

Watercare Services Ltd

# QUEEN STREET WASTEWATER DIVERSION - PART 3 AND PART 4 CONNECTION WORKS

## SITE MANAGEMENT PLAN

13 FEBRUARY 2024

CONFIDENTIAL



QUEEN STREET WASTEWATER DIVERSION – PART 3 AND PART 4 CONNECTION  
WORKS  
SITE MANAGEMENT PLAN

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# ABBREVIATIONS

CLMG 1	Contaminated Land Management Guideline No. 1: Reporting on Contaminated Sites in New Zealand
CLMG 5	Contaminated Land Management Guideline No. 5: Site investigation and analysis of soils
DSI	Detailed Site Investigation
HAIL	Hazardous Activities and Industries List
m bgl	meters below ground level
MfE	Ministry for the Environment
NESCS	National Environment Standard for Assessing and Managing Contaminants in Soil to Protect Human Health
PoL	Piece of Land
PSI	Preliminary Site Investigation
SCS <sub>(health)</sub>	Soil Contaminant Standards for Health
SGV	Soil Guideline Value
SMP	Site Management Plan
SQEP	Suitably Qualified and Experienced Practitioner

# 1 INTRODUCTION

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## 1.1 OVERVIEW

WSP New Zealand (WSP) has been engaged by Watercare Services Limited (Watercare) to develop a Site Management Plan (SMP) to guide contractors and support resource consent applications for the proposed Queen Street Wastewater Diversion project in the Auckland City Centre.

This SMP relates to Part 3 works including construction support area establishment and service relocation, covering approximately 600m between 206 Queen Street and 329 Queen Street, as well as the Part 3 and Part 4 connection at Greys Avenue carpark (herein referred to as “the site”). The site location and layout are presented in Appendix A, Figure 1.

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## 1.2 OBJECTIVE

This SMP has been prepared to ensure soils disturbed, removed, and/or remaining on-site during the works meet the requirements of the following:

- Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NESCS) (MfE, 2011)
- Auckland Unitary Plan – Operative Part (AUP-OP) (AC, 2016; updated 2021)
- Technical Guidelines for Disposal to Land (Wasteminz, 2016)

The SMP has been developed in accordance with the Ministry for the Environment (MfE) *Contaminated land management guidelines No. 1: Reporting on contaminated sites in New Zealand* (CLMG, No. 1) (MfE, 2021) and is a live document and is to be updated throughout the project when necessary.

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## 1.3 PROPER USE OF THIS DOCUMENT

WSP has prepared this SMP to outline site management procedures associated with contaminated soil that will be required to be disturbed during development works.

These controls must be complied with when undertaking ground disturbance activities at the site and include the prevention of uncontrolled release of soil contaminants (including dust emissions, soil erosion and sediment control), health and safety precautions for site contractors, disposal procedures for soil (where required), additional sampling and recording requirements.

The principles outlined in this plan will be used by the contractor to detail actual practices and methodologies for site specific work areas.

This plan remains a working document throughout the duration of the site works and may be updated under the technical verification of a Suitably Qualified and Experienced Practitioner (SQEP).

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## 1.4 RESPONSIBILITIES FOR IMPLEMENTATION

The main contractor is responsible for implementing this SMP. A copy of this SMP shall be kept on site for the duration of the project works and shall be updated throughout the duration of the project when required (e.g., procurement of additional information or change in scope).

Project personnel shall be briefed on the contents of this SMP and be encouraged to read it, particularly those personnel likely to be exposed to contaminated soil.

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## 1.5 PROPOSED WORKS

Watercare plan to upgrade the existing wastewater network by constructing new diversions around the Auckland City Centre and join these new connections to the existing Orakei Main Sewer. The development works will include soil disturbance and re-use or disposal of excess spoil.

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## 1.6 PREVIOUS INVESTIGATIONS

In April 2022, WSP completed a Preliminary Site Investigation (PSI) (WSP, 2022a) for the proposed alignment in support of the development works as required by the NESCS. The PSI considered Parts 1, 2 and 3 of the proposed upgrades within its assessment.

Following the recommendations of the PSI, a Detailed Site Investigation (DSI) (WSP, 2023) was completed. A summary of the information pertaining to Part 3 is provided below.

### *PRELIMINARY SITE INVESTIGATION (WSP, 2022A)*

The PSI comprised a desktop review of:

- Environmental setting from publicly available maps and databases
- Historic aerial photography available from Auckland Council (AC) Geomaps (AC, 2023), Retrolens (Retrolens, 2022), and Google Earth.
- AC site contamination enquiry
- AC property files

The information review undertaken found that the Auckland City Centre was well established along Queen Street in 1940 when the earliest aerial imagery is available. Mayoral Drive is not presently constructed at this date. No significant changes are present along the remainder of the Part 3 alignment. By 1974, Mayoral Drive is under construction resulting in the demolition of numerous buildings to accommodate this new road. From 1996 to 2017 Aotea Square underwent various changes before realising its final construction.

Pursuant to the MfE Hazardous Activities and Industries List (HAIL) (MfE, 2022) one site was identified as a potential contaminant source due to HAIL activity A17 – Storage tanks or drums for fuel, chemicals, or liquid waste. However, this HAIL activity was not considered to apply to Part 3 of the alignment as it is located approximately 100 m west of the site.

The potential for coal tar within the road corridors, posing an immediate health risk to the workers, was recommended to be considered during soil disturbance activities.

Based on the information reviewed under the PSI, there was insufficient evidence that there had been HAIL activities along the alignment likely to have an adverse impact on the proposed project.

Therefore, it was concluded that the NES-CS did not apply to the alignment based on the reviewed data set. However, it was recommended that soil sampling in the form of a DSI should be undertaken along the site for assessment of coal tar and soil disposal purposes.

#### *DETAILED SITE INVESTIGATION (WSP, 2023A)*

The DSI comprised a desktop review of the information previously outlined in the PSI, and intrusive soil sampling to help inform requirements of the appropriate guidelines and disposal.

Soil sampling was undertaken at the site across multiple visits in association with the geotechnical investigation between 1 August 2022 and 10 February 2023. The investigation comprised eight sampling locations with a total of 16 soil samples collected (Refer to Figure 2, Appendix A). Soil samples were submitted to R.J. Hill Laboratories (Hills) for analysis of determined contaminants of concern, including heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc), polycyclic aromatic hydrocarbons (PAH), total petroleum hydrocarbons (TPH), and benzene, toluene, ethylbenzene, and total xylenes (BTEX).

The results identified concentrations of lead, mercury, nickel and zinc above the Auckland Regional Background Concentrations for Volcanic Soil, and AUP-OP Permitted Activity Criteria at BH22/01. Concentrations of TPH and PAH were also detected above the limit of reporting (LOR) at this location, however all concentrations at BH22/01 were below applicable human health guideline values. TPH was also identified at BH22/08 at a concentration above the LOR, but again below applicable human health guideline values.

WSP advised that given the results, the NESCS and AUP-OP are considered to apply to the land within the vicinity BH22/01 and BH22/08. No exceedances were recorded at any of the other sampling locations and no further delineation sampling was undertaken by WSP. As such, using a conservative approach, the NESCS and AUP-OP apply to land up to halfway to the nearest sampling location. A visual representation of these areas can be found in Figure 2, Appendix A.

WSP recommended that:

- Any soils removed off site would need to be disposed of at an appropriately licensed landfill facility. Prior acceptance may be dependent on the receiving facility and will require prior approval to ensure material meets the landfill consent conditions.
- A SMP and unexpected discovery protocol (UDP) be implemented to outline procedures and processes to be undertaken should any ground conditions be encountered in the areas which have not been anticipated based on the findings of the DSI.
- The NESCS and AUP-OP consenting requirements should be reassessed once the construction plans are finalised, including the area of soil being disturbed, and the volume of soil being removed.

#### *TUNNELLING AND CONTRACTOR SUPPORT AREA*

The Greys Avenue carpark was identified as an area for the establishment of a construction support area (CSA) following issue of the DSI (WSP, 2023a). In order to begin tunnelling works from the Mayoral Drive shaft location, support services including a CSA, temporary shaft and service tunnel will need to be established. The southern end of the Greys Avenue carpark, west of the Mayoral Drive shaft, has been identified as the preferred location for the establishment of these areas, refer to Figure 2, Appendix A.



A desktop review completed by WSP in 2022 titled *Queen Street Wastewater Diversion Part 4 – Desktop HAIL Assessment* (WSP, 2022b) identified the northwestern portion of the carpark as having been backfilled using demolition waste. This was confirmed during service locate activities in BH23/03.

As presented in the addendum to the 2023 DSI (WSP, 2023b), sampling found soils underlying Greys Avenue carpark to contain elevated concentrations of heavy metals and hydrocarbons. Asbestos was also identified within fill material observed in BH23/03. While concentrations of all analytes were below human health criteria, soils removed from the Greys Avenue cannot be considered cleanfill and will require disposal at an appropriately licensed landfill. The NES-CS and AUP-OP will also apply to soil disturbance within the Greys Avenue carpark and a SMP including UDP is required.

## 2 REGULATORY ENVIRONMENT

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### 2.1 HEALTH AND SAFETY AT WORK ACT 2015

The HSWA places a duty on a person conducting a business or undertaking (PCBU) to eliminate all health and safety risks associated with the use of the site as a workplace, as part of the design process. As contamination represents a health and safety risk, the PCBU has an obligation to eliminate exposure to contamination where possible and to minimise the risk of exposure as far as reasonably practicable where elimination is not possible.

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### 2.2 NES-CS, 2011 AND AUP-OP, 2016

The policy objective of the NES-CS is to ensure land affected by contaminants in soil is appropriately identified and assessed when soil disturbance and/or land development activities take place. The NESCS enables the safe use of affected land by:

- Establishing regulations for five land use scenarios that ensure district planning controls relevant to assessing and managing public health risks from contaminants in soil are appropriate and nationally consistent.
- Establishing soil contaminant standards protective of human health and requiring their use when decisions are made under the NES-CS; and
- Ensuring best practice and consistent reporting on land affected or potentially affected by contaminants is applied that enables efficient information gathering and consistent decision-making.

Based on the information presented in the PSI, DSI and DSI addendum, the NES-CS and AUP-OP apply in the vicinity of three sample locations (BH22/01, BH22/08 and BH23/02).

## 3 SITE DETAILS

### 3.1 SITE DESCRIPTION

The site is located on the road reserve of Queen Street in Auckland City Centre between 206 Queen Street and 329 Queen Street (between Mayoral Drive and Victoria Street East) and the Greys Avenue carpark covering 36 – 38 Greys Avenue and 329 Queen Street. The alignment is approximately 600m in length and is surrounded primarily by commercial use buildings. A summary of the site details is provided in Table 3-1 below.

Table 3-1: Summary of site details.

DESCRIPTION	SITE INFORMATION
Site address	206 – 329 Queen Street, Auckland 36 – 38 Greys Avenue, Auckland
Approximate site area	Part 3 is approximately 600m in length. Greys Avenue area – 1,545m <sup>2</sup>
Legal description	N/A – road reserve Pt Lot 2 DP 81645, Lot 1 DP 81645, and Lot 1 DP 84867
Territorial Authority	Auckland City Council
Current site use	Commercial / Industrial (road reserve), carpark
Proposed site use	Commercial / Industrial (road reserve), carpark
Adjacent sites use	Commercial & Residential

# 4 SITE MANAGEMENT PROCEDURES

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## 4.1 GENERAL

The purpose of this SMP is to provide procedures for earthworks within the identified areas to ensure soil disturbance is conducted in a manner that appropriately manages the potential impacts of the soil contamination relating to human health and the environment.

Contamination is one of several hazards that may need to be managed during the works. Details of how hazards are to be managed on site will be provided by the main Contractor in the overall project health, safety, and environment plan (HSEP) and the construction environmental management plan (CEMP). The HSEP will include a full list of site and activity related hazards and prescribed controls, and the CEMP will detail general management controls at the site (for example, hours of operation) and construction related controls such as the specifics of sediment and erosion control devices.

Based on the WSP DSI (WSP, 2023a) and DSI addendum (WSP, 2023b) concentrations of contaminants of concern were found to exceed Auckland Regional Background Concentrations for Volcanic Soils, and the AUP-OP Permitted Activity Criteria at two locations (BH22/01 and BH23/02). In addition, TPH was detected at two locations (BH22/08 and BH23/02) above LOR. As no concentrations were found to exceed the human health criteria for the proposed future land use (commercial/industrial), re-use of the soils on-site is considered acceptable with the exception of fill material disturbed within Greys Avenue carpark. Due to the presence of asbestos within demolition fill, this material will need to be removed off-site. All material removed (building material and soil fines) will need to be disposed of at an appropriate licensed landfill facility. Removal of this material will likely need to be under a Class A asbestos removal license (refer to Section 4.6).

This SMP has been developed to outline the appropriate control measures when conducting soil disturbance over the Piece of Land (PoL) (delineated in Appendix A, Figure 2) to effectively:

- Minimise worker and public contact with contaminated soil.
- Ensure that waste soil is appropriately managed.
- Manage the quality of any imported fill materials to ensure that contaminated materials are not imported to the site. This includes any recycled granular materials brought to site; and
- Minimise risk to local sensitive environmental receptors.

This section details the procedures for the management of contaminated soil during the earthworks and redevelopment. It includes control measures for reducing human exposure to contaminated soils while minimising contaminated discharges to air and land. These measures must be established prior to commencing works and be maintained throughout the project.

## 4.2 CONTAMINATED SOIL DEFINITION

For the purposes of this plan, contaminated soil is any soil which contains concentrations of contaminants above the adopted background concentrations, or the AUP-OP permitted activity criteria. The definition of cleanfill is provided in Section 4.6.

## 4.3 ROLE AND RESPONSIBILITIES

The allocated roles for the implementation of this SMP are provided in Table 1-1 below.

Table 4-1: Role and responsibilities

ROLE	RESPONSIBILITIES	RESPONSIBLE PARTY	CONTACT DETAILS
Project Owner	Overall authority of the site and proposed works	Watercare Services Limited	TBC
Main contractor	Responsible for the completion of the proposed works in accordance with contract documents, construction drawings, this SMP, UDP and any applicable resource consents.  Responsible for ensuring all site staff are inducted into the requirements of this SMP and all required tools and equipment are available during works.	TBC	TBC
Engineers Representative	Responsible for the oversight of the proposed works in accordance with contract documents, construction drawings, this SMP, UDP and any applicable resource consents.	TBC	TBC
Contaminated Land Specialist	Responsible for the preparation of this SMP in accordance with the CLMG, No.1.  Responsible for completion of any further sampling and reporting (as required) and to be available throughout the works in the case of an unexpected discovery of additional contamination.	WSP	Megan Baddiley Senior Environmental Scientist Megan.baddiley@wsp.com
Regulatory Authority	Overall authority over site works in accordance with district and regional planning rules.	Auckland Council	TBC

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## 4.4 PRE-WORKS

The following procedures shall be implemented by the Contractor prior to any ground disturbance works commencing.

AC shall be notified according to requirements of the consent. Prior to works commencing, the Contractor shall ensure that the following are emplaced to aid in the management of site safety and environmental compliance.

- Signage, including works information and health and safety requirements.
- Fencing, where appropriate, to exclude entry by general public; and
- Silt and sediment controls measures.

It is recommended that the person(s) responsible for undertaking the ground disturbance activity (generally the Contractor) prepare and implement a health and safety plan/Job Safety and Environment Analysis (JSEA) in compliance with the *Health and Safety at Work Act 2015* and associated regulations, legislation, codes, and guidelines.

The health and safety plan should cover hazards associated with the work (e.g., equipment used) and working practises/activities.

- All workers shall be inducted prior to carrying out works at the site. The induction shall include the likelihood of contaminated soil, training relating to indicators of contamination, protocols for unexpected discovery of contamination, and PPE requirements.
- Eating, drinking, and smoking should only be permitted in specified areas of the site, and after thorough hand washing has occurred.
- Hand to mouth and hand to face contact should be avoided on site.

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## 4.5 SITE MANAGEMENT DURING SOIL DISTURBANCE

This section outlines the site-specific controls and management processes to be followed during soil disturbance works with the vicinity of the PoLs (Figure 2, Appendix A).

### 4.5.1 PERSONAL PROTECTIVE EQUIPMENT

Based on the DSI the following PPE will be mandatory for all personnel involved in ground disturbance activities where the potential for direct contact (including accidental) with contaminated materials exists:

- Wrist to ankle cover
- Wipeable safety footwear
- Nitrile gloves (if soil is handled directly)
- P2, or higher, grade dust masks (if there is the potential for the generation of contaminated dust)
- Safety glasses

- Hard hat; and
- Hi-vis.

The above list should be reviewed prior to site works to ensure the appropriate level of PPE based on the works to be undertaken.

In addition to the above list Tyvek coveralls and boot covers may be required during disturbance or removal of asbestos containing building debris in Greys Avenue, refer to Section 4.6 for further information.

#### 4.5.2 *DECONTAMINATION*

Due to the positive identification of asbestos in buried demolition waste in BH23/03 a decontamination process will need to be followed should these materials be disturbed.

The purpose of decontamination is to reduce potential exposure and further prevent the spread of contamination outside the work area.

All workers are required to be appropriately trained in decontamination procedures at the initial site induction. Typical decontamination steps for those in direct contact with contaminated soils include the following:

Note that these steps will be reviewed prior to works commencing on site and be adapted according to the type of works to be completed.

1. Take all equipment to the designated decontamination area, which is protected by a polythene ground sheet.
2. Spray around worker with clean misting spray to drop any airborne fibres out of suspension, and to dampen down any fibres present on the workers PPE.
3. Wipe all equipment down with wet wipes (excavation equipment can be washed down on site with water), disposing of wipes into a 200 micron clearly labelled waste disposal bag.
4. Remove coveralls carefully by peeling back the hood and following the coveralls inside out, gloves and boot covers can be rolled into the coveralls. Dispose all into the waste bag.
5. Wipe down hands, boots, and respirator with wet wipes, dispose of wipes in waste bag.
6. Wipe down ground sheet and dispose of ground sheet in waste bag.
7. Move to an open area, hold breathe and remove remaining PPE, wipe face around mask seal and the mask itself, dispose of wipes in waste bag; and
8. Double bag and dispose of waste appropriately.

Additional decontamination steps may be required depending on the construction plan. This may include wheel washing facilities for trucks leaving site and equipment wash down bays. This will be confirmed and updated in this report once development plans have been finalised.

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## 4.6 REMOVAL OF ASBESTOS IMPACTED MATERIAL

Asbestos was positively identified within building material used as backfill in Greys Avenue Carpark, while not technically classified as “soil” it is recommended that any disturbance and removal of this material is completed in accordance with Class A controls outlined in the *New Zealand Guidelines for Assessing and Managing Asbestos in Soil* (NZGAMAS), 2017 (BRANZ, 2017).

Under NZGAMAS, the following controls may be required:

- Works shall be completed by a Class A licensed asbestos removalist, under an Asbestos Removal Control Plan (ARCP) that has been reviewed and approved by an independent licensed asbestos assessor.
- The licensed removalist shall notify Worksafe of the proposed works at least 5 days prior to commencing works.
- Boundary air monitoring shall be completed by an independent licensed asbestos assessor for the duration of the works within the Class A asbestos work area.
- Class A mitigation control measures as indicated in Table 6 of the NZGAMAS (Figure 4-1) should be implemented onsite and detailed in the ARCP.
- Class A vehicle decontamination control measures as indicated in Table 7 of the NZGAMAS (Figure 4-2) should be implemented onsite and detailed in the ARCP.
- Following the completion of excavation within the Class A asbestos work area, suitable controls should be implemented to make the site occupiable without the Class A controls in place (i.e., multi-layer bidim/geotextile cloth installed over exposed trench banks of Class A material) with clear demarcation of the contaminated Class A material. These controls should be robust enough to last the duration of the remaining works at the site.
- Prior to workers entering the site area following installation of the controls, a four-stage clearance shall be completed and obtained by a licensed asbestos assessor to confirm the site is safe to occupy for the remainder of the works without Class A controls.



Scenario	PPE	Respiratory protective equipment (RPE)*	Dust/asbestos fibre suppression	Decontamination facilities
Class A: friable  >1% w/w FA and/or AF in soil	Disposable coveralls rated type 5, category 3, nitrile gloves, steel toe capped gumboots or safety footwear with disposable overshoes.	Full-face P3 respirator with particulate filter. Consider increasing to power-assisted if required.	Water and asbestos-encapsulating polymer emulsion product applied before starting work and during as required.	Basic disposable wet decontamination tent or trailer. Consider powered and plumbed decontamination unit if project scale warrants.
Class B: non-friable  >0.01% w/w FA and/or AF in soil >1% w/w ACM		Half-face P3 respirator with particulate filter. Consider increasing to full-face if friable ACM present.	Consider adding a surfactant to water for amphibole fibres (brown and blue).	Basic disposable decontamination tent and foot wash.
Asbestos-related work  >0.001% w/w FA and/or AF in soil >0.01% w/w ACM		Disposable P2 dust mask.	Water via localised points. Addition of surfactants and polymers where the location is sensitive (such as adjacent to busy centres, schools).	
Unlicensed asbestos work  ≤0.001% w/w FA and/or AF in soil ≤0.01% w/w ACM	No asbestos-specific PPE if air monitoring confirms asbestos below 0.01 f/ml.	No asbestos-specific RPE if SQEP confirms unlikely to exceed trace levels in air monitoring (0.01 f/ml) and/or if air monitoring confirms asbestos below 0.01 f/ml.	Temporary cover of contaminated area awaiting remediation.	Foot wash and used PPE collection area.

\*Refer to Part C section 14 of the ACOP and AS/NZS 1715:2009 for more information on RPE selection.

**Table 6.** Primary mitigation control requirements for work involving asbestos.

Figure 4-1 Control requirements for work involving asbestos (sourced from BRANZ, 2017; Table 6)

Scenario	Vehicle assessment before demobilisation from site	Vehicle assessment completed by	Vehicle (truck) protection	Truck/excavator air conditioning
Class A: friable  >1% w/w FA and/or AF in soil	Visual plus swab samples, air sampling should be undertaken inside the cab.	Independent assessor or independent competent person.*	200 µm heavy-gauge polythene wrapped soil/lined trays and truck covered.	HEPA filter system fitted for all occupied vehicles, filter replaced or clean down with HEPA vacuum cleaner post work.
Class B: non-friable  >0.01% w/w FA and/or AF in soil  >1% w/w ACM	Visual (plus swab samples if friable ACM is elsewhere on site – lagging, insulation, etc).	Independent assessor or independent competent person.*		HEPA filter system fitted for all occupied vehicles where friable ACM on site (lagging, insulation, etc).
Asbestos-related work  >0.001% w/w FA and/or AF in soil  >0.01% w/w ACM  Unlicensed asbestos work  ≤0.001% w/w FA and/or AF in soil  ≤0.01% w/w ACM	Visual assessment.	Competent person or SQEP.	Truck lining/soil wrapping depends on the receiving landfill.  All trucks should be covered.	Standard air conditioning.

\*An independent competent person must meet the requirements of regulation 41(3) under the Asbestos Regulations.

**Table 7.** Vehicle decontamination requirements.

Figure 4-2 – Table 7 of the NZGAMAS (BRANZ, 2017); vehicle decontamination requirements.

## 4.7 EXCAVATION AND DISTURBANCE OF CONTAMINATED SOIL

The following procedures shall be applied when handling and disposing of all excavated materials and/or spoil derived from site (with the exception of building debris from Greys Avenue carpark). Soils disturbed within the PoLs cannot be considered cleanfill and further verification/characterisation of the material should be undertaken prior to soil leaving site.

Should unusually coloured or odorous soil/fill be identified during the site works, the contractor shall contact Watercare's project manager (who will seek SQEP input if necessary). Following notification, a visual inspection of the material should be completed and additional advice regarding its safe handling and disposal and the requirement of the collection of any validation samples of excavated material is to be provided.

Further detail of this process is outlined in the unexpected discovery protocol in Section 5 of this plan.

#### 4.7.1 STOCKPILE MANAGEMENT

In the event that the excavated material is stockpiled onsite prior to offsite disposal, stockpiled material will be managed by the contractor as follows:

- The receiving ground should be covered in plastic sheeting, such as high-density polyethylene liner, to prevent material runoff.
- A bund will be constructed around the stockpile to minimise stormwater run-on and run-off.
- Stockpiles will be wetted and maintained damp (but not wet) and/or kept covered with plastic sheeting when material is not being added or removed to prevent erosion and dust generation.
- Stockpiles will not exceed 2m in height.
- Stockpiling should not be undertaken for extended periods of time (>1 month); and
- Stockpiling of buried demolition waste should be avoided where possible.

#### 4.7.2 EROSION, SEDIMENT AND DUST CONTROL

Erosion and sediment controls shall be put in place to ensure that the generation of potentially contaminated stormwater or groundwater is minimised and managed. Sediment controls will be undertaken in accordance with industry best practise, and in place of local erosion control guidelines. This will include (but is not limited to) the AC *Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region, 2016* (AC, 2016).

An Erosion and Sediment Control Plan (ESCP) must be prepared by the contractor prior to commencement of earthworks. The ESCP must ensure that erosion and sediment controls are adequate to ensure that contaminated soil does not travel offsite. Daily inspections of erosion and sediment controls and the adjacent stormwater system will be conducted.

Additional inspections will also be conducted following high rainfall.

Dust generated for the excavation of material has the potential to contain contaminants and during windy conditions could migrate offsite. Dust must be managed during the excavation works to ensure that it generally complies with the *Good Practise Guide for Assessing and Managing the Environmental Effects of Dust Emissions* (MfE, 2001). To control the generation of dust, the contractor will ensure that:

- Working in windy conditions is avoided.
- All areas subject to soil disturbance activities are wetted and remain damp (but not saturated) at all times during soil works. When utilising water to control dust, the contractor will ensure that:
  - The volume of water used does not exceed soil field capacity causing run-off that could discharge off-site; and
  - The application of water does not induce soil erosion and/or pugging.
  - Stockpiled material is covered.
  - Plant access onto the works area is limited where possible; and
  - A dust and odour complaints log will be maintained by the site contractor.

If complaints regarding dust are received, the following information will be recorded:

- Time and date of the complaint.
- Name and location of the complaint.
- Weather conditions, description of site activities, and location of site activities
- Nature of the complaint; and
- Mitigation measures undertaken and evaluation of effectiveness.

#### 4.7.3 MONITORING AND CONTROL

Monitoring requirements for general earthworks and erosion and sediment control shall be specified in the Construction Management Plan and ESCP.

Contamination specific monitoring shall be as follows:

- Daily, the contractor shall check covers on stockpiles of contaminated material (if any) and ensure appropriate diversion bunds are in place.
- Throughout ground disturbance works, the contractor shall be vigilant for the presence of unexpected contamination.
- If weather or other site conditions change, the contractor shall review the controls in place on site to determine if any changes are required to suit the new condition.

#### 4.7.4 STORMWATER MANAGEMENT

All practical steps must be taken to separate 'clean' and 'dirty' stormwater / surface run off. Separation and diversion of clean stormwater away from areas of ground disturbance is standard practice for any earthworks activity but becomes more important where contaminants are present. To minimise the potential for clean stormwater to encounter contaminated soil, the stormwater and sediment controls detailed in the ESCP for the works shall be implemented. At a minimum these controls shall include:

- Diverting 'clean' stormwater away from excavated areas using onsite topography and/or sediment socks.
- Allowing stormwater falling within the site to infiltrate land.
- Monitoring before and after any rainfall or weather event sufficient to generate runoff. Any corrective actions to be completed within 24hrs or prior to any forecast weather event. Key monitoring points are identified as stormwater sump protection, clean/dirty water diversion systems and stockpile management.
- Where soil saturation is too great for accumulated stormwater to discharge to ground and removing via dewatering is required, a sucker truck may be the most effective option for removal of potentially contaminated surface water; and
- Contaminated surface water shall not be discharged to the stormwater system without appropriate resource consents and sampling completed by a CLS to determine the concentrations of contaminants in stormwater.
  - Where required, stormwater sampling shall be analysed for dissolved heavy metals and any additional analytes recommended by the CLS with the

samples submitted to an International Accreditation New Zealand accredited laboratory for analysis.

- o The CLS shall compare the results to the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, 2018). Table 3.4.1 'Trigger values for toxicants for freshwater (where available) at the level of protection of 80 per cent of species and any other guidelines as required by the applicable resource consent.

#### 4.7.5 ODOUR MANAGEMENT

The following controls shall be implemented during excavation and soil disturbance activities:

- Erosion and sediment controls shall be implemented in accordance with the ESCP.
- Material requiring off-site disposal shall be placed directly into trucks or lined bins for off-site disposal.
- Material suitable for re-use on-site can be stockpiled in accordance with the controls detailed in Section 4.4.2 below prior to re-use on-site. Stockpiling of demolition fill from Greys Avenue should be avoided.
- Spillages of contaminated soil during placement in trucks shall be cleaned up as soon as practicable. Spillages shall not be left unattended as contaminated soil could be trafficked by trucks and transported off-site; and
- If unexpected contamination is encountered during works, the works shall cease in the immediate vicinity and the procedures documented in Section 5.4.1 shall be followed.

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### 4.8 OFF-SITE SOIL DISPOSAL

Most excavated soil within the PoLs is suitable for re-use on-site or may be suitable for disposal at a Class B landfill (managed fill facility) subject to the landfill confirming material acceptance. Fill material sourced from Greys Avenue should not be re-used on site due to the presence of asbestos.

Prior to removal off-site, confirmation of material acceptance shall be sought from the receiving facility and an approved transport provider confirmed. Material acceptance by the receiving landfill may require additional testing.

In the case of additional testing, this SMP shall be updated to reflect the appropriately licensed disposal location.

In all cases:

- Trucks transporting soil for off-site disposal shall be covered.
- Have the necessary permits from the disposal facility to confirm that the facility can receive the materials prior to off-site transportation; and
- Weighbridge dockets and/or a summary sheet shall be retained.

The following measures shall be implemented to prevent soil from being dispersed onto roads or transported to another site (excluding transport to a disposal facility) as well as to minimise generation of dust:

- Trucks shall stick to dedicated haul routes and avoid tracking over un-stabilised areas.
- Any excess soil on vehicle tyres or machinery shall be removed before vehicles leave the work area; and
- All trucks transporting excavated soil to the selected disposal facility shall be appropriately covered.

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## 4.9 IMPORTED MATERIAL REQUIREMENTS

If importation of soil is required, these shall originate from:

- A site which has been determined by a CLS to have had no known history of potentially contaminating activities, as detailed on the HAIL (Ministry for the Environment, 2011a), or
- A site which has been adequately investigated by a suitably qualified contaminated land professional, in accordance with MfE's *Contaminated Land Management Guideline No. 5: Site investigation and analysis of soils* (CLMG No. 5) (Ministry for the Environment, 2021b), to meet the 'cleanfill material' definition.

In accordance with the MfE *A Guide to the Management of Cleanfills* (Ministry for the Environment, 2002), cleanfill is characterised as:

*"Material that when buried will have no adverse effect on people or the environment. Cleanfill material includes virgin natural materials such as clay, soil and rock, and other inert materials such as concrete or brick that are free of:*

- combustible, putrescible, degradable or leachable components.
- hazardous substances.
- products or materials derived from hazardous waste treatment, hazardous waste stabilisation or hazardous waste disposal practices.
- materials that may present a risk to human or animal health such as medical and veterinary waste, asbestos, or radioactive substances.
- liquid waste.

Engineering materials may be used including clean quarry materials and recycled crushed concrete aggregate that is site won or sourced from a quarry or supplier. The supplier of these materials is to provide documentation to confirm suitability for use.

For crushed concrete aggregate the additional information is required:

- Sourced from the site: address of the source site, copies of pre-demolition asbestos surveys, copies of asbestos clearance certificates prepared prior to demolition and asbestos testing at a rate of 1 in 500 m<sup>3</sup>; and
- Sourced from a supplier: confirmation of processing procedures and asbestos testing at a rate of 1 in 500 m<sup>3</sup> of product is to be provided by the supplier. The CLS shall review

the supplied information prior to acceptance, or the material stockpiled on site until available.

This SMP provides procedures for site personnel working in and around contaminated soil during excavation works. The following is designed to dovetail with the main contractors HSEP.

The procedures have been developed to provide a framework for managing contamination related effects at the site. However, these procedures are not intended to relieve the owner or controller of the place of work of either their responsibility for the health and safety of their workers, contractors and the public, or their responsibility for the protection of the environment.

All parties working on the main works shall comply with:

- Applicable parts of the Health and Safety Policy.
- Construction Health and Safety Management Plan.
- Any requirements of WorkSafe New Zealand.
- The Health and Safety at Work Act 2016 and Regulations.
- Health and Safety at Work (Asbestos) Regulations 2016; and
- Any other applicable legislation, regulations, codes, and guidelines.

Sub-contractors engaged for the works are required to provide their own Health and Safety Plan for their equipment and workers.

Regular toolbox meetings are to be undertaken and documented by the main contractors Site Manager or delegate. During the toolbox, the Site Manager will induct all staff on current hazards, how to identify new hazards and how to implement the accidental discovery protocol.

## 5 HEALTH AND SAFETY

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### 5.1 IDENTIFICATION OF HAZARDS

The WSP, 2023 DSI indicated contamination within on-site soil above local background concentrations.

Potential exposure routes for the identified contaminants include:

- Inhalation of dust (potentially contaminated and uncontaminated).
- Ingestion of potentially contaminated soil or dust.
- Dermal absorption of potentially contaminated soil or dust; and
- Skin and eye contact with potentially contaminated soil or dust.

Recommended procedures to mitigate the risk associated with these hazards are provided in Section 5.3.

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### 5.2 IDENTIFICATION OF NEW HAZARDS

There is the potential for additional hazards to be identified and encountered during the works. The Site Manager (or equivalent health and safety representative) is responsible for reviewing any new work element and assessing whether there are any new associated hazards and associated elimination, isolation, and minimisation measures.

The Site Manager (or equivalent) shall seek review by a CLS, if necessary. The Site Manager (or equivalent) shall then instruct all personnel on the health and safety procedures associated with the new hazard and ensure an updated version of this SMP is maintained on-site.

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### 5.3 CONTROL MEASURES

When considering hazard and risk controls, the hierarchy listed below should be followed, in preference from one to five. Example questions are provided to illustrate each step (refer to Figure 5-1).

**ELIMINATION** – does the task that creates the hazard need to be performed?

**SUBSTITUTION** – can a different tool be used?

**ENGINEERING** – can the hazard be guarded to protect people?

**ADMINISTRATION** – are there warning signs and a procedure to address the hazard?

Administrative controls include procedures to reduce the risks associated with identified hazards. These controls include:

- Job Safety Analysis (JSA) or Task Analysis.
- Work plans.
- Training.
- Warning signs.



- Communication with the CCL Site Manager.

**PERSONAL PROTECTIVE EQUIPMENT** – is the appropriate PPE being used? The following is noted:

- PPE is considered the lowest level of protection against a hazard.
- No single combination of protective equipment and clothing can provide protection against all hazards; PPE should be used in conjunction with other protective methods.
- The types of PPE will depend on the specific task undertaken. However, certain PPE is required in all work areas.

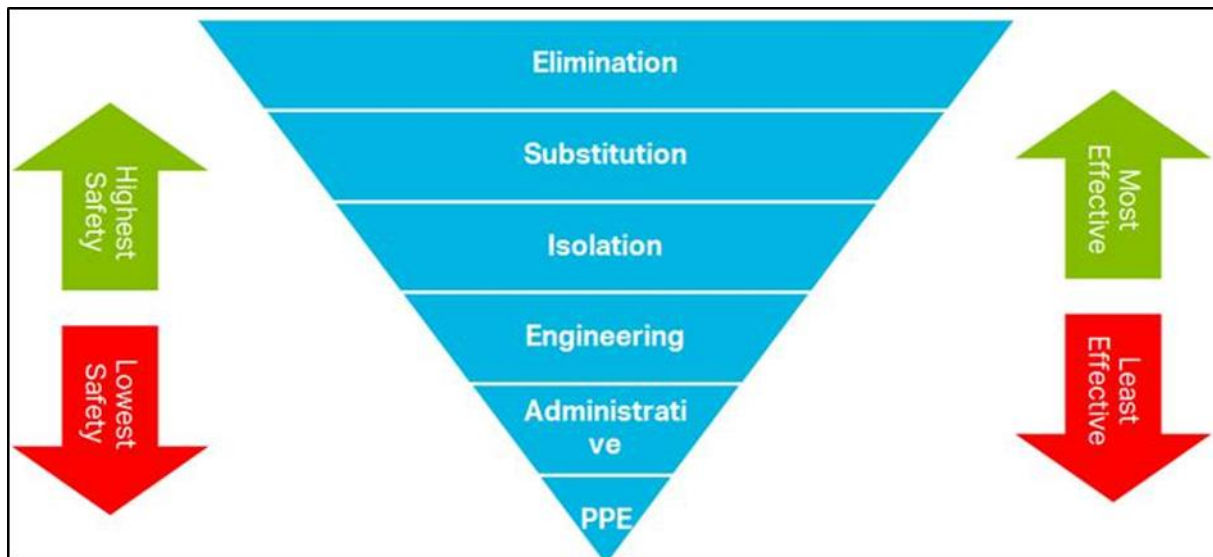


Figure 5-1 Hazard Hierarchy

## 5.4 UNEXPECTED DISCOVERY OF CONTAMINATION

If during earthworks, contaminated soils, or hazardous material in addition to those already identified is encountered, cease all work in the area of concern until the CLS has assessed and identified the material.

Evidence of additional contamination likely to trigger a stop work procedure may include:

- Visual (buried refuse, metal objects, building material, soil or water staining/bleaching or discolouration).
- Chemical odours (fuel, sulphurous, rotting vegetation or sewage).
- Separate phase liquids or 'rainbow effect' films on groundwater.
- Auditory (gas leaks, flowing or dripping liquid); and
- Fibrous cement-based board materials that may contain asbestos.

If any such indicator is observed during earthworks, the following steps should be taken:

- Cease all work within a 5 m radius and make the work area safe and restrict access to all workers until instructed by the CLS or approved delegate.
- Shut off all ignition sources and, if possible, contain any contaminant discharge and close/divert any water flow.

- Advise the WSP Contaminated Land Specialist and the client (Watercare).
- Work shall not resume until the 'all clear' is given by the CLS.
- The CLS (in consultation with the Site Manager) shall assess the site. If the assessment concludes that confirmation of contamination is required, the following actions shall be implemented:
  - Control the site: install temporary fencing, temporary cover, silt traps and bunding as required around the area of potential additional contamination.
  - Small volumes of excavated soil shall be contained in covered skips to minimise contaminated discharges from rainfall runoff and dust.
  - If this is not possible, larger volumes shall be covered and bunded to manage dust and stormwater runoff.
  - Potentially contaminated water shall be collected and disposed of to an appropriately licensed treatment facility. It must not be discharged to the construction stormwater system.
  - Samples of the suspect material shall be collected (by the CLS) for laboratory analyses using appropriate procedures (if required).
- The results of the laboratory analysis shall be assessed against the relevant human health and environmental discharge regulatory standards/acceptance criteria as appropriate.
- This SMP shall be updated with any additionally required controls measures based on the contaminant of concern.
- Any soils or material requiring offsite disposal must be disposed of at facilities consented to accept the material; and
- A register shall be maintained including a description of additional contaminated material discovered, including location, type, quantity, and disposal record (disposal receipts).

## 6 REFERENCES

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# 7 LIMITATIONS

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# APPENDIX A

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## FIGURES





#### LEGEND

- Part 1 - Vincent Street to Mayoral Drive
- Part 3 - Queen Street
- Part 4 - Greys Ave
- Part 5 - Mayoral Drive
- Part 6 - Marmion Street



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Source: AC GeoMaps

## Figure 1 - Alignment Layout

Queen Street Wastewater  
Auckland City Centre

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- LEGEND
- DSI BH Locations
  - Pieces of Land
  - Part 3 - Queen Street
  - CSA Addendum Locations

## Figure 2 - DSI Intrusive Locations

Queen Street Wastewater - Part 3  
Auckland City Centre

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