Final Report

Peka Peka to Ōtaki - Phase 1 Contaminated Land Assessment

7 FEBRUARY 2013

Prepared for

New Zealand Transport Agency

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Introduction

This Phase 1 Contaminated Land Assessment (CLA) has been prepared by URS New Zealand Limited (URS) for use by the New Zealand Transport Agency (NZTA).

This CLA provides a Phase 1 (non-intrusive) assessment of contaminated land within the designated corridor of the Peka Peka to North Ōtaki Expressway section of the Wellington Northern Corridor Road of National Significance (RoNS) Project.

1.1 Background

The NZTA is lodging a Notice of Requirement (NoR) and applications for resource consents for the construction of the Peka Peka to Ōtaki (PP2O) section of the Wellington Northern Corridor RoNS Project (Expressway). The NoR for the re-alignment of about 1.2 km of the North Island Main Trunk (NIMT) through Ōtaki is also being sought, and is being undertaken on behalf of KiwiRail. In this application, "the Project" refers to:

- Construction of the expressway alignment;
- Realignment of part of the NIMT; and
- Associated local road connections.

The Project is a proposal of national significance and the NoR and consents have been lodged with the Environmental Protection Authority (EPA).

1.2 The Project

1.2.1 Main alignment

The Wellington Northern Corridor RoNS runs from Wellington Airport to Levin and completing it will assist regional and national economic growth. The Project is one of eight sections of the Wellington Northern Corridor RoNS. The location of the Project in the overall scheme of this corridor is illustrated in **Figure 1-1** below.

The NZTA proposes to designate land and obtain the resource consents to construct, operate and maintain the Peka Peka to Ōtaki section of the Wellington Northern Corridor RoNS. The Project extends from Te Kowhai Road in the south to Taylors Road just north of Ōtaki, an approximate distance of 13 km.

The Project will provide an expressway with two lanes of traffic in each direction. Connections to local roads, new local roads and access points over the Expressway to maintain safe connectivity between the western and eastern sides of the Expressway are also proposed as part of the Project. There is an additional crossing of the Ōtaki River proposed as part of the Project, along with crossings of other watercourses throughout the Project length.

On completion, it is proposed that the Expressway becomes State Highway 1 (SH1) and that the existing SH1 between Peka Peka and Ōtaki become a local road, allowing for the separation of local traffic. The power to declare roads to be State Highways or revoke status resides with the Chief Executive of the Ministry of Transport, not with the NZTA.

1 Introduction

1.3 NIMT

KiwiRail proposes to designate land in the Kāpiti Coast District Plan for the construction, operation and maintenance of a re-aligned section of the NIMT through Ōtaki.

Figure 1-1 Location of Peka Peka to Ōtaki expressway within the Wellington Northern Corridor

1.4 NZTA approach

The NZTA is taking a staged approach to contaminated land management in accordance with current practice, as follows.

1. Conduct a high-level overview assessment of the project corridor to identify potentially contaminated sites. This assessment is carried out by identifying sites that may have current or historic land use activities or facilities that are potential sources of ground contamination (refer to **Section 2.1** for methodology).
2. For those sites that may have (or may have had) potential sources of ground contamination and/or sites where contaminated land issues may have a significant impact on construction, conduct a Phase 1 CLA. The Phase 1 CLAs gather more detailed site-specific information on the nature and location of land use activities or facilities that are potential sources of ground contamination at a site (refer to **Section 2.2** for methodology).
3. Based on the high-level overview assessment and Phase 1 CLAs prepare a draft plan Bulk Earthworks Contaminated Land Management Plan or BECLMP[1] that provides a framework and general procedures for management of contaminated soil during construction of the Project. This plan would be updated with site and Project specific details once additional information becomes available.
4. Conduct Phase 2 CLAs (detailed site investigations including intrusive works), as and if required, at selected sites to characterise the nature and extent of contaminants present in soil and groundwater (if applicable).
5. Review the findings of the Phase 2 CLAs, and where applicable, obtain consent from the District Council for fuel system removal and soil disturbance at contaminated sites under the National Environmental Standard for Managing Contaminants in Soil to Protect Human Health (NES)[2].
6. Update BECLMP, as required based on the findings of the Phase 2 and to align with any NES consents required to complete the works.

As part of NZTA's staged approach the first three items described above were prepared in support of the designation and resource consent application process. The detailed Phase 2 CLAs (item 4 above) are proposed to occur after the resource consent and designation applications are lodged for the following reasons:

- There are practical barriers to completing these investigations at this time, including land ownership, site access and access agreements, and continued use of the sites (e.g., the KiwiRail rail bed).
- Project design details relevant to the design Phase 2 CLA investigation have not been confirmed, including cut and fill levels, construction methodology, and the extent of ground disturbance.
- Continued landuse in the intervening time between lodgement and construction may result in changes to the nature and extent of contamination in soil (e.g., assessment of rail ballast material now may not be relevant for determining off-site disposal requirements at the time of construction due to continued use of the rail lines).

[1] Draft Bulk Earthworks Contaminated Land Management Plan, Peka Peka to North Ōtaki Expressway Project, URS, December 2012.
[2] Resource Management Regulations 2011.

Based on the current and inferred historic landuses within the Project corridor, it is considered that the draft BECLMP (in support of resource and designation applications) is sufficiently robust to manage contaminated land issues that could be reasonably encountered during construction.

NES consents are not required under the resource consent and designation application process and would be obtained from the local district council as and if required.

1.5 Phase 1 CLA Objectives

The objective of this Phase 1 CLA is as follows:

- Determine the likely nature and extent (in terms of the general location and areas encompassed by potentially contaminating site activities) of land contamination at select sites to a Phase 1 level of certainty.

1.6 Report Format

The report has been divided into sections as follows:

Section 1 - Introduction

Section 2 – Overview Phase 1 assessment of the designated corridor, and scope and methodology for site-specific Phase 1 CLAs

Section 3 - Ōtaki Station and Sidings – Site-specific Phase 1 CLA

Section 4 - Winstone Aggregates – Site-specific Phase 1 CLA

Section 5 - Mary Crest – Site-specific Phase 1 CLA

Section 6 - Bridge Lodge - Summary of Phase 1 ESA

Section 7 - Summary

Supporting Information is appended.

2

Preliminary Assessment

2.1 Overview Phase 1

Between July and October 2011 URS conducted an Overview Phase 1 CLA (Overview Phase 1) of properties along the designated Project corridor. This Overview Phase 1 comprised a high-level assessment of the potential for contaminated land within the Project corridor. It was conducted to identify potential sites where additional assessment may be required, and to assess the general nature of industrial and landuse activities within the Project corridor that may result in contaminated land. The Overview Phase 1 methodology and findings are described below.

2.1.1 Methodology

A description of the Overview Phase 1 methodology is summarised in **Table 2-1**.

Table 2-1 Overview Phase 1 Methodology

Consultation with Councils
At the request of URS, Greater Wellington Regional Council (GWRC) undertook a search of their Selected Land Use Register (SLUR) database, which includes properties known to be contaminated based on previous contaminated land assessments; or potentially contaminated based on past land use activities. The Kāpiti Coast District Council (KCDC) was also contacted; however, they indicated that they do not maintain a SLUR or other list of contaminated sites.
Review of Current Aerial Photographs
A review of recent aerial photographs held by the Project team was undertaken to identify potentially contaminated areas or sites and sites where Hazardous Activities and Industries List (HAIL)[3] activities may have taken place, in particular: • Areas of disturbed land or stressed vegetation; • Storage of vehicles and equipment (outside of typical residential use); • Industrial facilities and features; • Sheep dips/stock yards; • Fuelling facilities; • Market gardening/orchards; and • Timber storage.
Review of District Plan Maps
A review of KCDC District Plan maps was completed to identify areas of commercial and/or industrial land use within the designated Project corridor.
Review of Historical Landfill Sites
A review of *Landfills in the Wellington Region*[4] was completed to identify historic landfills within the designated Project corridor.
Property Ownership Records
Review of recent property ownership records held by Project team to identify sites of potential interest based on the name of the property owner (e.g., non-residential ownership).

[3] Current edition, Ministry for the Environment
[4] Greater Wellington Regional Council, October 1998.

2 Preliminary Assessment

Designated Project Corridor Drive Over
A drive over of the designated Project corridor was completed on 17 August 2011 to view properties of potential interest based on the findings from the reviews described above and to identify additional sites with potentially hazardous or industrial activities based on visual observation.

2.1.2 Findings

The Overview Phase 1 findings for the designated Project corridor are provided in **Table 2-2**. Refer to **Figure 2-1** through **Figure 2-6** for the locations of these sites and the designated Project corridor.

Table 2-2 Summary of Sites of Potential Concern within the Designated Project Corridor

Map Reference	Property Details	Rationale for Inclusion as Site of Potential Concern
7	SH1 South, Otaki D H McLaren	Area of unusual topography (possible sheep dip) identified on aerial photograph
9	291 State Highway 1, Otaki O D & C I Mihaila	Possible industrial buildings and area of disturbed land/stressed vegetation identified on aerial photograph
55/66	0 Main Highway, Otaki Kapiti Coast District Council	Property Record (non-residential/individual ownership), Area of disturbed land/stressed vegetation identified on aerial photograph
56	230 SH1/29 Rahui Rd D H McLaren	Possible industrial buildings and area of disturbed land/stressed vegetation identified on aerial photograph
67/68	263 SH1 A E Coulson & CA Wahrlich	Vehicle storage, possible industrial buildings, and area of disturbed land/stressed vegetation identified on aerial photograph
99	38 Otaki Gorge Road G W & J E Elliott	Market garden/orchard
100	36 Otaki Gorge Road Marbella Lodge Ltd	Market garden/orchard
101	34 Otaki Gorge Road Kilbirnie Animal Health Properties Ltd	Market garden/orchard
105	9 Old Hautere Road F R & P V Bertelsen Ltd	Market garden/orchard
125	10 Te Horo Beach Rd, Te Horo Duncan Partition Installations Ltd	Possible industrial buildings identified on aerial photograph
122/132	3-5 School Rd, Te Horo Maori Trustee	Property Record (non-residential/individual ownership), Area of disturbed land/stressed vegetation and unusual topography (possible sheep dip) identified on aerial photograph
165	36 Sutton Road M E J Coolen	Market garden/orchard
170	37 Sutton Road, Te Horo Avatar Estate Ltd	Market garden/orchard

2 Preliminary Assessment

Map Reference	Property Details	Rationale for Inclusion as Site of Potential Concern
186	635 SH 1, Te Horo Kotuku Consulting and Health Management Company Ltd	Property Record (non-residential/individual ownership), Disturbed land/stressed vegetation identified on aerial photograph
195	18-20 Te Kowhai Rd M P & R R Trotter	Area of disturbed land/stressed vegetation and unusual topography (possible sheep dip) identified on aerial photograph
Otaki Station and Sidings	Ōtaki Station Off Arthur Street, Ōtaki	Historic Railway Station, car parks, landscaped greens and railway sidings. Adjacent to rail lines.
Otaki Station and Sidings	Ōtaki Sidings Off Arthur Street, Ōtaki	Building/structure foundations observed. Piles of rubble/debris observed. Adjacent to rail lines.
Winstone Aggregates	Winstone Aggregates 0 SH1 South, Ōtaki	SLUR, Heavy equipment and the processing of aggregates
Bridge Lodge	Bridge Lodge 3 Ōtaki Gorge Rd, Ōtaki	SLUR, Storage containers, warehouse building and an above ground storage tank (AST) present on site. Buses and haulage vehicles were parked on the site.
Mary Crest	Mary Crest 701 SH1, Te Horo	SLUR, Storage of fuel.
KiwiRail Easement	Various areas along the northern part of the designated Project corridor	Historic and current use as railroad transport easement

Of the sites identified in **Table 2-2** the properties summarised in **Table 2-3** are considered to have highest potential for ground contamination.

Table 2-3 Potentially Contaminated Sites Identified within the Designated Project Corridor

Property Details	Reason Identified
Ōtaki Station Off Arthur Street, Ōtaki	Historic Railway Station, car parks, landscaped greens and railway sidings. Adjacent to rail lines.
Ōtaki Sidings Off Arthur Street, Ōtaki	Building/structure foundations observed. Piles of rubble/debris observed adjacent to rail lines.
Winstone Aggregates 0 SH1 South, Ōtaki	SLUR, Heavy equipment and the processing of aggregates.
Bridge Lodge 3 Ōtaki Gorge Rd, Ōtaki	SLUR, Storage containers, warehouse building and an above ground storage tank (AST) present on site. Buses and haulage vehicles were parked on the site.
Mary Crest 701 SH1, Te Horo	SLUR, Storage of fuel.
38 Otaki Gorge Road G W & J E Elliott	Market garden/orchard
36 Otaki Gorge Road Marbella Lodge Ltd	Market garden/orchard
34 Otaki Gorge Road Kilbirnie Animal Health Properties Ltd	Market garden/orchard
9 Old Hautere Road F R & P V Bertelsen Ltd	Market garden/orchard
36 Sutton Road M E J Coolen	Market garden/orchard

Property Details	Reason Identified
37 Sutton Road, Te Horo Avatar Estate Ltd	Market garden/orchard
KiwiRail Corridor Various areas along the northern part of the designated Project corridor	Historic and current use as railroad transport corridor

2.2 Site-Specific CLAs

Based on the findings of the Overview Phase 1, properties were selected for site-specific CLAs as described below. The findings of the site-specific CLAs are provided in **Section 3** through **Section 6.**

2.2.1 Scope of CLAs

Site-specific Phase 1 CLAs were conducted at the following properties:

- **Ōtaki Station**, off Arthur Street, Ōtaki
- **Ōtaki Sidings**, off Arthur Street, Ōtaki
- **Winstone Aggregates**, 0 SH1 South, Ōtaki
- **Bridge Lodge**, 3 Ōtaki Gorge Rd, Ōtaki
- **Mary Crest**, 701 SH1, Te Horo

These properties were selected for site-specific Phase 1 CLAs because it is considered that the nature and location of potential ground contamination at these sites could be refined and associated risks identified through such an assessment.

Site-specific Phase 1 CLAs were not completed for the KiwiRail Corridor (refer **Section 2.4)** or the market garden/orchard sites (refer **Section 2.5**) because it is considered that site-specific Phase 1 CLAs would not significantly refine the nature or extent/location of potential ground contamination. Such refinement and assessment would be completed through a Phase 2 CLA, as and if required.

Other sites identified as being of potential concern, but that are not assessed as requiring a Phase 1 or 2 CLA, will be managed via the BECLMP.

2.2.2 CLA Methodology

The following methodology was implemented for the site-specific CLAs completed by URS. The Phase 1 CLA at Bridge Lodge was completed by Pattle Delamore Partners, Ltd utilising the methodology described in that report.[5]

2.2.2.1 Desktop Study

A desktop study was completed to identify potential historic sources of contamination associated with land use at the identified sites. The desktop study included review of the following:

- Publically available records, including building files, records held by National Archives and Certificates of Title.
- Land Information Memorandum (LIM) for information on historic landuse.

[5] *Phase 1 Environmental Assessment – 3 Otaki Gorge Road, Otaki*, 29 March 2012, Pattle Delamore Partners, Ltd.

- Historic certificates of title obtained from Land Information New Zealand (LINZ) to determine previous landowners and to infer previous landuses.
- Historic aerial photographs to determine previous land uses of the site and surrounding area.
- Review of Bridge Lodge Phase 1 Environmental Site Assessment (ESA) undertaken by Pattle Delamore Partners Ltd.

2.2.2.2 Site Walkover

A walkover of each site was conducted to identify the following:

- Areas of potentially impacted soil, as indicated by surface staining or stressed vegetation,
- Former chemical storage/use infrastructure such as vents, fill points and foundations.

2.3 Works within the Existing KiwiRail Corridor

Works are proposed within the existing KiwiRail corridor (refer **Figure 2-1** and **2-2** for approximate extent). Based on the nature of activities that typically occur within rail corridors it is inferred that potential for land contamination exists. Constituents of potential concern associated with this activity include metal and asbestos particulates associated with braking, fuel (diesel) spills/leaking, solvents, creosote, phenols, polycyclic aromatic hydrocarbons (PAHs), and lubricating oils and grease spillage/leaks.

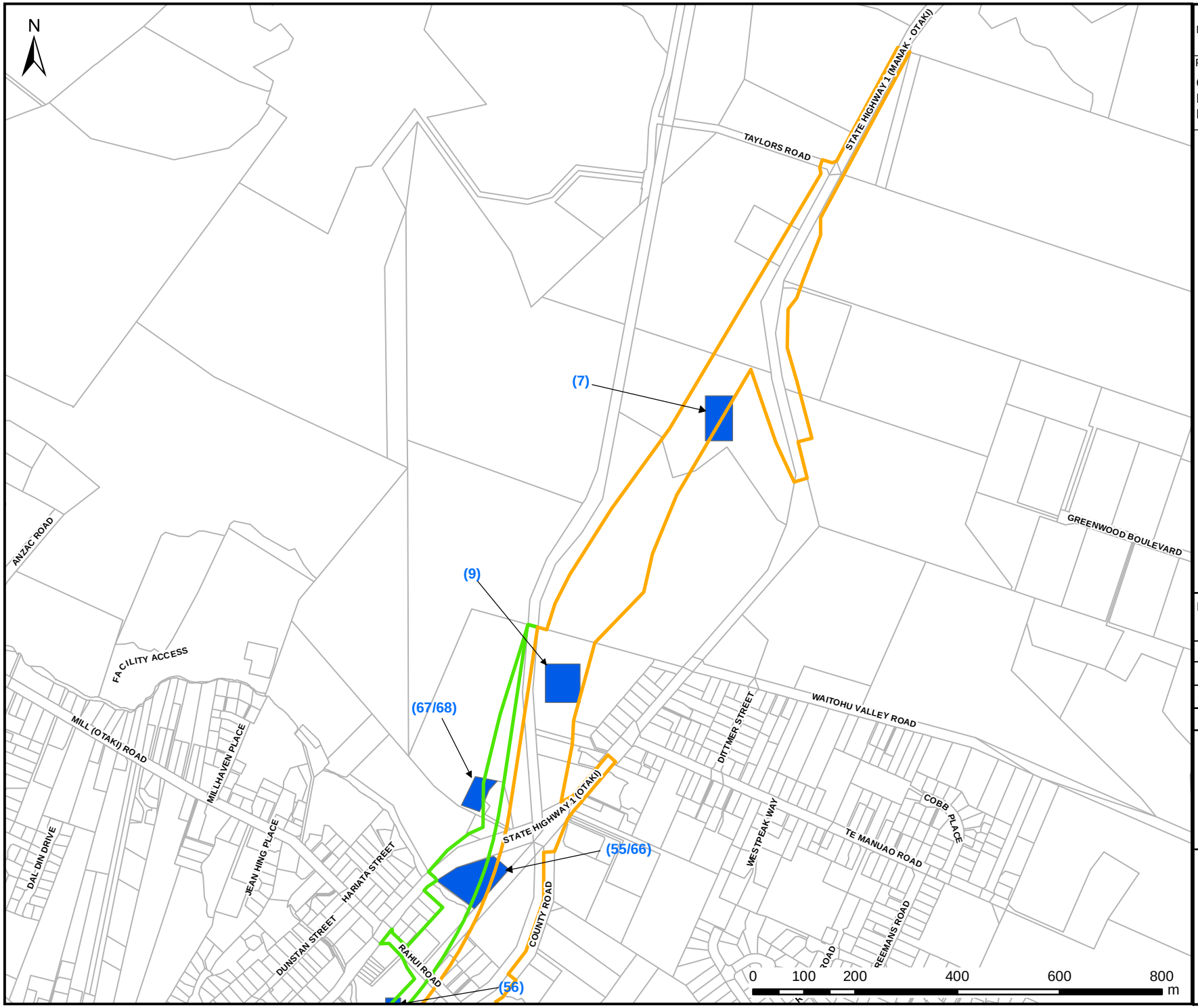
2.4 Works within Market Garden/Orchard Sites

Works are proposed within the existing market garden/orchard sites (refer **Figure 2-1, Figure 2-2** and **Figure 2-5** for and **Table 2-4** for locations). Based on the nature of activities that typically occur within such sites it is inferred that potential for land contamination exists. Constituents of potential concern may include the following: arsenic, lead, copper, mercury; and a wide range of organic compounds, including acidic herbicides, organophosphates, and organochlorines[6].

Table 2-4 Location of Market Garden/Orchard Sites within Designated Project Corridor

Map Reference	Property Details
99	38 Otaki Gorge Road G W & J E Elliott
100	36 Otaki Gorge Road Marbella Lodge Ltd
101	34 Otaki Gorge Road Kilbirnie Animal Health Properties Ltd
105	9 Old Hautere Road F R & P V Bertelsen Ltd
165	36 Sutton Road M E J Coolen
170	37 Sutton Road, Te Horo Avatar Estate Ltd

[6] *Users' Guide National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*, April 2012, Ministry for the Environment.



MapTitle: Sites of Interest

Project:
Contaminated Land Assessment
Peka Peka to North Otaki Expressway Project

Legend

- Designated Project Corridor
- Approximate Extent of Proposed Works Within Existing Kiwirail Alignment
- Sites Listed on GWRC's Selected Land Use Register
- Sites of Interest Based on Aerial Photographs, Historic Records or Property Ownership
- (231) Property Ownership Reference Number

Drawing Number	Status	Rev.
Figure 2-1	**DRAFT**	**A**

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Status:	DRAFT	Approved:	SL

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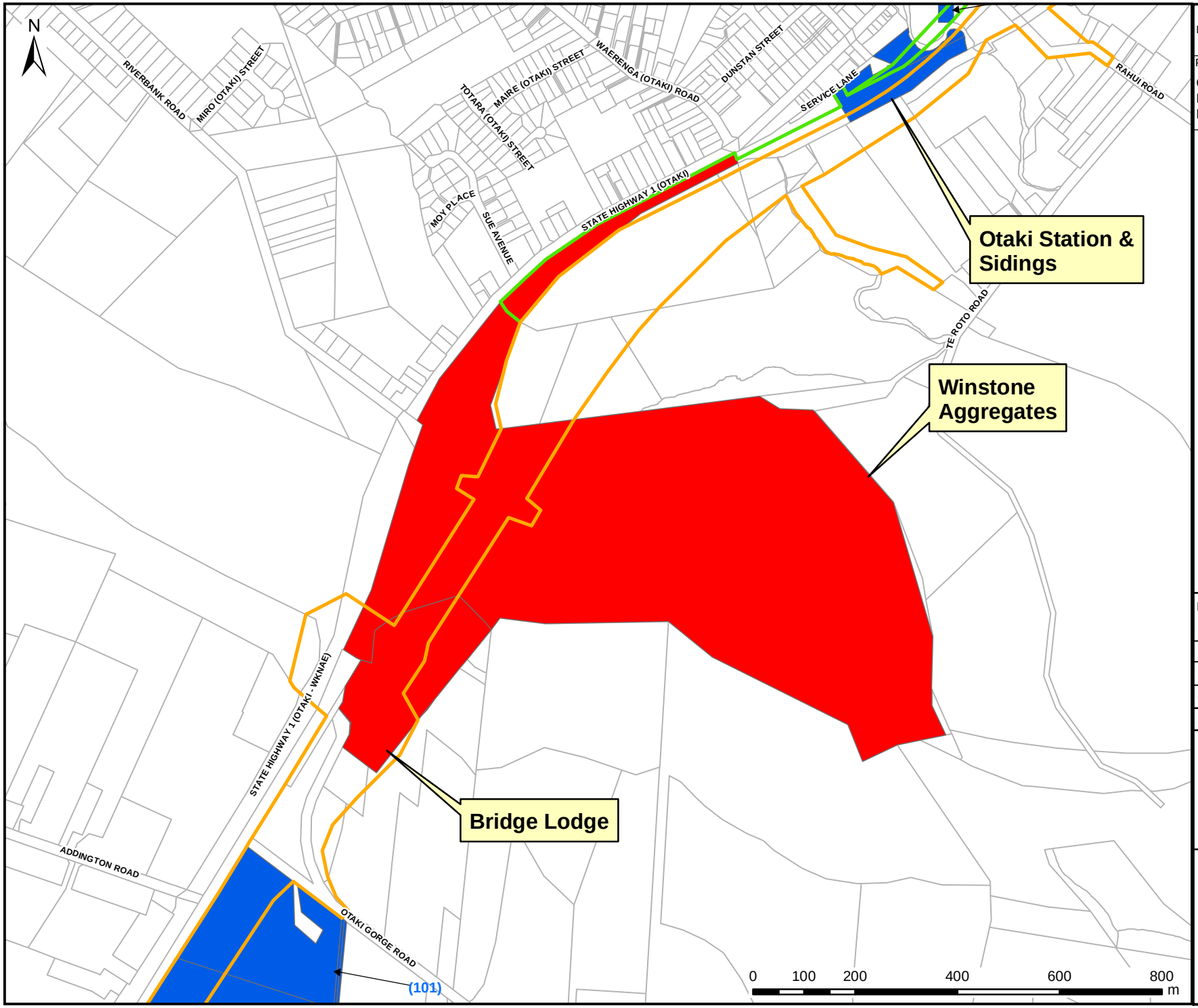

MapTitle: Sites of Interest

Project:
Contaminated Land Assessment
Peka Peka to North Otaki Expressway Project

Legend

- Designated Project Corridor
- Approximate Extent of Proposed Works Within Existing Kiwirail Alignment
- Sites Listed on GWRC's Selected Land Use Register
- Sites of Interest Based on Aerial Photographs, Historic Records or Property Ownership
- (231) Property Ownership Reference Number

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MapTitle: Sites of Interest

Project:
Contaminated Land Assessment
Peka Peka to North Otaki Expressway Project

Legend

- Designated Project Corridor
- Approximate Extent of Proposed Works Within Existing Kiwirail Alignment
- Sites Listed on GWRC's Selected Land Use Register
- Sites of Interest Based on Aerial Photographs, Historic Records or Property Ownership
- (231) Property Ownership Reference Number

Drawing Number	Status	Rev.
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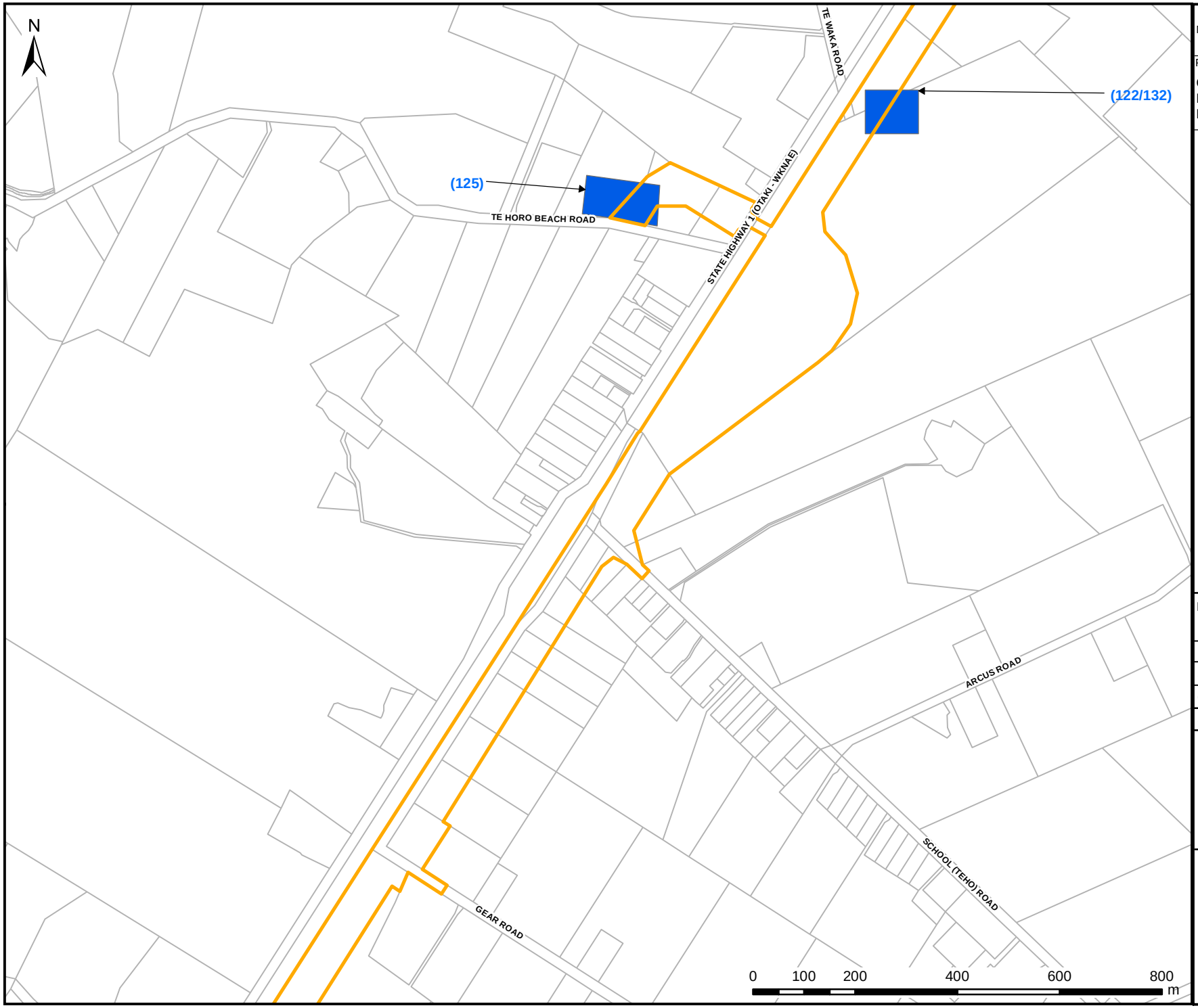

MapTitle: Sites of Interest

Project:
Contaminated Land Assessment
Peka Peka to North Otaki Expressway Project

Legend

- Designated Project Corridor
- Approximate Extent of Proposed Works Within Existing Kiwirail Alignment
- Sites Listed on GWRC's Selected Land Use Register
- Sites of Interest Based on Aerial Photographs, Historic Records or Property Ownership
- (231) Property Ownership Reference Number

Drawing Number	Status	Rev.
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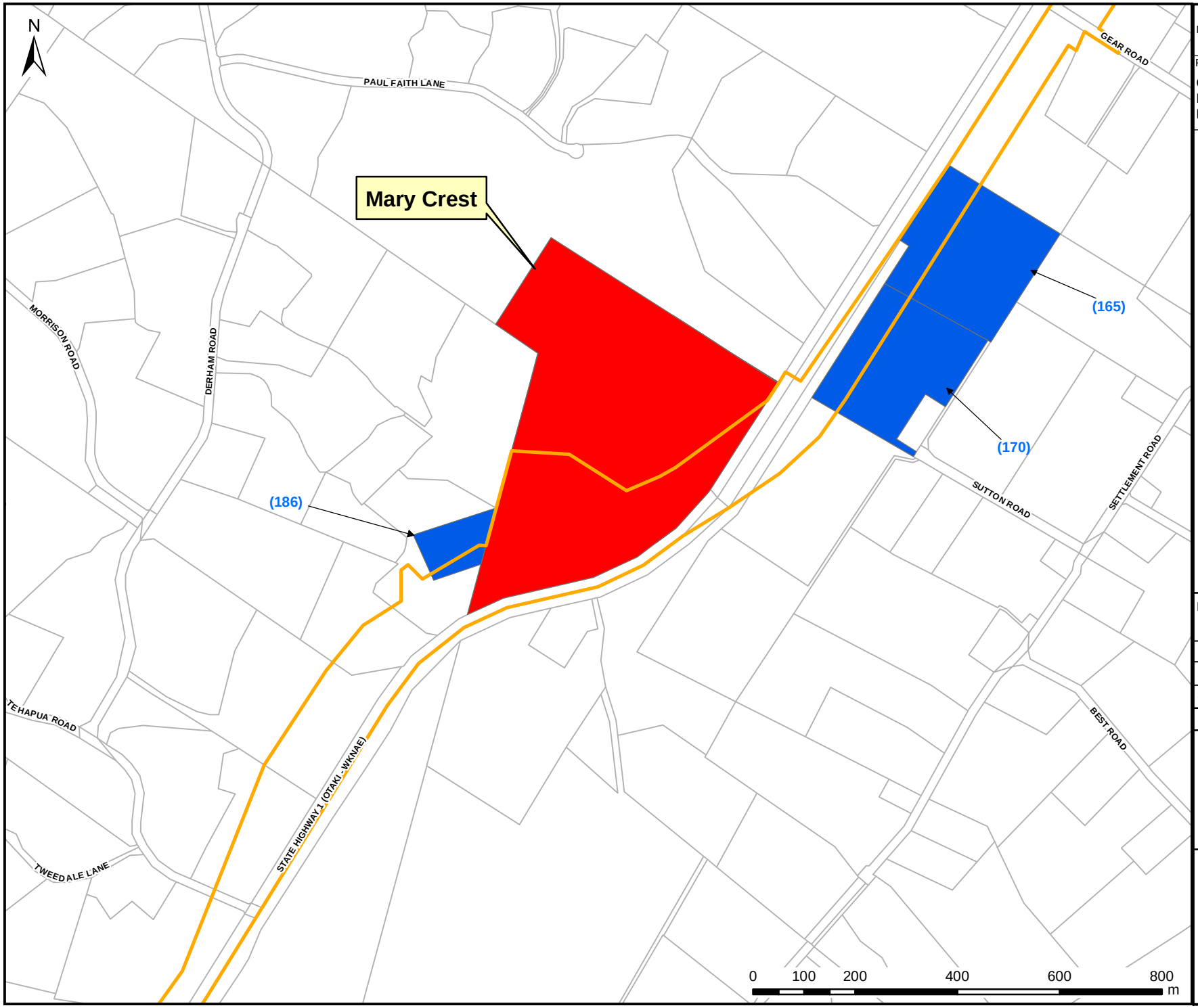

MapTitle: Sites of Interest

Project:
Contaminated Land Assessment
Peka Peka to North Otaki Expressway Project

Legend

- Designated Project Corridor
- Approximate Extent of Proposed Works Within Existing Kiwirail Alignment
- Sites Listed on GWRC's Selected Land Use Register
- Sites of Interest Based on Aerial Photographs, Historic Records or Property Ownership
- (231) Property Ownership Reference Number

Drawing Number	Status	Rev.
Figure 2-5	**DRAFT**	**A**

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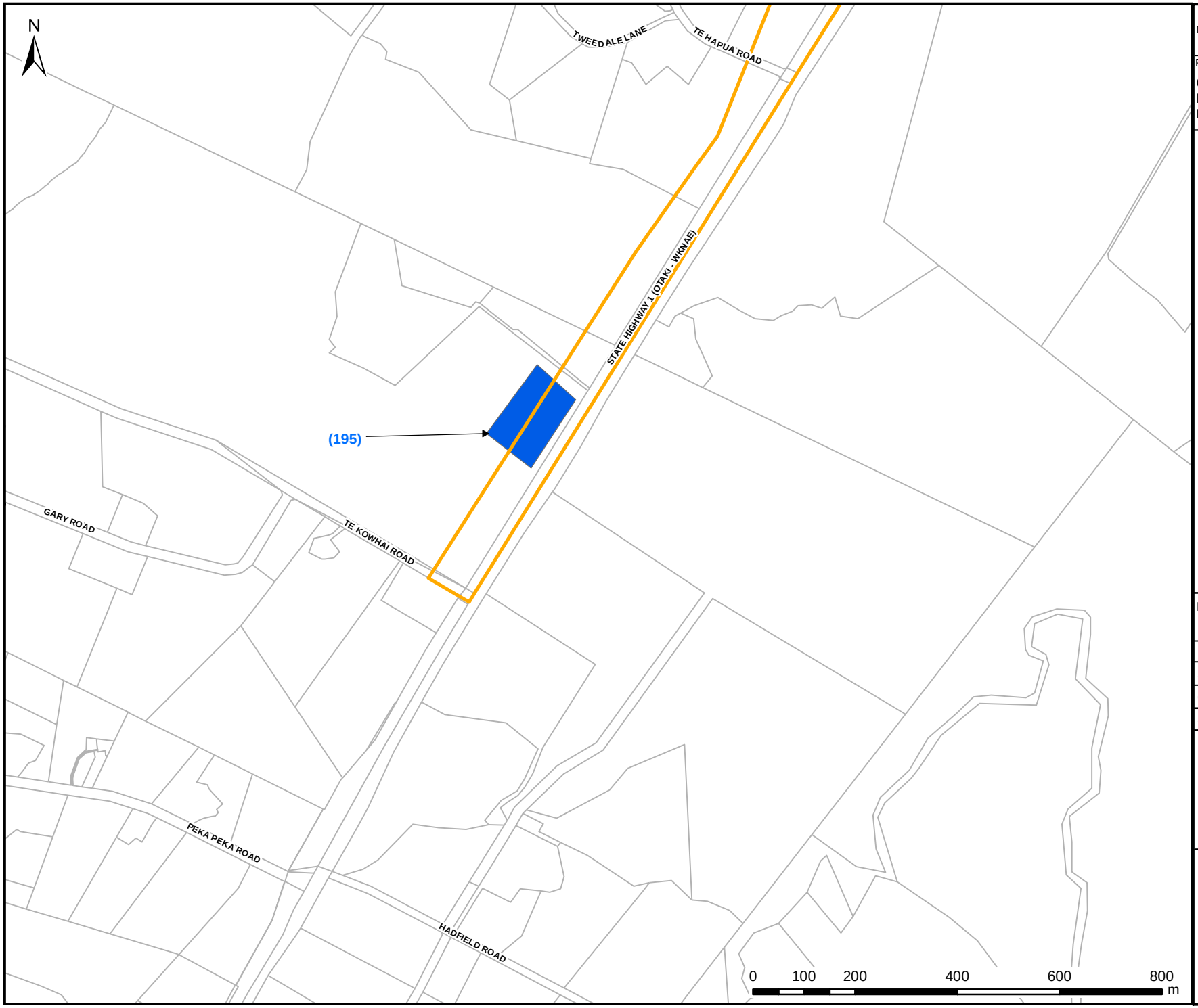

MapTitle: Sites of Interest

Project:
Contaminated Land Assessment
Peka Peka to North Otaki Expressway Project

Legend

- Designated Project Corridor
- Approximate Extent of Proposed Works Within Existing Kiwirail Alignment
- Sites Listed on GWRC's Selected Land Use Register
- Sites of Interest Based on Aerial Photographs, Historic Records or Property Ownership
- (231) Property Ownership Reference Number

Drawing Number	Status	Rev.
Figure 2-6	**DRAFT**	**A**

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3

Ōtaki Station and Sidings

3.1 Desk Top Study

3.1.1 Site Description and Proposed Project Corridor

The Ōtaki Station and Sidings properties are located at the south eastern end of Arthur Street, Ōtaki and include two parcels of land comprising 0.7253 hectares (herein referred to as the Station Property) and 0.9276 hectares (herein referred to as the Sidings Property). The Station Property is legally described as Lot 1 DP 8836 and the Sidings Property has no legal description.

The location of the Station Property and Sidings Property are shown on **Figure 3-1**.

The Station Property currently comprises a historic railway station building, car parking and grassed landscaped areas. The historic railway station building sits across both properties. The Sidings Property comprises the railway corridor and sidings. Building/structure foundations and piles of rubble and debris were observed on this latter property adjacent to railway lines during the corridor overview CLA. The layouts of both properties are shown on **Figure 3-2**.

The proposed Project corridor runs along the eastern side of the current rail corridor adjacent to the Ōtaki Station. As part of the proposed works, the historic Ōtaki railway station building will be rotated. The proposed road layout and Project corridor is shown on the NZTA Road Layout Plans dated July 2012 and included as **Appendix A**. The proposed Project corridor is also shown on **Figure 3-2**.

The Station and Sidings Properties are located on generally level land and are zoned rural in the KCDC Plan. Commercial properties, comprising shops and cafes, are located to the northwest of the Station Property and land to the northeast, southeast and southwest comprises rural horticultural land. A former dairy factory is located to the northeast of the site.

3.1.2 Surface Water

A small stream is located on the north eastern boundary of the Station Property. The stream appears to be culverted beneath the railway corridor and flows in a north westerly direction towards the coast.

3.1.3 Site History

3.1.3.1 Certificates of Title

Certificates of Title were obtained from LINZ and details are summarised in **Table 3-1**. Copies of the Certificates of Title are attached in **Appendix B**.

3 Ōtaki Station and Sidings

Table 3-1 Ōtaki Station & Sidings - Certificates of Title Details

Date	Details
17 April 1895	First record on certificate of title of ownership. Individuals noted as owning the land. No information on land use (certificate of title covers both properties). (Source: Certificate of title: WN77/163)
17 February 1910	Transfer 74637 to Crown Land by virtue of "The Wellington and Manawatu Railway Purchase Act, 1903" (Source: Certificate of title: WN77/163)
20 December 1982	Gazette Notice 534099.1 declaring part of the land as a service lane, vested in the Ōtaki Borough Council. (Source: Certificate of title: WN77/163)
15 February 1991	Transfer and grant to Clear Communications Limited of a communication easement over and within the land to expire on 1.12.2035. (Source: Certificates of title: WN77/163, WN55D/456, WN55D/455).

3.1.3.2 Publically Held File Review

A review of records held by National Archives in Wellington for Ōtaki Railway Station was completed on 17 July 2012. Relevant information from the review is summarised in **Table 3-2**. Information obtained from the review is included in **Appendix B**.

Table 3-2 Ōtaki Railway Station - National Archives Review

Date	Details	Ref
28 July 1910	Letter to the Chief Engineer, Wellington from the District Engineer stating that a fire at Ōtaki Station had completely destroyed the building. The letter refers to a plan (not available) for the rebuilding of the station, and recommends the moving of a gas house.	OS-001
20 January 1925	Letter from the District Engineer to the Foreman of Works regarding Station Building - Ōtaki. The letter requests ventilation pipes in the ceiling due to the summer heat and pollution of air in the office due to leaky gas pipes at night.	OS-002
9 February 1925	NZ Railways - Letter to the District Engineer, Wanganui from the Foreman of Works. The letter states that the office at Ōtaki Station requires ventilation in the ceiling owing to the smell of acetylene gas.	OS-003
14 March 1939	Plan showing the Proposed Signal Adjusters Workshop.	OS-004
8 August 1947	Plan showing proposed new layout of station building to rearrange doors and provide a public counter.	OS-005
1 October 1958	Letter to the District Engineer, Railway Department, Wellington from Ōtaki Borough Council - stating that a recent inspection revealed that effluent was leaking from a septic tank associated with the Ōtaki Railway Station into a disused creek bed, about one hundred yards north of the main station building.	OS-006

A review of KCDC building files was completed and relevant information is summarised in **Table 3-3**. Information obtained from the review is included in **Appendix B**.

3 Ōtaki Station and Sidings

Table 3-3 Ōtaki Station - KCDC - Building File Review

Date	Details	Ref
January 1982	Plan - Railways - Ōtaki Proposed Sewerage Connections dated January 1982 shows the Ōtaki Station building, platform, mens toilets located to the northeast of the station building, a goods shed located to southeast of the Ōtaki Station building, across the tracks, and an amenities building located southwest of the goods shed.	OS-007
June 1999	Plan - As built Plan of services at Ōtaki Railway Station.	OS-008

The site is not on Greater Wellington Regional Councils (GW) Selected Land Use Register (SLUR).

3.1.3.3 LIM Review

A LIM Report was obtained from KCDC for the Station Property. No LIM was available for the Sidings Property.

A plan from 1993 - Proposed Subdivision of Part Railway Land shows the Ōtaki Station building, the goods shed and the amenities building.

According to the LIM Report, there is no record of hazardous substances being stored on the Ōtaki Station site or Sidings.

There were no other relevant references within the LIM. A copy of the LIM is available on request.

3.1.3.4 Assessment of Historic Aerial Photographs

Historic aerial photographs were obtained from NZ Aerial Mapping Ltd. The photographs provided are listed in **Table 3-4** together with brief descriptions highlighting the key structures shown. Copies of the aerial photographs are attached in **Appendix B**.

Table 3-4 Ōtaki Station - Aerial Photography

Photograph Reference	Date Flown	Original Scale	Site Description
OS-009	1948	1:16,000	The Ōtaki Station building is visible with a small building located to the northeast of the station building likely to be the men's toilets. The entrance to the Ōtaki Station building is gravelled and there are some grassed areas immediately to the northeast and southwest of the gravelled area. Several buildings are located along Arthur St and appear to be a mix of residential and commercial land uses. The stream located to the northeast of the Ōtaki Station is visible and appears to be culverted under the railway tracks. The rail corridor is visible, running southwest to northeast. A building (goods shed) and what appears to be two railway carriages are located immediately across the railway tracks from the Ōtaki Station building. Several structures are visible on the eastern side of the tracks to the southwest of the Ōtaki Station building, one of the structures appears to be a train turn table and the other appears to be a fenced off area and may have been a holding area for stock. To the northeast of the holding area, there appears to be a storage area for several unidentified objects. These structures are not located within the Sidings property boundary, but are located adjacent to the rail corridor and within the proposed Project corridor. Land to the east and beyond the rail corridor appears to be dominated by horticultural and market garden use.

3 Ōtaki Station and Sidings

Photograph Reference	Date Flown	Original Scale	Site Description
OS-010	1961	1:8,000	The 1961 aerial photograph appears to be similar to the 1948 aerial photograph with the Ōtaki Station building, men's toilets, goods shed across the railway tracks to the southeast of the Ōtaki Station building, the potential stock holding yards and train turn table all still visible. Several carriages appear to be located on the railway tracks to the southeast of the Ōtaki Station building. What appear to be several buildings (unknown use - potentially storage) are located to the southeast of the Ōtaki Station building. A series of small buildings are present at the southwest end of the Ōtaki Station platform. Surrounding land still appears to be horticultural/market garden to the east of the railway corridor and a mixture of residential and commercial to the west.
OS-011	1971	1:3,000	The 1971 aerial photograph appears to be similar to the 1948 and 1961 aerial photographs with the Ōtaki Station building, men's toilets, goods shed across the railway tracks to the southeast of the Station building. The several buildings identified in the 1961 aerial photograph to the southeast of the Ōtaki Railway Station Building are no longer present. Several railway carriages are located to the east of the railway tracks. Another building (amenities) appears to have been developed to the north of the potential stock holding yards, which are still present but are potentially overgrown by vegetation. The railway turntable is no longer present and this area now appears to be a wood storage area with several other buildings present, including what appears to be a large workshop building. The series of small buildings at the southern end of the Ōtaki station platform are still present. Surrounding land still appears to be horticultural/market garden to the east of the railway corridor and a mixture of residential and commercial to the west.
OS-012	1986	1:3,000	The Ōtaki Station building, men's toilets, goods shed and amenities building are still present. A small unknown structure is visible to the northeast of the goods shed. The potential stock holding area is no longer present. Buildings associated with what is thought to be a wood storage area are still present. The series of buildings located at the southwest end of the Ōtaki Station platform are no longer present. Surrounding land still appears to be horticultural/market garden to the east of the railway corridor and a mixture of residential and commercial to the west.
OS-013	2001	1:7,000	The Ōtaki Station building and men's toilets are still present. The goods shed is no longer present. The wood storage area and associated buildings are no longer present. What appears to be the concrete pad for one of the wood storage buildings is still present. Surrounding land still appears to be horticultural/market garden to the east of the railway corridor; however, it is predominantly commercial to the west.
OS-014	2010	0.4 gsd	As per the 2001 aerial photograph, however, the area to the west of the Station Building has been landscaped and car parks have been installed. Several railway carriages appear to be stored in the vicinity of the former potential stock holding yards.

3.2 Site Walkover

A site walkover of Ōtaki Railway Station and Sidings was completed on 20 July 2012. No one was available for interview during the site walkover. Photos of the site walkover are included in **Appendix B**.

The historic Railway Station building is present. The men's toilets located to the northeast of the Railway Station building were observed to be vandalised and not in working order. No signs of a septic tank were noted associated with the men's toilets. Service manholes were noticed adjacent to the Railway Station building indicating potential drainage and sewage connections.

The unnamed creek located to the north of the station was observed with minimal water flow, the creek appeared to be a ditch with healthy vegetation.

The rail corridor was observed and no buildings were noted. Piles of gravel were noted in places on the opposite side of the railway tracks to the Ōtaki Station building.

Staining of rail ballast around the railway tracks was observed, but no other evidence of surface soil contamination, such as stressed vegetation and/or discoloured/stained soil was observed during the site walkover. Other evidence (vents, fill ports etc) of underground storage tanks or chemical storage was not observed during the site walkover.

3.3 Contamination Assessment

There is potential for ground contamination associated with current and historic railway maintenance and operational activities at the Ōtaki Station and Sidings properties.

According to the LIM Report, there is no record of hazardous substances being stored on the Ōtaki Station site or Sidings.

The proposed Project corridor runs along the eastern boundary of the current railway tracks, where former buildings including the potential stock holding yards, a goods shed, an amenities block, a train turn-table, other unidentified buildings and a potential timber holding area, were identified during review of historic aerial photographs. It is noted that some of these structures are not located within the confines of the Ōtaki Station and Sidings properties, but are located within the vicinity of the proposed Project corridor. It is also noted that review of records held by National Archives indicated the presence of a gas house, the build-up of acetylene gas in the Ōtaki Station building and a leaking septic tank. The exact nature and use of the gas house has not been determined.

Staining of rail ballast around the railway tracks was observed during the site walkover, but no other evidence of surface soil contamination was observed. No stressed vegetation or any former chemical storage/use infrastructure such as vents, fill points and foundations were observed.

As noted above, this assessment has identified the presence of some surface soil contamination and other potential sources of, or activities that may have led to, ground contamination within the proposed Project corridor.

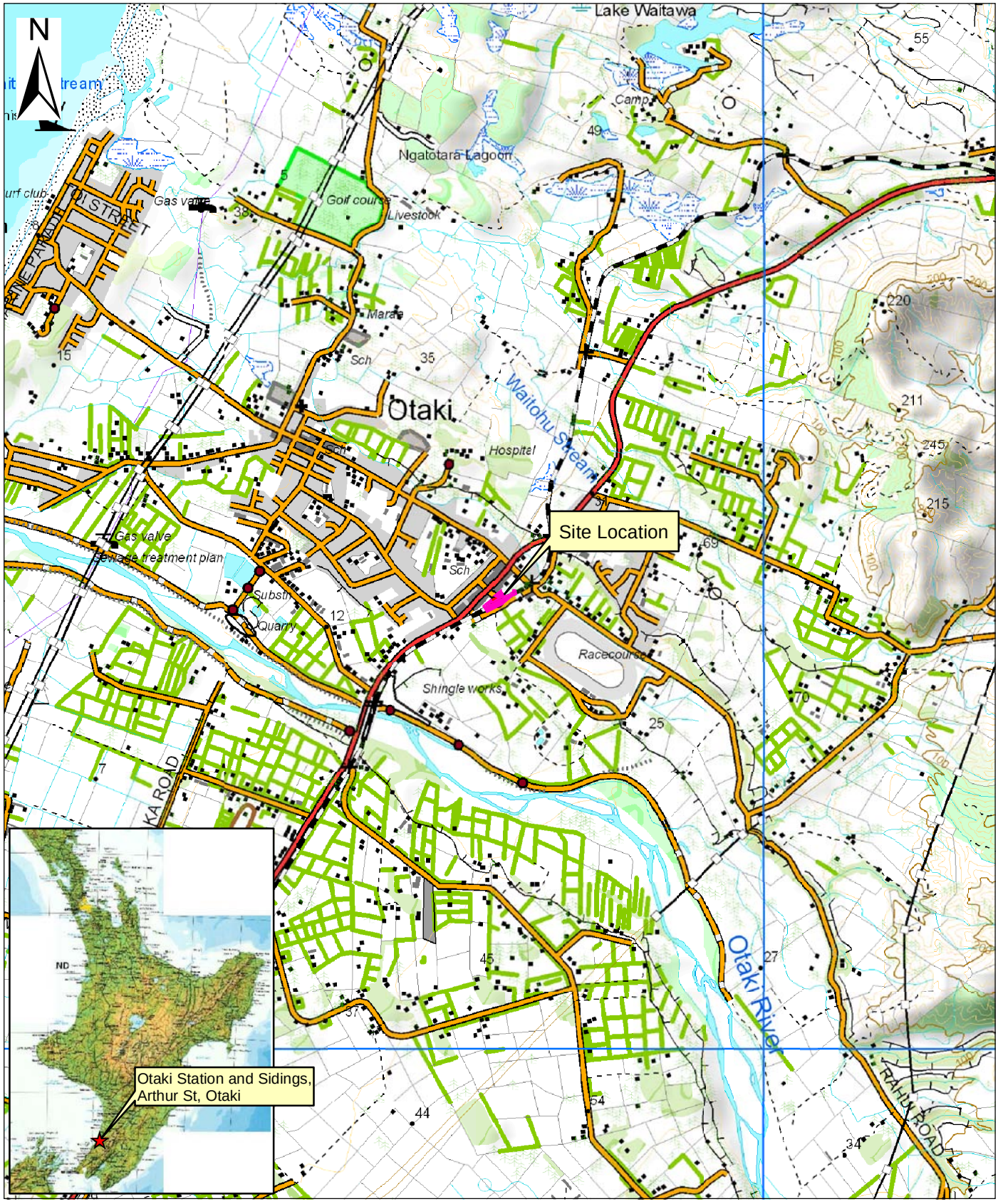
Based on HAIL activities identified within the site, constituents of potential concern are summarised in **Table 3-5**.

3 Ōtaki Station and Sidings

Table 3-5 Constituents of Potential Concern Based on Site Activities

Location	Activity/Industry	Constituents of Potential Concern
Station building, railway tracks, train-turntable and former storage and maintenance buildings.	Railway maintenance and operational activities	Hydrocarbons, PAHs, heavy metals, solvents, creosote, metal and asbestos particulates associated with braking, fuel (diesel), lubricating oils, grease associated with spills/leaking.
Potential stock holding yards	Livestock dip or spray race operations	Arsenic, organochlorines (e.g. aldrin, dieldrin, DDT7, lindane) and organophosphates, carbamates, and synthetic pyrethroids.
Men's toilets and amenities blocks	Septic disposal to land	Biological hazards (bacteria, viruses).
Potential timber holding area	Bulk storage of treated timber	PCP, copper, arsenic, chromium, boron organo-tin, PAHs and phenolics (creosote), organochlorine pesticides.
Gas house (location unknown)	To be assessed	To be assessed.

[7] dichlorodiphenyltrichloroethane



NEW ZEALAND TRANSPORT AGENCY

PEKA PEKA TO NORTH OTAKI – PHASE 1 CONTAMINATED LAND ASSESSMENT

OTAKI STATION AND SIDINGS SITE LOCATION PLAN

URS

Figure: **3-1**

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NEW ZEALAND TRANSPORT AGENCY

PEKA PEKA TO NORTH OTAKI –
PHASE 1 CONTAMINATED LAND ASSESSMENT

OTAKI STATION AND SIDINGS SITE LAYOUT PLAN

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File: 42788090\Otaki _Site_Layout_NZTA.mxd Drawn: **SS** Approved: **SL** Date: 30/01/2013

Figure: **3-2**

Rev. **A** A4

4

Winstone Aggregates

4.1 Desk Top Study

4.1.1 Site Description and Proposed Project Corridor

The Winstone Aggregates site is located at 0 State Highway 1 South, Ōtaki on a parcel of land legally described as Part Lot 1 Deposited Plan 16503, Part waha-o-te Marangai 1B Block, Part waha-o-te Marangai 1C Block and Part Kaingaraki 2 13 Block comprising 51.5669 hectares more or less. Stresscrete, a precast concreting company are also located on this parcel of land. The land parcel extends in a thin strip to the north along the rail corridor and to the south across Ōtaki River into a small section of bush. The location of entire parcel of land is shown on **Figure 4-1**.

The proposed Project corridor runs through the Winstone Aggregates portion of the land parcel; therefore, this Phase 1 CLA has focused solely on the Winstone Aggregates portion of the land parcel.

Winstone Aggregates are an aggregate processing company. The site operation abstracts gravel from the Ōtaki River, sorts it by size and stockpiles it on site. The layout of the Winstone Aggregates site is shown on **Figure 4-2**.

The proposed Project corridor runs along the eastern side of the Winstone Aggregates site and through the site's sedimentation ponds. The proposed road layout and Project corridor is shown on the NZTA Road Layout Plans dated July 2012 (included as **Appendix A)**. The proposed Project corridor is also shown on **Figure 4-2**.

The site is zoned rural and river corridor in the KCDC Plan. The rail corridor runs along the western boundary of the site. Surrounding properties are zoned rural to the east, industrial and residential to the north and west, beyond SH1; and rural to the south beyond the Ōtaki River.

4.1.2 Surface Water

The Ōtaki River is located immediately adjacent to the Winstone Aggregates site on the southern boundary. Several sedimentation ponds and a constructed lake are located within the boundary of the site.

4.1.3 Site History

4.1.4 Certificates of Title

Certificates of Title were obtained from LINZ. The Certificates of Title indicate that the site is owned by the Crown (Her Majesty the Queen) and has access and permits under the Crown Minerals Act 1991. No other historic land use is indicated on the Certificates of Title. Certificates of Title are attached in **Appendix C**.

4 Winstone Aggregates

4.1.5 Publically Held File Review

According to the SLUR records held by GW the entire site (including the Stresscrete site) has a verified history of hazardous activity or industry. Records indicate the site has been used for the following hazardous activity or industry:

- Storage - fuel
- Smelting and Refining - Die casters
- Concrete Manufacturer and Bulk Cement Storage

The SLUR record for the site is attached as **Appendix C**. Please refer to the discussion in Section 3.2 Site Walkover in relation to these SLUR activities.

A review of KCDC building files was completed and relevant information is summarised in **Table 4-1**. Information obtained from the review is attached in **Appendix C**.

Table 4-1 Winstone Aggregates - KCDC - Building File Review

Date	Details	Ref
6 September 2011	Site plan for obtaining resource consent for installation of new septic tank and irrigation field.	WA-001

No other relevant information was identified within the building files.

4.1.6 LIM Review

A LIM report was obtained from KCDC for the entire site. The LIM report contains copies of resource consents for the entire site and copies include operation consents for the Winstone Aggregates plant.

According to the LIM report, there is record of underground tanks being removed from both the Winstone Aggregates site and the Stresscrete site. Liquid petroleum gas (LPG) storage is recorded for the Stresscrete site. There are no other records for hazardous substances at the site.

No other relevant information was identified with the LIM. A copy of the LIM is available on request.

4.1.7 Assessment of Historic Aerial Photographs

Historic aerial photographs were obtained from NZ Aerial Mapping Ltd. The photographs provided are listed in **Table 4-2** together with brief descriptions highlighting the key structures shown. Copies of the aerial photographs are attached in **Appendix C**.

4 Winstone Aggregates

Table 4-2 Winstone Aggregates - Aerial Photography

Photograph Reference	Date Flown	Original Scale	Site Description
WA-002	1939	1:8,000	The Winstone Aggregate site appears to be undeveloped. Railway lines are present along the western site boundary. The site itself appears to be grazing land. The area where the sedimentation ponds are currently located appears to be a low-lying wetland and the river channel appears to be braided. Surrounding properties are predominantly agricultural with some residential houses and farm buildings visible in places.
WA-003	1948	1:16,000	The site appears to have been developed with a number of tracks cut into the low lying wetland area towards the river. An access road to the site has been developed across the railway tracks to the north, with a number of buildings which are likely to be storage sheds visible, including one larger shed. What appears to be processing plant is also visible on the aerial photograph. Surrounding properties remain predominantly agricultural with some residential houses and farm buildings visible in places.
WA-004	1966	1:17,000	The 1966 aerial photograph appears similar to the 1948 aerial photograph. The large shed and smaller sheds are still visible. One of the smaller storage sheds is likely to be the building that Winstone Aggregates currently refer to as the old store. Stock piles of gravel are located on site. Rail carriages are also located on site.
WA-005	1998	1:10,000	The old store is still visible, as is what appears to be a building to the south of the old store; however the larger shed that was present in the 1948 and 1966 aerial photograph is no longer present. The current workshop has been developed and processing plant is visible in the centre of the site. Sedimentation ponds are visible. The Stresscrete site to the east has been developed. Land to the northeast remains agricultural.
WA-006	2001	1:7,000	As per the 1998 aerial photograph with the old store and current workshop visible. Processing plant and the electrical building are visible on the aerial photograph. The sedimentation ponds appear to have been further developed. Further development on the Stresscrete site.
WA-007	2010	0.4 gsd	As per the 2001 aerial photograph; however it appears that the diesel aboveground storage tank (AST) has been installed and is visible on the western side of the workshop building. A large lake has been developed to the north of the Stresscrete site. There appears to be some form of structure located on the north bank of the Ōtaki River.

4.2 Site Walkover

A site walkover focused on the Winstone Aggregates portion of the site was completed on 20 July 2012 and involved a site walkover and discussions with Winstone Aggregates staff.

During discussions, site staff indicated that the Winstone Aggregates portion of the site had not carried out the following activities listed on the SLUR for the site: Smelting and Refining - Die Casters, Concrete Manufacturer and Bulk Cement Storage. These operations appear to be related to the Stresscrete portion of the site, which is not located within the proposed Project corridor. These activities were also not observed during the site walkover described below.

Winstone Aggregates staff stated that the site was previously a railway quarry until they took over site operations.

4 Winstone Aggregates

Figure 4-1 shows the location of buildings and areas of interest identified during the site walkover, and during discussions with site staff. Areas of interest identified during the site walkover are discussed below. Photographs are included in **Appendix C**.

The structure located on the north bank of the Ōtaki River in the 2010 aerial photograph appears to be a number of large concrete blocks.

Evidence of surface soil contamination, such as stressed vegetation and/or discoloured/stained soil were not observed during the site walkover.

Workshop

The main workshop is located to the north of the Winstone Aggregates site and is visible on current aerial photography for the site. The workshop is used for storage and maintenance of site plant. Grease, oil and paint are stored within the workshop. (Refer to photograph WA-008 and WA-009).

Old Store

A building that Winstone Aggregates staff refers to as the old store is located to the northwest of the current workshop. This building was previously used to sieve and sort aggregate for grading purposes. However, Winstone Aggregates staff stated that a recent survey of the building indicated the presence of asbestos on some inner wall cladding. The building is currently boarded up and not used. There is no known storage of hazardous materials within the old store building. (Refer to photograph WA-010).

Waste Oil Tanks

Three aboveground waste oil tanks are located in the southwest corner of the workshop. Both tanks are bunded and located on a raised concrete platform. Some surface staining was noted on concrete in the vicinity of the waste oil tanks. (Refer to photograph WA-011 and WA-012)

Diesel Tanks

An aboveground diesel tank was located adjacent to the western wall of the workshop. (Refer to photograph WA-013). The tank was bunded and appeared to be in good condition. Some surface water was noted within the bund. No surface staining was observed within the vicinity of the aboveground diesel tank. According to Winstone Aggregates staff, the tank had been moved from their other site (located across SH1 to the west) in the last few years. The exact date was unknown; however, based on aerial photography, this was likely to be between 2001 and 2010.

According to Winstone Aggregates staff, an underground diesel tank was formerly located to the south of the old store. (Refer photograph WA-014). This tank was removed at the time the diesel aboveground tank was installed. No report was available relating to the removal of this tank and no records relating to the tank removal were held on file by GW; although records relating to the removal of tanks from the Stresscrete site were available.

Septic Tanks

According to Winstone Aggregates staff a new septic tank system has been recently installed to the south of the workshop building. The soakage trenches for the system are located to the north of the

workshop building. (Refer photograph WA-015). An old septic tank was located to the north of the old store; although, its exact location was not confirmed during the current investigation. (Refer photograph -A-016).

Groundwater Bore

Winstone Aggregates use a groundwater bore for aggregate processing and water supply for the site. The groundwater bore is located immediately east of the workshop. The depth of the bore is unknown. (Refer photograph WA-017).

New Weighbridge and Offices

A new weighbridge and site offices have recently been built to the south of the workshop building. (Refer photograph WA-018).

Processing Plant and Gravel Stockpiles

Processing plant and gravel stockpiles were observed in the centre of the site. (Refer photograph WA-019).

Electrical Room

The site electrical room is located adjacent to the site processing plant. A transformer was observed adjacent to the electrical room. (Refer photograph WA-020).

Sedimentation Ponds and Lake

Sedimentation ponds are located to the east of the processing plant and are used to settle fines following the washing of aggregate. The proposed Project corridor is through the centre of the sedimentation ponds. (Refer photograph WA-21).

4.3 Contamination Assessment

Based on the site walkover, review of historic aerial photographs and records and discussions with site staff there is potential for ground contamination associated with current and historical maintenance, operational and fuel storage activities at the Winstone Aggregates site. Potential sources include:

- Storage of grease, oil and paint;
- Asbestos on the inner wall cladding of the old store;
- Three waste oil aboveground storage tanks;
- One aboveground diesel storage tank;
- Location of former underground diesel storage tank;
- Septic tanks; and
- Electrical transformer.

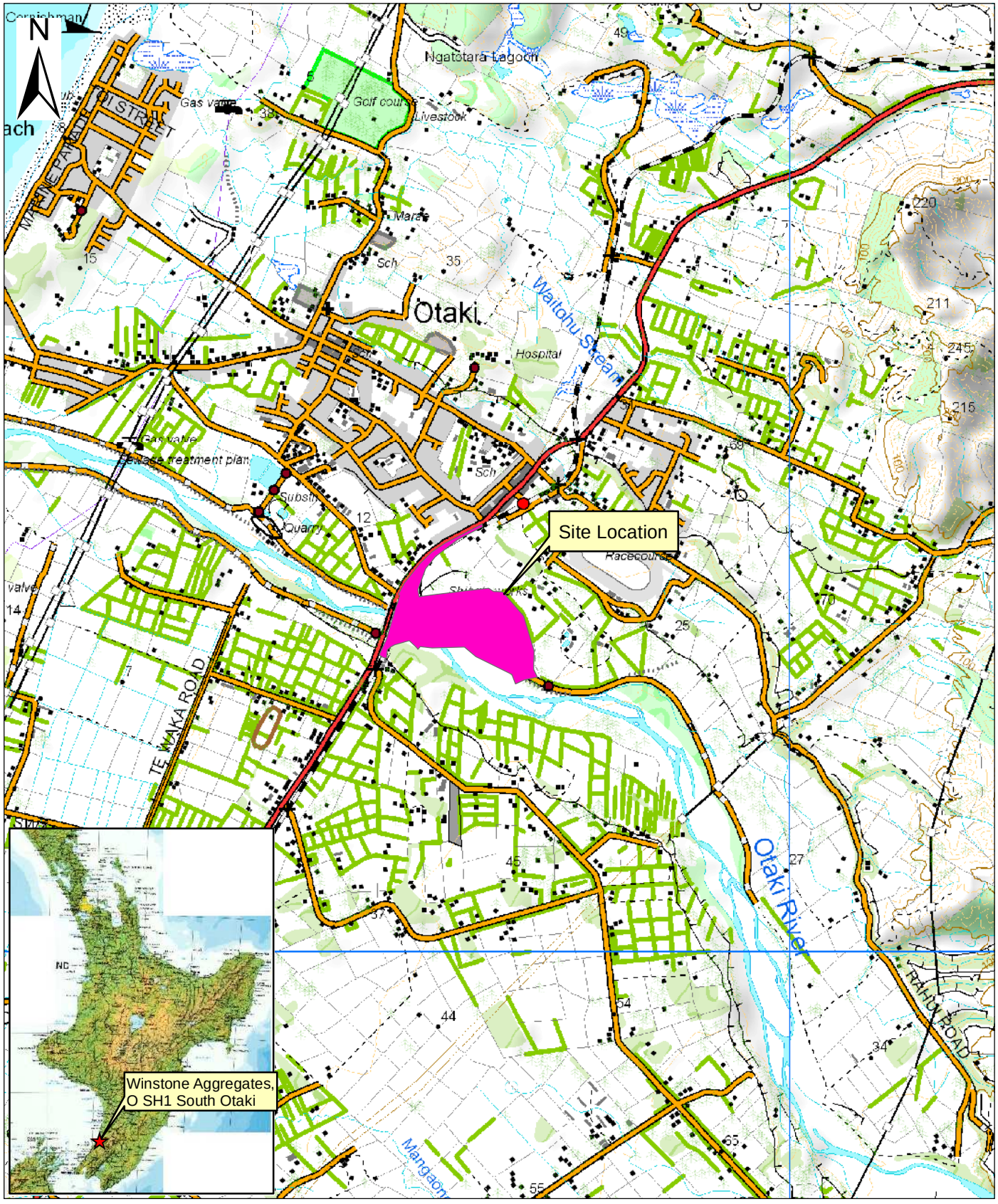
However, these activities are outside the proposed Project corridor. This assessment has not identified sources or activities within the proposed Project corridor that may have resulted in ground contamination.

4 Winstone Aggregates

Based on HAIL activities identified within the site (but not within the current proposed Project corridor), constituents of potential concern are summarised in **Table 4-3**.

Table 4-3 Constituents of Potential Concern Based on Site Activities (not within the proposed corridor)

Location	Activity/Industry	Constituents of Potential Concern
Workshop for storage of grease, oil, paint. Aboveground waste oil tanks, aboveground diesel storage tank and former belowground diesel tank.	Petroleum storage	Hydrocarbons, PAHs, heavy metals, solvents, lead,
Septic tanks	Septic disposal to land	Biological hazards (bacteria, viruses),
Old store – asbestos on inner cladding of wall	Buildings containing asbestos products known to be in a deteriorated condition.	Abestos
Electrical transformer	Electrical transformers	PCBs, hydrocarbons, copper, tin, lead, mercury



NEW ZEALAND TRANSPORT AGENCY

PEKA PEKA TO NORTH OTAKI – PHASE 1 CONTAMINATED LAND ASSESSMENT

WINSTONE AGGREGATES SITE LOCATION PLAN

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Figure: **4-1**

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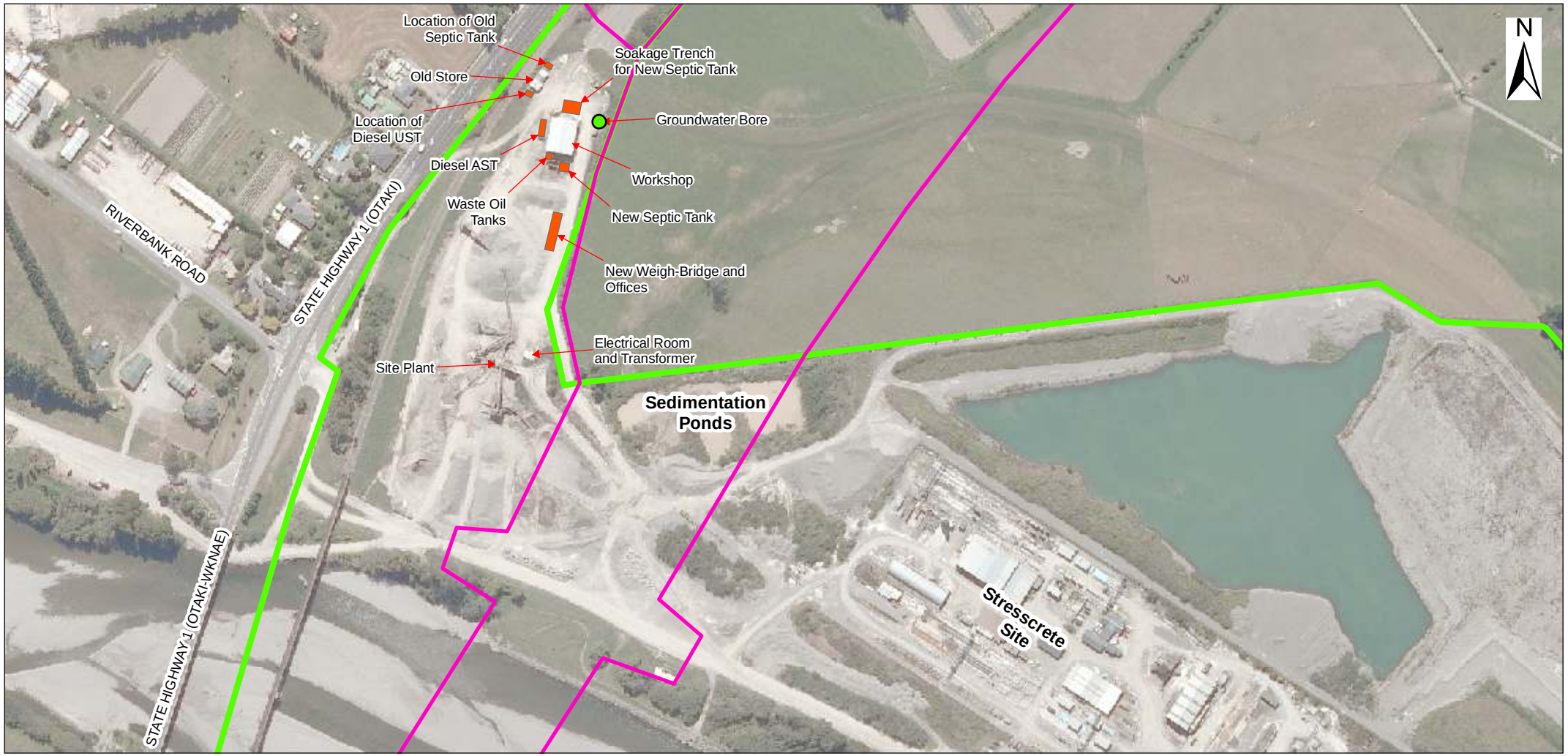


NEW ZEALAND TRANSPORT AGENCY

PEKA PEKA TO NORTH OTAKI –
PHASE 1 CONTAMINATED LAND ASSESSMENT

WINSTONE AGGREGATES
SITE LAYOUT PLAN

URS

File: 42788090\Winstone _Site_Layout_NZTA.mxd Drawn: **SS** Approved: **SL** Date: 30/01/2013

Figure: **4-2**

Rev. **A** A4

Mary Crest

5.1 Desk Top Study

5.1.1 Site Description and Proposed Project Corridor

The Mary Crest property is located at 701 State Highway 1, Te Horo and is legally described as Ngakaroro 2F1A, 2F3A, 2F4, 2F5, 2F6, 2F8 Block Maori Land Plan 1434, comprising 23.5906 hectares more or less.

The location of the property is shown on **Figure 5-1**.

The property was formerly a convent (Convent of the Good Shepherd, Te Horo); however, the property does not appear to have been used as a convent for some time. Currently there are several occupied dwellings at the property and horses graze the land.

The land at the site appears to be gently undulating with swales and gullies in places. The layout of the property is shown on **Figure 5-2**.

The proposed Project corridor runs along the eastern side of property and through the dwelling at the entrance to the property. The proposed road layout and Project corridor is shown on the NZTA Road Layout Plans dated July 2012 and are included as **Appendix A**. The proposed Project corridor is also shown on **Figure 5-2**.

The site and surrounding properties are zoned rural in the KCDC Plan.

5.1.2 Surface Water

According to topographical maps for the area, an unnamed small stream passes through the southern portion of the property.

5.1.3 Site History

5.1.3.1 Certificate of Title

Certificates of Title were obtained from LINZ and development details provided by Certificates of Title are summarised in **Table 5-1**. Certificates of Titles are attached in **Appendix D**.

Table 5-1 Mary Crest - Certificates of Title Details

Date	Details
14 June 1897	First record on certificate of title of ownership. Individuals noted as owning the land. Individuals noted as Te Horo Sheep Farmers (Source: Certificate of Title: WN87/184)
11 October 1937	Certificate of title ownership to Victor Valentine Greenwich. No details on land use. (Source: Certificate of Title: WN459/239)

5.1.3.2 Publically Held File Review

According to the SLUR records held by GW the site has a verified history of hazardous activity or industry. Records indicate the site has been used for the following hazardous activity or industry:

- Storage - fuel

The SLUR record for the site is attached in **Appendix D**.

5 Mary Crest

A review of KCDC building file was completed and relevant information is summarised in **Table 5-2**. Information obtained from the review is included in **Appendix D**.

Table 5-2 Mary Crest - KCDC - Building File Review

Date	Details	Ref
Date unknown	Historic photo of the site with developed convent buildings visible	MC-001
Date unknown	Historic photo of the site with developed convent buildings visible	MC-002
January 1956	Plan by King, Cook and Dawson for The Convent of the Good Shepherd, Te Horo - Plans for Occupational and Training Block. Plan indicates the location of a boiler room.	MC-003
February 1956	Plan by King, Cook and Dawson for The Convent of the Good Shepherd, Te Horo - Plans and Elevations for Accommodation Block.	MC-004
February 1958	Plan by W. Keith Cook - Accommodation Block No 2 for The Good Shepherd Convent, Te Horo - Basement and Ground Floor Plans.	MC-005
January 1961	Plan by John A McKeefry - Proposed Alterations to the Convent of the Good Shepherd, Te Horo. File note on plan states “Neither plan correct - as at 1981 - building outline as on original plan”.	MC-006
March 1967	Plan by McKeefry and Brenton. - Proposed Staff Quarters for Sisters of the Good Shepherd, Marycrest, Te Horo - Site Plan. Basement Plan. Drainage and Electrical. The plan shows the location of an existing septic tank.	MC-007
March 1967	Plan by McKeefry and Brenton. - Additions to Managers House, Good Shepherd Convent, Te Horo - Site Plan. Basement Plan. Drainage and Electrical. The plan shows the location of an existing septic tank.	MC-008

The building file also included reference to plumbing and drainage at the site. No other relevant information was identified within the building file.

5.1.3.3 LIM Review

Two LIM reports were obtained from KCDC for the property. Council records indicate that there are no resource consents registered to the property.

According to the LIM Reports, there is record of three underground storage tanks being located on site. The LIM reports also indicate that there are no council services on site, including sewer, water or stormwater.

No other relevant information was identified with the LIM. Copies of the LIM reports are available on request.

5.1.3.4 Assessment of Historic Aerial Photographs

Historic aerial photographs were obtained from NZ Aerial Mapping Ltd. The photographs provided are listed in **Table 5-3** together with brief descriptions highlighting the key structures shown. Copies of the aerial photographs are attached in **Appendix D**.

5 Mary Crest

Table 5-3 Mary Crest - Aerial Photography

Photograph Reference	Date Flown	Original Scale	Site Description
MC-009	1948	1:16,000	The property appears to have been developed as a farm. The main homestead is visible in the centre of the property and there are areas of bush immediately west and south of the main homestead in what appear to be gullies. A small building is visible in the centre of the bush area, its use is not known. The access road from the main highway to the main homestead is visible. Three buildings which appear to be farm buildings are located to the north of the main homestead. There are other smaller structures visible within the vicinity of the farm buildings; however their use is not apparent. There also appears to be a large uneven depression in the ground within the vicinity of the farm buildings. The unnamed stream is visible within the southern portion of the property with small trees / vegetation located within the low lying areas adjacent to the stream. A structure, which appears to be a farm building, is also located in the southwest portion of the property. There appears to be yards or stockholding areas associated with this structure. Another depression in the ground is visible to the south of this farm structure. Surrounding land appears to be mainly agricultural in use.
MC-010	1961	1:8,000	The convent appears to have been developed on the property with a series of buildings located within the vicinity of the main homestead. The farm buildings identified in the 1948 aerial photograph located to the north of the main homestead are no longer present and have been replaced by convent buildings. A small constructed pond is visible immediately north of the northern most convent building. The main homestead is still present. A tennis court is visible to the south of the main homestead. Two working/farm sheds and some smaller sheds are located west of the main homestead. There use is unknown; however, piles of dirt can be seen in the vicinity of these buildings. A building has also been developed adjacent to the road access to the property. A series of farm buildings have been developed in between the two areas of bush. The farm building located in the southwest portion of the property from the 1948 aerial photograph remains present. The depression in the ground to the south of this building is still visible in the aerial photograph. The stream has been channelised and surrounding land still appears to be dominantly agricultural in use. Electrical transmission lines are visible on the eastern boundary of the property.
MC-011	1971	1:8,000	Further development of the convent facilities has occurred. A building has been developed in the vicinity of the tennis court observed in the 1971 aerial photograph. The main homestead building is still visible and a pond has been developed immediately east of the main homestead. A new tennis court and swimming pool have been constructed to the east of the convent buildings. A building has been developed to the west of the building located at the entrance to the property. Farm buildings identified adjacent to the native bush are still present. The location of the farm building in the south of the property is still visible, but appears to be foundations only. The depression south is still visible on the aerial photograph.
MC-012	1986	1:8,000	The 1986 aerial appears very similar to the 1971 aerial. A building that appeared in the 1971 aerial adjacent to the building at the access of the site is no longer present; however, the foundations of the building can be seen.
MC-013	2010	0.4 gsd	The 2010 aerial photograph appears very similar to the previous 1971 and 1986 aerial photographs for the property.

5 Mary Crest

5.2 Site Walkover

A site walkover was completed on 20 July 2012. Property owners were not present to conduct interviews regarding the history of the property or buildings on the property. The proposed Project corridor is located along the eastern boundary of the property, therefore the site walkover focused on this area only. Photos of the site walkover are included in **Appendix D**.

The building at the access point to the property, appears to be a residential dwelling and appears to be inhabited. It is unknown whether there is a septic tank associated with this dwelling or the sewage is connected to the septic system of the former convent. (Refer to photograph MC-015).

Foundations for the building located adjacent to this dwelling were observed during the site walkover. (Refer to photographs MC-016 and MC-017).

Convent buildings viewed at the site appeared to be in a state of disrepair with broken windows and vandalism apparent.

Evidence of the three underground storage tanks was not observed at the locations identified on the SLUR and the LIM. One concrete pad, potentially associated with an underground storage tank was observed adjacent to the main convent building (first building up the driveway). (Refer to photograph MC-018). Other evidence (vents, fill ports etc) of underground storage tanks was not observed at the site.

Evidence of surface soil contamination, such as stressed vegetation and/or discoloured/stained soil was not observed at the site.

Transmission lines were observed running along the eastern portion of the property. Land adjacent to SH1 and in the vicinity of the proposed Project corridor appeared to be mainly agricultural land.

5.3 Contamination Assessment

There is the potential for ground contamination at the Mary Crest property, from former farming operations (potential sheep dips, offal/rubbish pits etc) and the storage of hazardous substances in underground storage tanks associated with former convent operations at the property.

However, the proposed Project corridor is located along the eastern boundary of the property, away from former convent buildings. The proposed Project corridor may encroach upon some of the transmission lines located on the property and will go straight through the residential dwelling located at the access point to the property. The proposed Project corridor also encompasses the area in the southwest of the site, where former farm buildings and the ground depression were/are located.

This assessment found no evidence of ground contamination in the Project corridor. However, there is potential that a septic tank and/or drainage field may exist within the Project corridor in the vicinity of the structure at the site access point and there is potential for ground contamination within the vicinity of former farm buildings and ground depression located in the southwest of the property. Based on HAIL activities identified within the site, but not necessarily within the Project corridor, constituents of potential concern are summarised in **Table 5-4**.

5 Mary Crest

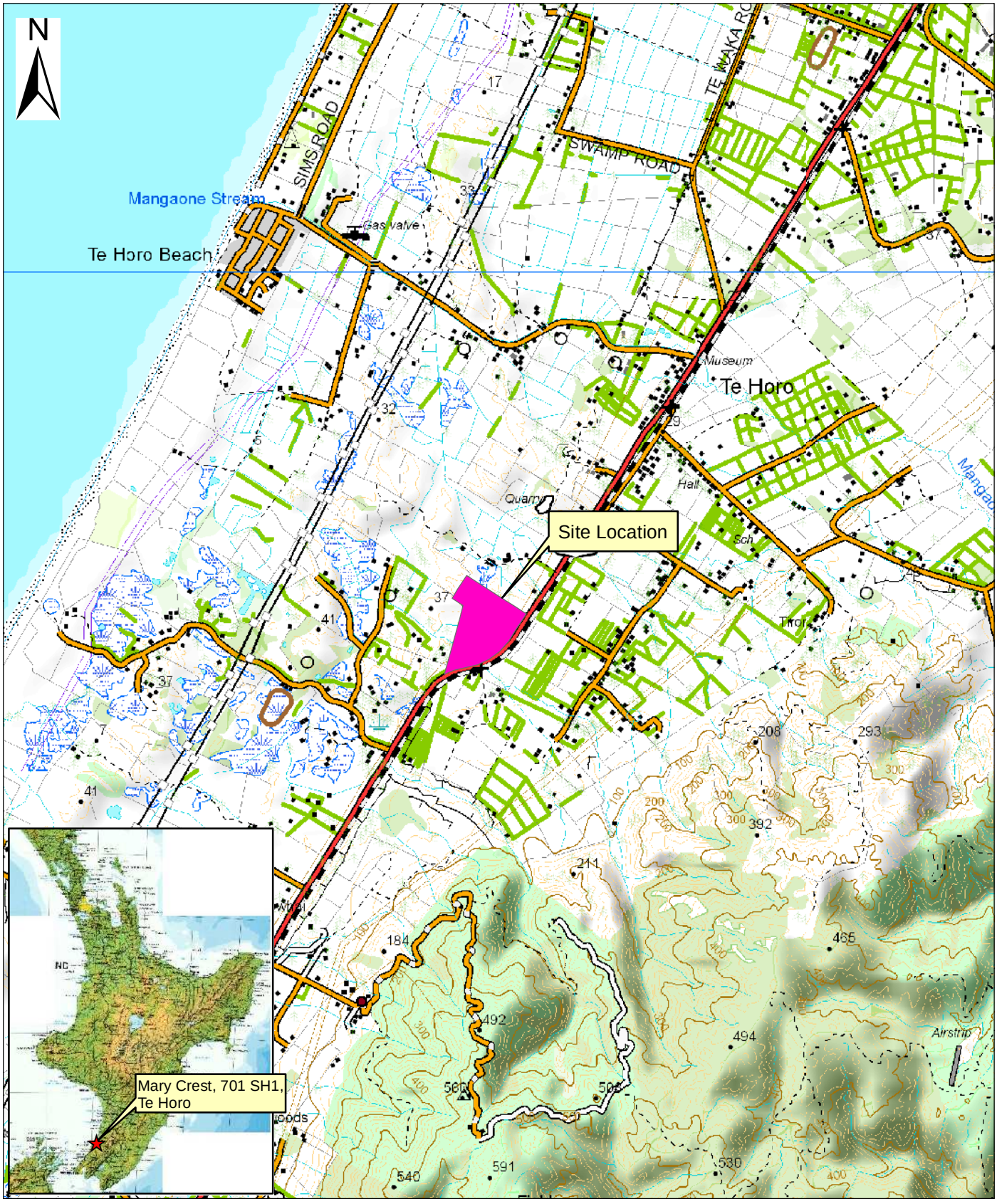
Table 5-4 Constituents of Potential Concern Based on Site Activities[6]

Location	Activity/Industry	Constituents of Potential Concern
Former farm buildings and storage sheds (a)	Agrichemicals	Arsenic, lead, copper; wide range of organic agrichemicals including organochlorine pesticides, organophosphate pesticides, herbicides, fungicides, carbamates, and synthetic pyrethroids; compounds maybe mixed with diesel before spraying
	Persistent pesticide bulk storage or use	Arsenic, lead, copper, mercury; wide range of organic compounds including acidic herbicides, organophosphates, and organochlorines (e.g., endosulfan on golf and bowling greens)
Unknown location but potential for former livestock dips and spray race associated with former farming operations (a)	Livestock dip or spray race operations	Arsenic, organochlorines (e.g., aldrin, dieldrin, DDT[8], lindane) and organophosphates, carbamates, and synthetic pyrethroids
Underground storage tanks associated with former convent buildings (b)	Storage of petroleum or petrochemicals above or below ground	Hydrocarbons including BTEX[9], PAHs[10], and solvents; lead and other metals, particularly if waste oil handled
Convent buildings and dwelling at site entrance / ground depression(a)	Septic and waste disposal to land	Biological hazards (bacteria, viruses), metals, PAHs, semi- volatile organic compounds, and solvents.

(a) – located within the Project corridor

(b) – located outside the Project corridor

[8] dichlorodiphenyltrichloroethane
[9] Benzene, toluene, ethylbenzene and xylenes.
[10] Polycyclic aromatic hydrocarbons



NEW ZEALAND TRANSPORT AGENCY

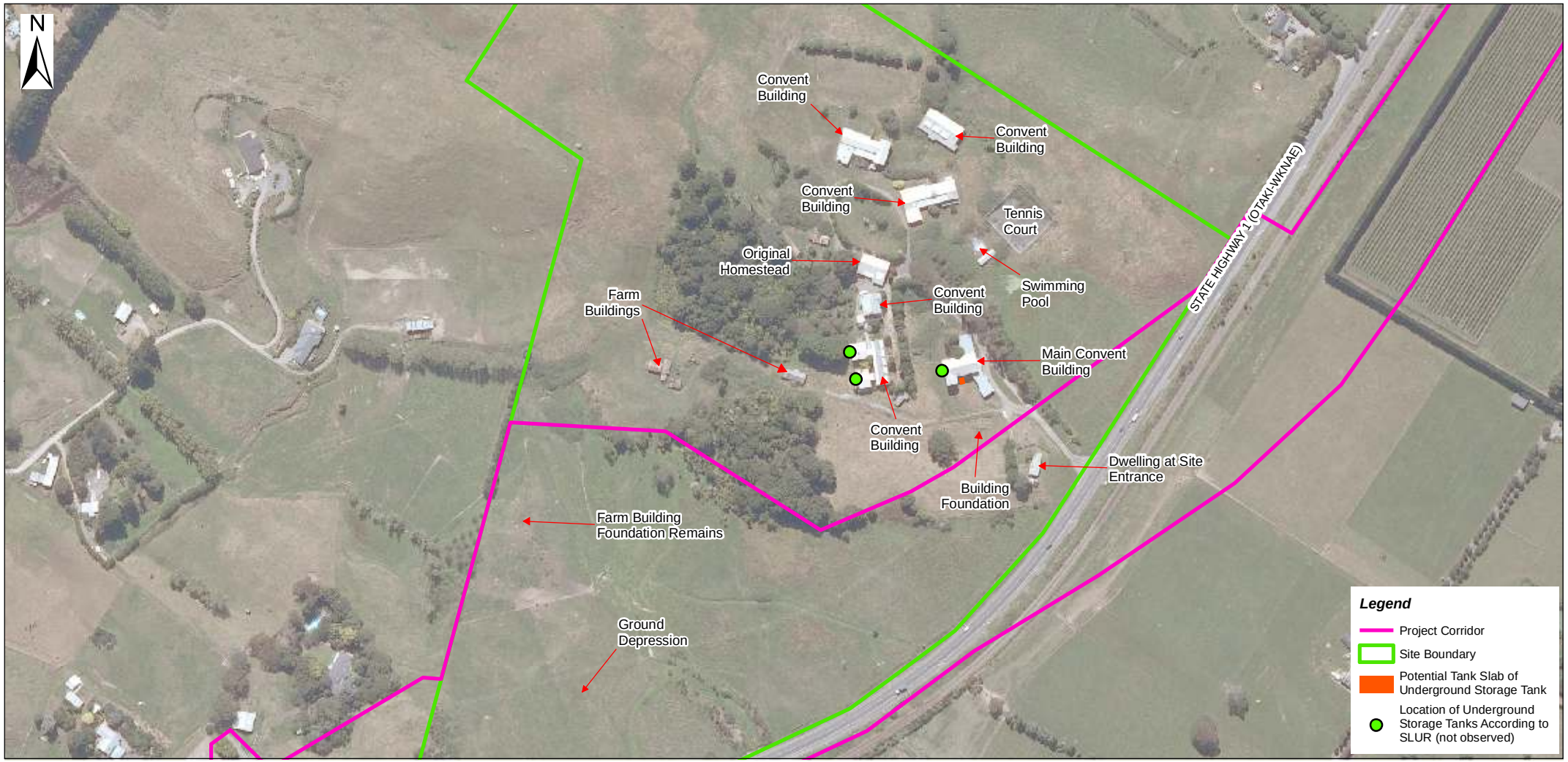
PEKA PEKA TO NORTH OTAKI – PHASE 1 CONTAMINATED LAND ASSESSMENT

MARY CREST SITE LOCATION PLAN

URS

Figure: **5-1**

File: 42788090\Mary_Crest _Site_Location_NZTA.mxd Drawn: **SS** Approved: **SL** Date: 19/12/2012 Rev. **A** A4



NEW ZEALAND TRANSPORT AGENCY

PEKA PEKA TO NORTH OTAKI – PHASE 1 CONTAMINATED LAND ASSESSMENT

MARY CREST SITE LAYOUT PLAN

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Figure: **5-2**

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6

Bridge Lodge

6.1 Report Summary

PDP completed a Phase 1 ESA at Bridge Lodge, 3 Ōtaki Gorge Road on behalf of Opus. A copy of the PDP report is included in **Appendix E**. The location of the property is shown on **Figure 6-1**.

The PDP Phase 1 ESA involved the completion of a desk top review of publically available information (review of LIM report, KCDC building files and historic aerial photographs), a site walkover and discussions with a site owner. The assessment indicated that the site had predominantly been used as agricultural land until the 1940s when it was turned into a holiday camp.

The proposed Project corridor runs through the centre of the property. The proposed road layout and Project corridor is shown on the NZTA Road Layout Plans dated July 2012 and are included as **Appendix A**. The proposed Project corridor is also shown on the Site Layout Plan (**Figure 6-2**).

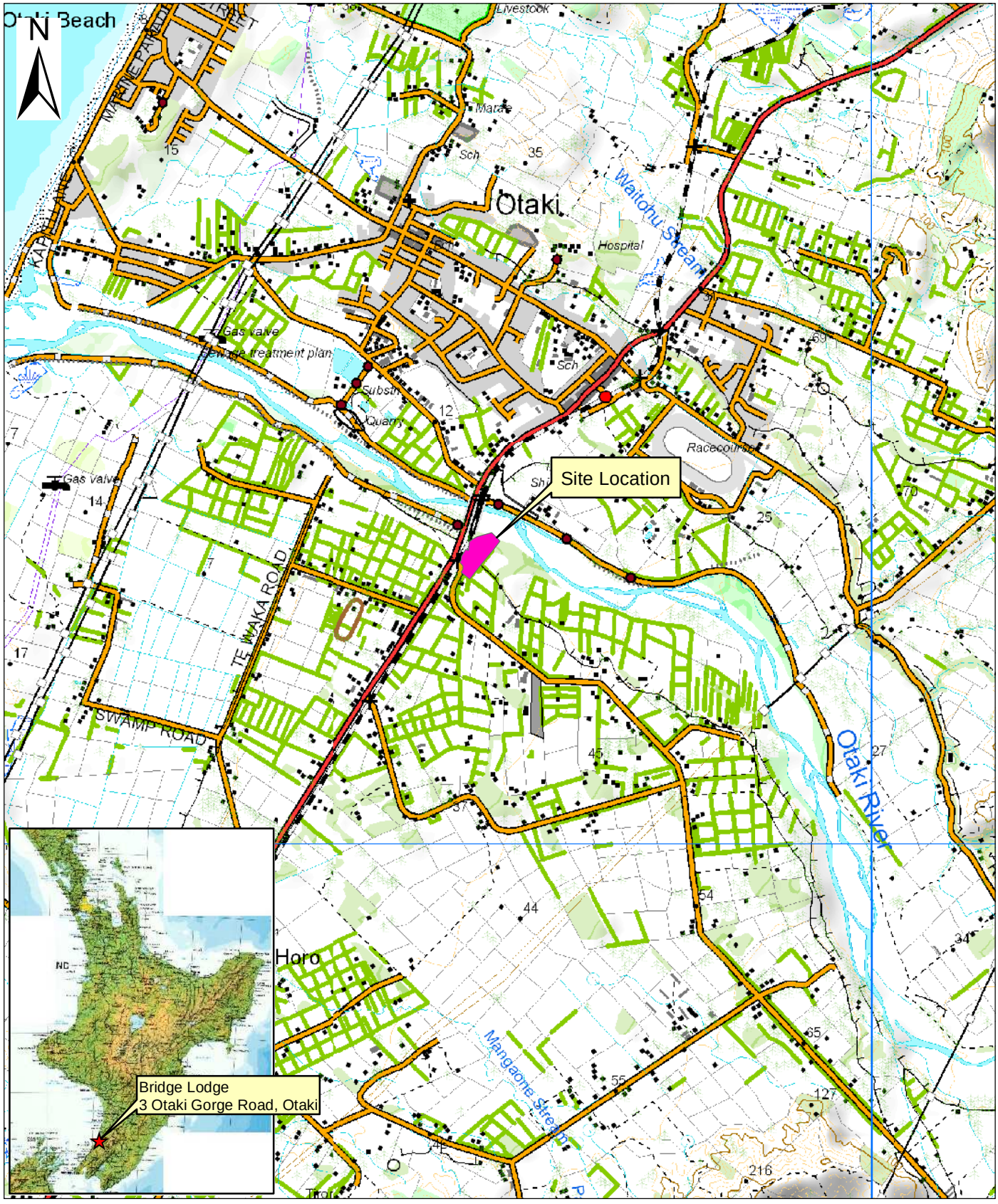
Five potential sources of contamination were noted during the PDP Phase 1 ESA. These included one underground storage tank potentially containing kerosene, one above ground tank containing diesel and three septic tanks. These structures are shown on **Figure 6-2**. No other land use was identified that could have resulting in residual contamination.

It was recommended by PDP that validation soil sampling be completed during the removal of the kerosene tank and that soils be tested within the vicinity of the above ground tank to assess potential from any potential risk associated with petroleum hydrocarbon contamination. Potential risks from the septic tanks were noted as likely to be from biological sources and it was recommended that care was undertaken during the removal and excavation of these structures.

Based on HAIL activities identified within the site, but not necessarily within the Project corridor, constituents of potential concern are summarised in **Table 6-1**.

Table 6-1 Constituents of Potential Concern Based on Site Activities[6]

Location	Activity/Industry	Constituents of Potential Concern
Bulk fuel storage tanks	Storage of petroleum or petrochemicals above or below ground	Hydrocarbons including BTEX, PAHs, and solvents; lead and other metals, particularly if waste oil handled
Septic tanks	Septic and waste disposal to land	Biological hazards (bacteria, viruses), metals, PAHs, semi- volatile organic compounds, and solvents.



NEW ZEALAND TRANSPORT AGENCY

PEKA PEKA TO NORTH OTAKI – PHASE 1 CONTAMINATED LAND ASSESSMENT

BRIDGE LODGE SITE LOCATION PLAN

URS

Figure: **6-1**

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NEW ZEALAND TRANSPORT AGENCY

PEKA PEKA TO NORTH OTAKI –
PHASE 1 CONTAMINATED LAND ASSESSMENT

BRIDGE LODGE
SITE LAYOUT PLAN

URS

File: 42788090\Bridge_Lodge_Site_Layout_NZTA.mxd Drawn: **SS** Approved: **SL** Date: 30/01/2013

Figure: **6-2**

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7

Summary

This report presents the findings of an overview Phase 1 CLA on properties within the designated Project corridor and site-specific Phase 1 CLAs conducted at five sites located within the proposed Project corridor.

The objective of these assessments was to determine the likely nature and location of land contamination in relation to where the subject properties coincide with the proposed Project corridor. The assessments were conducted by reviewing available council records, site plans and aerial photographs; and by carrying out site inspections. The assessment of the Bridge Lodge site was conducted by reviewing a recent Phase 1 ESA conducted by Pattle Delamore Partners Ltd.

A summary of the findings for the sites assessed to have the highest potential for ground contamination within the proposed Project corridor is provided in **Table 7-1**.

Table 7-1 Potential Ground Contamination Summary

Site	Potential Sources of Ground Contamination Within the Proposed Project Corridor
Otaki Station & Sidings	There is potential for ground contamination associated with the current and historic maintenance and operational activities on the Ōtaki Station and Sidings properties. Staining of rail ballast around the railway tracks was observed during the site walkover, but no other evidence of surface soil contamination. Contaminants including petroleum hydrocarbons and metals are expected to be present. Records indicate the presence of a gas house; however the location of the gas house is unknown. The exact nature and use of the gas house has not been determined. Former and current buildings/structures within the properties' boundaries included a goods shed, amenities block, Ōtaki Station building, men's toilets, septic tank and other undefined structures. Other potential sources of historic contamination were identified along the rail corridor to the south west outside the confines of the Ōtaki Station and Sidings properties. These included potential stock holding yards, a train turn-table area, potential wood storage area and associated buildings. Based on the potential HAIL activities identified at the site the following potential contaminants of concern may be present within the proposed Project corridor: hydrocarbons, PAHs, heavy metals, solvents, creosote, metal and asbestos particulates associated with braking, fuel (diesel), lubricating oils, grease associated with spills/leaking, arsenic, organochlorines (e.g. aldrin, dieldrin, DDT[11], lindane), organophosphates, carbamates, synthetic pyrethroids, biological hazards (bacteria, viruses) and PCP.
Winstone Aggregates	No potential sources of ground contamination were identified within the proposed Project corridor. However, sources of potential ground contamination were identified at the Winstone Aggregates site, immediately west of the proposed Project corridor and include: storage of grease, oil and paint; asbestos on the inner wall cladding of the old store; three waste oil aboveground storage tanks; one aboveground diesel storage tank; location of former underground diesel storage tank; septic tanks; and an electrical transformer.

[11] dichlorodiphenyltrichloroethane

7 Summary

Site	Potential Sources of Ground Contamination Within the Proposed Project Corridor
Mary Crest	Potential sources of ground contamination within the proposed Project corridor at the Mary Crest property include former farm operations on the southwest portion of the property; an uncharacterised ground depression; and the potential for a septic tank located within the vicinity of the dwelling at the entrance to the property. There is also potential for ground contamination outside the proposed Project corridor but within the confines of the Mary Crest property, including underground storage tanks (locations unconfirmed) and former farm operations. Based on the potential HAIL activities identified at the site the following potential contaminants of concern maybe present within the proposed Project corridor: heavy metals, wide range of organic agrichemicals including organochlorine pesticides, organophosphate pesticides, herbicides, fungicides, carbamates, and synthetic pyrethroids; compounds maybe mixed with diesel before spraying; wide range of organic compounds including acidic herbicides, organophosphates, and organochlorines (e.g., endosulfan on golf and bowling greens); hydrocarbons including BTEX, PAHs, and solvents; lead and other metals, particularly if waste oil handled; biological hazards (bacteria, viruses), and semi-volatile organic compounds.
Bridge Lodge	Five potential sources of contamination were noted within the proposed Project corridor during the PDP Phase 1 ESA. These included one underground storage tank potentially containing kerosene, one above ground tank containing diesel and three septic tanks. Based on the potential HAIL activities identified at the site the following potential contaminants of concern maybe present within the proposed Project corridor: hydrocarbons including BTEX, PAHs, and solvents; lead and other metals, particularly if waste oil handled; biological hazards (bacteria, viruses), metals, PAHs, semi- volatile organic compounds, and solvents.
KiwiRail Corridor	Construction works are proposed in the KiwiRail corridor. The historic use of this corridor for railroad transportation may have resulted in contamination to ground and rail bed ballast associated with fuels, lubricants, metals and asbestos associated with braking, and wood preservatives used on sleepers.
Market Garden/Orchard Sites	A total of six properties were identified within the Project corridor where market garden/orchard activities may have occurred. Use of pesticides, herbicides, insecticides, fungicides may have resulted in contamination of ground at these sites.

Depending on the detailed design, and the construction methodology, additional Phase 2 CLAs may be required at these sites to confirm appropriate management options during the construction works. The nature and concentration of contaminants cannot be determined at these sites without conducting intrusive works. However, given the nature of the potential sources of contaminants identified, it is assessed that the contaminants will be able to be appropriately managed through the application of current best practice management procedures providing for the following:

- Additional Phase 2 CLAs as required.
- The handling and stockpiling of contaminated soils.
- Site worker health and safety related to exposure to contaminated soils.
- Encountering unexpected contaminated soils during construction works.
- The assessment of whether contaminated soils may remain on a site or should be removed from a site.

A draft Bulk Earthworks Contaminated Land Management Plan[Error! Bookmark not defined.] has been prepared that provides a framework for management of contaminated soils during the construction works, general/specific guidance management procedures for the sites identified above, as well as other sites where unexpected contaminants are encountered during the construction works.

8

Limitations

This conclusion and all information in this Report is given strictly in accordance with and subject to the following limitations and recommendations:

The Phase 1 Contaminated Land Assessment (CLA) undertaken to form this conclusion is limited to the scope of work agreed between URS New Zealand Ltd (URS) and the New Zealand Transport Agency (NZTA) as outlined in Section 1.3 ("Scope of Works") of this Report.

This Report has been prepared for the sole benefit of the NZTA and neither the whole nor any part of this Report may be used or relied upon by any party other than the NZTA.

The investigations carried out for the purposes of the Report have been undertaken, and the Report has been prepared, in accordance with normal prudent practice and by reference to applicable environmental regulatory authority and industry standards, guidelines and assessment criteria in existence at the date of this Report.

This Report should be read in full and no excerpts are to be taken as representative of the findings. No responsibility is accepted by URS for use of any part of this Report in any other context.

This Report was prepared between July 2012 and January 2013 and is based on the conditions encountered on the site and information reviewed during the time of preparation. URS accepts no responsibility for any changes in site conditions or in the information reviewed that have occurred after this period of time.

Where this Report indicates that information has been provided to URS by third parties, URS has made no independent verification of this information except as expressly stated in the Report. URS assumes no liability for any inaccuracies in or omissions to that information.

Given the limited Scope of Works, URS has only assessed the potential for contamination resulting from past and current known uses of the site.

Inspections undertaken in respect of this Report are limited to visual inspections only and are constrained by the particular site conditions, such as the location of buildings, services and vegetation.

No sampling or laboratory analysis has been undertaken by URS as part of this investigation. URS does not guarantee that contamination does not exist at the site.

Except as otherwise specifically stated in this Report, URS makes no warranty or representation as to the presence or otherwise of asbestos and/or asbestos containing materials (“ACM”) on the site. If fill has been imported on to the site at any time, or if any buildings constructed prior to 1970 have been demolished on the site or materials from such buildings disposed of on the site, the site may contain asbestos or ACM.

No investigations have been undertaken into any off-site conditions, or whether any adjoining sites may have been impacted by contamination or other conditions originating from this site.

Except as specifically stated above, URS makes no warranty, statement or representation of any kind concerning the suitability of the site for any purpose or the permissibility of any use, development or re-development of the site.

Use, development or re-development of the site for any purpose may require planning and other approvals and, in some cases, environmental regulatory authority and accredited site auditor approvals. URS offers no opinion as to whether the current use has any or all approvals required, is operating in accordance with any approvals, the likelihood of obtaining any approvals, or the conditions and obligations which such approvals may impose, which may include the requirement for additional environmental works.

URS makes no determination or recommendation regarding a decision to provide or not to provide financing with respect to the site.

The ongoing use of the site and/or use of the site for any different purpose may require the owner/user to manage and/or remediate site conditions, such as contamination and other conditions, including but not limited to conditions referred to in this Report.

Except as required by law, no third party may use or rely on, this Report unless otherwise agreed by URS in writing. Where such agreement is provided, URS will provide a letter of reliance to the agreed third party in the form required by URS.

8 Limitations

To the extent permitted by law, URS expressly disclaims and excludes liability for any loss, damage, cost or expenses suffered by any third party relating to or resulting from the use of, or reliance on, any information contained in this Report. URS does not admit that any action, liability or claim may exist or be available to any third party.

Except as specifically stated in this section, URS does not authorise the use of this Report by any third party.

It is the responsibility of third parties to independently make inquiries or seek advice in relation to their particular requirements and proposed use of the site.