

-DRAFT-REMEDATION ACTION PLAN (RAP)

SPRINGHILL FARM LIFESTYLE DEVELOPMENT, STATE HIGHWAY 50,
ONGAONGA



Reference Number: REP-H0151/SMP/APR21

PREPARED FOR: SPRINGHILL FARM HOLDINGS, C/- DEVELOPMENT NOUS LTD

09 APRIL 2021



Geosciences Limited
47 Clyde Road, Browns Bay, Auckland
PO Box 35-366, Browns Bay, Auckland
(09) 475 0222
info@geosciences.co.nz www.geosciences.co.nz

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STATEMENT

This plan has been prepared in acknowledgement of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. It has been authorised by a suitably qualified and experienced practitioner (SQEP); and has been prepared with the intention of providing practices and procedures for the management of potentially contaminated land that meets the criteria of the NES, the MfE guidelines and the requirements of Springhill Farm Holding's development plans.

Report prepared on behalf of GSL
by:



David Wilkinson
Environmental Scientist
Geosciences Ltd

Report and authorised on behalf
of GSL by:



Carl O'Brien
General Manager
Geosciences Ltd

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1 INTRODUCTION

It is proposed to develop the piece of land located at 1,152, 1,200, and 1,080 State Highway 50, and 604 and 612 Wakarara Road, Onga Onga through a large scale rural residential subdivision, forming rural residential lots ranging from 4,000 m² to 1.2 Ha. The full piece of land encompasses some 214 Ha of pastoral farmland.

While final scheme plans and earthworks plans are not available at the time of writing this draft remediation action plan (RAP), it is expected that some remedial earthworks will be required in order address areas actual and potential contamination on the site as detailed in the accompanying detailed site investigation (Ref: *Rep-H0151/DSI/Apr21*), alongside some site preparatory earthworks to prepare the site for the intended new structure as well as demolition activities and.

A detailed site investigation (DSI) conducted by Geosciences Ltd (GSL), and provided alongside this RAP, identified that the site has been subject to activities included on the Ministry for the Environment (MfE) Hazardous Activities and Industries List (HAIL) through the presence of a sheep dip / spray race, farm dump, historical use of lead based paints, and the presence of domestic wastewater treatment systems. Those HAIL activities have resulted in discernible impacts to soil on site that will require remediation to facilitate the proposed change in landuse.

This remediation action plan (RAP) has been prepared to provide a structured framework for further intrusive investigations of soil quality to be undertaken prior to earthworks commencing in order to fully delineate the extents of the impacted areas, alongside general practises to be in place for soil disturbance in order to ensure any risks to human and environmental health are managed to an acceptably low level. This RAP will require update following the return of analytical results in order to ensure that controls are of a scale and degree commensurate to the risks identified and to ensure that any areas of the site requiring remediation are appropriately addressed.

2 DETAILED SITE INVESTIGATION - GSL 2021

GSL undertook a detailed site investigation (DSI) of the site in April 2021, the DSI identified actual and potential for activities included on the MfE HAIL to have been undertaken on site. Soil sampling undertaken as part of the DSI indicated that historic landuses (sheep dip, lead based paint use and farm dump activities had resulted in elevated concentrations of arsenic and lead in excess of the rural residential soil contaminant standard (SCS) set by the National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health (NES).

Concentrations of arsenic and lead also exceeded the commercial / industrial SCS in discrete portions of the site and as such a potential risk is present for end residential landusers and site workers during any soil disturbance activities. The location of the identified impacted areas around the sheep dip and historical structures are noted on Figure 2.

3 STATUTORY REQUIREMENTS

As a result of the findings of the DSI, and in order to ensure any risks to human or environmental health or the environment are managed to an acceptably low level, a remediation action plan is required that will provide practises and procedures to be followed during the earthworks to ensure the protection of human and environmental health and to ensure that any impacted soil from the

site is appropriately handled, managed onsite through sustainable remedial practises and, if required, appropriately disposed of at a suitably licensed facility.

The purpose of this RAP is to set out the location and extent of intrusive soil investigation required prior to earthworks commencing as well as providing an overarching set of general controls that have been implemented on sites with similar history. As part of the resource consent process, this SMP will require update prior to earthworks commencing to document the findings of the intrusive investigation and provide controls with respect to the exact nature of soil quality on site.

4 EXTENT OF IMPACTED AREAS

Based on the findings of this investigation, GSL has confirmed that HAIL activities have resulted in adverse impacts to soil quality and the following areas will require remedial action:

- Areas surrounding the oldest sheds and former residential dwelling have been impacted by lead to a level that exceeds the NES Rural Residential land use standard;
- The curtilage of the wool shed has been adversely impacted by lead to a distance not exceeding 3m;
- Sheep dip activities have resulted in elevated concentrations of arsenic ant the eastern and southern extents of historic dip structure;
- A residual farm dump is present encompassing an area of approximately 100m with mixed refuse present within the void. The exact depth is unknown on account of the overgrown vegetation and age but is likely to extend approximately 5m below relative ground level; and
- Domestic wastewater systems attached to the dwellings have been identified and are considered low risk. However, should these require decommissioning and removal during demolition activities, appropriate controls should be in place and effective.

5 REMEDIATION ACTION PLAN

The practises and procedures in this remediation action plan are intended to ensure that health, safety and environmental risks associated with the proposed earthworks activities at the Springhill Farm Subdivision, 1200 State Highway 50 & 612 Wakarara Road, Onga Onga are managed to an acceptably low level. It is not intended that this RAP should replace the contractor's site-specific health and safety plan or earthworks and sediment control plan but should be enacted in conjunction with these documents.

This RAP has been prepared to document the proposed intrusive delineation soil sampling investigations required to fully characterise impacted soil across the farmyard supplemented with the inclusion of the expected controls required to manage low level impacted soil around the barn on site. This RAP should be revised following the completion of intrusive investigations and the specific requirements given to any contractor engaged to undertake earthworks.

5.1 PRE-REMEDIATION WORKS COMMENCEMENT REQUIREMENTS

Prior to remedial works commencing on site, the following aspects will be addressed by the appointed primary contractor.

5.1.1 HAZARDOUS BUILDING MATERIALS SURVEY AND ASBESTOS REMOVAL

As structures on site were constructed prior to 1 January 2000, should any demolition works be required, in accordance with the *Health and Safety at Work (Asbestos) Regulations 2016* all structures on site must be subject to a fully intrusive pre-demolition hazardous building materials survey undertaken by a suitably licensed asbestos assessor. The findings of the survey will indicate the location and extent of all asbestos containing materials on site. Following the completion of the survey a suitably licensed asbestos removal contractor will be engaged to undertake asbestos removal works on site using the findings of the building survey to form the basis of an asbestos removal control plan.

All asbestos removal work must be completed and given independent clearance by a licensed asbestos assessor prior to full scale demolition works commencing.

5.1.2 RESPONSIBILITIES AND SITE MANAGEMENT

Springhill Farm Holding’s appointed earthworks contractor will assign a ‘site manager’ to the project that will be responsible for the implementation of this RAP, pending its acceptance by the Council Consents Team, for the proposed works at the site. The site manager will be responsible for liaising with a multitude of consultants during the works to ensure that numerous facets of risk management are achieved.

Table 3: Responsible Parties

POSITION	CONTACT NAME & COMPANY	TELEPHONE NUMBER	RESPONSIBILITY
Main Construction Contactor			Project Delivery
Project Manager			Management of Project, PCBU
Site Manager/supervisor			Implementation of RAP
Contaminated Land Advisor	Carl O’Brien Geosciences Ltd	0272285556 (06) 281 2454	Validation of Remedial Works On-call assistance

5.1.3 ENGAGEMENT OF CONTAMINATED LAND ADVISOR

GSL will act as Contaminated Land Advisor (CLA) and will provide on-call direction in relation to contamination / disposal issues for the project. GSL are a professional advisor, suitably qualified and experienced in the investigation, reporting, remediation, and validation of contaminated land.

GSL’s main functions as CLA are to:

- Assist in inspecting / screening potentially contaminated material;
- Assess the effectiveness of environmental control measures;

- Manage the collection and analysis of any soil samples (if required) in accordance with the Ministry for the Environment's (MfE) Contaminated Land Management Guideline No 1, (Reference 5);
- Provide assessments of the investigation;
- Make recommendations based on findings; and
- Maintain regular liaison with the authorities if necessary.

5.1.4 BRIEFING SESSIONS

The site manager is to commission a briefing session for relevant staff and subcontractors prior to the commencement of works. The briefing session will include as a minimum:

- Known areas of impacted soil material;
- Appropriate PPE and safety measures;
- Familiarisation with the requirements of the SMP;
- Guidance for identifying contaminated material as works progress (Appendix A); and
- Procedures to be followed should contaminated material be encountered (Appendix A).

5.1.5 HEALTH AND SAFETY PROCEDURES

While this SMP provides steps that are required because of the concentrations of arsenic identified during the DSI, the earthworks contractor is ultimately responsible for the H&S procedures related to the earthworks.

Due to the detection of arsenic and lead in excess of the commercial / industrial landuse standard applicable to site workers as defined in the NES, soil in discrete areas of the site presents a potential risk to the health of site worker. As such, the following health and safety provisions will be required, and must be adhered to in order to ensure the health and safety of workers during soil disturbance activities.

The primary risks associated with the disturbance of arsenic impacted soil are inhalation and direct contact with skin or eyes. Primary risk reduction measures to be in place for the protection of site workers during remedial works are as follows:

- Mechanical excavation methods to limit the potential for direct contact of site workers with actually or potentially contaminated soil (documented in Section 6.2);
- appropriate dust suppression procedures in order to mitigate the potential generation of dust if works are undertaken in dry conditions (documented in Section 6.1.8 and Section 6.1.9);
- appropriate use of personal protective equipment (documented in Section 6.1.7)
- provision of staff washdown facilities and ensuring appropriate hygiene procedures prior to eating drinking or smoking on breaks (documented in Section 6.1.6);
- the provision of a designated clean area for staff to take meals or breaks (documented in Section 6.1.6)

The Health and Safety Guidelines on the Clean-up of Contaminated Sites developed by Occupational Safety and Health Services (OSH) provides reference to appropriate H&S measures that can be adopted for contaminated sites. A copy of this guideline can be provided on request.

5.1.6 ESTABLISHMENT OF ON – SITE AMENITIES & COMMENCEMENT OF WORKS

Prior to remedial earthworks commencing, the site manager will ensure that appropriate site amenities are available on site and will include as a minimum:

- Designated ‘clean’ area for personnel to take breaks away from the identified impacted areas; and
- An appropriate personal decontamination area such that all personnel have facility to wash hands and face prior to eating drinking or smoking.

Once the on-site amenities are established, the site manager will ensure that dust, erosion and sediment controls are in place and effective, and that all personnel undertaking the works have been briefed on their obligations and have appropriate PPE for the works being completed

5.1.7 PERSONAL PROTECTIVE EQUIPMENT

The minimum Personal Protective Equipment (PPE) which should be available on-site will be in accordance with the contractor’s specific health and safety plan. Additional PPE that may be required include:

- Protective leather or rubber gloves
- Safety glasses
- Dust masks

The site manager will use his discretion with regard to the use of the additional PPE and might call on the CLA for advice on this matter.

Any specific PPE that is required as a result of the findings of Section 5 below will be updated into this section following the return of analytical results.

5.1.8 DUST CONTROL

Dust controls are required to minimise pollutants becoming airborne and reduce stormwater sediment loads. If the proposed earthworks are undertaken in dry conditions, dust can be controlled by light frequent water spraying. Water spraying should be frequent enough to suppress the generation of dust but not as heavy as to generate sediment laden water run-off.

The site manager will use his discretion regarding dust suppression and will be ultimately responsible for ensuring the control of dust during earthworks on site.

5.1.9 EROSION AND SEDIMENT CONTROL

To prevent generation of contaminated sediment laden run-off, stormwater protection measures shall be incorporated around the perimeter of the proposed works in accordance with Hawkes Bay

Regional Council Document “*Hawkes Bay Waterway Guidelines Erosion and Sediment Control*” shall be sufficient to ensure compliance with these requirements. These controls shall include appropriate measures such as:

- Protection of the proposed works perimeter with silt-socks to trap sediment in stormwater; and
- the use of diversion trenches to direct surface water to a designated stormwater collection pond

6 PROPOSED DELINEATION SOIL SAMPLING INVESTIGATION

As part of the process for seeking resource consent for the proposed development, further intrusive investigation of all impacted areas is required to be undertaken in order to establish the full lateral and vertical extents of the impacted soil and prepare a suitable remedial strategy in accordance with the desired outcomes of the Resource Management Act 1991. The following intrusive investigation is required to be undertaken prior to works commencing. Indicative soil sampling locations as described below are shown on Figure 3.

The following indicative intrusive investigation will be undertaken in order to assess the risk associated with the potentially contaminated areas underlying the site:

- Farm dump:
 - five soil samples from base and side walls of the farm dump once excavated for the analysis of heavy metals and PAH;
- Lead paint impacted areas surrounding historic structures:
 - soil samples collected from 2.5 m out from each identified exceedance and then on and expanding 5 m spaced grid laterally out from each structure;
 - soil samples collected from 300 mm and 500 mm depth at one location from each structure;
 - the analysis of the above soil samples for lead only
- woolshed, sheep dip and holding pens:
 - soil samples collected on a systematic grid pattern infilling areas between previous exceedances and working out from the sheep dip on a 5 m spaced grid;
 - the collection of soil samples from 300 mm and 500 mm at the location of SS16 and SS17 where the highest arsenic concentrations were returned;
 - the analysis of the above soil samples for arsenic only.

Following the completion of the intrusive delineation investigation the results will be reported in a revised RAP to be submitted to Council to include any specific further controls required for any remedial works.

7 REMEDIATION STRATEGIES

In order to ensure that the site is made fit for purpose, remediation will likely be undertaken through two key methods:

1. Excavation and offsite disposal of soil impacted to a level in excess of the Commercial / Industrial SCS as well as all refuse and decommissioned septic systems; and
2. Vertical mixing of low level impacted soils to provide compliance with the Rural Residential SCS.

The exact remedial approach will be confirmed following full delineation and calculation of impacted soils and determination on potential mixing regimes.

7.1 GENERAL REMEDIAL EARTHWORKS METHODOLOGY FOR EXCAVATION AND DISPOSAL OF CONTAMINATED SOILS

While the exact extent of remedial works have not been fully defined, remediation of concentrations of arsenic and lead in excess of the commercial / industrial SCS will require remediation through excavation and offsite disposal to a suitably licensed landfill facility. In addition, the farm dump will require excavation of all refuse and subsequent disposal at a licensed landfill facility while the septic systems may require emptying by a liquid waste contractor followed by careful decommissioning of the systems themselves. The following general procedures are considered a standard approach for “dig and dump” methodology and will be updated following delineation soil sampling.

Prior to the commencement of any remedial works commencing, the extent of known impacted areas will be marked out in the field using fluorescent paint or marker pegs to clearly demarcate their extents and a pre-start discussion will be held by all relevant parties to ensure the requirements of this SMP are clearly understood. The following steps will generally be followed:

- erosion and sediment control measures will be installed in accordance with the earthworks contractor’s specific erosion and sediment control plan, and will be in accordance with Hawkes Bay Regional Council *Hawke’s Bay Waterway Guidelines - Erosion and Sediment Control* (as adopted by Horizons Regional Council) will be in place and effective until the land is returned to an erosion resistant state. Erosion resistance is considered achieved when the soil surface is placed under an impervious covering (i.e. paved), grass, gardens, or other vegetation;
- the site manager will arrange for disposal of all excess soil prior to works commencing to a facility licensed to accept material as defined by intrusive investigations;
- trucks will be covered prior to leaving the site and the site manager will be responsible for overseeing loadout to ensure that no debris will be discharged during transport on public roads;
- An area on site will be prepared for the temporarily stockpiling of material of suspicious nature that might be encountered during the earthworks;
- Temporary stockpiles will be managed (kept damp) to ensure that there is no excess dust generated from the stockpiles;

- Silt fencing will be placed around the temporary stockpiles to ensure that there is no excess sediment run-off from the stockpiles;
- The CLA will be notified and inspect any suspicious or noxious material that might be encountered during the earthworks. If necessary, the CLA will take soil samples for analysis of any foreign material that is discovered. The CLA will advise on the disposal of any such material;
- Upon completion of the excavation the site manager shall ensure that plant and equipment are cleaned and decontaminated appropriately; and
- A landfill manifest or weigh bridge dockets of all material disposed of at a managed fill or landfill facility will be kept;
- prior to any machinery leaving the site, it will be cleaned and decontaminated appropriately. Decontamination will generally involve the use of a soft soap solution and water to remove all visible dirt and debris. Machinery will be parked on geotextile fabric for decontamination and all used geotextile will be disposed of as refuse.

7.1.1 DUST CONTROL

Dust controls are required to minimise pollutants becoming airborne and reduce stormwater sediment loads. If the proposed earthworks are undertaken in dry conditions, dust can be controlled by light frequent water spraying. Water spraying should be frequent enough to suppress the generation of dust but not as heavy as to generate sediment laden water run-off.

The site manager will use his discretion with regard to dust suppression and will be ultimately responsible for ensuring the control of dust during earthworks on site

7.2 REMEDIATION METHODOLOGY FOR VERTICAL MIXING

Where lower level exceedances of the NES rural residential standard are noted and given the volume of available 'clean' soil from the surrounding paddock areas of the site, alternative and more environmentally sustainable remedial approaches can be undertaken. Given the natural underlying sediments at depths of 300mm and deeper are likely to contain concentrations of heavy metal well below the adopted background concentrations. It is therefore concluded that by blending the 0-500mm horizon of soil across the site in accordance with the procedures described in the document; *Guidelines for Contaminated Land Remediation by Soil Mixing* prepared for Hawkes Bay Regional Council by Pattle Delamore and Partners (2015) will likely produce a resultant mix that comply with cleanfill criteria. It is further noted that the loose and sandy nature of the surface soil provides a product ideal for mixing.

The mixing process of these areas will then proceed by scrapping off and stockpiling of the grass surfaces. The underlying soil will then be mixed by using an excavator fitted with a wide bucket. It will excavate soil to 500mm deep by digging and lifting the bucket approximately a metre high then dropping the soil while turning the bucket around. Based on experience, by repeating this process three times at one location a perfect mix can be obtained.

Alternative mixing methodologies can be undertaken using mechanical tilling of the soil on multiple intersecting transects in order to blend the topsoil with underlying clean horizons, or excavation of

low level impacted soil and emplacement in windrows where it can be blended with clean soil from other areas of the site.

Regardless of the mixing methodology, further sampling of the resultant mixture should be undertaken in order to ensure the compliance of the soil with the relevant landuse standards of the NES. Soil should be re-sampled at a rate of 1 soil sample per 500 m³ of soil mixture.

8 CONTINGENCIES

In the event that other contamination is encountered on the site during the works, the site manager, in consultation with the CLA, will either:

- Identify the material in situ if possible (staining, odour, visible fibres or refuse etc.); or
- Excavate the material to a suitable leak proof and covered skip-bin or truck and take representative samples for analysis, placing the material on hold for appropriate disposal; or
- Halt excavations in the immediate vicinity of the discovery while the material is sampled in-situ, and removal / disposal options explored once the analytical results are returned.

An appropriate log will be kept by the site manager of any unidentified contamination encountered during the excavations.

GSL has produced a contaminated soil discovery guideline (CSDG) document that outlines the signs, risks, and remedial actions required for contamination scenarios that may be encountered during remedial earthworks (Appendix A).

Suspicious material will be investigated by the CLA and laboratory analysed if deemed necessary. The CLA will advise on the disposal options of any uncertain materials. Disposal options can include:

- remove to an appropriate temporary stockpile area for further testing and analysis; or
- disposal at a cleanfill, managed fill or landfill facility.

The appointed contractor might have their own discovery procedures based upon their specific experiences in working with contaminated land of various natures (urban to rural). Contractor specific documents may be used alongside or in conjunction with this SMP.

If any staff, contractors, or consultants discover contamination, they should notify the site manager immediately, who should enact the provisions of the plan.

8.1 FIBROUS MATERIAL (ASBESTOS)

It is not anticipated that any asbestos materials will be encountered on the site. However, where asbestos containing materials (ACM) are identified in the soil matrix, all works shall cease (including the excavation and disposal of affected materials) until the provisions of the *Health and Safety at Work (Asbestos) Regulations* are exercised.

ACM identification will primarily be through visual identification by a suitably competent person. Any fibrous material observed during excavations will be visually inspected, photographed and representative sample submitted to an accredited laboratory for analysis. Following receipt of results, the site manager in conjunction with the CLA shall determine what, if any, further remedial

steps may be required, including the provisions of asbestos removal control plans, semi-quantitative analysis, or site assessment under the WorkSafe endorsed *BRANZ New Zealand Guidelines for Assessing and Managing Asbestos in Soils* (November 2017).

9 REPORTING AND RECORD KEEPING

At completion of the earthworks, the site manager shall provide records of the:

- volume and nature of any material removed from site and all managed fill / landfill disposal docket;
- a log of any unknown or suspicious materials encountered during the earthworks;
- laboratory transcripts, if any;
- any complaints or incidents; and
- site photographs of all excavations and re-instatement works.

9.1 SITE VALIDATION REPORT

Depending on the findings of the DSI detailed above, and upon completion of the remedial works, a site validation report (SVR) may be required. If required, the SVR will be completed and provided to Auckland Council. The SVR will include:

- The quantity of soil material removed from site, including copies of the disposal manifests;
- A description of any unforeseen contaminated soil material encountered during the remedial works;
- Laboratory analytical results from any soil testing that occurred during the remedial works; and
- Any incidences or complaints that occurred during the earthworks.

10 REFERENCES

1. Ministry for the Environment (2011) - Draft Users Guide National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health. Ministry for the Environment, Wellington, New Zealand.
2. Ministry for the Environment (2011) – *Methodology for Deriving Standards for contaminants in Soil to Protect Human Health*. Ministry for the Environment, Wellington, New Zealand.
3. Ministry for the Environment (2011) — *Contaminated Land Management Guidelines No.1: Reporting on contaminated Sites in New Zealand*. Ministry for the Environment, Wellington, New Zealand.
4. Ministry for the Environment (2003) — *Contaminated Land Management Guidelines No.5: Site Investigation and Analysis of Soils*. Ministry for the Environment, Wellington, New Zealand.
5. Department of Labour (1999) — *Health and Safety Guidelines on the Cleanup of Contaminated Sites*. Occupational Safety and Health Services. Department of Labour. Wellington. ISBN 0-477-03546-9.

FIGURES

APPENDIX A: CONTAMINATED SOIL DISCOVERY GUIDELINES