



SOUTHERN LINKS 1: RESIDENTIAL DEVELOPMENT – CONTAMINATED SOILS AND REMEDIATION ACTION PLAN

Prepared by Swiftsure Consultants Ltd

30 August 2026

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Swiftsure Consultants Ltd Document Control:

Report Title	Southern Links 1: Residential Development - Contaminated Soils and Remediation Action Plan		
Client	Saxby Road JV Ltd	Client Contact	c/o Dillon Kelliher
Date	Revision Details / Status		
30 August 2026	Final for Release		

SQEP Certifying Statement

I certify that the site has been assessed in accordance with current New Zealand Regulations and guidance documents and reported in general accordance with the Ministry for the Environment's Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand (dated 2021).

I am considered by Swiftsure Consultants Ltd Limited to be a suitably qualified and experienced practitioner (SQEP) able to certify reports pursuant to the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011.

Emma Lewis, Contaminated Land Specialist



Dated: 30 August 2026

1 Introduction

This draft Contaminated Soils and Remediation Action Plan (CSRAP) has been prepared for the site at Saxbys Road, Deanwell, Hamilton (also known as the “Residential Block”) (the “site”).

2 Project Description

The SL1 Residential South development forms part of the residential component of Southern Links 1, a listed project under FTAA 2024. The Southern Links 1 project is a combined 106ha development, including residential and industrial activities. The residential component comprises circa 46ha and is in single ownership and is currently used for rural farming activities. The landholding includes five land parcels legally described as Lot 2 DP 589463 (22.21 ha); Part Lot 2 DP 25668 and Part Lot 1 DP 25668 (33.64 ha); Lot 3 DP 394366 and Lot 1 DP South Auckland 51518 (7.58 ha); Lot 1 DPSA 69842, Lot 2 DPSA 11357, Lot 1 DPSA 75305 and Section 1 SO 60814 (26.13 ha); and Part Lot 1 DP 25668 (26.50 ha). This site is part of the wider Southern Links Growth Cell, a circa 440ha contiguous land area that stretches the south-western edge of Hamilton that includes the Hamilton Southern Links (RoNS) designation.

The proposal seeks approval for a Substantive Application under the Fast-Track Approvals Act 2024 for a comprehensively master planned and staged residential development. This includes all necessary resource consents under the Resource Management Act 1991, including regional, district approvals where required.

The residential component provides for the establishment of circa 938 residential units, together with a neighbourhood commercial node, open spaces, waterbodies, and infrastructure devices including wetlands and roading.

The proposal includes substantial enabling works to establish developable land, including bulk earthworks across the site. An integrated stormwater management system including wetlands, detention/attenuation devices and treatment ponds supports the development. Ecological restoration is integrated via riparian and corridor planting with appropriate design measures being adopted to enhance and protect key features including the upper tributaries of the Mangakōtukutuku Stream and associated drains.

Access and integration with the surrounding Hamilton area is provided through connected transport framework, including the establishment of intersections, roading, and walking and cycle networks, along with upgrades to existing transport infrastructure. The residential development is proposed to be serviced via a coordinated strategy, including the extension of public networks, upgrades, and installation of appropriate infrastructure.

3 Objective and Scope

The objective of the CSRAP is to outline the remediation and/or management of contaminated soil during earthworks to mitigate the risk posed by contaminants to human health and the environment.

This CSRAP details the appropriate procedures for dealing with impacted soil within the development area including procedures to be followed should an unexpected discovery of impacted soil occur during site redevelopment.

To achieve the objective, this CSRAP includes:

- Confirmation of the current soil contamination status and the need for remediation.

- Refinement of the conceptual site model (CSM) for the site.
- Identification of remediation drivers and compliance requirements.
- Assessment of remediation options based on known site conditions.
- Description of the selected remediation approach, including scope, design, and implementation.
- Definition of contingency measures and triggers for their implementation.

This CSRAP has been prepared in general accordance with the following documentation:

- Ministry for the Environment's (MfE's) Contaminated Land Management Guidelines No.1 – Reporting on Contaminated Sites in New Zealand (MfE, 2021).
- Ministry for the Environment's (MfE's) Contaminated Land Management Guidelines No.5 – Reporting on Contaminated Sites in New Zealand (MfE, 2021).
- Approved Code of Practise: Management and Removal of Asbestos (2016) (AcoP, 2016). New Zealand Guidelines for Assessing and Managing Asbestos in Soil (2017) (GAMAS, 2017).
- Health and Safety at Work (Asbestos) Regulations (2016), (HSWAR, 2016).

The CSRAP is a 'living document' that will be reviewed and amended as necessary during site works to ensure the environmental and human health risks associated with contaminated soil are managed appropriately.

3.1 Description of Enabling Works

The planned enabling works will include:

- Supplementary site investigations.
- Removal of contaminant impacted soils.
- Removal of buildings and structures.
- Off-site disposal of contaminant impacted soils with contaminant concentrations above adopted guideline /remediation values, or when unsuitable for on-site re-use.
- Contaminant status validation through sampling and analysis.
- Site reinstatement as required to prepare for future major earthworks, manage storm water, and minimise generation of dust.

4 Site Description

The Southern Links 1 project is a combined 106ha development, including residential and industrial activities. The residential component comprises circa 46ha and is in single ownership and is currently used for rural farming activities. The landholding includes five land parcels legally described as Lot 2 DP 589463 (22.21 ha); Part Lot 2 DP 25668 and Part Lot 1 DP 25668 (33.64 ha); Lot 3 DP 394366 and Lot 1 DP South Auckland 51518 (7.58 ha); Lot 1 DPSA 69842, Lot 2 DPSA 11357, Lot 1 DPSA 75305 and Section 1 SO 60814 (26.13 ha); and Part Lot 1 DP 25668 (26.50 ha). This site is part of the wider Southern Links Growth Cell, a circa 440ha contiguous land area that stretches the south-western edge of Hamilton that includes the Hamilton Southern Links (RoNS) designation.

The site location is shown in **Figure 1**. The area of proposed development is topographically flat across the site with no elevation changes included on the Waipā District Council online mapping layer.

5 Acid Sulphate Soils

A review of the Waikato Regional Council (WRC) resources, including their technical guidance¹ and the PDP mapping tool, indicates that the site and surrounding area are classified as having a “*high probability of occurrence of acid sulphate soils*”. From a contaminated land perspective, the primary risk arises when these soils are disturbed and exposed to oxygen, resulting in oxidation and the generation of sulfuric acid. This can pose a risk to sensitive receptors, particularly surface water and aquatic ecosystems.

At present, there is no specific national or regional guidance in New Zealand for the management of acid sulphate soils. The available technical guidance indicates that management should be risk-based, with measures potentially including minimising disturbance, particularly in proximity to sensitive receptors. The document also references the Queensland Acid Sulphate Soils Technical Manual (Dear et al., 2014) as a useful benchmark.

An Acid Sulphate Management Plan has been prepared by Swiftsure (August 2026). The plan applies to earthworks undertaken as part of the Southern Links Stage 1 Southern Residential Block and Northern Industrial Block. It is intended to sit alongside the project Construction Environmental Management Plan (CEMP), erosion and sediment control measures, contaminated soils management plans and construction methodology. The plan addresses naturally occurring potential acid sulphate soil (PASS) and actual acid sulphate soil (AASS). It does not replace the separate requirements for managing anthropogenic soil contamination identified by the Swiftsure contaminated land investigations.

¹ Waikato region acid sulphate soils preliminary risk assessment, Waikato Regional Council Technical Report 2023/24



Figure 1: Site Location

6 Published Geology

6.1 Geology and Hydrogeology

Geological maps² for the area indicate the site is underlain by Late Pleistocene River deposits. Cross bedded pumice and sand, silt and gravel with interbedded peat. From the CMW report it has indicated that there are predominantly dense sands to very stiff silts.

The project hydrogeological effects assessment³ identifies the site to be located within the highly modified Mangaotukutuku Stream catchment. There is one headwater stream and farm drains present on the site. Hamilton Lake and the Waikato River are located approximately 2.5km to the north of the site.

There are four bores within 500m of the Site³ as follows:

Table 1: Bore Information

Bore ID	Static Water Level (m)	Status
Bore 72 – Station 1628	9.1	Existing
Bore 70 – Station 501	4	Existing
Bore 70 – Station 363	-	-
Bore 72 – Station 4049	2.65	Existing

6.2 Geomorphology

Existing geotechnical assessments for the SL1 area⁴ state that the site is within a wetland/alluvial plain and that this landform is defined by an essentially level to gently undulating plain at between RL43m and RL35m (Moturiki Datum) that lies to the west of the Low Hamilton Hills. The report states that the plains are often crossed with a network of open drains which are typical of farmland in peat areas. Most of the site is low-lying flat farmland.

6.3 Groundwater

The Geotechnical report⁶ states that groundwater was encountered between 0.0m to >16.2m below the existing ground surface at time of testing. Groundwater within the Low Hamilton Hills areas is expected to get closer to the ground surface the lower in elevation the ground surface is. Perched groundwater tables can be present within the layered Walton Subgroup deposits.

² Geological Map of New Zealand: 1:125K. Institute of Geological and Nuclear Sciences Ltd, 2010.

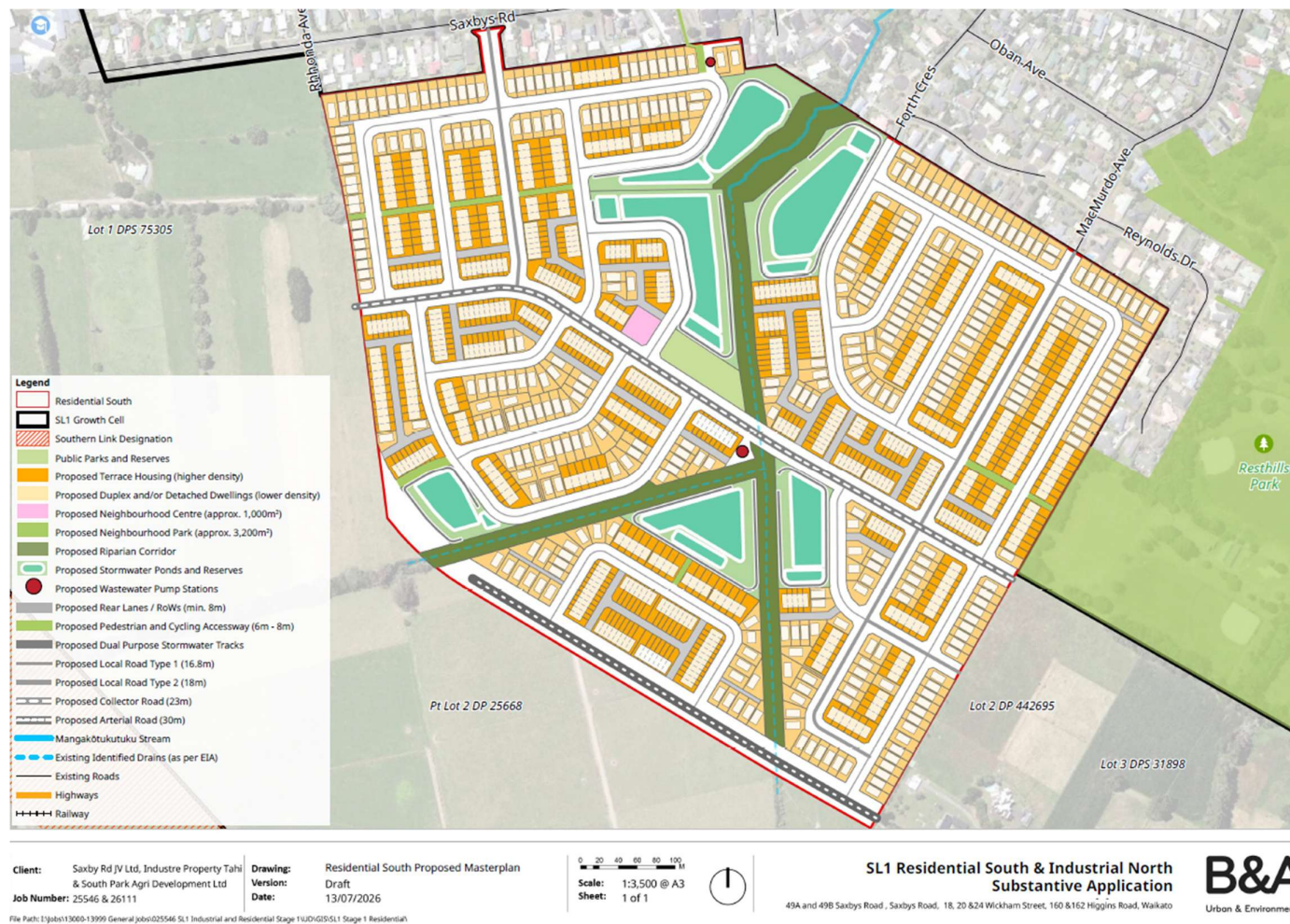
³ Southern Links 1 Residential Stage 1 Southern Block Hydrogeological Effects Assessment, Wallbridge Gilbert Aztec, May 2026.

⁴ Southern Links 1 – Residential Development, Hamilton. Geotechnical Investigation Report. CMW Geosciences, 15 July 2026.

6.4 Proposed Development

The residential component comprises circa 46ha and provides for the establishment of circa 938 residential units, together with a neighbourhood commercial node, open spaces, waterbodies, and infrastructure devices including wetlands and roading. (refer to **Figure 2**).

Figure 2: Residential Master Plan



7 Roles and Responsibilities

Table 2: Roles and Responsibilities

Role	Organisation	Responsibility
Landowner	Saxby Road JV Ltd	Overall responsibility for ensuring that this CSRAP is appropriately carried out and completed (following approval by Hamilton City Council and Waipā District Council).
Client Representative / Project Manager	Colliers Project Leaders	Agents for the Client, responsible for overall project management and ensuring the contents of this CSRAP are appropriately actioned following the necessary approvals.
Contaminated Land Specialist	Swiftsure Consultants Ltd	Project management and coordination of remediation strategy in accordance with this CSRAP. Must verify the Remediation Contractor(s) and Hazardous Waste Contractor(s) work in accordance with this CSRAP, and all applicable legislation and guidelines.
Remediation Contractor	TBC	Undertaking soil remediation works in accordance with this CSRAP, under the direction of the Contaminated Land Specialist.

8 Contamination Status

8.1 Preliminary Site Investigation

The PSI identified potential sources of soil contamination associated with the pre-1980s residential dwellings, disused dairy shed, garage, adjacent laydown/storage area and historical agricultural activities. These features were considered potential sources of asbestos, lead, heavy metals, hydrocarbons and semi-volatile organic compounds (SVOCs), while the long-term agricultural use of the property indicated the potential for elevated cadmium concentrations associated with historical superphosphate fertiliser application. These findings informed the scope and sampling strategy for the DSI.

8.2 Detailed Site Investigation

The DSI targeted the potential contamination hotspots identified during the PSI, including the residential dwellings, farm structures and adjacent laydown/storage area. A systematic grid-based sampling programme was also undertaken across the grazed paddocks to assess cadmium concentrations associated with long-term agricultural activities.

A total of 25 soil samples were analysed for heavy metals and metalloids. Fourteen samples were analysed for the full suite of heavy metals, three samples for lead only, and eight systematic paddock samples for cadmium only. All samples contained one or more analytes exceeding the adopted natural background concentrations.

Three samples (S03, S04 and S05) exceeded the adopted residential human health assessment criteria:

- S03: Lead.
- S04: Arsenic, cadmium and lead.
- S05: Arsenic and lead.

Zinc exceeded the adopted residential environmental criterion in seven samples (S04, S05, S07, S08, S11, S12 and S17), with four of these samples (S04, S05, S07 and S08) also exceeding the adopted commercial/industrial environmental criterion. No samples exceeded the adopted commercial/industrial human health assessment criteria.

Eight systematic paddock samples were analysed for cadmium. Concentrations ranged from 0.47 to 0.69 mg/kg and exceeded the adopted background concentration but remained below the adopted residential human health and environmental assessment criteria.

Ten soil samples were analysed for asbestos. One soil sample (S09) contained asbestos at a concentration exceeding the adopted residential human health assessment criterion. Two suspected asbestos-containing building material samples were also analysed, with neither confirmed to contain asbestos.

No semi-volatile organic compounds (SVOCs) were detected in any of the samples analysed.

9 Conceptual Site Model

Based on the soil investigation, the updated conceptual site model is shown in **Table 4**. Included are the HAIL codes considered to apply on a '*more likely than not*' basis.

Table 4: Conceptual Site Model

Source	Contaminant of Concern	HAIL Code	Exposure Pathway	Potential Receptor	Pathway Complete?
Former and existing buildings constructed pre 1980s	Asbestos Lead	E1 - Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition (current and former structures). I- any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment.	Exposure of workers to contaminants in soils and groundwater during site redevelopment – dermal contact, ingestion or inhalation of dust/vapours	Construction workers.	Pathway complete – Contaminants in soils are at levels to pose a risk to human health.
			Exposure of future site users to contaminants in soils – dermal contact, ingestion or inhalation of dust/vapours.	Future site users.	Pathway complete – Contaminants in soils are at levels to pose a risk to human health.
			Exposure of general public to contaminants in soils– dermal contact, ingestion or inhalation of dust/vapours.	General public.	Incomplete Pathway – General public do not have access to the site.
			Groundwater resources for public consumption.	Leaching and migration of soil contaminants into groundwater.	Potential Pathway –Lead in soils may be at levels to have the potential to leach.
			Surface water	Sediment and runoff directly into surface water.	Pathway complete – Lead in soils are at levels to pose a risk to receiving environmental receptors.
			Exposure of workers to contaminants in soils and groundwater during site redevelopment – dermal contact, ingestion or inhalation of dust/vapours.	Construction workers.	Pathway complete – Contaminants in soils are at levels to pose a risk to human health.

Source	Contaminant of Concern	HAIL Code	Exposure Pathway	Potential Receptor	Pathway Complete?
Disused milking shed and laydown/storage area	Asbestos Heavy metals SVOCs	E1 - Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition (current and former structures). I- any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment.	Exposure of future site users to contaminants in soils – dermal contact, ingestion or inhalation of dust/vapours.	Future site users.	Pathway complete – Contaminants in soils are at levels to pose a risk to human health.
			Exposure of general public to contaminants in soils– dermal contact, ingestion or inhalation of dust/vapours.	General public.	Incomplete Pathway – General public do not have access to the site.
			Groundwater resources for public consumption.	Leaching and migration of soil contaminants into groundwater.	Potential Pathway –Heavy metals in soils may be at levels to have the potential to leach.
			Surface water	Sediment and runoff directly into surface water.	Pathway complete – Heavy metals in soils are at levels to pose a risk to receiving environmental receptors.
Superphosphate application	Cadmium	I- any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment.	Exposure of workers to contaminants in soils and groundwater during site redevelopment – dermal contact, ingestion or inhalation of dust/vapours.	Construction workers.	Pathway complete – Contaminants in soils are at levels to pose a risk to human health.
			Exposure of future site users to contaminants in soils – dermal contact, ingestion or inhalation of dust/vapours.	Future site users.	Pathway complete – Contaminants in soils are at levels to pose a risk to human health.
			Exposure of general public to contaminants in soils– dermal contact, ingestion or inhalation of dust/vapours.	General public.	Incomplete Pathway – General public do not have access to the site.
			Groundwater resources for public consumption.	Leaching and migration of soil contaminants into groundwater.	Incomplete Pathway –Contaminants not at levels to have the potential to leach.
			Surface water	Sediment and runoff directly into surface water.	Incomplete Pathway –Contaminants not at levels to have the potential to leach.

10 Remediation Action Plan

The Remedial Action Plan (CSRAP) has been prepared based on the findings of the DSI (Swiftsure, 2026). It will be updated as the development progresses, particularly where additional delineation or validation data become available.

Soil management controls are outlined in **Section 11** of this CSRAP.

Soil remediation works will be undertaken following building demolition and prior to bulk earthworks across the wider site. This sequencing reduces the potential for contaminant inputs from demolition activities and supports achievement of the remediation objectives.

A Site Validation Report (SVR) will be prepared following completion of remediation to document the works undertaken, confirm compliance with remediation criteria, and demonstrate that soils have been appropriately managed. This section outlines:

- Areas requiring remediation.
- Adopted remediation criteria.
- The proposed remediation strategy.

10.1 Remedial Areas

Based on the findings of the DSI, remedial areas/management areas, and contaminants of concern are summarised below and presented in **Appendix A**. The contaminants shown in bold returned concentrations above either the adopted human health or environmental criteria for residential land use.

Additional delineation sampling will inform the lateral and vertical extent of the hotspot requiring remediation. Further soil sampling will also be required once the structures are demolished/removed from the sit and will be completed at a later date.

Table 5: Remedial Areas

HAIL	Sample	Contaminant	Remediation or Management
Paddocks	F1 – F8	Cadmium	Management
Milking Shed 1	S09 S10	Cadmium Lead Zinc Asbestos	Remediation
Laydown Area	S11 S12	Cadmium Copper Lead Zinc	Remediation
House 1	S06 S07 S08	Cadmium Lead Zinc	Remediation

HAIL	Sample	Contaminant	Remediation or Management
House 2	S01	Lead	Remediation
	S02		
	S03		
Former dwelling	S13	Cadmium	Management
	S14	Lead	
	S15	Zinc	
	S16		
Farm Shed	S04	Arsenic	Remediation
	S05	Cadmium	
		Copper	
		Lead	
Disused Garage		Zinc	Remediation
	S17		

10.2 Remediation Criteria

The remediation criteria have been adopted in accordance with the Ministry for the Environment's Contaminated Land Management Guidelines No. 2 (revised 2011). These criteria will be used to assess the effectiveness of remediation and determine the suitability of the site for a Residential (10% produce) land use, consistent with the proposed development.

The following criteria have been applied. These criteria form the basis for assessing remediation outcomes.

- NES-CS Soil Contaminant Standards (SCS) for the Residential (10% produce) land use scenario.
- Landcare Research: Technical Document. Eco-Soil Guideline Value for typical soil, aged contamination source, and a residential land use.
- Guidelines for Assessing and Managing Asbestos in Soil.

Table 6: Remediation Criteria

Contaminant	Remedial Target (NES-CS, Eco SGVs, GAMAS) (Residential Land Use)	
Arsenic	20 mg/kg	
Cadmium	3 mg/kg	
Copper	240 mg/kg	
Lead	210 mg/kg	
Zinc	300 mg/kg	
Asbestos	AF/FA (w/w%)	ACM (w/w%)
	0.001	0.01

10.3 Remediation Strategy and Methodology

The remediation approach will be tailored to the contaminants identified (primarily asbestos and heavy metals). However, excavation and offsite disposal is considered the most appropriate and practicable method for this site.

Excavation and Removal

Impacted soils will be excavated and transported offsite to an appropriately licensed disposal facility. Excavation depths will vary depending on the contaminant type and location. This is anticipated to include shallow surface removal (typically 100–200 mm below ground level) in areas surrounding buildings affected by lead, zinc, and asbestos, and deeper excavation (generally up to 300 mm or to natural subsoil) where hotspots are delineated to be deeper.

Validation Sampling

Following excavation, soil samples will be collected from excavation bases and, where necessary, sidewalls to confirm that the adopted remediation criteria have been achieved. Where validation results indicate that concentrations remain above the criteria, further excavation and subsequent validation sampling will be undertaken. Sampling will be carried out in general accordance with Contaminated Land Management Guidelines No. 5 (Revised 2011).

Soil Classification and Disposal

All excavated material will be appropriately classified based on analytical results prior to disposal. Disposal will be undertaken by suitably licensed contractors to facilities approved to accept the material. Acceptance criteria and approvals will be confirmed with the receiving facility prior to commencement of works.

General Requirements

All personnel involved in remediation will be suitably briefed in the requirements of this CSRAP and the handling of contaminated materials. Site management and environmental controls outlined elsewhere in this document will be implemented prior to and during remediation activities.

10.4 Soil Validation

Heavy Metals

At hotspots where impacted material has been removed, soil samples will be collected from the excavation base and, where relevant, the sidewalls. Samples will be analysed for the contaminants of potential concern applicable to each area, typically including heavy metals (e.g. arsenic, cadmium, copper, lead, nickel, and zinc) and/or asbestos.

Validation sampling will be undertaken generally in accordance with the Ministry for the Environment's Contaminated Land Management Guidelines No. 5. Analytical results will be assessed against the following criteria:

- NES-CS Soil Contaminant Standards (SCS) for a residential land use scenario.
- Landcare Research: Technical Document. Eco-Soil Guideline Value for typical soil, aged contamination source, and a residential land use.
- Guidelines for Assessing and Managing Asbestos in Soil.

Asbestos

If analytical results indicate that contaminant concentrations at the base of excavation remain above the adopted criteria, the residual contamination may be managed in place. In such cases, a Long-Term Management Plan (LTMP) will be prepared to address potential risks to site users and the environment, particularly during any future works that may disturb these soils.

Where contaminated material is retained onsite above guideline values, it will be clearly identified by placement of a coloured geotextile marker layer prior to installation of cleanfill. The extent of these areas will be surveyed and recorded on as-built drawings, as required.

All sampling and validation activities will be designed and overseen by the Contaminated Land Specialist (CLS).

10.5 Soil Validation Report

A Site Validation Report (SVR) will be prepared upon completion of remediation works, following receipt of validation sampling results and soil disposal documentation. Remediation is anticipated to occur after building demolition, with bulk earthworks to follow at a later stage.

The SVR will be prepared in general accordance with the Contaminated Land Management Guidelines and will assess the suitability of the site for the proposed future land use. It will include figures and tables summarising the works undertaken, and will present:

- A summary of remediation activities completed.
- Plans identifying excavation (cut) areas.
- Details of any contamination remaining onsite.
- Quantities of soil removed for offsite disposal.

- Records of any unexpected discoveries, complaints, or health and safety incidents encountered during the works.

Any monitoring undertaken during asbestos removal will be reported separately within asbestos clearance documentation.

11 Further Delineation and Validation Sampling

Based on the findings of the DSI, contamination has been identified at discrete locations associated with former structures, existing structures, the laydown area, and isolated asbestos-containing material (ACM) debris. While the general extent of contamination has been characterised, the lateral and vertical extent of some exceedances (particularly heavy metals and ACM) remains incompletely defined. Accordingly, further delineation will be undertaken during earthworks.

Milking Shed 1

The one sample of elevated asbestos (S09) indicates potential for localised contamination. Targeted sampling will be undertaken to where asbestos was identified and will be extended out to delineate lateral contamination as well as sampling with depth to provide vertical delineation.

House No. 1

Targeted halo sampling will be undertaken around locations where elevated heavy metal concentrations were identified (S07 and S08) to define the horizontal extent of contamination. Sampling of excavation bases and sidewalls will be undertaken to confirm vertical extent.

House No.2

Heavy metal concentrations around the house were within the human health and environmental criteria for residential land use but above the adopted background criteria. As such, no further delineation is proposed in these areas unless unexpected contamination is encountered. Refer to **Section 10** for the management of managed fill.

Laydown / storage area

Although no SVOCs were detected, the presence of elevated heavy metals and the historical use of the area indicate potential for localised contamination (S11 – S12). Delineation sampling will be undertaken targeting those hotspots where elevated heavy metals were identified. Sampling will be extended out to delineate lateral contamination as well as sampling with depth to provide vertical delineation.

Former Building Footprint

Targeted halo sampling will be undertaken around locations where elevated heavy metal concentrations were identified (S13- S16) to define the horizontal extent of contamination. Sampling of excavation bases and sidewalls will be undertaken to confirm vertical extent.

Farm Shed

The presence of elevated heavy metals and the historical use of the area indicate potential for localised contamination (S04 and S05). Targeted sampling will be undertaken to where elevated heavy metals were identified and will be extended out to delineate lateral contamination as well as sampling with depth to provide vertical delineation.

Disused Garage

The presence of elevated zinc indicates potential for localised contamination (S04 and S05). Targeted sampling will be undertaken to where zinc was identified and will be extended out to delineate lateral contamination as well as sampling with depth to provide vertical delineation.

Pasture areas (cadmium)

Cadmium concentrations in grazed paddocks were generally within a narrow range and below human health criteria for residential land use. As such, no further delineation is proposed in these areas unless unexpected contamination is encountered. Refer to **Section 12** for the management of such soils.

11.1 Delineation Methodology

Further delineation sampling will include:

- Halo sampling at the margins of identified exceedances to define the lateral extent of contamination.
- Base and sidewall sampling within excavations to confirm vertical extent.
- Field observations (including staining, discolouration, odour, and presence of anthropogenic materials such as ACM fragments) to guide sampling locations.

Samples will be analysed for the contaminants of concern relevant to each source area, including:

- Selected heavy metals in former and existing structure areas.
- Asbestos (semi-quantitative soil analysis and/or bulk identification).
- Hydrocarbons and metals in the laydown area where warranted.

12 Site Management

The DSI findings indicate that, with the exception of discrete areas identified for remediation, soil contaminant concentrations across the wider site are generally below levels of concern for human health and environmental protection.

Notwithstanding this, concentrations of certain heavy metals exceed adopted background levels. As a result, the soils do not meet the WasteMINZ criteria for classification as cleanfill and are more appropriately classified as managed fill.

This section provides contractors undertaking earthworks with an operational tool to manage and mitigate potential human health and environmental risks associated with working on a site with low-level soil contamination including:

- Human Health:
 - Dermal contact with contaminated soil (absorption through skin).
 - Ingestion of contaminated soil.
 - Inhalation of dust.
 - Inhalation of volatilised contaminants.

- Environment:
 - Discharge of contaminated sediments or surface water generated during earthworks.
 - Tracking of contaminated soil off-site.
 - Discharge of dust off-site.
 - Disposal of contaminated soil or groundwater to an unauthorised disposal facility.

The following table provides an overview of soils management in relation to managed fill.

Table 7: Site Management

Item	Control
Pre-start Checks and Inductions	Contractors, subcontractors, and visitors must complete a site safety induction prior to entering the site or commencing any work. The induction ensures all personnel who may come into contact with site soils understand the potential hazards associated with the presence of managed or potentially contaminated material. The following general safety procedures must be followed by all personnel working on or near the earthworks area: All workers shall be informed of existing hazards and notified of any new hazards identified during the works. Unnecessary contact with site soils shall be avoided. Appropriate personal protective clothing and equipment shall be worn at all times. All incidents, near misses, or unsafe conditions shall be reported immediately to the contractor's Health and Safety Advisor or other designated responsible person.
Hygiene	Workers who come into contact with site soils should exercise good hygiene and housekeeping. Wash hands before eating or smoking. Do not eat in the works area. Avoiding hand to mouth and hand to face contact during work with potentially contaminated soils.

Item	Control
Health & Safety	Worker health and safety will be managed through site-specific health and safety plans, appropriate staff training, and supervision by the CLS. These plans and training will outline measures to reduce potential risks, including (but not limited to): • Identification of likely contaminants to be encountered based on the past investigations and any subsequent environmental investigations. • Identification of potentially contaminated materials, such as odour (organic compounds such as hydrocarbons or solvents), fibrous material (asbestos), refuse or debris. • Areas where contaminants are present above human health risk based guideline values. • Soil management and classification, dust, odour, and erosion control measures. • PPE (as detailed below).
PPE	The presence of contamination across much of the site is variable. The following PPE will be mandatory for all personnel involved entering the site, and working within the vicinity of the site: • Steel toe-capped safety footwear capable of being washed (e.g., gumboots). • Disposable nitrile gloves (if soil is handled). • Dust masks (P2 dust masks, if there is a potential for the generation of contaminated dust). • Hard hat (if working around plant and machinery). • Hi-visibility vest.
Sediment Control	Earthworks areas will be fenced to limit access to authorised personnel only and to prevent entry by the general public. Throughout the earthworks, the contractor is responsible for installing and maintaining all erosion and sediment controls, including silt fences, the stabilised site entrance, and vehicle-cleaning facilities. The contractor shall inspect all stormwater and sediment control measures daily and following any significant rainfall event. Appropriate sediment control measures shall be implemented to minimise sediment-laden runoff from the site. The following represent the minimum required controls; however, additional measures may be imposed by regulatory authorities if necessary: • Stabilised site entrance: The contractor shall establish and maintain a stabilised entry/exit point to reduce the tracking of soil onto public roads. • Perimeter sediment controls: Suitable measures such as silt fencing, bunds, or equivalent controls shall be installed around the site perimeter to prevent sediment discharge to surrounding areas.

Item	Control
Dust Control	In addition to standard dust control measures required under relevant regulations, the contractor shall implement the following practices: • Restrict vehicle access to excavated areas. • Use a water truck or portable sprayers to dampen exposed soils as needed. • Cover stockpiles (e.g., with plastic sheeting) when dust cannot be adequately controlled through wetting, particularly during high winds. • Avoid undertaking dust-generating work during windy conditions. • Apply water carefully to ensure dust suppression does not create erosion. When using water for dust control, the contractor must ensure that application rates do not cause surface ponding or runoff that could enter stormwater drains or natural water bodies.
Stormwater and Groundwater Management	Minimum controls shall include: • Implementation of appropriate stormwater management measures to prevent the discharge of sediment or contaminants to the environment. • Groundwater is not expected to be encountered during the works. However, if significant volumes of water require removal from the site, the management approach shall be reassessed at that time.
Stockpiling	If temporary stockpiling of potentially contaminated material is required, the stockpile shall be bunded and covered with geotextile sheeting when left overnight. Stockpiles of material shall be managed using appropriate sediment controls, such as silt fencing or bunding. Dust generation from all stockpiles shall be controlled in accordance with the dust management requirements outlined above.
Importation of Fill	Any fill imported to the site must comply with the Waste Management Institute New Zealand <i>Technical Guidelines for Disposal to Land (Revision 3)</i> (WasteMinz, 2022) definition of cleanfill. Records shall be kept documenting the type and quantity of all imported fill.
Off-site Disposal	All excess soil and fill material generated during the works shall be transported off-site to an appropriately licensed disposal facility authorised to accept the specific type of material. The contractor is responsible for ensuring that all loads are covered during transport to prevent dust or material loss. Laboratory results should be provided to the receiving facility in advance to confirm acceptance. Landfill weighbridge dockets and disposal receipts shall be obtained for every load removed from the site. These records must be retained as verification of proper disposal and included in the final reporting for the project.

Item	Control
Works Completion Report	A Works Completion Report (WCR) shall be prepared by a CLS at the conclusion of site development works. The report shall include: • A brief summary of the works undertaken. • Any deviations from the CSRAP procedures. • Records of managed fill disposal and site condition after removal. • Documentation of imported cleanfill, including source and verification. • Details of any unexpected conditions encountered and results of any additional testing.
Unexpected Contamination	Should unexpected indicators of contamination be encountered during earthworks, work should stop and the CLS be contacted. Indicators may include: • Asbestos Containing Materials (ACMs). • Odour (hydrocarbons, oil). • Uncontrolled fill material. • Building waste. • Buried waste materials. The CLS will be notified and will undertake additional delineation sampling to characterise the nature and extent of contamination. Appropriate management measures will be implemented prior to recommencement of works.

14 Limitations

This report is the property of Saxby Road JV Ltd and Swiftsure Consultants Ltd. It was produced for the purpose stated above in accordance with the conditions of the contract dated 14 May 2025. It does not purport to provide legal or financial advice. Swiftsure Consultants Ltd accepts no liability to any other party or for any other purpose.

The recommendations in this report are based on information provide to Swiftsure Consultants Ltd at the time of writing this report.

This report is current as of 30 August 2026. Site conditions may change in future, as may regulations and guidance. Readers must make their own judgements as to whether this report remains current at the time of reading, and/or seek further advice from Swiftsure Consultants Ltd.

APPENDIX A: Remedial Areas



