Updated - Sutton Block Extension to Drury Quarry – Contaminated Site Management Plan and Remedial Action Plan

Prepared for

Stevenson Aggregates Limited

January 2024

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Quality Control Sheet

TITLE	Updated - Sutton Block Extension to Drury Quarry – Contaminated Site Management Plan and Remedial Action Plan
CLIENT	Stevenson Aggregates Limited
ISSUE DATE	9 January 2024
JOB REFERENCE	A02744110

Revision History

REV	Date	Status/Purpose	Prepared By	Reviewed by	Approved
1	14/09/2022	Draft	Nathan van Maanen	Stefan Yap	Rod Lidgard
2	12/10/2023	Draft - updated	Nathan van Maanen **Updated by:** Myra Belkot	Stefan Yap	Rod Lidgard
3	9/01/2024	Final	Nathan van Maanen	Stefan Yap	Rod Lidgard

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Limitations:

This document has been prepared by Pattle Delamore Partners Limited (PDP) on the basis of information provided by Stevenson Aggregates Limited and others (not directly contracted by PDP for the work) including Auckland Council. PDP has not independently verified the provided information and has relied upon it being accurate and sufficient for use by PDP in preparing the document. PDP accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the provided information.

This document has been prepared by PDP on the specific instructions of Stevenson Aggregates Limited for the limited purposes described in the document. PDP accepts no liability if the document is used for a different purpose or if it is used or relied on by any other person. Any such use or reliance will be solely at their own risk.

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1.0 Introduction

Pattle Delamore Partners has been engaged by Stevenson Aggregates Limited (SAL) to prepare a Contaminated Site Management Plan (CSMP) and Remedial Action Plan (RAP) in advance of proposed remedial works at the farm buildings located on 1189 Ponga Road, Drury, Auckland ('the site' as shown in Figure 1). The site forms up part of the Sutton Block Extension to the existing Drury Quarry that also includes 121 MacWhinney Drive (collectively referred henceforth as 'the Sutton Block'). It is understood that the works proposed in the Sutton Block are to extend the current Drury Quarry with similar quarry operations including stripping of overburden and mining of aggregate, along with ancillary quarrying activities (refer to Section 2.1 below for a summary of the2023 revised Sutton Block pit extension proposal).

PDP has previously completed Preliminary and Detailed Site Investigations (PSI and DSI) for the site to support applications for enabling resource consents for the proposed works. A summary of the findings of the PSI and DSI are provided below with further details found in:

- Updated - Sutton Block Extension to Drury Quarry – Preliminary Site Investigation (PDP, 2024a); and
- Updated - Sutton Block Extension to Drury Quarry – Detailed Site Investigation (PDP, 2024b).

These investigations have confirmed discrete areas of contaminated soils[1] associated with two built structures at the site (a main dwelling and storage shed) as well as the presence of impacted soils[2] associated with four built structures at the site (the western shed, the main dwelling, the storage shed, and the shearing shed). This CSMP/RAP has been produced to support the remediation of the soils in these discrete locations, which is required to ensure that remaining soils can be considered cleanfill and do not require any ongoing management from a contamination perspective.

[1] With lead concentrations exceeding the *Auckland Unitary Plan – Operative in Part* (AUP-OP) Permitted Activity (PA) soil acceptance criteria and the published background concentration of non-volcanic soils in the Auckland region but below the *National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health* (NES-CS) soil contaminant standards/soil guideline values (SCS/SGV) for commercial/industrial land use.

[2] With lead concentrations exceeding the published background concentration of non-volcanic soils in the Auckland region but below the NES-CS SCS/SGV for commercial/industrial land use and AUP-OP PA soil acceptance criteria.

As the Sutton Block Extension proposes to extend the current Drury Quarry with similar quarry operations (including stripping of overburden and mining of aggregate, along with ancillary quarrying activities) onto the site, the commercial/industrial scenario had been selected as the future land-use to ensure that, once remediation has been completed, there is no ongoing requirement for consenting of the site under the Resource Management (*National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health*) Regulations 2011 (NES-CS) and/or the *Auckland Unitary Plan – Operative in Part* (AUP-OP).

Proposed work activities to be undertaken at the Sutton Block Extension site are expected to include investigation and demolition of current built structures, change of land-use (from rural to commercial) and soil disturbance (including remediation works).

KEY :

- SAMPLE NOT ANALYSED
- BELOW BACKGROUND, AUP AND NES
- ABOVE BACKGROUND BUT BELOW AUP AND NES
- ABOVE BACKGROUND AND AUP
- SOIL REMEDIATION - PRE-VALIDATION
- CONTAMINATED SOIL REMEDIATION - INDICATIVE
- CONTAMINATED SOIL REMEDIATION AREA
- IMPACTED SOIL REMEDIATION -INDICATIVE
- IMPACTED SOIL REMEDIATION AREA
- PROPOSED QUARRY PIT EXTENSION

0 5 10
METRES

SCALE : 1:500 (A3)

NO.	REVISION	DATE	BY
C	FINAL	JAN 24	ME
B	ISSUED FOR REVIEW	OCT 23	TK
A	ISSUED FOR REVIEW	AUG 22	TK

SOURCE:
1. AERIAL IMAGERY (FLOWN 2017) PROVIDED UNDER LICENCE FROM AUCKLAND COUNCIL WHO MAKES NO CLAIMS AS TO ITS RELIABILITY, ACCURACY OR ADEQUACY FOR ANY PARTICULAR PURPOSE.
2. CADASTRAL/TOPOGRAPHICAL INFORMATION AND INSET DERIVED FROM LINZ DATA.

CLIENT
STEVENSON

FIGURE
FIG 1: REMEDIATION ACTION PLAN

PROJECT
UPDATED - SUTTON BLOCK EXTENSION TO DRURY QUARRY – CONTAMINATED SITE MANAGEMENT PLAN AND REMEDIAL ACTION PLAN

This CSMP/RAP has been prepared by a Suitably Qualified and Experienced Practitioner (SQEP) and a 'Competent Person'/asbestos assessor in accordance with the Ministry for the Environment's (MfE's) *Contaminated Land Management Guidelines No.1 (CLMG No.1) Reporting on Contaminated Sites in New Zealand* (MfE, 2021) and *New Zealand Guidelines for Assessing and Managing Asbestos is Soil* (BRANZ Guidelines, 2017), respectively.

2.0 Background Information

2.1 Project Description for the 2023 Revised Sutton Block Pit Extension

SAL Drury Quarry is located in Drury, within the Auckland Region, and has been in operation for over 80 years. Drury Quarry is a greywacke hard rock quarry supplying concrete, asphalt and roading aggregate to the Auckland market. The Drury Quarry pit is located within the wider landholdings owned by SAL which encompasses an area of approximately 562ha. This landholding includes quarry activities, a clean fill, farmland and large swathes of native vegetation.

Based on current demand estimates, the existing pit will provide approximately 20 years of aggregate supply to Auckland. To continue to provide a local supply of aggregate resource SAL proposes to develop a new pit within the existing site, called 'the Sutton Block'. The Sutton Block pit has been designed to provide approximately 185 million tonnes of additional aggregate to supply the market.

The Sutton Block is located to the northeast of the existing pit. The development of the Sutton Block will involve the staged development of an area of approximately 87.7 ha to a maximum pit depth of approximately 60 m RL. The Sutton Block is designed to be a separate quarry pit although it will be serviced by the existing Drury Quarry ancillary site infrastructure and facilities.

Further details are provided in the *Drury Quarry, Sutton Block, Assessment of Environmental Effects* (AEE) report (Tonkin + Taylor, in preparation).

2.2 Preliminary Site Investigation

The PSI undertaken in January 2022 (PDP, 2024a) identified a number of potential areas/activities categorised under the Hazardous Activity and Industry List (HAIL; MfE, 2011)[3]. These included:

- ∴ Potential impacts of various contaminants (e.g. arsenic, DDT, lindane, dieldrin, etc.) from possible former sheep dip/spray race activities located in the area of the farm buildings;

[3] The Hazardous Activities and Industries List (HAIL) is a compilation of activities and industries that are considered likely to cause land contamination resulting from hazardous substance use, storage or disposal. The HAIL is intended to identify most situations in New Zealand where hazardous substances could cause, and in many cases have caused, land contamination.

- Localised lead-in-soil impacts from painted surfaces on current/historical houses/structures constructed prior to the 1980s; and
- Localised asbestos/asbestos containing material (ACM) impacts to soils from current/historical building materials that are observed to be in deteriorated condition on houses/structures constructed prior to the 2000s.

The PSI report concluded that the NES-CS applies to discrete, localised pieces of land at the site where these potential contamination sources are considered to be more-likely-than-not. The PSI also concluded that the remaining large areas of the Sutton Block are confirmed to represent non-HAIL areas and will therefore be exempt from further requirements of the NES-CS (as described in Regulation 5(7)) and the contaminated land rules of the AUP-OP.

2.3 Detailed Site Investigation

As part of the DSI, a Sampling and Analysis Plan (SAP) was designed to investigate the aforementioned sources of potential contamination identified in the PSI report. The DSI determined that surface soils within the areas on the northern side of the storage shed and southwestern side of the main dwelling at the site were in excess of the AUP-OP permitted activity (PA) soil acceptance criteria for lead. Surface and near-surface soil samples collected from the main dwelling, western shed, storage shed, and shearing shed also reported concentrations of lead in excess of the published background concentrations of non-volcanic soils in the Auckland region but below the AUP-OP PA soil acceptance criteria and NES-CS soil contamination standards (SCSs)/soil guideline values (SGVs) for commercial/industrial land use.

Where soil sample exceed the adopted site-specific screening criteria, remediation via excavation and disposal of the impacted soils was recommended.

The DSI concluded that based on the expected volume of soil disturbance and removal, and the contaminant concentrations reported, a consent would be required prior to beginning proposed earthworks (refer to Section 2.4).

2.4 Consenting Framework

2.4.1 National Environment Standards

The DSI identified that due to elevated lead concentrations of surface soils surrounding the buildings and structures on-site that were above the published background concentrations of non-volcanic soils in the Auckland region but below the NES-CS SCSs/SGVs for commercial/industrial land use, a **controlled activity** consent under Regulation 9 of the NES-CS would be required for the proposed soil disturbance at that area of the site.

Based on the requirement for a controlled activity consent under the NES-CS, a CSMP/RAP is also required to support the consent application. This document is considered to fulfil the requirement for a CSMP/RAP under Regulation 9 of the NES-CS.

2.4.2 Auckland Unitary Plan

The DSI results identified that surface soils within the areas on the northern side of the storage shed and southwestern side of the main dwelling have concentrations of lead that exceed the AUP-OP PA soil acceptance criteria. However, as the volume of this lead-contaminated soil is estimated to be below 200 m^3, it was considered that a consent under Rule E30 of the AUP-OP was not required for the soil disturbance associated with the proposed quarry extension.

2.4.3 Requirements Under the Asbestos Regulations and ACOP

The PSI identified that the majority of buildings and structures on the site were built prior to 1 January 2000, and given the age of these buildings, each may contain Asbestos Containing Materials (ACM) in their building products.

The Health and Safety at Work (Asbestos) Regulations 2016 requires that buildings built before 1 January 2000 must have a pre-demolition survey completed prior to demolition to identify any ACMs and recommend on their appropriate removal.

The *Approved Code of Practice (ACOP) for the Management and Removal of Asbestos* (WorkSafe New Zealand, 2016) provides current regulatory requirements, standards and guidance on inspection and removal of ACMs. Where ACMs are identified as present in buildings and structures, these should be removed in-line with the standards and controls listed in the ACOP (e.g. a licensed removalist may be required depending on the nature and area of any ACMs involved).

3.0 Application of this Site Management Plan

3.1 General Application

This CSMP/RAP and the included controls are to be applied to:

- The soil remediation in areas where lead concentrations above the AUP-OP soil acceptance criteria are confirmed as indicated on Figure 1 (refer to Section 3.3 for detail); and
- The soil disturbance in areas where concentrations of lead above background concentrations are confirmed as indicated on Figure 1 (to minimise dust, sediment erosion, etc.), refer to Section 5.0 for details of general controls.

This CSMP/RAP sets out the procedures for:

- Demarcation and remediation of lead-contaminated surface soils within the areas on the northern side of the storage shed and southwestern side of the main dwelling (shown by pink shaded areas on Figure 1);
- Demarcation and remediation of lead-impacted surface soils within the areas of the western shed, the main dwelling, the storage shed, and the shearing shed (shown by yellow shaded areas on Figure 1);
- Contaminated soil health and safety (HAS) processes to supplement the Contractor's general HAS plans during the soil disturbance activities;
- Handling and managing soils during general soil disturbance activities within the site (e.g. removal of soils);
- Ensuring excavated soils do not impact the site environment as a result of the soil disturbance activities, including air (i.e. mitigating dust impacts) and surface water through stormwater run-off;
- Providing a protocol for any unexpected contamination that may be discovered as part of the excavation works;
- Soil disposal requirements and landfill disposal protocols; and
- Validation of excavation surfaces (where required, to supplement existing results).

3.2 Roles and Responsibilities

3.2.1 Distribution

A copy of this CSMP/RAP shall be kept by SAL (the PCBU) and provided to all Contractors working onsite as part of the proposed works. It is the responsibility of the lead Contractor to distribute the information contained within this CSMP/RAP to any Sub-Contractors and personnel at the site to ensure compliance with the CSMP/RAP.

The provisions of this CSMP/RAP are mandatory for all persons (employees, Contractors and Sub-Contractors) who enter the site during the soil disturbance activities.

3.2.2 Implementation

It is the responsibility of the lead Contractor and their Sub-Contractors (as applicable) to implement the processes outlined in this CSMP/RAP where they are applicable and ensure compliance with the CSMP/RAP.

The lead Contractor shall regularly liaise with PDP (the nominated SQEP for contaminated land and asbestos issues) to ensure that work is being carried out in accordance with the CSMP/RAP, organise soil validation sampling and further

site inspections (if required) in accordance with the CSMP/RAP and discuss any contaminated land/asbestos issues that may arise during soil disturbance activities.

A 'contamination briefing' is recommended to be given by a suitably qualified person with experience in contaminated land management to ensure that the Site Supervisor understands the CSMP/RAP and is made aware of how it should be appropriately implemented, and what protocols to follow should any unexpected contamination be identified.

3.2.3 Site Supervision

The proposed soil disturbance works at the site must be placed under the control of a single responsible person (i.e. a Site Supervisor) who shall ensure that the requirements within this CSMP/RAP, and all consent conditions, are adhered to.

3.2.4 Contact Details

The following contact details are required to be filled out before the soil disturbance activities commence to ensure clear lines of communication are maintained.

Table 1: Contact Details of Key Personnel

Role	Name (organisation)	Contact Number
Client	TBC (SAL)	TBC
Contractor Project Manager	TBC	TBC
Site Manager/Supervisor	TBC	TBC
Contaminated Land Specialist / SQEP and Asbestos Specialist	Rod Lidgard (PDP)	021 524 968

3.3 Review and Update

This document will be reviewed and amended as necessary. This could be in response to soil sample results and/or routine soil disturbance activities during the proposed works at the site to ensure the environmental and human health risks associated with contaminated soils are managed appropriately.

Any amendment or update to the CSMP/RAP is to be approved by PDP/SAL/the lead Contractor and the Auckland Council resource consent monitoring officer prior to the implementation of the change (or an agreement in principle made if urgent).

Any amendment or update to the CSMP/RAP would supersede the previous version. Any amendment or update to the CSMP/RAP should be circulated to all interested parties (i.e. SAL, the lead Contractor, AC, etc.) as it is made available.

Table 2: Document Control

Status/Version	Author Organisation	Date
Draft	PDP	14 September 2022
Draft	PDP	12 October 2023
Final	PDP	9 January 2024

4.0 Remedial Objectives and Goals

4.1 Remediation Objective

The remediation objective is to remediate (via excavation and removal from the site) soils where concentrations of lead have been measured above published background concentrations of non-volcanic soils in the Auckland Region. Once compliance with the remediation goal (refer to Section 4.2) is validated, there will be no requirement for ongoing consenting and/or site management from the perspective of contaminated land management and the remaining soils can be treated as cleanfill material.

4.2 Remediation Goals

The remediation goal for lead-impacted soils is set at 65 mg/kg (the lead background concentration of non-volcanic soil in the Auckland region).

4.3 Remediation Areas

The known and indicative areas required to be remediated to achieve the remediation goal are based on the result obtained during the DSI and are shown on Figure 1. In summary these areas include:

- Lead contaminated soil within the areas on the northern side of the storage shed and southwestern side of the main dwelling (shown by pink shaded areas) are provided on Figure 1. 'Pre-validated' soil remedial extents are confirmed extents of remediation in the direction shown due to a soil sample result that complies with the AUP-OP PA soil acceptance criteria. The contaminated soils are to be excavated 3 m to the southwest of the main dwelling and 3 m to the north of the storage shed. No further soil validation sample will be required to be collected in these directions. 'Indicative' soil remedial extents are considered to be approximate extents of remediation in the direction shown and

additional soil validation sample/s will be required to be collected in those directions once contaminated material has been removed.

- Lead impacted soil within the areas of the western shed, the main dwelling, the storage shed, and the shearing shed (shown by yellow shaded areas) are provided on Figure 1. 'Indicative' soil remedial extents are considered to be approximate extents of remediation in the direction shown due and additional soil validation sample/s will be required to be collected in those directions once impacted material has been removed.

All remedial areas are expected to be excavated to natural ground (identified at depths between 0.1-0.3 m below ground level during the DSI) and validation inspection/sampling will be completed (where required) following removal of the topsoil layer. Additional soil validation sample/s may be required to be collected from remediation areas if natural ground cannot be confirmed and the excavation must be completed in fill materials; and/or if further removal of impacted material is required.

4.4 Remediation Methodology

The following approach is required for the remediation of the areas of soil at the site in excess of the site remediation goals as indicated by Figure 1.

The general methodology includes the following:

- The expected extent (refer to pink shaded areas Figure 1) of all contaminated soils will be physically demarcated onsite by PDP (i.e. using spray-paint, stakes and bunting or similar).
- The expected extent (refer to yellow shaded areas Figure 1) of all impacted soils will be physically demarcated onsite by PDP (i.e. using spray-paint, stakes and bunting or similar).
- Buildings/surface structures are cleared from the area (pending any further investigations and remedial actions required).
- The marked, lateral extent of the remedial areas shall be excavated in full, and to the depth of the underlying natural ground (expected to be 0.1 – 0.3 m bgl) prior to validation inspection.
- Excavation and remediation works in the immediate areas are paused.
- PDP should be contacted to complete validation inspection and sampling works. If iterative excavation and removal works are required, these would be undertaken in the same sequence.
- PDP to confirm (in writing) completion of remediation based on visual inspection and validation sample results complying with Remedial Objective.

5.0 General Site Management Controls

In all remedial areas, the following general controls shall be implemented.

5.1 Health and Safety Controls

The following controls and procedures shall be implemented onsite by the lead Contractor to ensure that the health and safety of site workers is protected with respect to potential soil contamination.

The CSMP/RAP is not intended to relieve the lead Contractor of their responsibility for the HAS of their workers, Sub-Contractors and the public, or their responsibility for protection of the environment. It is recommended that the lead Contractor develop a site-specific safety plan (a 'SSSP') to complement this CSMP/RAP and to address other HAS requirements that may be applicable to their particular works. All site work is to be carried out by Contractors acting under the Health and Safety at Work Act (HSWA) 2015 Regulations.

All site workers are to be advised of the potential risks associated with soils at the site and must be familiar with the content of this CSMP/RAP before the commencement of the soil disturbance/excavation works; particularly with respect to the required Personal Protective Equipment (PPE), personal hygiene procedures and discovery of unexpected contamination protocols.

It is noted that soils at the site have not been found to contain contamination at concentrations that indicates a risk to human health.

However, the following controls and procedures shall be implemented on site by the Contractor and any Sub-contractors as part of a precautionary approach, to ensure that the health and safety of site workers is protected with respect to their contact with potential soil contamination. Additional controls and procedures in relation to the remedial excavations of contaminated soils are outlined in Section 6.0 below.

If unexpected contamination is discovered during the works, the appropriate health and safety controls must be implemented, in accordance with the type and concentration of contamination that is found to be present.

5.1.1 Personal Protective Equipment (PPE)

Protective and safety equipment must be made available to site workers during the soil/fill disturbance works on site. Site contractors are expected to wear 'standard' PPE for typical excavation/earthworks tasks (i.e. safety boots, overalls, hi-viz vests, hard hats, safety glasses, etc). In addition, as a precautionary measure, workers who must directly handle soil/fill should wear nitrile gloves to prevent dermal contact with the soils.

Refer to Section 6.1.1 below for specific PPE/RPE considerations for soil disturbance in areas where contaminated soils have been identified.

5.2 Site Access and Signage

Fencing or other barricades will be put in place prior to the start of works to provide for site access control. Only authorised personnel may be allowed to enter the site. All persons entering the site will sign in and out and will be briefed on health and safety requirements and the applicable requirements of this CSMP/RAP. For example, plant operators must understand dust and stormwater control measures, potential health risks and protocols for unexpected discovery of contamination. Cartage truck drivers must understand requirements around wetting or covering loads and only exiting through specified exit points to help minimise tracking soil onto the roadway.

5.3 Erosion and Sediment Controls

There is the potential for sediment to be mobilised when entrained in stormwater during the soil disturbance works. Therefore, prior to the commencement of any soil disturbance activities at the site, appropriate erosion and sediment controls shall be constructed (to minimise any discharge of debris, soil, sediment or excess water runoff from the site boundary to land, stormwater drainage systems, watercourse or receiving waters) and confirmed to be operational. These controls shall be prepared in accordance with Auckland Council's Guidance Document 2016/005 (GD2016/005; AC, 2016) *Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region* and MfE's publication *Good Practice Guide for Assessing and Managing the Environmental Effects of Dust Emissions*.

The controls shall be sufficient to avoid, remedy or mitigate the discharge of sediments (potentially contaminated or otherwise) across the site boundary. In line with best practises, these controls could include, but not be limited to the following (as appropriate for the scale of the required earthworks):

- Clean and dirty water diversion.
- Contour drains and dams.
- Sediment retention devices (e.g. ponds or decanting earth bunds).
- Silt fences.
- The use of mulch and geotextiles.

In addition to these controls, the following shall apply:

- As far as is practicable, all stormwater shall be contained within the work area boundaries (i.e. directed back into the work site) and allowed to soak back into the ground.
- Dust suppressive water applications at the site must be managed to ensure that sediment does not flow beyond the boundaries of the work area.

- Erosion and sediment controls shall be checked regularly to ensure that they are in good working condition. Control measures shall be upgraded/modified where necessary.
- Daily tidying-up of the work area shall be completed to minimise the potential for any leaching or erosion of excavated material by wind or water.

5.4 Dust Control

As a result of contaminants being present in surface soils at the site, and in order to minimise dust as a general nuisance, all soil disturbance undertaken during the proposed works is to be carried out in such a way that the generation of dust is kept to the minimum practicable. As a prudent approach, and to avoid dust nuisance during the soil disturbance works, this will be achieved by:

- Advising all site workers of the need to minimise dust by the responsible operation of machinery;
- Maintaining a water supply onsite (e.g. hose and garden sprinkler, water truck, etc.) for the dampening down of soils on a regular basis, particularly during hot and dry, and windy periods;
- Avoid the spreading of soil beyond the defined site boundary via vehicle movements by the implementation of a wheel wash and daily tidying up; and
- Suspending dust generating activities when dust control measures become ineffective due to increased wind speed.

The objective of these measures is to prevent visible dust emissions beyond the work area boundary. Dust control measures shall comply with the Auckland Regional Council Technical Publication No. 152 (TP152; ARC, 2002) *Assessing Discharges of Contaminants into Air* and MfE publication *Good Practice Guide for Assessing and Managing the Environmental Effects of Dust* Emissions guidance documents.

5.5 Waste Disposal Pre-Approval

Pre-approval for the disposal of all soils excavated from impacted remediation areas should be pre-arranged with an appropriate manged fill licensed to accept the concentrations of lead in the soils (as per Section 7.1).

All waste disposal dockets are expected to be retained and provided to PDP for site validation reporting (SVR; refer to Section 9.0).

5.6 Validation Inspections and Sampling

Validation inspections will be undertaken by PDP once advised that the impacted remedial excavations have been completed as per the specifications in Section 4.0 and Figure 1. Validation inspections may be visual and/or require the support of validation sample results.

Validation sampling frequency and position will be determined by PDP at the time of the validation inspection to provide suitable coverage of the remedial excavation areas and may include samples collected from the sides and base of the excavation/s (where required).

Impacted soil remediation is expected to be complete when remaining soils at the site meet the remediation goals (lead concentration below 65 mg/kg).

Reporting on validation inspections and sampling will be undertaken in accordance with Section 9.0.

6.0 Additional Controls for Contaminated Soils

Concentrations of lead have been measured in soils at concentrations that exceed the AUP-OP PA soil acceptance criteria in the areas on the northern side of the storage shed and southwestern side of the main dwelling at the site (refer to pink shaded areas on Figure 1). While these contaminants have not been measured at concentrations that indicate an acute risk to human health (i.e. during short term contact by excavation and/or general contractors), a precautionary approach should be taken by workers who will be undertaking the remedial excavations. This includes:

- Avoiding skin contact with impacted soils by wearing clothing with neck to wrist to ankle coverage and nitrile gloves (refer to Section 6.1.1 for further detail);
- Avoiding the incidental ingestion of soils by following good hygiene practices (refer to Section 6.1.2 for further detail); and
- Avoiding the inhalation of dust by wearing a dust mask and/or by working in an enclosed cab when operating earth moving equipment.

6.1.1 Personal Protective Equipment (PPE)

The Contractor shall ensure that all personnel working with or encountering contaminated soil are wearing standard PPE as mentioned in Section 5.1.1 above.

In addition, as a precautionary measure, workers who must directly handle contaminated soils should wear clothing that covers their arms and legs, and nitrile gloves to prevent dermal contact with the soils.

Additional PPE that should be on standby in the event that unexpected contamination (specifically highly contaminated materials and/or asbestos) is encountered. This additional PPE shall include but not limited to the following:

- P2 dust masks or half face respirators.
- Disposable Tyvek suit, shoe covers, wet wipes and gloves.
- Disposable ACM bags and tape for contaminated PPE.
- Goggles or safety spectacles during windy/dusty conditions.
- Wet wipes for decontamination purposes.

First aid equipment will be available at the site, especially eye wash kits.

6.1.2 Personal Hygiene

Site personnel will be made aware of the importance of personal hygiene when working with contaminated soils. Direct skin contact with potentially affected soils and dust should be avoided as a precautionary measure but if contact does occur, soils shall be washed off immediately. The following general measures will be implemented during the excavation works:

- Establish a designated eating area away from remedial excavations. No eating or drinking is allowed outside of this area.
- Hands and other exposed parts of the body are to be washed prior to entering the designated eating area and on leaving the site. Water must be available on site for hand washing.
- Prior to eating, drinking or smoking, protective gloves used whilst handling potentially contaminated soils should be removed and disposed of appropriately.

6.2 Plant and Equipment

- The use of a mechanical excavator should be employed to excavate contaminated soils directly into cartage trucks.
- Prior to moving plant and equipment that has been used in the remediation of contaminated soils out of these areas, appropriate decontamination of the plant and/or equipment must be completed (i.e. via washing of soils from tracks/equipment and collection/disposal or direction back into remedial excavation areas).
- Appropriate vehicular access (i.e. for cartage trucks, etc.) should be planned by the Site Supervisor so that it can occur without moving across any areas of impacted soils (to avoid cross-contaminating 'clean' areas of the site) - a truck wheel wash may also be considered by the Site Supervisor to support minimising cross-contamination in this case.

6.3 Stockpiling of Contaminated Soils

- Stockpiles of contaminated soil are to be avoided where possible. Excavated contaminated soils should be loaded directly on to trucks for transport to the landfill.
- If stockpiles of contaminated soil cannot be avoided, stockpiles should ideally be placed onto an impermeable ground cover. If this does not occur, over-excavation of the ground underlying the stockpile of contaminated material (e.g. to a depth of approximately 0.1 m) must occur following the removal of the stockpiled material.
- Any stockpiled contaminated soils must be placed in designated locations inside the defined work area which minimise the risk of stormwater runoff, generated from the stockpile(s), migrating to the site boundary (e.g. stockpile placed in a low point within the site, away from the site boundary). Placement of additional erosion and sediment controls (e.g. silt fences or filter socks) around the stockpile must be considered.
- Stockpiles of contaminated soils that must be left in place for more than one day shall be covered/kept damp as a dust suppression measure.

6.4 Waste Disposal Pre-Approval

Pre-approval for the disposal of all soils excavated from contaminated remediation areas should be pre-arranged with an appropriate landfill licensed to accept the concentrations of lead in the soils (as per Section 7.1).

All waste disposal dockets are expected to be retained and provided to PDP for site validation reporting (SVR; refer to Section 9.0).

6.5 Validation Inspections and Sampling

Validation inspections will be undertaken by PDP once advised that the contaminated remedial excavations have been completed as per the specifications in Section 4.4 and Figure 1. Validation inspections may be visual and/or require the support of validation sample results.

Validation sampling frequency and position will be determined by PDP at the time of the validation inspection to provide suitable coverage of the contaminated remedial excavation areas and may include samples collected from the sides and base of the excavation/s (where required).

Contaminated soil remediation is expected to be complete when remaining soils at the site meet the remediation goals (lead concentration below 65 mg/kg).

Reporting on validation inspections and sampling will be undertaken in accordance with Section 9.0.

7.0 Waste Soil Management

Pre-approval from a consented landfill facility is required prior to disposing of soils to these facilities. A copy of the existing soil sample results from the DSI is expected to be sufficient to satisfy the landfill acceptance requirement, although specific landfills may require additional/alternate testing to be undertaken to accept soil materials.

All off-site soil disposal movements shall be tracked by the Site Supervisor using landfill weighbridge receipts and disposal truck registration plates. These receipts shall be retained as proof of appropriate disposal, to be provided to the PDP to be collated in the Site Validation Report (SVR; refer to Section 9.0).

7.1 Anticipated Waste Disposal Streams

An initial assessment of the likely waste streams to be encountered during soil disturbance works at the site is completed below:

- **Contaminated Soils** – soils beneath/surrounding the areas on the northern side of the storage shed and southwestern side of the main dwelling (as outlined in Section 4.3 above) will be required to be disposed of at a landfill licensed to accept waste of this nature as lead concentrations exceed the AUP-OP PA (and Drury Managed Fill) soil acceptance criteria.
- **Managed Fill** – soils beneath/surrounding the western shed, the main dwelling, the storage shed, and the shearing shed identified as containing concentrations of contaminants above the published background concentrations of the non-volcanic soils in the Auckland region but below the AUP-OP PA soil acceptance criteria and the NES-CS SCSs/SGVs for commercial/industrial land use (as outlined in Section 4.3 above) are typically acceptable for disposal at a Managed Fill facility licensed to accept waste of this nature (e.g. Drury Managed Fill).

7.2 Re-Use of Site Soils

Based on the DSI conclusions, the remainder of site soils are suitable for reuse onsite (i.e. for operational requirements such as noise bunds and/or erosion and sediment control bunds) as they are either not identified as HAIL use or their contaminant concentrations are below the AUP-OP PA soil acceptance criteria (and the NES-CS SCSs/SGVs for commercial/industrial land use).

PDP understands that these soils will not be disturbed during these remedial works. Future disturbance of these soils as part of the long-term development of the site will be covered in a separate Erosion and Sediment Control Plan.

7.3 Imported Fill Materials

Materials imported to the site must meet the definition of 'clean fill' in the AUP-OP. Any material not sourced from a non-HAIL site may require additional testing or certification to confirm the material meets the 'clean fill' definition prior to being imported to the site.

The Contractor shall be responsible for communicating with PDP prior to their intention to import material to the site, who can advise on whether additional testing of this material is recommended. A record should be kept for all material imported to the site.

7.4 Complaint Notification and Management

Any complaints received by site workers shall be reported to the Site Supervisor and/or PCBU. All complaints shall be recorded on a complaints register with date, time, nature of complaint, and contact details for the complainant. Complaints should be sought to be resolved as soon as possible. Complaints of an environmental nature which are non-urgent (e.g. dust hazards, entrained sediment discharges, odour, etc.) along with relevant resolution actions shall be passed onto Auckland Council on a monthly basis.

Urgent complaints that have the potential to cause an immediate risk to human health or environmental receptors (e.g. fuel spills, etc.) shall be resolved immediately and notified to Auckland Council as soon as possible.

8.0 Discovery of Unexpected Contamination

All site workers shall be informed regarding the procedures to be followed if unexpected contamination is discovered during site works. Unexpected contamination is defined as 'types or levels of contaminants suspected beyond that which have been identified in the DSI report'.

In summary, typical indicators of contamination and contamination sources may include but not be limited to:

- Stained or discoloured soils (possibly black, blue, grey or green staining);
- The presence of refuse, including putrescible waste and household rubbish;
- Petroleum hydrocarbon or solvent odours/vapours;
- Asbestos containing materials (ACM; e.g. cement sheet fragments); and
- Chemical containers/drums.

If visual or olfactory indicators of contamination are encountered, then the following actions must be taken:

1. Excavation works in that area shall cease immediately and the site supervisor must be contacted.
   Note: In the event of an uncontrolled discharge of contaminants all practical steps to contain the discharge and prevent further discharge while not compromising the health of site workers shall be taken.
2. The area of concern must be fenced/barricaded/isolated/covered to prevent other site workers from entering the area until an assessment of the potential contamination can be undertaken by PDP.
3. PDP shall be contacted immediately to determine the appropriate course of action.
4. Advice on the required sampling and/or remedial actions for the potential contamination will be provided by PDP.

In the event that the scale or nature of an unexpected contamination issue encountered onsite differs significantly from the existing site information, then Council will be informed and the suitability of the controls and procedures in this CSMP/RAP will be assessed by PDP. Further controls may be necessary to ensure that health, safety and environmental issues are managed appropriately.

9.0 Site Validation Reporting

Validation sampling is proposed following remediation in areas where soils have been found through sampling to be impacted, do not meet the adopted site-specific criteria and have not been appropriately 'pre-validated' by DSI sampling. Where the DSI has identified 'indicative' lateral remedial extents and on the base of remediation excavations, validation sampling will be carried out to validate concentrations of contaminants of concern in the remaining in-situ soils comply with the adopted remediation targets for the site after impacted soil has been removed.

Frequency of validation sampling is proposed to be one sample per 'indicative' side of excavation and one sample per base of excavation (based on the current remedial extents indicated in Figure 1).

Where existing DSI soil sample results indicate that contaminant concentrations meet the guideline criteria, no further validation sampling is required (i.e. where 'pre-validated' samples exist as indicated by the solid red lines on Figure 1).

As part of the Site Validation Reporting (SVR) for these works, the following information is expected to be required to be collected and submitted to Auckland Council within 3 months of the completion of the earthworks at the site:

1. Locations, remedial area dimensions and volumes of soils removed from site.
2. Results and further information for any additional delineation sampling undertaken.
3. Results and further information for any unexpected contamination investigations and sampling undertaken.
4. Details of the contaminant concentrations and location of any contaminated soils remaining at the site.
5. Records of soil disposal, including copies of all weighbridge dockets.
6. Records of any imported fill material.

Within the SVR, recommendations will be provided regarding the need for any long-term discharge assessments and/or consent requirements if during the course of the proposed earthworks, contamination above the relevant criteria are deemed likely to remain onsite.

10.0 References

AC, 2016. *Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region*.

AC, 2022. *Auckland Unitary Plan (AUP) – Operative in Part*. Updated 18 August 2022.

ARC, 2002. *Assessing Discharges of Contaminants into Air*.

BRANZ, 2017. *New Zealand Guidelines for Assessing and Managing Asbestos in Soil*.

MfE, 2001. *Good Practice Guide for Assessing and Managing the Environmental Effects of Dust Emissions.*

MfE, 2011. *Hazardous Activities and Industries List*.

MfE, 2021. *Contaminated Land Management Guidelines No. 1 – Reporting on Contaminated Sites in New Zealand*.

MBIE, 2016. Health and Safety at Work (Asbestos) Regulations 2016.

NES-CS, 2011. Resource Management (*National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*) Regulations 2011.

PDP, 2024a. *Updated - Sutton Block Extension to Drury Quarry - Preliminary Site Investigation*. Prepared for Stevenson Aggregates Limited by Pattle Delamore Partners Limited.

PDP, 2024b. *Updated - Sutton Block Extension to Drury Quarry - Detailed Site Investigation*. Prepared for Stevenson Aggregates Limited by Pattle Delamore Partners Limited.

T+T, in preparation. *DRAFT - Drury Quarry, Sutton Block, Assessment of Environmental Effects (AEE).*

WorkSafe, 2016. *Approved Code of Practice for the Management and Removal of Asbestos.*