a site depends on several variables and is dependent on:

- the type and extent of contamination present;
- the source of contamination;
- the proposed use of the site; and
- the level of remediation required or feasible.

In many cases site remediation may not be feasible, i.e. due to physical constraints or cost, which will require a site contamination management plan to be developed to adequately manage site risks.

The more a site is investigated, the lower the net uncertainty about its contamination status and the risks that any identified contamination poses. However not every level of investigation may be warranted at a site. It is recommended that site assessments take a phased approach where possible, with the extent of assessment based on potential risks to the environment or site users and the nature of any site enhancement or redevelopment works that are likely to occur.

For example, if the initial investigation phase indicates that contamination is due to historical fill material and likely to be stable if left undisturbed, and if concentrations are low and/or the exposure risk is low, then that may be sufficient to justify ceasing intrusive assessment and implementing management measures. However if the contamination is recent and/or likely to be mobile in the environment, and the exposure risk is high (to human health and/or the environment) then additional assessment may be required, possibly involving more sampling locations to delineate areas of suspected high or low risk and/or at deeper depths, including groundwater if contaminants are soluble and/or soil vapour if contaminants are volatile (e.g. petrol, solvents). The SCMO can advise on these matters on a site-by-site basis.

In some cases, the SCMO may be able to undertake the work required for PSI assessments or DSI assessments involving soil sampling only. For larger or more complex sites requiring soil/groundwater sampling at depth and/or soil vapour testing, an environmental consultant is likely to be required to undertake the DSI.

Further information on different levels of investigation, and guidance for seeking site investigations, is presented in Appendix B - Recommendations for Seeking Proposals from Environmental Professionals.

5.3.1 Checking Site Investigation Reports

Site investigation reports, such as PSIs and DSIs, will need to be checked to ensure they meet CoPP requirements, and filed into CoPP document management system before the information is interpreted and input into the Risk Register.

¹⁰ Groundwater sampling and/or vapour sampling is not always required on each site. It depends on the site history, existing soil test results and existing or proposed development. For example, a park or other open space often does not require soil vapour assessment, as in most cases the impacts are only relevant if there are occupied buildings on a site where the confined space can allow vapours to become concentrated and pose a health risk to occupiers; in open air, vapours may dissipate harmlessly over time. Decisions about sampling type and extent are to be made in consultation with the SCMO.

Questions to be addressed by such checks should include (but need not be limited to):

- Does the report meet the scope of works required by CoPP?;
- Can information be extracted readily from the investigation report in order to review and update the risk assessments for a site?;
- What are the key uncertainties in the understanding of the contamination conditions at the investigated site?; and
- How do key uncertainties (if present) impact on assessment of the contamination risks posed by the site? This should be noted and reflected in the risk assessment.

5.4 Communicating Progress on Investigation, Remediation, Monitoring and Management

The CoPP is committed to communicating openly with the Port Phillip community and beyond, including:

- Site/facility managers;
- Site owners or occupiers;
- Site users;
- Neighbouring site occupiers;
- Ratepayers;
- Residents and wider community; and
- Councillors and/or other levels of Government.

The SCMP Communication and Engagement Plan details how and when these groups will be engaged, and was developed using Schedule B8 of the ASC NEPM, *Guideline on Community engagement and risk communication*¹¹.

This includes standard wording to road authorities, utilities and public transport providers outlining CoPPs requirements when conducting work on road reserves that may disturb soil on land for which CoPP is the duty holder, to ensure that all parties are aware of requirements to:

- Adhere to any site environmental management plans including replacement of remediation capping that is disturbed and/or proper disposal of excavated soil or fill;
- Notify CoPP of any disturbance of contaminated material; and
- Consider the CoPP Nature Strip Policy and Guidelines where relevant.

It also includes general information for the wider community about the types of legacy contamination that may be found in the municipality and the measures that Council is taking to manage it. Specific information and engagement on individual cases of contamination related to sites owned or managed by CoPP will be developed on a case-by case basis, depending on the type and extent of contamination, the degree of likely exposure and risk and any management measures required or recommended.

5.5 Using and Updating the Risk Register

The Risk Register¹² includes Risk Rankings and procedures for assigning contamination risk in a consistent way. The Risk Register assigns higher priority to sites with “sensitive uses”, defined as:

- Children's Centres;
- Community Centres;
- Community Gardens;
- Parks and open spaces; and
- Playgrounds & adventure playgrounds.

The risk ranking is based on inputs of:

- Site land use and the vulnerability of site users;

¹¹ <http://www.nepc.gov.au/system/files/resources/93ae0e77-e697-e494-656f-afaaf9fb4277/files/schedule-b8-guideline-community-engagement-and-risk-communication-sep10.pdf>

¹² Greencap Report J165588 R01 Risk Register User Guide, June 2020.

- Site hazard characteristics:
 - Contaminated soil;
 - Condition of groundwater;
 - Level of environmental investigation; and
 - Sensitive environmental receptors (e.g. Port Phillip Bay).
- Potential for exposure pathway to contamination, depending on elements such as:
 - Capping of soil onsite;
 - Use of groundwater; and
 - Potential for vapour intrusion into buildings.

The Risk Register is:

- An aid to the exercise of judgement, not a substitute for judgement;
- A tool to help prioritise investigations, remediation or monitoring and management of sites for which Council is the duty holder.

Allocation of priorities may depend on factors not encapsulated in the Risk Register such as:

- Political circumstances;
- The need to embark on a capital works programme;
- Regulatory action (i.e. issue of an EPA Notice); and/or
- Timing of changes in site occupancy and use.

A full description of how to use the Risk Register is provided in the Site Contamination Risk Register User Guide.

5.6 Site Remediation

Site remediation, in the context of contaminated sites, refers to either the removal or on-site treatment of contaminated soil, groundwater or soil vapour, to a level where contamination at the site is no longer present at a hazardous or unacceptable concentration for the proposed use of the site.

Site remediation or management may be required if contamination concentrations across the site (i.e. not just one sample location, but a statistically relevant amount) exceed the default NEPM assessment criteria for human health, or the environment, that are applicable for the current land use (e.g. the NEPM Health Investigations Levels (HILs) for sensitive land use, commercial land or public open space).

The NEPM emphasises that HILs are not intended to be default remediation triggers or remediation target criteria but are intended to prompt an appropriate site-specific assessment when they are exceeded. However, it is reasonable to use these limits as default acceptance criteria initially and undertake further site-specific assessment to inform further decision making.

Where HILs are exceeded, a Health Risk Assessment (HRA) for the site may be undertaken to assist in decision-making; if so, the HRA would be considered the primary document in making decisions about site contamination management although additional factors should also be considered such as aesthetic suitability, practicality, timescale, effectiveness, cost, sustainability and associated ecological risks.

Triggers for site remediation are dependent on:

- The site context: e.g. current site land use, proposed land use, extent of contamination and level of contamination;
- The potential costs, timeline and availability of remediation techniques/technologies;
- The costs of remediation versus the costs of additional assessment (potentially including HRA or Ecological Risk Assessment (ERA)); and
- The costs of remediation versus the costs (and long-term effectiveness) of management measures; these can be largely unknown prior to testing.

Sites within the Risk Register which have been assessed as having ‘managed contamination’ are given a risk rank score which reflects the implication that site contamination is effectively and actively managed at a site currently, and is therefore, not a risk to site users unless the management measure fails or the site use changes. The risk rank cannot be lowered until the contamination is remediated.

If a site identified as having ‘managed contamination’ is proposed to be developed, or the land use changes, this is a trigger to reassess the contamination status of the site and to either remediate the site to an acceptable level for the proposed change to the site or continue to manage the contamination.

In the instance where contamination cannot be effectively remediated or managed within a reasonable time frame (e.g. due to site constraints or access, cost or other factors), temporary management measures may be required such as reducing or removing access to the site (e.g. closing a park or facility, placing a temporary fence around high-risk areas within a site) or placing interception traps to prevent run-off of soluble contaminants into a vulnerable wetland.

The exact nature of the temporary measures would depend on the nature of the contamination, the site land use, size and location, and likely sensitive receptors such as children or ecosystems. The SCMO should be consulted for initial advice on the requirements for such measures.

If contamination poses a significant risk even with temporary management measures, CoPP may consider notifying EPA and/or other authorities as relevant (e.g. Health Department Victoria, Worksafe Victoria, Parks Victoria, Emergency Management Victoria, local water authorities, etc, depending on the nature and extent of contamination and risk) as well as site users and stakeholders, in line with the SCMP Communication and Engagement Plan.

CoPP may also consider seeking financial or other assistance from any known or likely generator of the contamination.

5.6.1 Site-Specific Contamination Management Plans

If a site has been remediated or deemed to be managed, but not cleaned up to suit all relevant beneficial uses¹³, it will likely need a Site-Specific Contamination Management Plan. This may be a standalone document, or it may form part of a larger project plan.

Examples include:

- Soil contamination – Management methods may include capping the site with a layer of clean soil and/or mulch and/or vegetation or paving the site;
- Soil gas/vapour contamination (e.g., due to solvent-contaminated groundwater below the site or off-site) – Remediation may be provision of a vapour barrier below impacted building/s (on-site or adjacent), or increased ventilation ability within an impacted building, to prevent solvent vapour build up inside the enclosed space; and
- Potential Acid Sulfate Soil (PASS) – Management may be a mixture of neutralising the soil and/or maintaining the PASS below the water table to prevent acid generation.

Site-Specific Contamination Management Plans shall note the requirement to maintain or replace the remediation method if disturbed, including maintenance requirements, risk management measures and safe work guidance. Site-Specific Contamination Management Plans will be recorded in the Risk Register and on the GIS layer so that information is easily accessible for any staff working on a site.

5.6.2 Legacy Pollution

Most site contamination is likely to be a result of legacy pollution, from historical industrial waste. If there is evidence of recent pollution– or if the legacy polluters are still viable entities – the polluter can be approached to contribute to the remediation costs.

¹³ Beneficial uses of land and water are defined in Victoria’s State Environment Protection Policies (SEPPs) for Prevention and Management of Contamination of Land (SEPP PMCL) and Water (SEPP Water), respectively. They are likely to be updated and/or replaced under the new EP Act; the current definitions remain relevant until updated.

The type of evidence needed to demonstrate a likely association between a polluter and pollution could include:

- Type of contamination expected from the polluter (e.g. petrol or diesel in soil or groundwater from a nearby service station; or lead paint or asbestos in soil associated with demolition of a building known to contain those substances);
- Being the only (or most likely) polluter in the vicinity (e.g. the only service station in the area); and
- The contamination being down-stream of the polluter.

This is not an exhaustive list and will differ for different types of contaminants. Multiple lines of evidence are usually required to demonstrate a causal relationship with confidence. EPA may be able to provide advice on specific cases and the range of evidence required, or even assist CoPP to take action, depending on the circumstances.

Regardless of whether the polluter can be identified, the site owner or manager would be required to remediate or manage the contamination so that it does not pose a risk to human health or the environment, as part of Council's GED and the Duty to Manage Contaminated Land.¹⁴

Remediation/management actions would depend on the type of contamination and level of risk, and would need to be maintained (as per discussion in Section 5.6.1 - Remediation Management Plans).

6 Guidance for Project Managers and Operational Staff

The following section describes site management controls or procedures to guide operational staff and Project Managers to ensure contamination exposure is minimised for all staff and contractors, and that correct testing is undertaken and recorded in the Risk Register, including controls or procedures to manage the movement of contaminated material on or off Council-managed sites.

In addition, Appendix B provides information on requesting proposals from consultants.

6.1 Management Controls

CoPP may consider implementing various management options and controls on their sites, singly or in combination, including:

- Capping of contaminated soils/materials;
- Soil management plans;
- Construction or site management plans; and
- Standard Operating Procedures, Safe Work Method Statements and Job Safety Analysis requirements for staff or contractors to adhere to, prior to conducting intrusive works.

Site management plans (e.g. soil, construction, or general site management) for a contaminated site are generally required at some stage to adequately address the underlying issues specific to the site and the proposed site projects. Management plans should clearly and succinctly describe the site and the known or suspected contamination issues and describe management measures in place to reduce risk of exposing, contacting or spreading the contamination.

If a contaminated site is proposed to have the contamination managed (e.g. through a soil capping layer), the management plan should make it clear how the capping layer will be installed, the measures in place to protect construction / maintenance workers, and the on-going requirements to maintain the capping layer.

Similarly, if a contaminated site is proposed to be remediated, a management plan should be put in place to manage the remediation process and to manage any residual contamination. (Depending on the site (land use and accessibility) the contamination (type, location and extent) and whether the residual risk can be managed, complete remediation may not be possible or required; but the management measures need to be implemented and documented, including any inspection or maintenance criteria).

¹⁴ Duties under *Environment Protection Amendment Act 2018*, Clauses 25 and 39.

In some cases, standard operating procedures will need to be developed, or existing SOPs updated, to ensure operational teams know to check for the presence of contamination records or a management plan prior to undertaking intrusive works at a site, including works such as tree planting or garden maintenance.

The SCMO can provide further advice on the types and complexity of management controls appropriate for specific sites.

6.2 Off-site Soil Disposal

Excavated soil that cannot be re-used on site (due to contamination, geotechnical issues, site capacity, etc.) will need to be considered for off-site disposal. In most cases, waste soil should be tested for Waste Classification before off-site disposal.

EPA publication IWRG621¹⁵ sets out recommended sampling densities for testing soil to be disposed off-site, which specifies that one soil sample should be collected for every 25 m³ of spoil (soil or fill for disposal) with a minimum of three samples to be collected.

Soil should be tested for the known or likely contaminants on-site (based on site history, or other prior knowledge) including at least one sample for an IWRG screen (a broad screen of analytes as outlined within the guidance document, or updated guidance).

The sampling results are used to classify the soil, e.g., as Fill Material or Category A, B or C Waste (or Category D if relevant¹⁶) or Asbestos-containing Waste. The classification will help determine if, where and how the soil can be disposed and any record-keeping requirements¹⁷.

EPA does not currently set any minimum quantity thresholds for testing soil for disposal. Council may develop internal guidance on managing small soil quantities (e.g. spoil from a small road repair), with appropriate risk assessment, controls and documentation, or may consider requesting EPA approval to implement a system to move, store and manage small amounts of soil in a central depot, similar to that currently allowed under the EPA provisions for temporary storage of prescribed industrial waste at unlicensed sites¹⁸.

6.3 Road Reserves

Roads within CoPP require maintenance, as do infrastructure services beneath them (sewer, water, gas, telco, etc.) and such activities may require soil excavation and management.

¹⁵ Industrial Waste Resource Guideline 621 (2009) Soil hazard categorisation and management.

<https://www.epa.vic.gov.au/about-epa/publications/iwrg621>.

Note: The IWRGs are to be replaced and updated under the Environment Protection Regulations 2020.

¹⁶ New waste categories are to be introduced in the new Waste Framework, including Category D soil (aimed for use on major projects) and Asbestos-containing waste soil.

¹⁷ Reportable Priority Waste sent for disposal must be in permitted vehicles and tracked using EPA's electronic waste tracker tool. More information is available from EPA at <https://www.epa.vic.gov.au/for-business/new-laws-and-your-business/manage-waste/reportable-priority-waste>

¹⁸ These provisions currently allow for - in limited circumstances - asbestos and 'designated waste' to be temporarily stored without an EPA works approval or licence. This allows for circumstances where, for example, it would be unreasonable to require a public utility to repeatedly transport small amounts of material to a distant licensed facility if their depot has appropriate management controls. The current conditions are very limited and would need discussions with EPA to see if they could be broadened under specific circumstances.

<https://ref.epa.vic.gov.au/business-and-industry/guidelines/waste-guidance/temporary-storage-of-prescribed-industrial-waste-at-unlicensed-sites>

Available information about soil and fill material beneath roadways within CoPP is incomplete however, given the history of fill material in the municipality and surrounding region, potential contaminants associated with asphalt and similar road-making materials and recent use of recycled materials beneath roadways, it is likely that road base and underlying fill soils are contaminated to some degree. Typical contamination within CoPP is noted to be heavy metals and PAHs (related to historic industrial land use).

If soil is disturbed for sub-surface maintenance activities, it may also disturb remediation or management features of a road reserve or footpath, such as capping of contamination with clean soil and vegetation. Any disturbance to existing remediation or management measures should be noted in CoPPs Asset Management System and be re-instated at the end of any maintenance activities. Where small volumes of excavated soil that is assumed to be low risk (e.g. excavated for a small road repair or to plant a tree) the soil may be replaced into the same excavation without necessarily requiring testing providing it is capped or otherwise managed as if it was known to contain some historical contamination.

Further internal guidance for specific projects may need to be developed by CoPP and the SCMO for sites that are unlikely to be contaminated, or conversely for sites known to be contaminated and requiring additional management controls. This should be consistent with the risk-based principles outlined in the EP Act and the General Environmental Duty that requires "A person who engages in an activity that may give rise to risks of harm to human health or the environment from pollution or waste must minimise those risks, *so far as reasonably practicable*." ¹⁹

Where soil is excavated from a road reserve and is not suitable to be replaced on the site (due to soil characteristics, site levels or other geotechnical issues), it is likely to require offsite disposal (discussed in Section 6.2 Off-site Disposal).

6.3.1 Responsibility for Managing Road Openings for Infrastructure Maintenance

Most underground infrastructure (water, sewer, power, etc.) is in road reserves, including footpaths. Roads may be under the control of VicRoads (major roads) or Council (local roads). This is discussed later in Section 6.3.3 Operational Responsibility for Public Roads.

6.3.2 Management of Infrastructure in Road Reserves

The *Road Management Act 2004* (Clause 16 of Schedule 7) requires any person proposing to conduct works in, on, under or over a road to obtain the written consent of the coordinating road authority (discussed at end of this section), except where an exemption applies.

VicRoads Code of Practice for Management of Infrastructure in Road Reserves (2016)²⁰ (VicRoads Code 2016) provides guidance for road authorities, utilities and providers of public transport in planning and managing their infrastructure in road reserves. The code also provides guidance to coordinate the positioning, integrity and safety of utility services in road reserves, while also ensuring the amenity and liveability of streets.²¹

The Road Management Act (Schedule 7 Clause 7) requires an infrastructure manager or works manager to give notice to a coordinating road authority before installing any non-road infrastructure or carrying out other related works on a road reserve (except for works conducted in an emergency – refer clause 37 of the Code).

¹⁹ 'Reasonably practicable' depends on the combination of: the likelihood of a hazard or risk occurring; the degree of harm that would result if the hazard or risk eventuated; what the person concerned knows, or ought reasonably to know, about the hazard or risk and ways of eliminating or reducing it; the availability and suitability of ways to eliminate or reduce the hazard or risk; and the cost of eliminating or reducing the hazard or risk.

²⁰ Management of Infrastructure in Road Reserves - *Code Of Practice under Road Management Act 2004*; Victorian Government Gazette S.117, April 2016 <http://www.gazette.vic.gov.au/gazette/Gazettes2016/GG2016S117.pdf>

²¹ For more information on changes to the [Code, see the Frequently Asked Questions \[WORD, 30 Kb\]](#)

Part 2 of Schedule 7 of the Act sets out the powers and responsibilities of the coordinating road authority in considering any such works proposal.

After completion of works on non-road infrastructure on a road reserve, the works manager is required to notify the coordinating road authority within 7 days (Clause 13 of Schedule 7).

Sections 132(3)(a) and (b) of the Act allow for regulations to be made to provide exemptions from these requirements for consent and notification.

Exemptions from consent and notification requirements and Agreements with Infrastructure Managers

Circumstances for obtaining exemptions from requirements for notification of infrastructure works in road reserves are outlined in the VicRoads Code 2016, Clause 32. Such circumstances can include emergency works and minor works (as defined in Road Management (Works and Infrastructure) Regulations 2015 - Reg 6²², and generally applying to works with an opening of less than 8m²).²³

Agreements between a works manager or infrastructure manager and coordinating road authority, to give consent to proposed works under certain conditions, are discussed in Clause 33 of the VicRoads Code 2016.

Examples of conditions to include in an agreement could include a requirement for the infrastructure works managers to demonstrate they have installation and maintenance management plans which clearly identify responsibilities, standards and procedures to comply with road authority requirements, including processes for planning, design, installation, maintenance and work records.

Utilities and providers of public transport should also identify quality systems used to manage occupational health and safety, road safety, traffic management and reinstatement works. The Code includes a guide to the contents of such agreements.

The SCMP Communications and Engagement Plan will provide standard wording to all road authorities, utilities and providers of public transport outlining CoPPs requirements when conducting work on road reserves that may disturb soil on land for which CoPP is the duty holder, to ensure all parties are aware of requirements to adhere to any site environmental management plans including replacement of remediation capping that is disturbed and/or proper disposal of excavated soil or fill, to notify CoPP of any disturbance of contaminated material and of the CoPP Nature Strip Policy and Guidelines²⁴

The SCMP Communications and Engagement Plan may be expanded to include infrastructure works in other parts of land over which CoPP is the duty holder, to ensure utility companies are aware of the requirements of adhering to site environmental management plans.

6.3.3 Operational Responsibility for Public Roads

VicRoads Code of Practice For Operational Responsibility For Public Roads (2017)²⁵ (VicRoads Code 2017) provides guidance to determine the operational responsibility between road authorities for the different parts or elements within the road reserves of public roads including determining the boundary between a 'roadway', 'pathway' or 'shoulder' in any particular case, and for determining which road authority is responsible for road-related infrastructure.

The VicRoads Code 2017 recognises that VicRoads, other State road authorities and local government are partners in managing Victoria's road network.

²² http://classic.austlii.edu.au/au/legis/vic/consol_reg/rmair2015523/s6.html

²³ This definition of 'minor works' (or some smaller volume) could be considered for guidance in developing CoPP internal protocols on excavation and replacement of soil in road reserves and footpaths with re-instatement of management measures.

²⁴ http://www.portphillip.vic.gov.au/nature_strips.htm

²⁵ Operational Responsibility for Public Roads - Code Of Practice under *Road Management Act 2004* Victoria Government Gazette S.174, 30 May 2017 <http://www.gazette.vic.gov.au/gazette/Gazettes2017/GG2017S174.pdf>

The Code includes the following relevant features:

- Guidance in the allocation of responsibilities between VicRoads and local Council road authorities at arterial road / municipal road intersections;
- Responsibilities associated with road embankments, cuttings, retaining walls, pedestrian underpass structures and the roadside;
- Responsibilities for drainage infrastructure within the road reserve; and
- Guidance on responsibilities for roads on Crown Land.

The VicRoads Code 2017 features several diagrams to illustrate the principles of separating responsibilities between council and VicRoads.

7 Example Scenario for Managing a Contaminated Site

7.1 Scenario

CoPP proposes to upgrade the playground equipment at a site they own. No other site information is known, and no previous environmental assessments have been completed at the site.

7.1.1 Updating of Site Contamination Risk Register

The initial step is to insert the site and its known details into the Risk Matrix (columns A-F, G, I, T, AD).

When filling out the Risk Matrix, the user:

- Fills out the 'Site Details' (columns A-F, Contam UI, site name, site address, etc.);
- In 'Current Site Use' (column G) the user selects 'Public park' from the drop-down list;
- In 'Is the site a sensitive site?' (column I) the user selects 'Yes' (sensitive site due to public park/publicly accessible soil areas);
- In 'Is the historical use of the site known?' (column T) the user selects 'No' as no further site history information is known; and
- In 'Has the site previously had an environmental site assessment completed?' (column AD) the user either selects 'No' or leaves blank.

Based on these inputs the site will be classified as risk rank of 2 (sensitive site with no site history information), which is a priority site for further assessment (in this case a Preliminary Site Investigation (PSI) is recommended).

7.1.2 Request for Quotes – Site Assessment

Based on the plans to upgrade the playground equipment, the Project Manager, in consultation with the Site Contamination Management Officer, note a PSI is required. The SCMO may undertake the PSI internally or the Project Manager may request quotes from a consultant.

The PSI will include soil sampling to assess the soil for on-site use or reuse and for off-site disposal if required. This stage will inform planning and decision making for the project and the site.

Note: there are different assessment frameworks for on-site soil use and off-site disposal, therefore different sampling requirements may be necessary. See Sections 5.3 Site Characterisation and 6.2 Off-Site Disposal.

The Site Contamination Management Officer completes the 'CoPP Tracking' section of the Risk Matrix (columns Q and R) to track the status of the site assessment.

7.1.3 Results of Site Assessment

A site assessment (PSI with limited targeted soil sampling) is completed by the SCMO or consultant. The site history indicates that the site has a low risk of contamination based on the historic land uses at the site and surrounding area (general residential), however the results of the soil sampling show concentrations of some metals and PAHs above the default NEPM investigation levels for a public park, with an off-site disposal classification of 'Category B – Contaminated Soil'. The soil sampling was not undertaken to suitable sampling density for a DSI assessment, with soil sampling specifically targeting areas of the park where proposed works would occur.

7.1.4 Update Risk Register

After review of the site assessment results, the Site Contamination Management Officer updates the site data in the Risk Register, columns T, AB, AF, AG-AR, AH, AI, AJ:

- In 'Is the historical use of the site known?' (column T) the user selects 'Yes'. In column V, the user selects 'Residential' as a historical site use;
- In 'Has the site previously had an environmental site assessment completed?' (column AB) the user selects 'Yes', and answers the question 'When was the assessment completed?' (column AF);
- The user completes the 'Soil Investigation' (columns AG-AR) section:
 - In 'Soil Assessment' (column AG), user selects 'Soil sampled';
 - In 'Was the site sampled to a suitable level?' (column AH), user selects 'Less than standard';
 - Based on the inputs 'Confidence in soil results' (column AI) will show 'High confidence';
 - In 'Soil Results...HILs' (column AJ), user selects 'Exceeds HIL C';
 - In 'Soil Results...HSLs' (column AK), user selects 'No soil exceedances recorded';
 - Based on the inputs 'Soil Results Human Health Risks' (column AL) will show 'Sensitive site with soil exceedances recorded';
 - In 'Soil Results Ecological Risks' (column AM), user selects 'Soil exceedances recorded';
 - Based on the inputs 'Soil Results Ecological Risks' (column AN) will show 'Potential ecological risk recorded';
 - In 'Soil Classification...Off-site Disposal' (column AO), user selects 'Cat B';
 - Based on the inputs 'Soil Risk Ranking – Inherent Risk of Soil...' (column AP) will show a risk rank of '1' (sensitive site with soil assessment results indicating contamination risk);
 - In 'Have Remediation or Management Measures been Implemented?' user selects 'No remediation/management implemented' as no remediation or management was implemented at the site; and
 - Based on the inputs 'Soil Risk Ranking – Final' (column AR) the final soil contamination risk rank is scored '1' (sensitive site with soil assessment results indicating contamination risk).

Based on the site history assessment it is likely that the elevated concentrations recorded in soil at the site are due to historical filling of the general area with waste generated from industrial activity.

Based on the lack of other potential sources of contamination, the user fills out the 'Groundwater' and 'Soil Vapour' section of the Risk Register, selecting 'Groundwater/Soil Vapour not sampled, site history indicates low risk'.

The overall risk score for the site at this point is '1', a sensitive site with a recorded soil contamination impact. The Risk Matrix recommends further assessment, remediation or management measures are required.

7.1.5 Next Steps – Further Assessment

Based on the proposed upgrade of the site, there is scope to remove some impacted soil at the site and to incorporate a covering layer across the rest of the site. However, the cost of excavating and removing bulk quantities of soil across the site would be prohibitively expensive and may not be justifiable. This information is gathered by the SCMO and the Project Manager and shared with the relevant Project Control Group for decision on how to progress.

Based on the location and magnitude of concentrations recorded across the site, the Project Manager engages a Human Health Risk Assessor to undertake a Human Health Risk Assessment (HHRA) to determine whether the soil is suitable to remain on-site as part of the proposed site development, with or without specific management measures.

The Human Health Risk Assessor provides justification that soils are suitable to remain on-site provided that the soils are managed to reduce physical contact (e.g. a capping system is installed and managed). Potentially suitable capping systems are recommended, including soft-fall, tan bark and maintenance of grass and vegetation areas in different parts of the site.

7.1.6 Final Step – Site-Specific Contamination Management Plan

The SCMO, after consultation with the Project Manager, develops a Site-Specific Contamination Management Plan. The Site-Specific Contamination Management Plan describes the presence and extent of soil contamination at the site and the presence and maintenance requirements of the capping measures in place.

The SCMO updates the Risk Register:

- In 'Have Remediation or Management Measures been Implemented?' user selects 'Site managed – contamination contained/inaccessible to receptors' as the site is being managed through various capping layers.

The risk score for the site is reduced to '4', indicating a relatively minor risk where no further assessment is required. However, due to the presence of managed contamination, the risk score is still relatively high. To reduce the risk score further would require site remediation to treat or remove the contaminated soil.

Site Contamination Management Plan

City of Port Phillip

Appendix A: List of Contaminated Site Regulations and Guidelines

Regulations and Guidelines

Key legislation, policies and guidelines applicable to environmental management and occupational health & safety include:

Environment Protection Legislation, Victoria

*Environment Protection Act 1970 and Regulations*²⁶

State Environment Protection Policies (SEPPs) for Prevention and Management of Contamination of Land (PMCL) and SEPP (Waters)

Environment Protection Act 2017 and Environment Protection Amendment Act 2018 (especially Part 3.5—Duties relating to contaminated land, Parts 1 and 2)

Environment Protection Regulations 2020 (to be proclaimed)

Environment Reference Standards (to be proclaimed)

Contaminated Soil – Policy and Guidance, Victoria

- PFAS and EPA: Publication 1836, March 2020
- Contaminated Soil Management on Major Infrastructure Sites²⁷ - EPA Victoria <https://ref.epa.vic.gov.au/our-work/major-infrastructure-projects/contaminated-soil-management-and-reuse-on-major-infrastructure-projects>
- Asbestos-contaminated soil – WorkSafe Victoria 2010 <https://www.worksafe.vic.gov.au/resources/asbestos-contaminated-soil>
- Planning Practice Note 30, Potentially Contaminated Land - DSE / DELWP 2005 https://www.planning.vic.gov.au/_data/assets/pdf_file/0027/97164/PPN30-Potentially-Contaminated-Land.pdf
- Assessing the soil in children's services – guidelines for environmental consultants, Dept of Education & Training <https://www.education.vic.gov.au/Documents/childhood/providers/regulation/assesssoilguid.pdf>

Waste Soil Management (Off-Site Disposal)

- Environment Protection Act 2017, as amended 2018;
- Waste classification assessment protocol - EPA Publication 1827 (2020) <https://www.epa.vic.gov.au/about-epa/publications/1827>
- Waste disposal categories - EPA Publication 1828 (2020) <https://www.epa.vic.gov.au/about-epa/publications/1828>
- Environment Protection (Industrial Waste Resource) Regulations 2009²⁸;
- Industrial Waste Management Policy (Waste Acid Sulphate Soils);
- EPA Publication [IWRG621 Soil Hazard Categorisation and Management 2009](#);

On-site soil assessment and management - Commonwealth guidance

- National Environment Protection (Assessment of Site Contamination) Measure, As amended in 2013 (ASC NEPM, 2013)
- CRC CARE 2011, Health screening levels for petroleum hydrocarbons in soil and groundwater, September 2011
- PFAS National Environmental Management Plan, January 2018

²⁶ Current Act and Regulation in force until commencement of EP Act 2017, expected on or before July 2021.

²⁷ Not generally relevant to most council sites but may provide some guidance for large projects

²⁸ These Regulations / policies to be superseded by new Environment Protection policies and Waste Framework

Water - Groundwater and Surface Water (onsite and offsite):

- *Water Act 1989* (Vic)
- State Environment Protection Policy (Waters)²⁹
- Guidelines for water quality management – National Water Quality Management Strategy (NWQMS)
<https://www.waterquality.gov.au/guidelines>
Includes guidelines for: Drinking Water; Fresh & Marine Water; Recreational Water; Groundwater; Recycled Water; Effluent Management; Sewerage System Management; Urban Stormwater

Trade Waste (Discharge to Sewer):

South East Water *Trade Waste Management Policy* (August 2019) to manage Trade Waste under the *Water Act 1989* and the *Water (Trade Waste) Regulations 2014*.

<https://southeastwater.com.au/Business/TradeWaste/Pages/TradeWaste.aspx>

<https://southeastwater.com.au/SiteCollectionDocuments/Business/Trade-Waste/Trade%20Waste%20Mgt.%20Policy.pdf>

Works in Roads and Road Reserves

Road Management Act 2004; Road Management (Works and Infrastructure) Regulations 2015

Management of Infrastructure in Road Reserves - Code Of Practice. Victorian Gov Gazette April 2016

<http://www.gazette.vic.gov.au/gazette/Gazettes2016/GG2016S117.pdf>

Worksite Safety – Traffic Management Code Of Practice. Victoria Government Gazette August 2010

<http://www.gazette.vic.gov.au/gazette/Gazettes2010/GG2010S351.pdf>

Operational Responsibility for Public Roads - Code Of Practice. Vic Government Gazette May

2017 <http://www.gazette.vic.gov.au/gazette/Gazettes2017/GG2017S174.pdf>

This is a summary of the primary legislation related to site contamination assessment and management in Victoria. There will be some updates when the Environment Protection Act 2017, comes into force along with subordinate legislation, Environment Reference Standards and Industrial Waste Framework.

OTHER ENVIRONMENT-RELATED LEGISLATION

Commonwealth:

- Environment Protection and Biodiversity Conservation Act 1999; (Cth)
- Environment Protection and Biodiversity Conservation Regulations 2000;

Victoria

- *Flora and Fauna Guarantee Act 1988* (as amended 2019) and Regulations – for protection and management of biodiversity including conserving all of Victoria's native plants and animals.
- *Catchment and Land Protection Act 1994* (noxious weeds and pest animal management)
- *Biological Control Act 1986* (as amended 2019)
- Protecting Victoria's Environment – Biodiversity 2037 is Victoria's plan to stop decline of native plants & animals and improve the natural environment. <https://www.environment.vic.gov.au/biodiversity/biodiversity-plan>

Occupational Health and Safety, Dangerous Goods, Chemical Storage & Handling:

- Victorian *Occupational Health and Safety Act 2004* and Regulations 2017;
- *Dangerous Goods Act 1985* and Dangerous Goods (Storage and Handling) Regulations 2012
- Worksafe Victoria - Dangerous Goods Storage and Handling Code of Practice 2013
- Worksafe Victoria - Hazardous Substances Compliance Code 2019
- Worksafe Victoria - Managing asbestos in workplaces Compliance Code 2018

²⁹ Likely to be superseded when amended EP Act 2017 comes into force; but will remain "state of knowledge" and best practice until new guidance is available.

June 2020

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Site Contamination Management Plan

City of Port Phillip

Appendix B: Recommendations for Seeking Proposals from Environmental Professionals

Engaging a Consultant - Seeking Proposals for Site Investigations

1 INTRODUCTION

There are several types of site investigations that Council may need to commission, from simple desktop assessments and reviews of existing site management plans for a change in site use, to complex site investigations with intrusive sampling of the environment. Investigations may consider the presence or impacts of potential contamination in any media, e.g.:

- soil and rock, to remain on site or to be disposed off-site as industrial waste;
- groundwater and/or surface water that may be impacted;
- ground gas or soil vapour (from volatile contaminants e.g. petrol or dry-cleaning solvents)
- on a council-owned or managed site or on adjacent sites that may be impacted.

Some investigations may be stand-alone, some may be requested in stages, some may include all the stages listed below. References and guidelines that could apply to various stages are included in Appendix A. Specific guidance about assessing contaminated sites is found in the ASC NEPM¹, and consultants should reference whether they are assessing the site in accordance with the NEPM and other relevant guidance, as well as relevant legislation and policies depending on the type of investigation and contaminant.

An example decision-making framework is provided in Figure 1, from the draft Planning Practice Note 30 Potentially Contaminated Land (under consultation).

2 INVESTIGATION TYPE

2.1 Desktop Assessment

Purpose and outcome

- Identification and assessment of information about current and historical uses of the site and surrounding sites, and about the topography and hydrogeology of the site, e.g. groundwater depth and flow direction; and
- Provides an initial assessment of potential contamination risks and likely receptors, and can be used to prioritise further investigation actions and/or scope the next phase of investigation for the site if required.

In most cases the SCMO will be able to undertake these assessments, unless interpretation of complex hydrology or unusual contaminants is needed.

2.2 Preliminary Site Investigation (PSI)

(Includes Step 2.1 Desktop Assessment, if not undertaken previously)

Purpose

- Obtain initial site-specific data (as appropriate) to fill some gaps in the Desktop Assessment;
- May include a site inspection and/or preliminary or targeted soil sampling to get a better idea of the contamination potential and other environmental values that may impact on the site or that

¹ National Environment Protection (Assessment of Site Contamination) Measure 1999 as amended.

need protection², and to try to “rule in or out” the need for more detailed sampling or remediation; and

- Should provide an informed basis to revise the initial desktop risk assessment, determine the need for further assessment and/or management and scoping a detailed site investigation (DSI) or management plan if required.

If the site to be investigated is also earmarked for future capital works, then the scope of sampling may need to increase to also assess the risk related to construction activity.

In some cases, the SCMO will be able to undertake these assessments, where only basic surface soil sampling is required.

Reporting

Collation of all the assessment information from Steps 1 and 2, in a clear, concise, logical manner, to allow and justify any revisions to the contamination risk assessment and/or management actions and their priorities, to recommend further investigations if needed, and/or advise on the potential need for remediation (as appropriate) and whether formal reporting to the EPA is required.³

2.3 Detailed Site Investigation (DSI)

(Can be conducted pre-remediation and/or post-remediation)

Purpose

To obtain sufficient information to enable sound and defensible decisions about whether:

- The site is suitable for use in its current state;
- A health or ecological risk assessment is required, and if there is sufficient data for a HRA/ERA;
- Contamination is causing (or likely to cause) an off-site risk;
- The site needs remediation or management, and the type and extent of remedial works (if necessary);
- The desired outcomes from remediation works have been achieved and can be maintained (if remediation has already been undertaken); and
- The previous assessment of contamination risk and can be revised.

The DSI is undertaken by supplementing the information from previous investigations (e.g. the PSI), focussing on key issues, data gaps and uncertainties in the site characteristics related to contamination in soil or wastes, rock, groundwater or surface water, and/or soil vapor (as appropriate).

Depending on the circumstances, it may be cost-effective to undertake a DSI in a number of phases, with each phase focussing on a limited set of issues, and using the gathered information to inform the next phase.

²² This refers to observations of unexpected local activities such as neighbouring site activities that may impact (e.g. evidence of undocumented historical industry practices, construction/redevelopment activities, soil stockpiles, excavations that may uncover acid sulfate soil) or unexpected receptors (e.g. informal community gardens, local waterways or ecosystems), that may not be obvious from a desktop assessment.

³ EP Act 2017 includes a Duty to Notify EPA of certain contamination scenarios; details will be provided in the associated Regulations (not yet available) and EPA guidance when available.

Scope of Reporting – Outcome / Advice Required from DSI

The DSI report should:

- Collate all the relevant / available site investigation information (including PSI outcomes) in a clear, logical, understandable manner;
- Include discussion of site changes from pre-remediation to post remediation condition, and any off-site waste disposal tracking (for sites that have undergone remediation);
- Provide information needed to revise and update the assessment of risk-based contamination management actions and their priorities;
- Advise on the need for remediation and/or management, and - if needed - on specific challenges and desired/measurable outcomes from remediation and/or management; and on the potential scope of remediation needed (as appropriate) – e.g. type and extent of remediation (RAP); and
- Recommend whether formal reporting to the EPA is required.

The deliverable outcome for a DSI is a detailed assessment that is actionable by CoPP.

2.4 Statutory Environmental Audit

An environmental audit is a statutory tool under the Environment Protection Act 1970, and the new EP Act (2017 and 2018 amendments). It assesses the environmental condition of a site - related to contamination / pollution - and provides an independent opinion as to whether the site condition poses any risks for its current or proposed use.

Environmental audits can only be conducted by an environmental auditor appointed by EPA Victoria, and provide the highest level of confidence in a site assessment outcome.⁴ More information about environmental audits of contaminated land can be found on the EPA website⁵ and in the Planning Practice Note 30 *Potentially Contaminated Land*⁶.

Note: The Environmental Audit system is in the process of reform and is likely to change when the EP Act 2017 commences. Update information should be available from the EPA website, such as the following link: <https://www.epa.vic.gov.au/for-business/find-a-topic/environmental-audit>.

In most cases of site contamination assessment and management undertaken by CoPP, an environmental audit will not be required. However it may be required in a Clean Up Notice or Pollution Abatement Notice issued by EPA, or required of CoPP as a land owner proposing a change of land use⁷ as a consequence of Ministerial Direction No 1⁸.

CoPP may also decide to voluntarily commission an environmental audit for land over which it has control, especially for very high-profile or controversial sites.

If CoPP commissions an environmental audit, the CoPP Procurement Process must be followed. The Scope provided to auditors requires access to the available information about the site conditions, so

⁴ They are also usually the most expensive option, in terms of time and cost.

⁵ <https://www.epa.vic.gov.au/for-business/find-a-topic/environmental-audit>

⁶ https://www.planning.vic.gov.au/_data/assets/pdf_file/0027/97164/PPN30-Potentially-Contaminated-Land.pdf

⁷ Usually involving a change to a more sensitive use but can be used in other situations.

⁸ Ministerial Direction No. 1 – Potentially Contaminated Land, *Planning & Environment Act 1987*.

that the auditor is fully informed when preparing their proposal. Among other details, the proposal request should seek the following information:

- The auditor's approach to implementing the EPA Auditor Guideline (EPA Publication 759.3 or as updated) in respect of this specific site, including the main steps in the audit process; and
- A preliminary list of the key issues or questions posed by the site that will need to be addressed/resolved in the course of the audit.

2.5 Preliminary Risk Screening Assessment (PRSA)

The PRSA is a new statutory assessment tool introduced in the Environment Protection Act 2017. It is intended to be used at an early stage of assessing potentially contaminated sites as part of the land use planning process to determine the potential for contamination that may affect the current and/or proposed use of a site. It is not intended to be a broad scale replacement of the Preliminary Site Investigation but a robust mechanism that can be used to assess where the risks of contamination appears low.

A PRSA may not be required outside the planning system but if it is used, it should inform on:

- The likelihood of the presence of contaminated land
- The need for an environmental audit
- If an environmental audit is required, to recommend a scope for the environmental audit.

More information and guidance on PRSA will become available from DELWP and EPA.

2.6 Remedial Action Plan (RAP)

- If contamination is identified as needing remediation a separate Remediation Action Plan (RAP) is usually required, typically as part of the remediation works;
- The RAP would outline the understanding of the contamination onsite, provide a conceptual site model and outline the end remediation goals.
- The different remediation strategies to manage the contamination for the proposed end use would be outlined. The various remediation options available should include a matrix outlining the time, cost, practicality, etc. of each method to assist with a discussion with Council around which method may be most applicable for the individual scenario;
- Following the completion of the remediation, additional works may be required (i.e. validation sampling following the removal of contaminated soil) and these additional works may also be outlined in the RAP; and
- Based on the remediation works required and if a specific remediation method is required, Council may look to engage the remediation company directly or via the environmental consultant.

2.7 Ongoing Monitoring and Management of Soil Contamination

The need for this type of investigation depends on the outcomes from detailed investigations (DSI, pre- or post-remediation) or statutory audits, if these conclude that no further remediation /management is needed at present, but there is some conditionality or some uncertainty about that conclusion.

Purpose

To ensure the implementation of a Site-Specific Contamination Management Plan which guides the use of a site to maintain an acceptable level of risk relating to remaining contaminated soil, and to monitor for any changes in conditions.

Scope of Reporting and Advice Required

- Collate and report the information from the monitoring investigation, in the context of the information from all previous investigations.
- Document ongoing management controls required.
- Provide an informed basis to revise assessment of the site's contamination risk and the need for further monitoring and/or management.

It should be noted in a project scope if a Site-Specific Contamination Management is a required deliverable.

3 REQUESTING A PROPOSAL

Information to be submitted with proposal

Some projects will be quite simple and straightforward, others may be more complex, especially where there are multiple phases or stages within the project. Regardless of the complexity, the following general information should be sought or expected when requesting or reviewing a proposal:

- A clear scope and methods of investigation, including the rationale and justification;
- Any references or guidelines to be followed (e.g. EPA requirements, NEPM guidance, etc.⁹)
- a draft table of contents or other outline of the inclusions in the investigation report (for more complex investigations);
- Names and qualifications and experience of the company and/or key staff who would deliver the service;
- Proposed timeframe for delivery of each main task in the scope (this may include a Gantt chart or similar for more complex or multi-staged investigations);
- Proposed fee and consultant rates (including costs per work stage, if required e.g. for more complex or multi-staged investigations);
- Any assumptions, limitations, inclusions or exclusions for the proposed time programme and proposed rates and prices; and
- Any other terms and conditions.

The scope of works should indicate that investigation, assessment, and reporting should meet or exceed the expected benchmarks for the particular phase of work. e.g., as per EPA requirements or ASC NEPM recommendations. NEPM *Schedule B2: Site Characterisation* provides guidance on phases of investigation, particularly PSI, DSI and asbestos in soils.

In addition, see EPA information "Engaging consultants".

<https://ref.epa.vic.gov.au/business-and-industry/guidelines/engaging-consultants>
<https://www.epa.vic.gov.au/about-epa/publications/1702>

⁹ Key guidelines included in Appendix A, Legislation and Guidelines

Figure 1 - Decision making framework (Draft Practice Note 30, Potentially Contaminated Land)

This is an example that applies to assessing contamination in the land use planning system and may also assist Project Managers to navigate assessment options.

https://s3.ap-southeast-2.amazonaws.com/hdp.au.prod.app.vic-engage.files/9415/8580/1923/DRAFT_PN30-Potentially-Contaminated-Land.pdf

