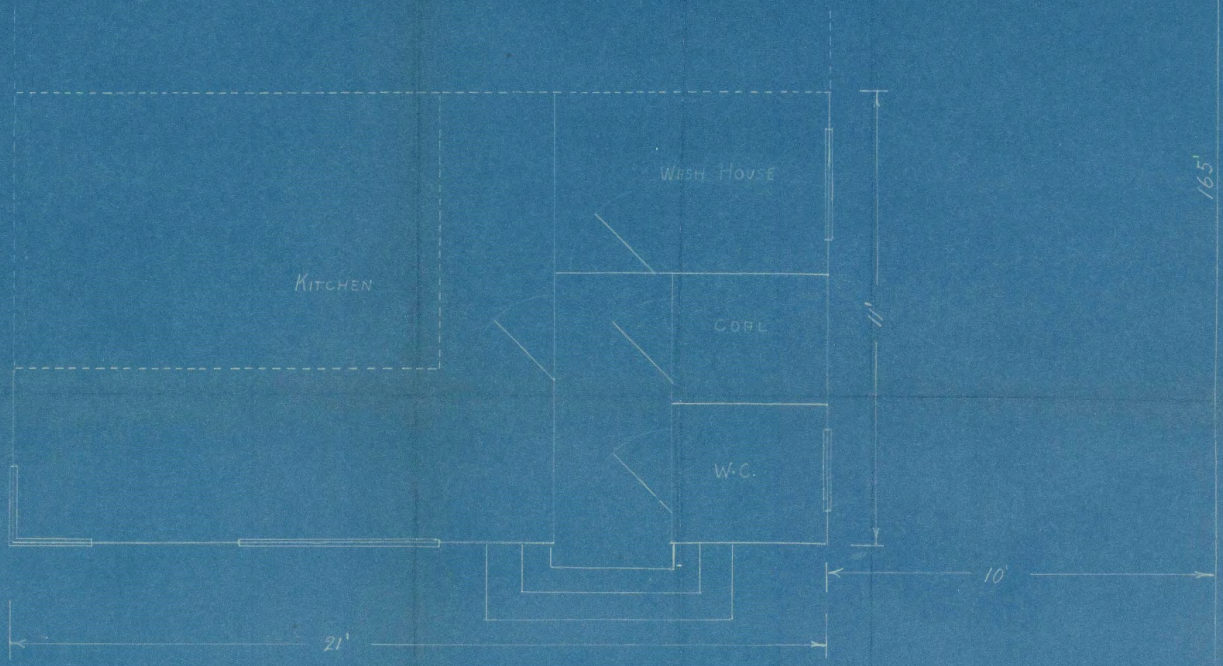
PEARSE ST.

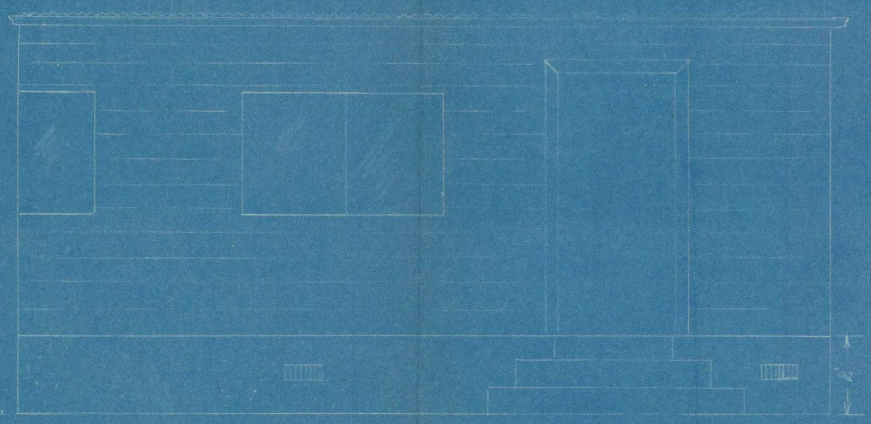
66'

ALLOTMENT 16. BLOCK II. SURVEY DISTRICT BRIGHTON.

AREA ¼ ACRE

EXISTING BUILDING





— PROPOSED ALTERATION —

A.R. Wilson

1959 BUILDING PERMIT APPLICATION TO ERECT A CAR PORT

Official Receipt No.....

TAIERI COUNTY COUNCIL.

Permit No.....
Issued...../.../..

BUILDING BY-LAWS 1954, BEING N.Z.S.S. 95 pts I - XII.

To the Engineer,
P.O. Box 23,
MOSGIEL.

Sir,

I hereby apply for permission to Erect
at Brighton 3 Pearce St. for Car Shelter
of Brick & Iron according to locality plan and detailed plans, elevations, cross-sections, and specifications of building deposited herewith in duplicate.

PARTICULARS OF LAND. LOT NO. 16 on Town Section Brighton D.P. Blk. II
Length of boundaries. 18.2 chains Area. acres.
Area of ground floor. ~~complete~~ Square feet. 1200 approx.
Area of outbuildings..... Square feet. 360

ESTIMATED COST. - BUILDING.....£.....64.....
Plumbing & drainage.....£.....10.....

TOTAL. =====74=====

Proposed purpose for which every part of building is to be used or occupied (describing separately each part intended for use or occupation for a separate purpose).. .....CAR PORT.....

Proposed use or occupancy of other part of building .....
Nature of ground on which building is to be placed and of the subjacent strata.....

Yours faithfully,

Postal Address. 3 Pearce St Brighton .....W. R. Wilson.....Owner

Date. 8th June 1959 .....W. R. Wilson.....Builder

PARTICULARS.

Name of road abutting on section.....Pearce St.....
Minimum distance of external walls from boundaries of adjoining sections. 2 ft. (6")
Distance from nearest building on adjoining section. 2' 6"
Space at side or rear of building. Open at rear. square feet
Is natural drainage satisfactory ?. Yes.

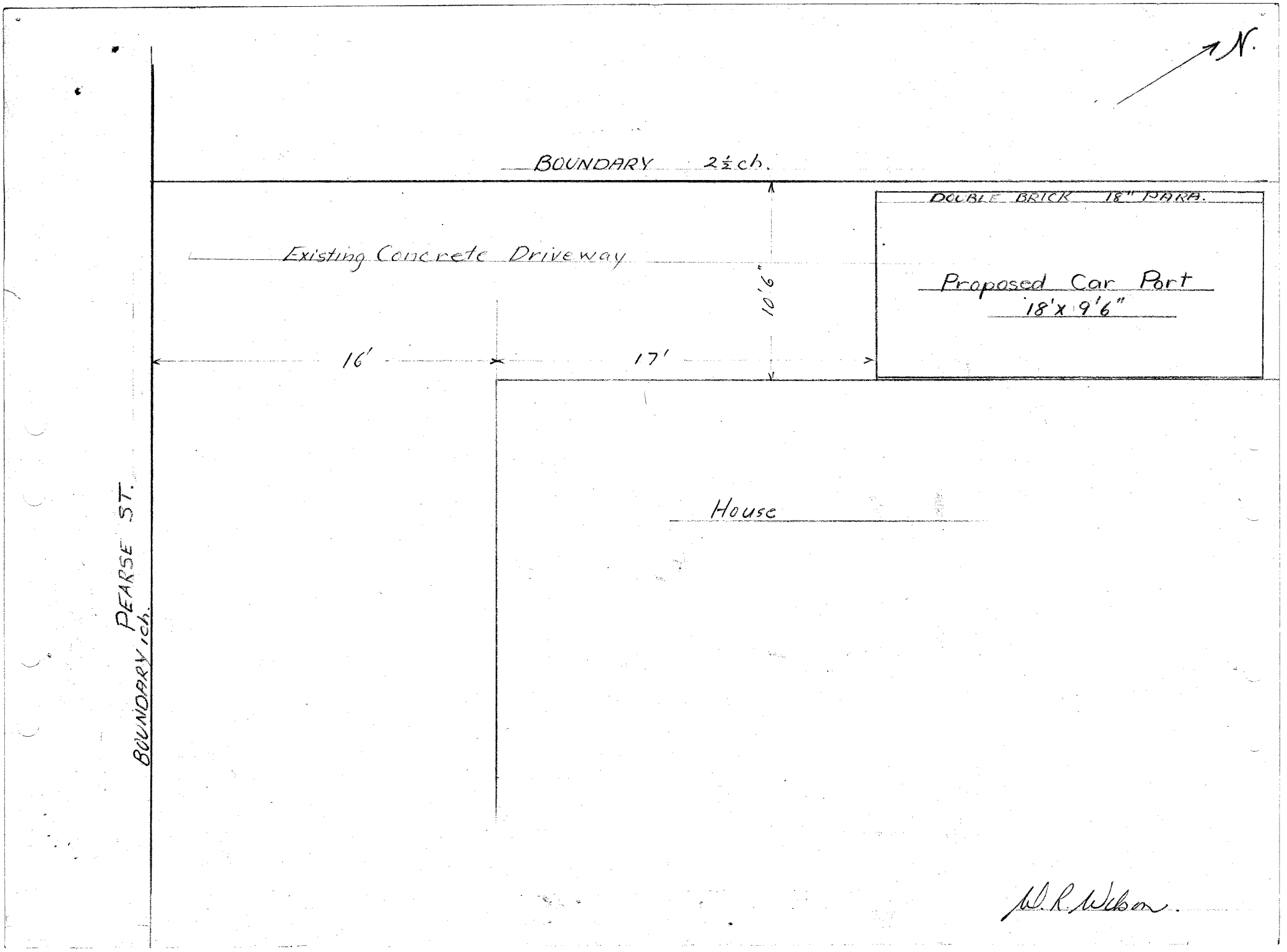
MATERIALS. Foundations. Concrete Walls. Brick (Clay) Roof. Iron
Foundations (if piles) Size..... Height..... Centres.....
Foundations (~~if stone~~, concrete ~~or brick~~) Width. 12" Height. 4" to 16"
Size of plates..... Bearer..... Span..... Wall.....
Studs. Size. Nil Centres..... Height.....
Floor Joists Size. Nil Centres..... Span.....
Ceiling Joists. Size. Nil Centres.....
Rafters. Size. 4 x 2" Centres. 18"
Is old material being used ? Yes. (Bricks)
Window sizes (at least 1/10th of floor space. Nil
Provision for water supply. Not required

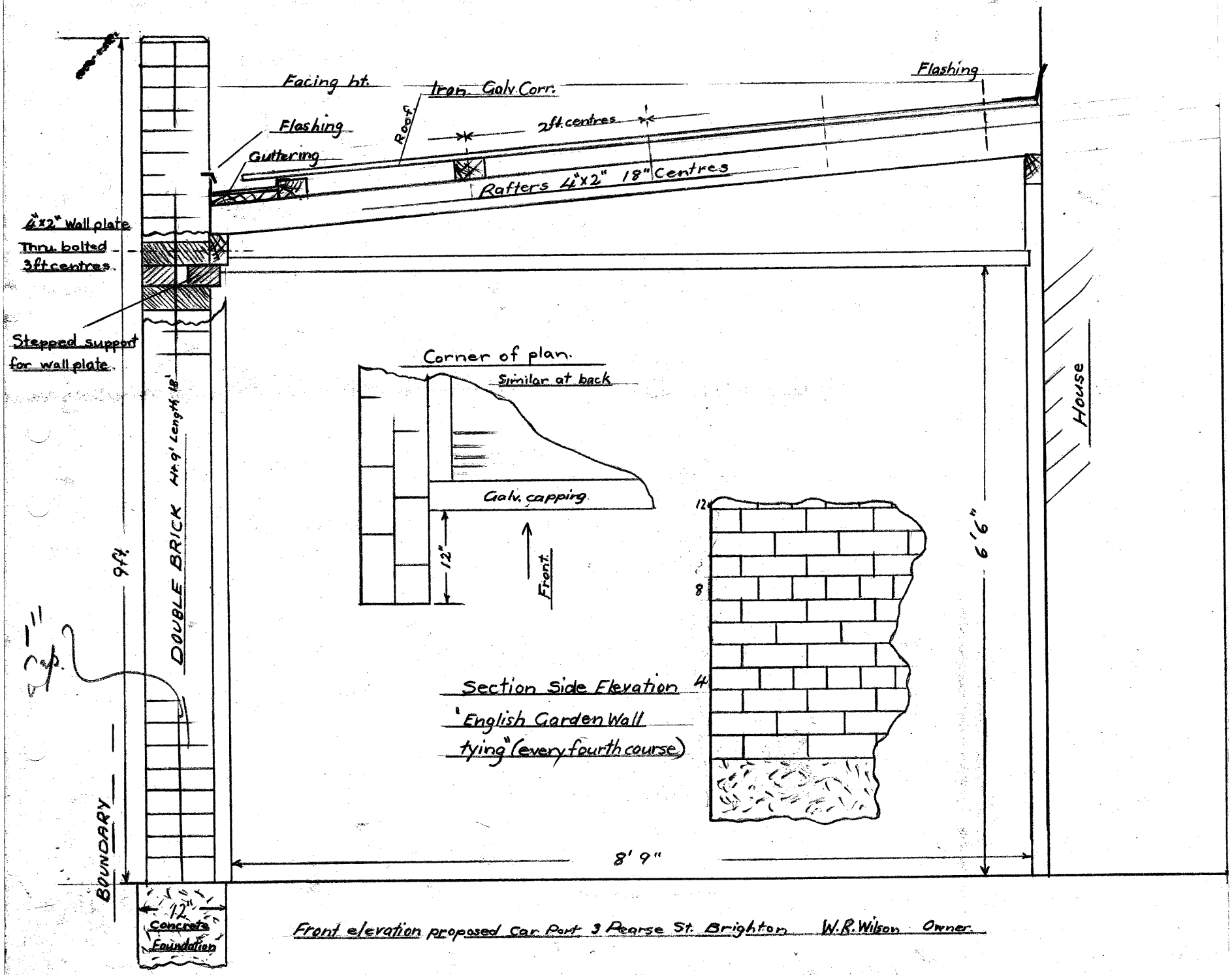
FOR CONCRETE, BRICK OR STONE BUILDINGS.

External walls Width. 9" Height. 9 ft.
Footings Width. 12"

.....W. R. Wilson.....Signature

Please complete in duplicate.
Please submit a plan, & site plan showing distance from proposed building in relation to boundaries, etc.
List of fees on back of form.


N.
BOUNDARY 2½ ch.
DOUBLE BRICK 18" PARA.
Existing Concrete Driveway
Proposed Car Port
18'x 9'6"
10'6"
16'
17'
House
PEARSE ST.
BOUNDARY ½ ch.
W. R. Wilson.



Front elevation proposed Car Port 3 Pearse St. Brighton W.R. Wilson Owner.

1972 CORRESPONDENCE PERTAINING TO A NATURAL WATERCOURSE AND HISTORIC FILLING OF LAND

2788/555

14th. June, 1972.

Miss. M. F. Murdoch,
7 Pearce Street,
BRIGHTON.

Dear Madam,

The flooding of the land in the middle of the block at Brighton between Pearce and Taylor Streets has been investigated by the undersigned. It would appear that the old natural depression has been pregressively filled in by the adjoining landowners and in some cases an attempt made to place pipes to carry the water past but these are either inadequate or laid without proper inlet or outfall. It has now become necessary to abate this nuisance and for one of two courses to be adopted. The first would be to cut an open channel to reopen the old natural watercourse and the alternative would be for each landowner to lay pipes of a sufficient size through his section to enable the water to be carried directly through.

Would you kindly confer with your neighbours and decide which action is to adopted.

Your advice as to the solution decided upon and when this will be given effect to would be appreciated.

Yours faithfully,

M.I.C.E.
COUNTY ENGINEER.

1985 DRAINAGE APPLICATION

SILVERPEAKS COUNTY COUNCIL

Phone 777-789 PO Box 5545
DUNEDIN

45 Filleul Street
DUNEDIN

Drainage and Plumbing Regulations 1959,
Amendment No. 1.

APPLICATION FOR PERMIT FOR SANITARY PLUMBING OR DRAINAGE WORK.

The County Engineer,
Silverpeaks County Council,
DUNEDIN.

I, the undersigned, F.Y. Macdonald (Name in Full)
of 1 McIntosh Rd Brighton (Address)
hereby make application for permission to have the work described herein, and set out in the plans attached hereto, carried out in the premises situated in:-

Lot No 16, Section No. 3 Pearce St, D.P. 21 Brighton

Block 2 ~~Kaik~~ or S.D. ..... or S.O. .....

Name and address for whom work is to be carried out D.J. Wright
3 Pearce St Brighton Otago

Name and address of registered plumber or other person entitled to do the work
R.F. Jeffery
4 Valiant Rd Waldronville

Value of Proposed Work including materials:-
Estimated value of:-

(a) Plumbing $200
(b) Drainage $300
Total $500

Plumbing — R.F. Jeffery 03544

Drainage — Signature F.Y. Macdonald
Registered No. 8418

Description of Work to be done:-
Connect H/s to street
" " water House

Dated this 1 day of AUGUST 19 84.

Complete whichever is applicable.

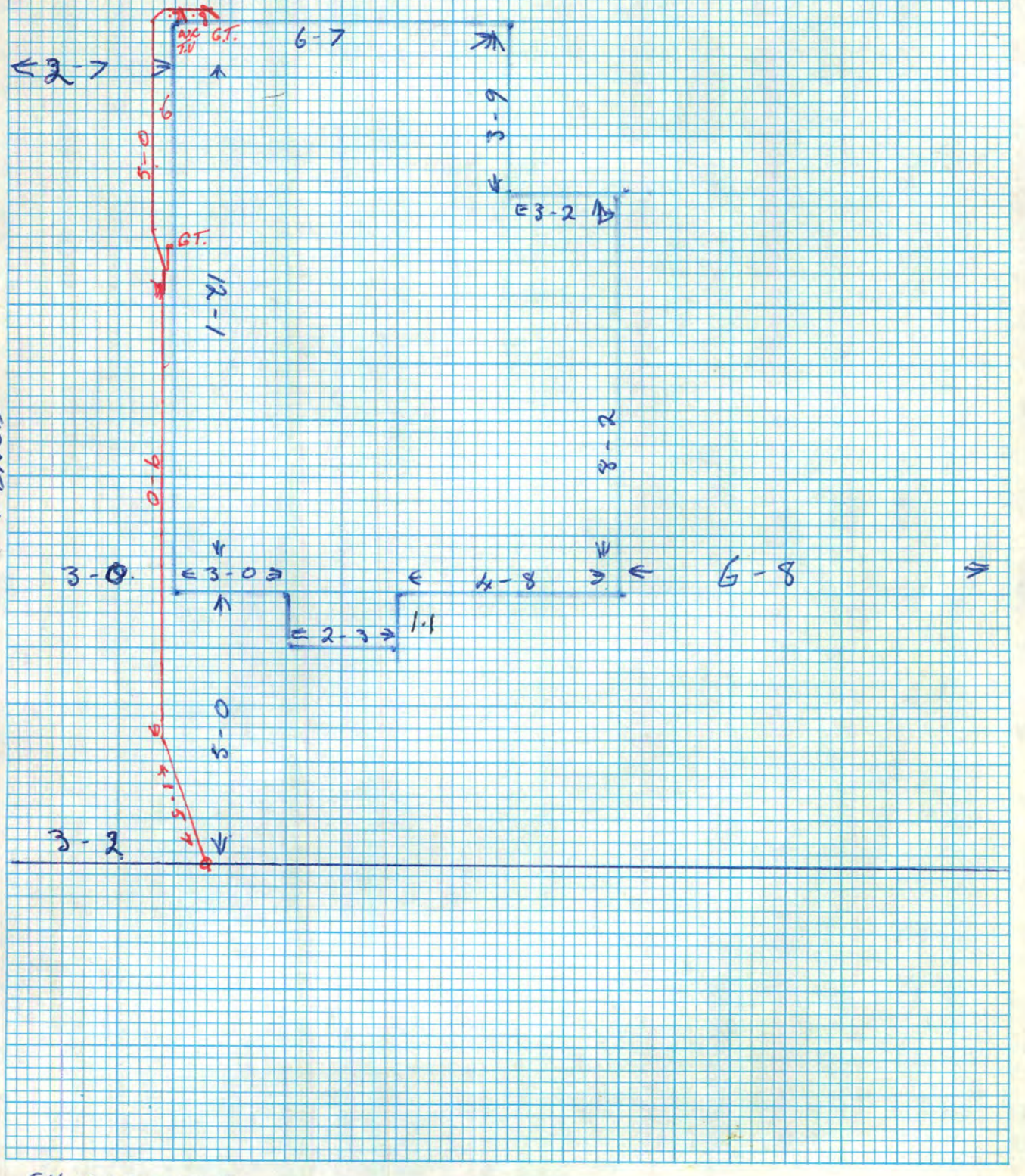
OFFICE USE ONLY.

Receipt No. 6133
Fees 32-00
Date 2-8-84

Valuation Roll No. 27880/1554
Permit No. A1000 - Plmbg
A1001 - Drng

FILE

R. A. Wright.
34 PEARCE ST.
BRIGHTON



F.Y. MACDONALD
DRAIN LAYER

27880 / ~~554~~ 554
~~565~~

Plotted 28/8/85

1998 BUILDING CONSENT APPLICATION TO UNDERTAKE BUILDING ALTERATIONS, AND AS-BUILT PLANS OF THE SAME

FORM 3 - PART A

copy of Certificate of Title

FILE

APPLICATION FOR BUILDING CONSENT

Section 33, Building Act 1991

98/3611

TO _____ COUNCIL

Complete Part A in all cases

(Insert a cross in each applicable box. Attach relevant documents in duplicate)

APPLICANT*

Name: Pauline Sankey

Mailing Address: 3 Pearse St

Brighton Dun

Contact Name:

Position: Owner

Phone: 481533 Fax:

PROJECT LOCATION

Street Address: 3 Pearse St

Brighton

LEGAL DESCRIPTION

Property Number: SOSL627 3 Pearse St Brighton

Valuation Roll Number: 27.880-55400

Lot: 16 Blk 2 DP: 21 Brighton Township

Section: Block:

Survey District:

COUNCIL CHARGES

The Council's charges payable on the making of this application are based on the value of (GST inclusive):

Building	$
Plumbing & Drainage	$
Total:	$ 10,000-00

PROJECT

New or Relocated Building ☐

Alteration ☑

Intended Use(s) (in detail)

Add & Alter Dwelling

Intended Life:

Indefinite, but not less than 50 years ☑

Specified as ..... years

Demolition ☐

Being stage ..... of ..... stages

Attach additional information if necessary to describe the project

$426.00 OFFICIAL RECEIPT 187321 10/12

* *Under Section 33 of the building Act 1991 the applicant must be the owner of the land on which building work is contemplated or a person who or which has agreed in writing, whether conditionally or unconditionally, to purchase the land or any leasehold estate or interest in the land, or to take a lease of the land, while the agreement remains in force.*

FORM 3 - PART D: KEY PERSONNEL

FILE

(Complete Part D as far as possible in all cases. Give names, addresses, and telephone numbers. Give relevant registration numbers if possible)

Builder(s): Trevor Bungaret

Registered Drainlayer: Brian Lungly

Registered Plumber: Brian Lungly

Registered Gasfitter:

Registered Electrician: Graham Lee

Designer(s): Richard Oliver

Building Certifier(s):

Other:

[Land and Deeds—104.

245/259

NEW ZEALAND.

9.12.98

Reference: Land Transfer (Compulsory Registration of Titles) Act, 1924. Deeds Index. T.362 Application No. C.5074

TWENTY-FIVE SHILLINGS

OFFICE Register-book, Vol. 245, folio 259

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.

LIMITED AS TO PARCELS AND TITLES

This Certificate, dated the Twenty-eighth day of March one thousand nine hundred and Thirty-one under the hand and seal of the District Land Registrar of the Land Registration District of Otago Witnesseth that

EMILY CRIMP wife of Albert Charles Gidley Crimp of Burnside Contractor

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial under written or endorsed hereon, subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon bordered green, be the several admeasurements a little more or less, that is to say: All that parcel of land containing One rood more or less being Allotment Sixteen (16) Block Two (II) on the Plan of the TOWNSHIP OF BRIGHTON deposited in the Deeds Register Office at Dunedin as No.21 and being also part Sections 2 of 6 and 2 of 7 Block I Otokia District.

OTAGO DISTRICT LAND REGISTRAR NEW ZEALAND

Wm Whitby Morgan
District Land Registrar.

Outstanding Deed of Conveyance No.30302 (37/698) dated 15th February 1872 creating a right of way over all the roads and streets shown on above Plan No.21 appurtenant to the above-described land Simon Frederick Every and William Carr Young to William James Mudie Larnach.

Wm Whitby Morgan D.L.R.

This Certificate of Title has ceased to be a Certificate of Title "Limited as to Title Entered 13th January, 1932

Wm Whitby Morgan D.L.R.

Transfer 125255 Emily Crimp to Francis Matthew Shirley of Dunedin Grocer produced 15th November 1938 at 11 oc.

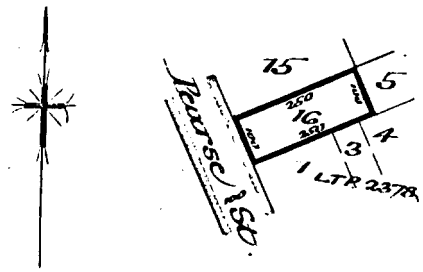
Transfer 125357 Francis Matthew Shirley to Isabella Hannah Phillips wife of James Phillips of Dunedin Company Director produced 23rd November 1938 at 11 oc.

Mortgage 103796 Isabella Hannah Phillips to Isabel Robertson Lidsell Longworth produced 15th March 1939 at 30c.

DISCHARGED

EQUIVALENT METRIC AREA IS 1012m²

Block II
Township of Brighton
Ou 1r. 00p



Scale, 2 chains to an inch

Over

98/3611

245/259

Transfer 176487 Isabella Hannah Phillips to Richard Thompson Simpson 9.12.98 Company Director Produced 26th April 1950 at 2.15 p.m.

Transfer 166411 Richard Thompson Simpson & George James Richardson of Dunedin Horticultural Worker Produced 3rd April 1950 at 2.00 p.m.

Transfer 169172 George James Richardson to Allan Francis Hewitt of Dunedin Electrician Produced 25 September 1950 at 2.28 p.m.

DISCHARGED

Mortgage 138188 Allan Francis Hewitt to Leicester Faulkner Produced 25 Sept. 1950 at 2.29 p.m.

DISCHARGED

Mortgage 138189 Allan Francis Hewitt to Mary Barron Produced 25 September 1950 at 2.30 p.m.

DISCHARGED

Transfer 172601 Allan Francis Hewitt to William Reeves Wilson of Dunedin Engineer produced 9 May 1951 at 10.47 a.m.

DISCHARGED

Mortgage 140999 William Reeves Wilson to Alexander Bruce Produced 9 May 1951 at 10.48 a.m.

Variation of Mortgage 140995 produced 9th May 1951 at 10.47 a.m.

Transmission 176175 of Mortgage 140995 to James Bruce of Dunedin Chemist Mechanic as Executor Entered 20th May 1954 at 2.43 p.m.

DISCHARGED

Mortgage 179339 William Reeves Wilson to Frances Marion Thomas, Kathleen Mary Thomas and Mary Mildred Thomas as Executrices Produced 7th April 1959 at 11.52 a.m.

225575 Transmission 177337 of the 1/3 share in mortgage 179337 Frances Marion Thomas to Kathleen Mary Thomas and Mary Mildred Thomas as Executrices Entered 11th October 1960 at 11.30 a.m.

225576 Transfer of 1/3 share in mortgage 179337 Kathleen Mary Thomas and Mary Mildred Thomas as Executrices Entered 11th October 1960 at 11.30 a.m. to the said Kathleen Mary Thomas and Mary Mildred Thomas as Tenants in common in equal shares produced 11th October 1960 at 11.36 a.m.

320304 Transfer to Allan John Wright of Brighton Civil Servant - 26.10.1967 at 2.45 p.m.

320383 Mortgage to Co-operative Investment Society Limited 16 June 1967 at 10.40 a.m.

Settled under the Joint Family Homes Act 1964 on Allan John Wright Salesmanager and Mavis Audrey Wright his wife entered 13.11.1967 at 11.40 a.m.

Application 8810

A.L.R.

THIS REPRODUCTION (ON A REDUCED SCALE) CERTIFIED TO BE A TRUE COPY OF THE ORIGINAL REGISTER FOR THE PURPOSES OF SECTION 215A LAND TRANSFER ACT 1952.

A.L.R.

806886 Transmission to Mavis Audrey Wright of Brighton Widow as Survivor - ~~10.6.1992 at 9.16am~~

A.L.R.

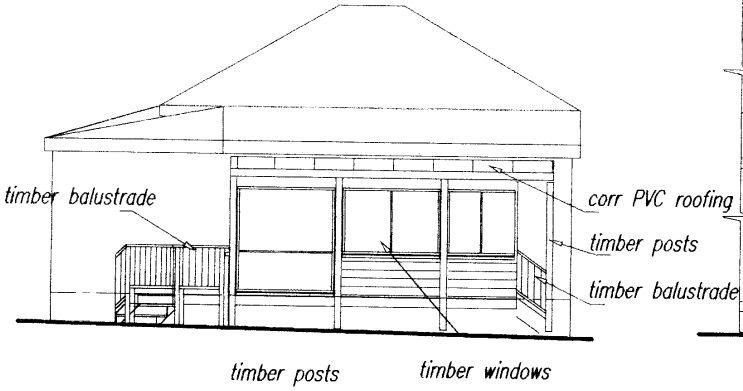
941617.1 Transfer to Pauline Margaret Sankey

941617.2 ~~Mortgage to The National~~ Bank of New Zealand Limited

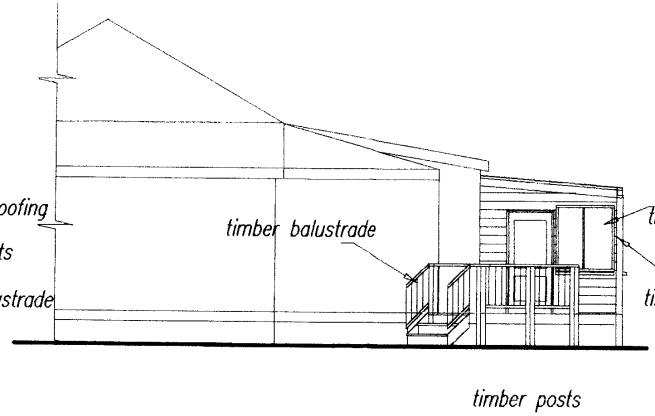
All 22.12.1997 at 11.45

for DLR

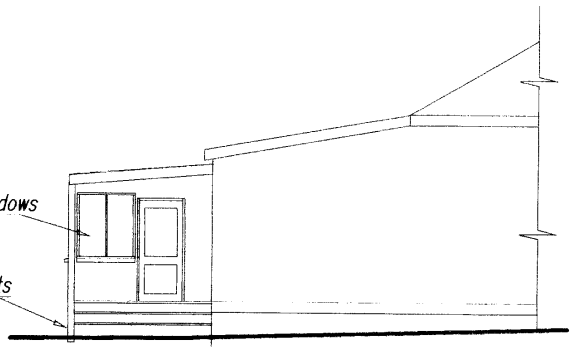
98/3611



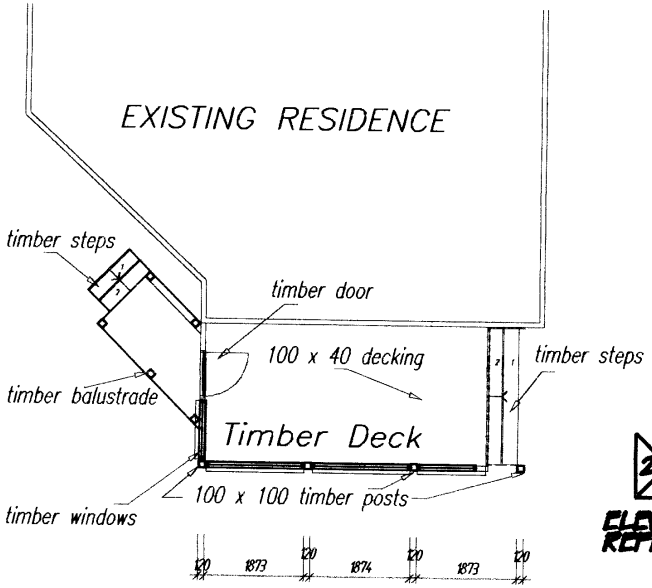
ELEVATION 1



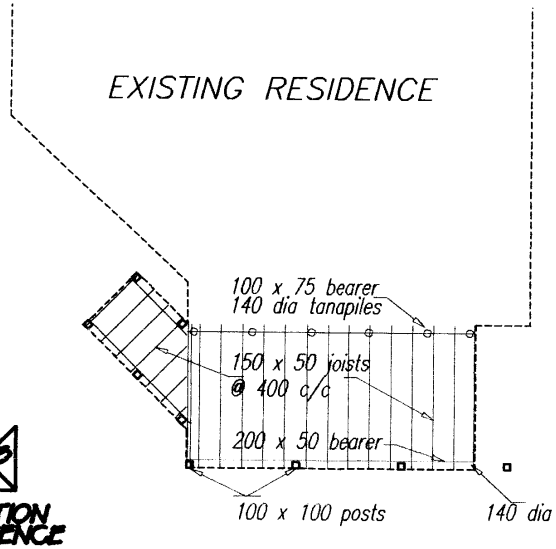
ELEVATION 2



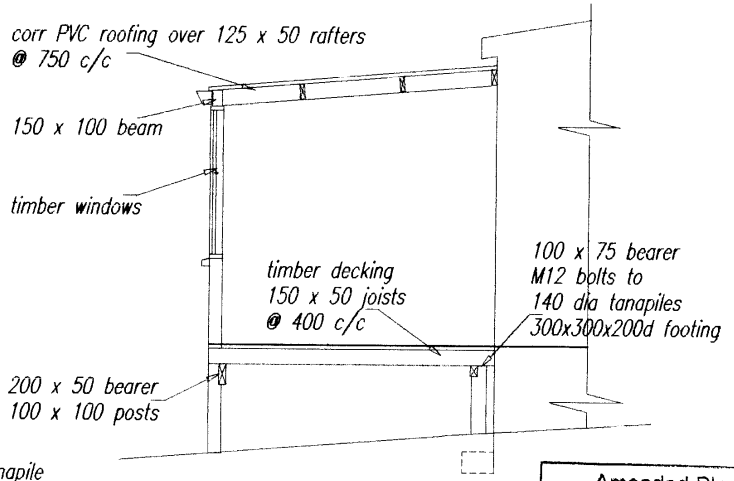
ELEVATION 3



GROUND FLOOR PLAN



FOUNDATION PLAN



TYPICAL SECTION

ELEVATION REFERENCE

DUNEDIN CITY COUNCIL
Plans and Specifications Approved in accordance with The New Zealand Building Code as Compliance Documents. To be retained on work and produced on request
Building
Drainage
Health
Date 1/3/02
Date
Date

Amended Plan and/or Specification Received
By
Date 1/3/02

Designed by
Design & Drafting
787 TAIERI MOUTH ROAD
RD 1 BRIGHTON
Telephone 03 481 1988
Fax 03 481 1985
Te Ewi Mihaka

NEW DECK
for MR & MRS BUNGARD
at 3 PEARSE STREET - BRIGHTON

AS BUILT

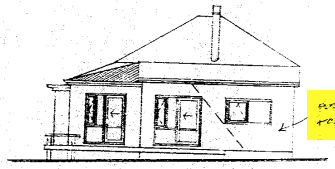
Sheet No. 1 Of 2

Date 21 Dec 01 | Scale 1:100 | Ref No. 661/01

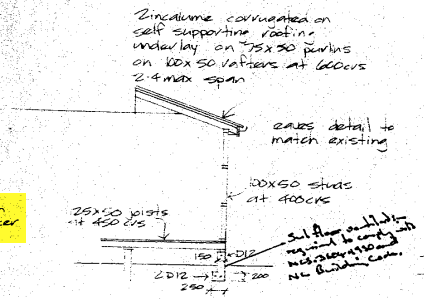
NOTE

Pauline Sankey

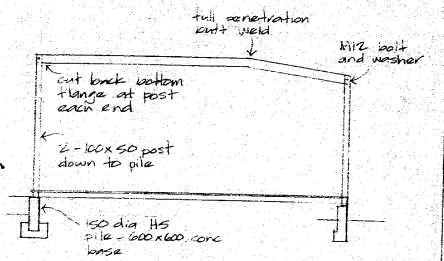
98-3611



NORTH EAST ELEVATION

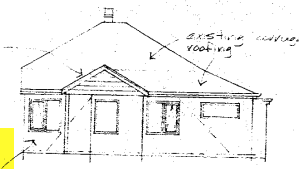


SECTION AT ADDITION

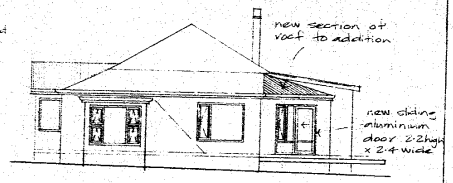


ELEVATION OF UB FRAME 180 UB 22

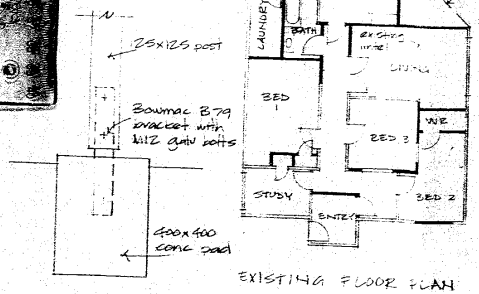
NORTH WEST ELEVATION



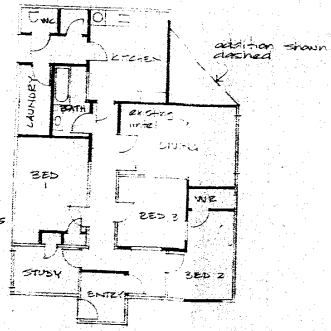
SOUTH WEST ELEVATION



SOUTH EAST ELEVATION 1:100

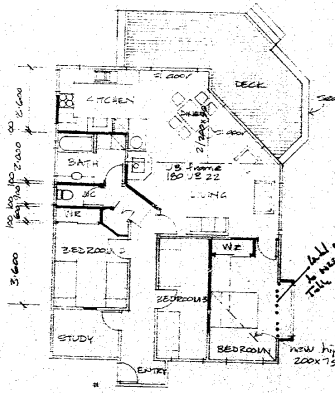


ENTRY POST DETAIL



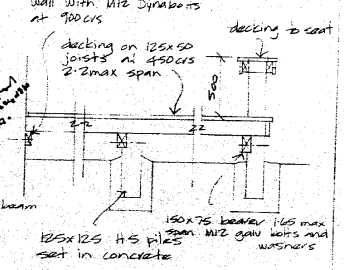
EXISTING FLOOR PLAN

walls to be removed

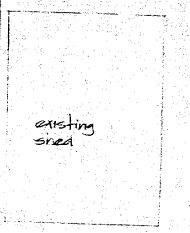


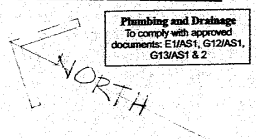
PROPOSED FLOOR PLAN 1:100

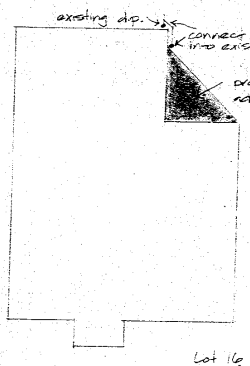
new walls



SECTION THROUGH DECK 1:20







SITE PLAN 1:100

DUNEDIN CITY COUNCIL
Pursuant to the provisions of the District Scheme, these plans and specifications are approved, provided that no changes shall be made to the details shown hereon, and particularly in the specification attached hereto, and subject to

Date 6/5/98 Signed

DUNEDIN CITY COUNCIL
Plans and Specifications Approved in accordance with The New Zealand Building Code and Approved Documents. To be retained on works and produced on request.
Building Date 22/4/98
Drainage Date 16/12/98
Health Date
NOTE As built drawings required

Plumbing and Drainage
To comply with approved documents: E1/AS1, G12/AS1, G13/AS1 & 2

Lot 16 Block two Plan of Township of Brighton DP 21 pt Sections 206 and 207 Block I Otokia District

98/3611

PROPOSED ALTERATIONS FOR MR AND MRS T. BUNGARD - BRIGHTON

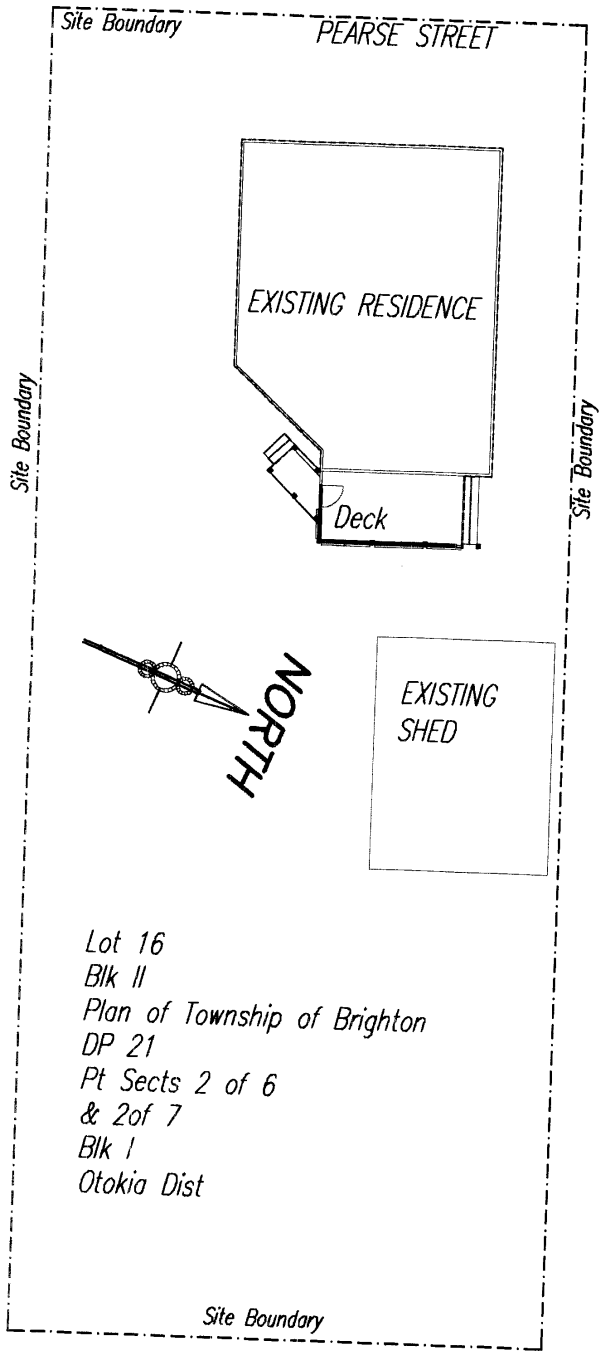
Job No 1380
Scale 1:100
December 97

R J OLIVER DESIGN
Architectural Designer NZCD ADNZ
45 Riverside Mosgiel ph 489 4797

architectural designers

Design & Drafting
787 TAIERI MOUTH ROAD
RD 1 BRIGHTON
Telephone 03 481 1988
Fax 03 481 1985
Te Bwi Mihaka

NEW DECK
for MR & MRS BUNGARD
at 3 PEARSE STREET - BRIGHTON



Lot 16
Blk II
Plan of Township of Brighton
DP 21
Pt Sects 2 of 6
& 2of 7
Blk I
Otokia Dist

Site Area . . . . . .
Area of Residence 131.26 sq.m.
Artea of Shed 58.96 sq.m.

SITE PLAN

Date 21 Dec 01	AS BUILT
Scale 1:200 1:50	
Ref No. 661/01	Sheet No. 2 Of 2

OTHER INFORMATION

2020 SITE IMAGES

2023 GOOGLE STREET VIEW IMAGE OF THE SEARCH AREA VIEWED FROM PEARSE STREET

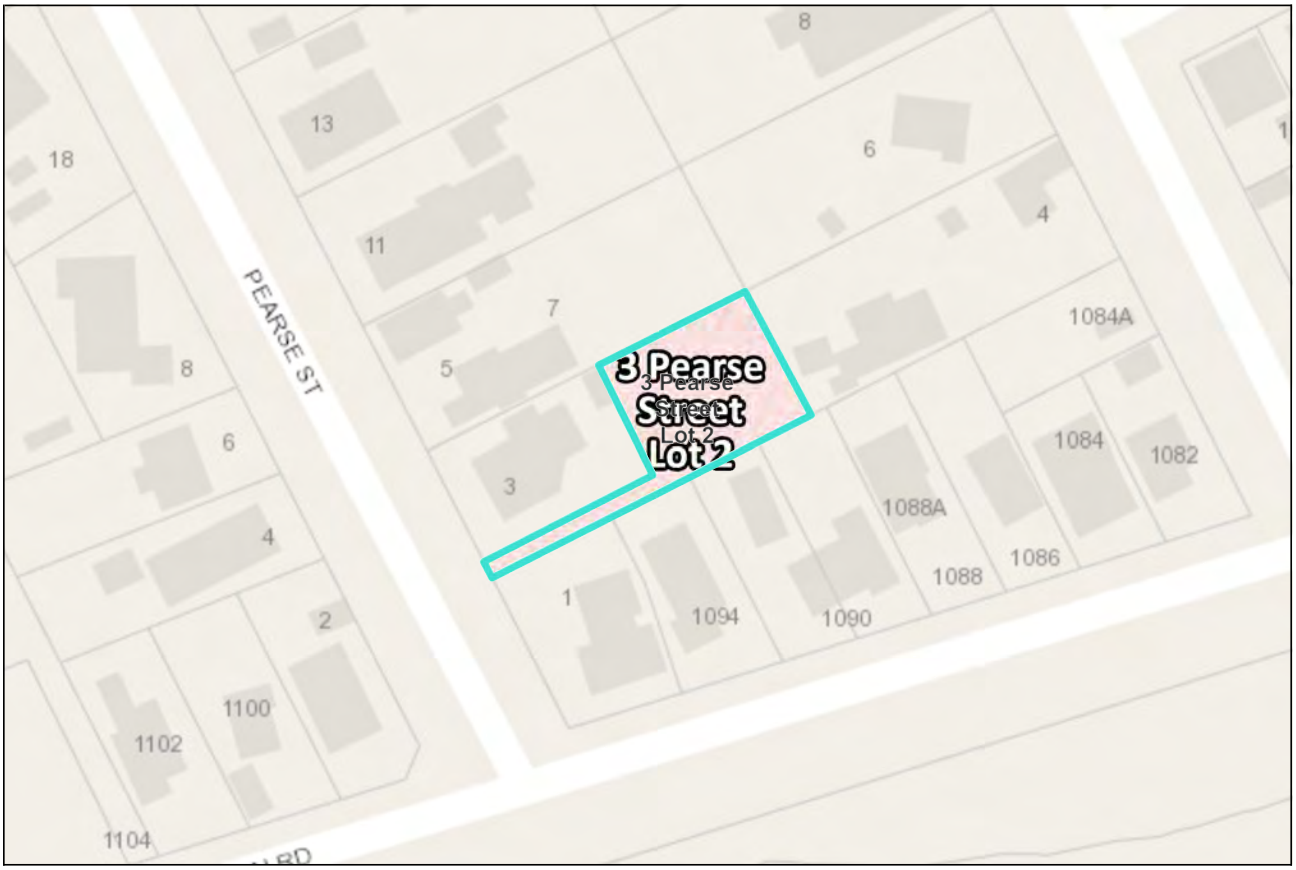

3 Pearse Street
2 Pearse St
Dunedin, Otago
Google Street View
Aug 2023
See more dates
Bedford Parade
Queen St
Cole St
Google
Image capture: Aug 2023
© 2024 Google
New Zealand
Terms
Privacy
Report a problem

3/11/2025, 2:16 PM

Extract from Otago Regional Council HAIL Register GIS Data

3 Pearse Street Lot 2

Site Number	HAIL.02396.01
Site Name	3 Pearse Street Lot 2
Information Date	1/10/2024
Summary	Site validation sampling results confirm that the remedial works were successful. Furthermore, additional sampling of the remainder of Lot 2 shows that all sampled soils meet background soil concentration levels.
TLA	DCC
HAIL Status	Verified HAIL
Category 1	I: Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment
Category 2	
Category 3	
Category 4	
Category 5	
HAIL Date From	31/12/1919
HAIL Date To	
Contamination Status	At or Below Background Concentrations
Mitigation Status	Completed - Remediation
Human Health Context	Residential
Ecological Context	Not Applicable



For the most up to date information, and to check details of nearby sites, refer to the Otago Regional Council HAIL Register at:
https://maps.orc.govt.nz/portal/apps/MapSeries/index.html?appid=052ba04547d74dc4bf070e8d97fd6819.

To directly view the subject site (3 Pearse Street Lot 2) in the HAIL Register, click on:
https://maps.orc.govt.nz/portal/apps/webappviewer/index.html?id=f118c4dd3b7143e3974a714ac9f16a51&find=HAIL.02396.01.

Output generated using attribute and map data retrieved from Otago Regional Council GIS server on 3/11/2025 at 2:16 PM. Refer in particular to:
https://maps.orc.govt.nz/arcgis/rest/services/ORCHAILService/FeatureServer/0/query?where=SITE_NUMBE%3D%27HAIL.02396.01%27&outFields=*&f=html and to
https://maps.orc.govt.nz/arcgis/rest/services/ORCHAILService/MapServer/export?bbox=1392773.2795558404,4907980.583100001,1392913.68412208,4908103.175399998&format=png.

Note: this output does not display all of the attributes associated with the listing.

3 PEARSE STREET, DUNEDIN - SITE VALIDATION REPORT

1.0 INTRODUCTION

This Site Validation Report (SVR) has been prepared to address Conditions 3 through 6 of Land Use Consent LUC-2024-329 for the property located at 3 Pearse Street, Brighton, specifically Proposed Lot 2.

To fulfil Condition 2 of LUC-2024-329, environmental scientist Ciaran Keogh of Environmental Consultants Otago Ltd (EC Otago Ltd) conducted soil sampling at six isolated locations within Proposed Lot 2. This investigation was undertaken prior to the planned demolition of an existing shed that straddled the boundary between the two lots, to assess the potential presence of heavy metal contamination.

Soil samples collected within a 2-meter perimeter ("halo") surrounding the shed footprint indicated that lead concentrations in samples from the halo area were below the applicable Residential Soil Contamination Standards (SCS). However, two of the six sampling locations elsewhere on the site returned lead concentrations that marginally exceeded the Residential SCS threshold.

A detailed description of the identified contamination, along with subsequent actions taken, is provided in the following sections.

2.0 SITE DESCRIPTION

2.1 SUMMARY OF CONTAMINATION

A previous contaminated site management plan and remedial action plan, dated October 2024, prepared by EC Otago LTD for the subject site indicated that metal concentrations (lead) are elevated above predicted background levels based on the underlying geology across Lot 2. Concentrations of lead were reported to exceed the Residential SCS at two locations (3P 1 and 3P 5) as shown in Figure 1. These results indicate that while parts of the site may present a potential risk to human health, the overall risk to human and environmental health from heavy metal contamination is considered low (Figure 2). No heavy metal results reported exceedances of the Commercial/Industrial SCS/Soil Guideline Values (SGV).

Figure 1. Sampling locations across the site (aerial imagery sourced from DCC GIS, 2023-2024. Copyright DCC/ORC, CC BY 4.0).

Sample [A]	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc
3P 1 (0 – 0.15 m)	14	0.43	19	39	290	8	340
3P 2 (0 – 0.15 m)	6	0.21	10	19	120	5	166
3P 3 (0 – 0.15 m)	9	0.44	17	70	141	14	260
3P 4 (0 – 0.15 m)	5	0.30	11	20	171	5	290
3P 5 (0 – 0.15 m)	12	0.40	21	32	290	8	300
3P 6 (0 – 0.15 m)	5	0.16	27	21	77	20	116
Average	*9*	*0.32*	*18*	*34*	*182*	*10*	*245*
RSD	*45%*	*37%*	*36%*	*58%*	*49%*	*59%*	*35%*
Soil Acceptance Criteria (Human Health) – Residential							
NES[B] SCS	20	3	460	>10,000	210	-	-
NEPM[C] SGV	-	-	-	-	-	400	7,400
Soil Quality Guidelines (Environmental Health)							
CCME[D]	17	10	64	63	300	45	250
Predicted Background [E]							
Median	3.03	0.054	12.5	9.37	8.27	5.83	24.53
95th Quantile	12.67	0.28	60.5	40.17	30.08	32.88	101.8
Landfill Screening Acceptance Criteria [F]							
Green Island	100	20	100	100	100	200	200
Burnside	100	20	400	400	400	200	800

[A] Results for total concentration analysis, average, and SCSs/SGVs in mg/kg dry weight; relative standard deviation (RSD) in %. Sample numbers are as marked in Figure 3. Cells highlighted yellow exceed the predicted background concentration and cells highlighted red exceed the residential human health guidelines.

[B] Ministry for the Environment, 2012. *Users' Guide, National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*. Wellington. Cr SCS is reported as Cr(VI). *Residential* scenario applied.

[C] National Environment Protection Council (Australia), 2013. *National Environment Protection (Assessment of Site Contamination) Measure 1999*. Health Investigation Levels (HIL) for Low Density Residential land use (HIL A) applied.

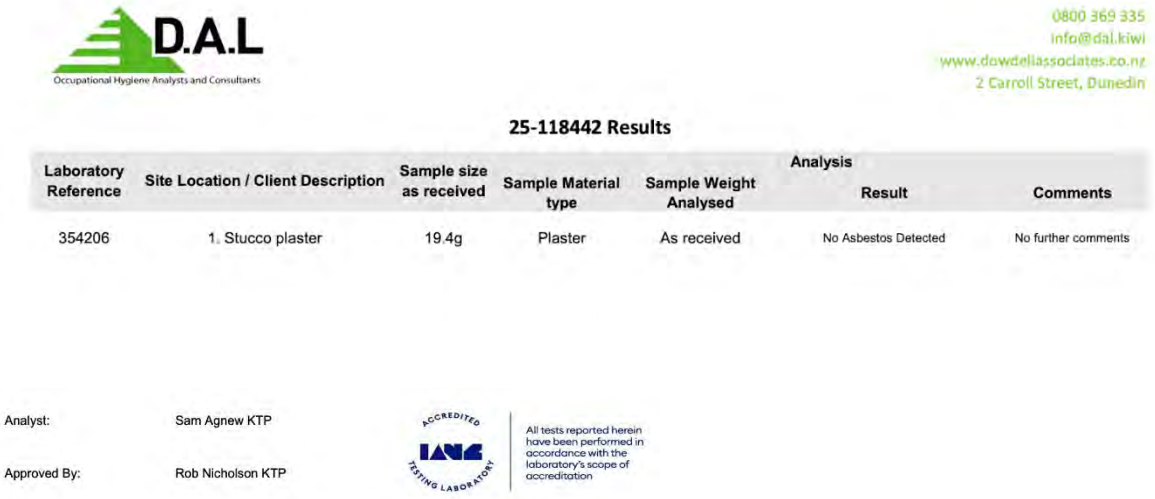
[D] Canadian Council of Ministers of the Environment, 2021. *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health*. Soil quality guideline for environmental health for residential/parkland land use quoted.

[E] Landcare Research, 2015. *Background soil concentrations of selected trace elements and organic contaminants in New Zealand*. Predicted median and 95th Quantile reported for the site (Chemical4 Factor: Sandstone Pakihi. Also refer: https://lris.scinfo.org.nz/layer/48470-pbc-predicted-background-soil-concentrations-new-zealand/.

[F] Ministry for the Environment, 2004. *Module 2: Hazardous Waste Guidelines - Landfill Waste Acceptance Criteria and Landfill Classification*. And Burnside Landfill in Dunedin (RM17.198.01.V3). Blue cells indicate Landfill Acceptance Criteria that are exceeded by the average.

Figure 2. Summary results of laboratory analysis from the contaminated site management plan and remedial action plan.

An asbestos survey was recommended prior to the demolition of any existing structures. Analytical testing did not detect the presence of asbestos-containing materials (Figure 3.)



D.A.L
Occupational Hygiene Analysts and Consultants

0800 369 335
info@dal.kiwi
www.dowdeliassociates.co.nz
2 Carroll Street, Dunedin

25-118442 Results

Laboratory Reference	Site Location / Client Description	Sample size as received	Sample Material type	Sample Weight Analysed	Analysis Result	Comments
354206	1. Stucco plaster	19.4g	Plaster	As received	No Asbestos Detected	No further comments

Analyst: Sam Agnew KTP

Approved By: Rob Nicholson KTP

ACCREDITED IANZ TESTING LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Figure 3. Asbestos laboratory results prior to shed demolition

2.2 SUMMARY OF APPLICABLE CONSENT CONDITIONS

Condition 6 of LUC-2024-329 states:

"If required by condition 3 above, within 20 workings days of the completion of the works the Consent Holder must provide the Consent Authority with a Site Validation Report (SVR), prepared by a suitably qualified and experienced practitioner and in accordance with Contaminated Land Management Guideline No 1."

2.3 SUMMARY OF REMEDIATION STRATEGY AND OBJECTIVES

The goal of the remedial earthworks was to prevent exposure of current and future site occupants to contamination that presents a risk to human health (i.e. to prevent contact with, ingestion and inhalation of soil containing contaminants that exceed the applicable human health guidelines).

The remediation strategy included:

1. Capping/containment to prevent direct contact.

2. Excavate soil with disposal off-site at a suitable landfill.

3. Dilution of the contaminated soils to levels below the Residential SCS.

"Given the proposed development of the site, capping is the primary mechanism for management of the contamination. Capping will consist of either permanent hard surfaces (buildings or paving) or a permeable soft cap (imported clean gravel or soil) to prevent direct access to and contact with the contaminated soils. However, where surface soils are scraped to facilitate the development, soils from the vicinity of 3P 1 and 3P 5 should either be removed from site for disposal to landfill or thoroughly mixed with other soils from the site or imported clean soil to dilute the overall level of contamination to below the applicable guidelines."

Consequently, a combination of the remediation options was employed on the site.

3.0 SUMMARY OF REMEDIATION/MANAGEMENT WORKS

Soil remediation activities at the site were carried out between 12 and 15 April 2025.

A 2 m^2 exclusion zone was established around contaminated areas designated as locations 3P1 and 3P5 (refer to Figure 1). In accordance with the site-specific Health and Safety Plan (HASP), Contaminated Site Management Plan (CSMP), and Remedial Action Plan (RAP), clean topsoil sourced from Wals Plant Land, Mosgiel, was imported to the site and thoroughly blended with in-situ contaminated soil to reduce lead concentrations through dilution.

At each location, the upper 0.1–0.2 meters of soil was mechanically mixed with the imported material using an excavator. A visual record of the remediation process is provided in Appendix 1. Following homogenization, an additional 0.1–0.2 meters of clean topsoil was placed over the remediated area as a capping layer and distributed evenly across the site.

No contaminated soil was removed from the site. Post-remediation validation sampling and laboratory analysis confirmed that lead concentrations at both locations are now below the applicable residential Soil Contaminant Standard (SCS).

4.0 VALIDATION WORKS

4.1 SAMPLING OF IMPORTED TOPSOIL

On 12 April 2025, a single representative sample was collected from an approximately 10 m^3 stockpile of topsoil at Wals Plant Land (Appendix 3) designated for use at the subject site. The sample was submitted to Hill Laboratories for analysis (Appendix 2), with a focus on heavy metals, particularly lead. The analytical results are presented in Figure 4.

Laboratory testing indicated that lead concentrations were below the applicable Soil Contaminant Standards (SCS) for residential land use, confirming the suitability of the material for use in the site remediation activities.

Sample (A)	**Lead (mg/kg dry wt)**
Topsoil Stockpile	14.9
Soil Acceptance Criteria (Human Health) - Residential	
NES (B) SCS	210

[A] Results for total concentration analysis, average, and SCSs/SGVs in mg/kg dry weight;

[B] Ministry for the Environment, 2012. *Users' Guide, National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health.* Wellington. Cr SCS is reported as Cr(VI). *Residential* scenario applied.

Figure 4. Laboratory results for lead concentrations in the topsoil stockpile compared against the upper threshold of the applicable soil acceptance criteria.

4.2 SAMPLING OF CONTAMINATION LOCATIONS

On 15 April 2025, samples were collected from locations 3P1 and 3P5 on figure 1. Surface samples (0 – 0.15 m depth) were collected from each location and sent to Hills Laboratory for analysis (Appendix 2) of total recoverable lead. The results of this are shown below in Figure 5.

Sample (A)	Lead (mg/kg dry wt)
3P 1	15.8
3P 5	15.7
Soil Acceptance Criteria (Human Health) - Residential	
NES (B) SCS	210

[A] Results for total concentration analysis, average, and SCSs/SGVs in mg/kg dry weight;

[B] Ministry for the Environment, 2012. *Users' Guide, National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health.* Wellington. Cr SCS is reported as Cr(VI). *Residential* scenario applied.

Figure 5. Laboratory results for lead concentrations in the two contamination locations compared against the upper threshold of the applicable soil acceptance criteria.

The results confirm that the soil remediation activities, undertaken in accordance with the Contaminated Site Management Plan (CSMP) and Remedial Action Plan (RAP), have been effective in reducing lead concentrations at locations 3P1 and 3P5 to levels below the applicable Soil Acceptance Criteria (SAC) for residential land use.

Figure 6 presents the post-remediation lead concentrations across the six originally sampled locations (tested on 18 September 2024). The data indicate that the average lead concentration across the entirety of the proposed Lot 2 is now well below the residential SAC threshold.

Sample (A)	Lead (mg/kg dry wt)
3P 1	16
3P 2	120
3P 3	141
3P 4	171
3P 5	16
3P 6	77
Average	*90*
Soil Acceptance Criteria (Human Health) - Residential	
NES (B) SCS	210

[A] Results for total concentration analysis, average, and SCSs/SGVs in mg/kg dry weight;

[B] Ministry for the Environment, 2012. *Users' Guide, National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health.* Wellington. Cr SCS is reported as Cr(VI). *Residential* scenario applied.

Figure 6. Updated summary of all sampling locations with current laboratory-reported lead concentrations.

5.0 CONCLUSIONS

The soil remediation activities carried out at 3 Pearse Street, Proposed Lot 2, have effectively reduced lead contamination at locations 3P1 and 3P5 to concentrations below the applicable Soil Acceptance Criteria, in accordance with the National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health (NES-CS).

As outlined in the Contaminated Site Management Plan (CSMP) and Remedial Action Plan (RAP), initial site investigations identified localized areas where heavy metal concentrations, primarily lead, posed a potential risk to human health. However, the overall risk to human and environmental health was assessed as low. Following the successful implementation of the remediation strategy in accordance with the CSMP and RAP, it can be concluded that the potential human health risk has been mitigated. Consequently, the site does not require ongoing management and is considered suitable for residential land use, consistent with the objectives of LUC-2024-329.

PHIL WILSON

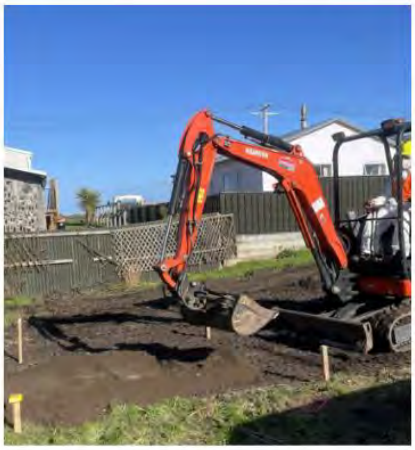
PROPOSED LOT 2 AT 3 PEARSE STREET, DUNEDIN

SITE VALIDATION REPORT

	Content	**Required**
a)	Summary of works undertaken	☑
b)	A statement confirming whether the disturbance works have been completed in accordance with the Remedial Action Plan	☑
c)	The location and dimensions of the excavations carried out, including a relevant site plan	☑
d)	Records of any unexpected contamination encountered during the works, if applicable	N/A
e)	A summary of sampling and analysis undertaken for validation sampling, and for unexpected contamination (if applicable), tabulated analytical results including laboratory transcripts, and interpretation of the results in the context of the relevant soil guideline values	☑
f)	Copies of disposal dockets for material removed from site, if any; and	N/A
g)	Details regarding any complaints received by the Consent Holder and/or breaches of the procedures set out in the Remedial Action Plan.	N/A

Appendix 1. Site Remediation Photos

Imported Top Soil from Wals Plant Land, Mosgiel



Imported Top Soil being blended with contaminated soil in a 2m square radius around site location 3P5 as per CSMP and RAP

Remediated site location 3P5, Flag indicating remediation sampling location, noted on Hills Laboratory report as 3P5 (B)

Site Location 3P1 prior to remediation works

Site location 3P1 with soil being exposed to blend in new clean top soil as per CSMP and RAP

Site location 3P1 after soil remediation works, flag indicating remediation sampling location, noted on the Hills Laboratory results as 3P1 (B)

Appendix 2. Hills Laboratory Results

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Certificate of Analysis

Client:	Phil Wilson	**Lab No:**	3864407	SPv1
Contact:	Eva Mulder	**Date Received:**	22-Apr-2025	
	3 Pearse Street	**Date Reported:**	24-Apr-2025	
	Brighton	**Quote No:**		
	Dunedin 9035	**Order No:**		
		Client Reference:		
		Submitted By:	Eva Mulder	

Sample Type: Soil

	Sample Name:	3 P1 (B) 14-Apr-2025 2:00 pm	3 P5 (B) 14-Apr-2025 3:30 pm
	Lab Number:	3864407.1	3864407.2
Total Recoverable Lead	mg/kg dry wt	15.8	15.7

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed).	-	1-2
Environmental Solids Sample Preparation	Air dried at 35°C and sieved, <2mm fraction. Used for sample preparation May contain a residual moisture content of 2-5%. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed).	-	1-2
Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2 (modified).	-	1-2
Total Recoverable Lead	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2 (modified).	0.4 mg/kg dry wt	1-2

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 22-Apr-2025 and 24-Apr-2025. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

Kim Harrison MSc
Client Services Manager - Environmental

Remediation testing Results displayed for site location 3P1 and 3P5

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Certificate of Analysis

Client:	Phil Wilson	**Lab No:**	3860162	SPv1
Contact:	Eva Mulder	**Date Received:**	16-Apr-2025	
	3 Pearse Street	**Date Reported:**	22-Apr-2025	
	Brighton	**Quote No:**		
	Dunedin 9035	**Order No:**		
		Client Reference:		
		Submitted By:	Eva Mulder	

Sample Type: Soil

	Sample Name:	TopSoil Stockpile 11-Apr-2025 9:45 am
	Lab Number:	3860162.1
Total Recoverable Lead	mg/kg dry wt	14.9

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed).	-	1
Environmental Solids Sample Preparation	Air dried at 35°C and sieved, <2mm fraction. Used for sample preparation May contain a residual moisture content of 2-5%. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed).	-	1
Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2 (modified).	-	1
Total Recoverable Lead	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2 (modified).	0.4 mg/kg dry wt	1

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 16-Apr-2025 and 22-Apr-2025. For completion dates of individual analyses please contact the laboratory.

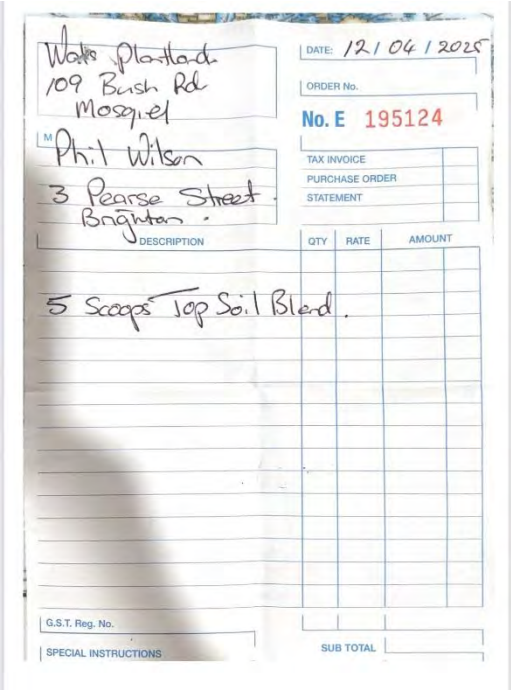
Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

Kim Harrison MSc
Client Services Manager - Environmental

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised. The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked * or any comments and interpretations, which are not accredited.

Hills Laboratory results displayed for soil stockpile at Wals Plant Land, Mosgiel

Appendix 3. Topsoil Dockets - Wals Plant Land, Mosgiel



Report prepared and endorsed by the undersigned

Eva Mulder, MSc

Senior Laboratory Technician / Research Associate

DUNEDIN CITY COUNCIL | kaunihera a-rohe o Ōtepoti

21 March 2025

[redacted]

[redacted]

APPROVAL FOR VEHICLE ENTRANCE – 3 PEARSE STREET, BRIGHTON (LOT 2)

In response to your enquiry and in relation with SUB-2024-113, I wish to advise that the installation of the vehicle entrance to the above property is approved.

Vehicle entrances and reinstatement of footpaths must be carried out by a DCC approved Contractor. Attached is the Council's list of approved contractors for this work. A quotation for the construction of your entrance can be obtained from any contractor on this list.

Any work on road reserve including the construction of a vehicle entrance requires a Corridor Access Request, through www.submitica.co.nz

Construction Requirements

1) The crossing shall be a 3 meters asphaltic dish type.
2) The crossing shall be located as per the submitted plan i.e. on the southern side of the property serving Lot 2.
3) The footpath and berm area shall be excavated and reconstructed in accordance with the Specification for the Construction of Vehicle Entrances.
4) The on street drive shall be a normal type crossing with an asphalt surface from the edge of the existing formed carriageway to the property boundary.
   a) It is advised that the drive within the property be sealed or hard surfaced for at least the first five (5) metres to minimise the potential for damage to the road corridor. It is important to note that the property owner may be liable for any damage to the road corridor resulting from an unformed drive.
5) The finished levels of the drive at the boundary shall be greater than or equal to the existing level at the crown of the road.
6) Stormwater runoff from the drive shall be captured at the boundary and managed in a way where it does not cause a nuisance to neighbouring properties, including the road corridor. For example: A strip drain or sump, with a pipe connected to dish channel. Stormwater pipe should be placed at 10 mm between invert of drain and channel with a minimum of 50mm cover over the pipe.
7) The existing crossing at this property does not meet council standards and is non-compliant. To meet current Council standards the vehicle crossing be hard surfaced from the edge of the carriageway for first 5 metres towards the property.

8)	The work shall be carried out in accordance with the Council's Specifications for the Construction of Vehicle Entrances.

This approval is valid for one year from the above date or 3 months after Code of Compliance signoff, whichever of the two is longer.

Please contact the undersigned on 477 4000 for any clarifications regarding this letter.

Approval must be obtained from a DCC Transport Asset Supervisor, prior to any deviations from these construction requirements. Approved deviations will then be recorded on the property file.

Please note: This outlines DCC Transport requirements only. It is subject to the District Plan, Building Code and any other consent conditions. Please contact City Planning's Public Enquiries Counter and Dunedin City Council Development Services or telephone 477 4000 if you wish to discuss these aspects.

Yours faithfully

Snehal Auti
Network Asset Supervisor
Transport

Encl: Councils list of approved contractors for vehicle entrance construction.
cc: SOUTHSEASMARINE@GMAIL.COM;

CONTAMINATED LAND INVESTIGATION - ASSESSMENT FORM

Reviewer: Ollie Patu	Report: RAP & CSMP	CLIAF Date: 7/11/2024
Reviewer: Joon van der Linde	Report: RAP & CSMP	CLIAF Revision / Review Date: 19/12/2024

1 Report Details

Report Title:	**Remedial Action Plan and Contaminated Site Management Plan 3 Pearse Street, Brighton, Dunedin**
Date Produced:	1/10/2024
Report Author:	Aleasha King, MSc – Contaminated Land Consultant
Report Sign-off:	Bernice Chapman, CEnvP, PhD, MEIANZ – Senior Contaminated Land Consultant
Date Received:	7/11/2024
TIAKI Reference:	EnviroPro-420055046-23047

Background:

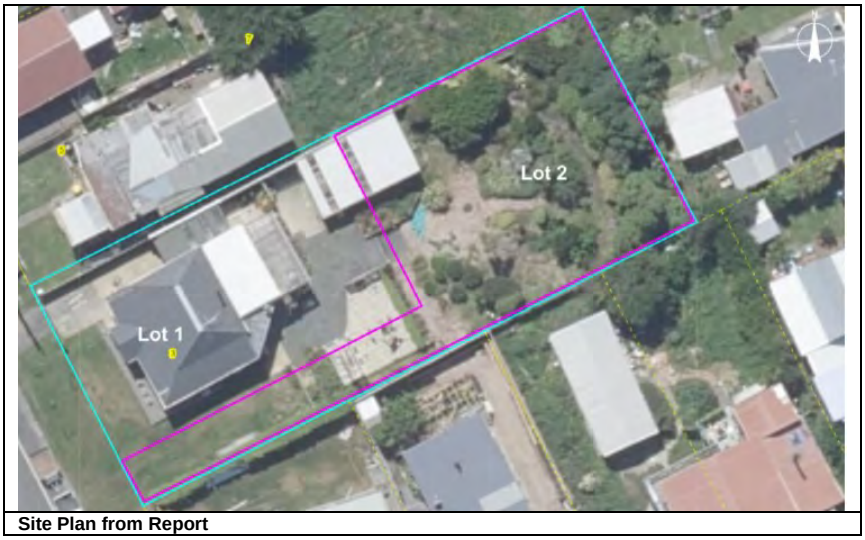
The residential property at 3 Pearse Street, Brighton, Dunedin, is proposed to be subdivided into two lots, with one lot containing the existing dwelling and a new dwelling proposed to be constructed on the second lot.

Due to the long residential history of the site, there is potential for contaminants from building materials to have been released to site soils, such as asbestos or flaking lead paint, and HAIL Categories I (Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment) and E1 (Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition) may apply to the site.

In addition, council records from 1972 indicate that fill may have been placed on the property, and if any of the fill is not clean fill, then HAIL Category G3 (Landfill sites) may also be applicable.

2 Property Information

Current Owner:	Eva Alison Carer Mulder		
Legal Description(s)	LOT 16 BLK 2 DEEDS PLAN 21 BRIGHTON TOWNSHIP		
Territorial Authority:	Dunedin City Council		
Relevant ORC Consents:	Number	Purpose	Status
Not Assessed	N/A	N/A	N/A
Relevant District Council Consents:	Number	Purpose	Status
	SUB-2024-113 & LUC-2024-329	Two lot subdivision and a subdivision of a piece of land under the NES-CS & the disturbance of soil on a HAIL site	Current



Site Plan from Report

3 Potential Receptors

3.1 Human Health

Current land use:	Residential	Comment: A single residential dwelling with a shed.
Current Surface Cover:	Unpaved and paved	Comment: Unpaved garden areas with some vegetation and trees
Proposed land use:	Residential	Comment: N/A
Proposed Surface Cover:	More paved and unpaved	Comment: The existing dwelling remains on proposed Lot 1, the existing shed has been demolished, and a new dwelling has been constructed on proposed Lot 2.
Soil Type(s):	Topsoil, although minor combustion wastes/charcoal were observed in soil throughout the backyard.	Comment: N/A

3.2 Ecology

Nearest Surface Water:	Not Assessed	Comment: N/A
Surface Water Uses:	Not Assessed	Comment: N/A
Depth to Groundwater:	Not Assessed	Comment: N/A
Groundwater Flow Direction:	Not Assessed	Comment: N/A
Aquifer type:	Not Assessed	Comment: N/A
Groundwater Used:	☐Yes ☒No	Comment: N/A
On-site Eco-receptors critical?	☐Yes ☒No	Comment: N/A

4 Environmental Site Assessment Summary

4.1. Potential HAIL land uses and site history investigation.

Land Uses (from HAIL)

Hazardous Activity	Activity Duration Period From	Period To	Entire site or portion of the site?
I: Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment	1920-1930	Present	Portion
E1: Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in deteriorated condition.	1920-1930	Present	Portion
G3: Landfill sites	1920-1930	Present	Portion

Comments:

- Due to the long residential history of the site, there is potential for contaminants from building materials to have been released to site soils, such as asbestos or flaking lead paint, and HAIL Categories I and E1 may apply to the site.
- Council records from 1972 indicate that fill may have been placed on the property, and if any of the fill is not clean fill, then HAIL Category may apply.

Proposed HAIL Status: Verified HAIL

4.2 Sampling and Analysis

Investigation objectives: Sampling and analysis of site soils were conducted to analyse the primary contaminants of concern associated with the long residential history of the site.

		Meets CLMG # 5 YES	NO
Sampling design:	☒ Targeted ☐ Systematic ☐ Stratified ☐ Random ☐ Adaptive ☐ Other:	☒	☐

CLIAF Ref: EnviroPro-420055046-23046

	Comments: • Surface samples (0 – 0.15 m depth) were collected from each location.		
Sampling methodology:	Comments: Not included in this report	☐	☒
Analyte selection:	☒ Metals ☐ TPH ☐ PAH ☐ BTEX ☐ OCP's ☐ ON/OP's ☐ VOC's ☒ Asbestos ☐ Other: Comments: • All samples were analysed individually for heavy metals, as the primary contaminants of concern associated with the long residential history of the site. • No analysis was conducted for asbestos, as no evidence of asbestos was observed during the site investigation.	☒	☐
Sample Location Plan from Report	**Sampling locations:** 		
Field / Lab QA / QC:	Comments: Not included in this report	☒	☐

4.3 Risk assessment (Pre – remediation) Soil Sampling Performed

Selection of SGVs:	• Ministry for the Environment, 2012. Users' Guide, National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health. Wellington. Cr SCS is reported as Cr(VI). Residential scenario applied. • National Environment Protection Council (Australia), 2013. National Environment Protection (Assessment of Site Contamination) Measure 1999. Health Investigation Levels (HIL) for Low Density Residential land use (HIL A) applied. • Canadian Council of Ministers of the Environment, 2021. Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health. Soil quality guideline for environmental health for residential/parkland land use quoted. • Landcare Research, 2015. *Background soil concentrations of selected trace elements and organic contaminants in New Zealand*. Predicted median and 95th Quantile reported for the site (Chemical4 Factor: Sandstone Pakihi. Also refer: https://lris.scinfo.org.nz/layer/48470-pbc-predicted-background-soil-concentrations-new-zealand/. • Ministry for the Environment, 2004. Module 2: Hazardous Waste Guidelines - Landfill Waste Acceptance Criteria and Landfill Classification. And Burnside Landfill in Dunedin (RM17.198.01.V3).

Comparison of results to SGV's documented:

Sample [A]	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc
3P 1 (0 – 0.15 m)	14	0.43	19	39	290	8	340
3P 2 (0 – 0.15 m)	6	0.21	10	19	120	5	166
3P 3 (0 – 0.15 m)	9	0.44	17	70	141	14	260
3P 4 (0 – 0.15 m)	5	0.30	11	20	171	5	290
3P 5 (0 – 0.15 m)	12	0.40	21	32	290	8	300
3P 6 (0 – 0.15 m)	5	0.16	27	21	77	20	116
Average	*9*	*0.32*	*18*	*34*	*182*	*10*	*245*
RSD	*45%*	*37%*	*36%*	*58%*	*49%*	*59%*	*35%*
Soil Acceptance Criteria (Human Health) – Residential							
NES[B] SCS	20	3	460	>10,000	210	-	-
NEPM[C] SGV	-	-	-	-	-	400	7,400
Soil Quality Guidelines (Environmental Health)							
CCME[D]	17	10	64	63	300	45	250
Predicted Background [E]							
Median	3.03	0.054	12.5	9.37	8.27	5.83	24.53
95th Quantile	12.67	0.28	60.5	40.17	30.08	32.88	101.8
Landfill Screening Acceptance Criteria [F]							
Green Island	100	20	100	100	100	200	200
Burnside	100	20	400	400	400	200	800

Overall Comments:

- The results of sampling and analysis found heavy metal contamination present within surface soils across proposed Lot 2, with concentrations of lead exceeding the residential human health guidelines at two out of six locations.
- Average concentrations of all heavy metals, including lead, were found to be below the Residential SCS and applicable guidelines protective of environmental health.
- Portions of the of the site may present a potential risk to human health.
- The depth of contamination present on the site has not been characterised.
- If asbestos is present on the exterior of any buildings, specifically the shed on the proposed Lot 2 portion of the property, which is intended to be demolished, additional sampling and analysis for asbestos is required.

Was contaminated material removed from the site? ☐ YES ☒ NO ☐ Not Applicable (PSI)

Type:	Volume:	Disposal location	Transport or disposal documentation provided. ☐Yes ☐No

Does the remaining material/soil on the site exceed the predicted natural background contaminant concentrations / clean fill acceptance criteria?

☒ YES ☐ NO ☐ Not Applicable (PSI)

4.4 Risk assessment (Post – remediation if applicable) Not Applicable

Selection of SGVs:	Remediation has not commenced
Comparison of results to SGV's:	
Overall Comments:	
Proposed Contamination Status based on the SVR:	Choose an item.
Proposed Mitigation Status based on the SVR:	Choose an item.

5 Conclusions

Conclusions:

Lead concentrations exceed the residential human health guidelines at two out of six locations. These results indicate that portions of the site may present a potential risk to human health.

The Remedial Action Plan and Contaminated Site Management Plan notes that the depth of contamination in the site has not been characterised, and all soils should be considered contaminated unless additional sampling and analysis have been performed to confirm otherwise. Additionally, if asbestos is present on the exterior of any buildings, specifically the shed on the proposed Lot 2 portion which is intended to be demolished, additional sampling and analysis for asbestos is required.

Site Number:	HAIL.02396.01
Site Name:	3 Pearse Street Lot 2, Dunedin
HAIL Status:	Verified HAIL
HAIL Category 1:	I: Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment
Contamination Status **Human Health**:	Contaminated for Residential Land Use
Mitigation Status:	Not Completed
Contamination Status **Environmental Health**:	Contaminated
Mitigation Status:	Not Completed
Summary:	Lead concentrations exceed the residential human health guidelines at two out of six locations. These results indicate that portions of the site may present a potential risk to human health. The Remedial Action Plan and Contaminated Site Management Plan notes that the depth of contamination in the site has not been characterised, and all soils should be considered contaminated unless additional sampling and analysis have been performed to confirm otherwise. Additionally, if asbestos is present on the exterior of any buildings, specifically the shed on the proposed Lot 2 portion which is intended to be demolished, additional sampling and analysis for asbestos is required.
GIS Map Excerpt	

Ollie Patu
Environmental Officer

Joon van der Linde.
Principal Compliance Specialist

Disclaimer
The above decision was based on the information contained in council files and reflects the Regional Council's understanding of the contaminants associated with the site's detailed reports received on this date. The Regional Council accepts no liability for any inaccuracy in, or omission from, the information provided to it by the landowner or any other party associated with the above-mentioned site, or for any information provided by the landowner or any other party associated with the above-mentioned site after the date on which the above decision was made.

CLIAF Ref: EnviroPro-420055046-23046

3 Pearse Street, Brighton
Site Validation Report

Table of Contents

1 Document Control

Report Date	Version	Prepared By	Checked By
5 August 2025	Final	Dave Hanan	Dave Hanan

2 Introduction and Executive Summary

GHC Consulting were engaged by the Wilson family to undertake a site validation report for 3 Pearse Street, Brighton.

The property at 3 Pearse Street, Brighton, was granted subdivision consent by the Dunedin City Council (DCC) to be divided into two lots: Lot 1 (400 m²), containing the existing dwelling and access, and Lot 2 (610 m²) with a leg-in driveway along the southern boundary (Appendix 5). Due to the dwelling's pre-1945 construction and likely use of lead-based paints, the DCC identified a potential for lead contamination in surrounding soils. As a result, the soil on Lot 2 was classified as a potential HAIL site under Category I (storage and use of hazardous substances). Condition 4(b) of subdivision consent SUB-2024-113 required targeted soil testing within this 2-meter halo to assess potential contamination.

In September 2024, EC Otago Ltd conducted initial soil sampling as part of a detailed site investigation and confirmed the presence of lead contamination exceeding the applicable Soil Contaminant Standards (SCS) at two locations. Remedial action was recommended, and both a Contaminated Soil Management Plan (CSMP) and a Remedial Action Plan (RAP) were prepared and accepted by the Dunedin City Council. The shed was manually dismantled (to minimise soil disturbance), and remedial earthworks were carried out as per the RAP at the identified locations (Appendix 6). A site validation report outlining the remediation process was submitted to the council, where it was decided that due to limitations and interpretations around the initial testing in September 2024, further testing was necessary to determine the HAIL status of the site.

On the 8th of July 2025, additional sampling was undertaken (Appendix 3) which was designed to satisfy the conditions of the subdivision consent SUB-2024-113 and land use consent LUC-2024-329 and address any shortcomings from previous testing and reporting. The investigation adhered to best-practice protocols as set out in CLMG No. 1 (MfE, 2021B) and CLMG No. 5 (MfE, 2021A), incorporating appropriate sample density and statistical treatment to validate the site for residential use.

Based on the results, including statistical analysis and calculated 95% UCL of the mean, the site meets background soil concentration levels and is below the soil contaminations standards for the intended use. The horizontal and vertical delineation sampling has also satisfied Condition 3 of LUC-2024-329.

As the trace metal indicators were found to be at or below relevant natural background concentrations (as defined in Envirolink Report 2321-HBRC267 and referenced in CLMG No. 5, Section 6.1), the site therefore meets the criteria to be classified as a "background-level site".

As no contaminants exceed background levels, under the NESCS condition 5 (9) the NES-CS does not apply and, accordingly, does not require further management or controls under the NES-CS framework. This outcome supports full declassification of the site as a HAIL property and enables unrestricted residential development in accordance with current zoning and consent conditions.

3 Objectives of This Report

3.1 Consent Triggers

Conditions of the subdivision and land use consents (SUB-2024-113, LUC-2024-329), relating to the demolition of the shed that straddled the boundary between the two lots and the potential for contamination due to potential lead based paint use on the structure, triggered the need for testing to confirm whether the site is a HAIL site or not. The conditions follows:

SUB-2024-113

4. *Prior to certification pursuant to section 224(c) of the Resource Management Act 1991, the subdivider must complete the following:*

Garage/shed

a) *The existing shed/garage on-site must be removed so that it does not straddle the boundary between Lots 1 and 2.*
b) *The Site Validation Report required under condition 6 of LUC-2024-329 must be received and approved by Council (where required).*

LUC-2024-329

6) *If required by condition 3 above, within 20 workings days of the completion of the works the Consent Holder must provide the Consent Authority with a Site Validation Report (SVR), prepared by a suitably qualified and experienced practitioner and in accordance with Contaminated Land Management Guideline No 1. The SVR should contain sufficient detail to address the following matters:*
   a) *Summary of the works undertaken;*
   b) *A statement confirming whether the disturbance works have been completed in accordance with the Remedial Action Plan;*
   c) *The location and dimensions of the excavations carried out, including a relevant site plan;*
   d) *Records of any unexpected contamination encountered during the works, if applicable;*
   e) *A summary of sampling and analysis undertaken for validation sampling, and for unexpected contamination (if applicable), tabulated analytical results including laboratory transcripts, and interpretation of the results in the context of the relevant soil guideline values;*
   f) *copies of disposal dockets for material removed from site, if any; and*
   g) *Details regarding any complaints received by the Consent Holder and/or breaches of the procedures set out in the Remedial Action Plan.*

The remedial earthworks were carried out in accordance with the RAP (Appendix 6) This report specifically addresses the shortcomings identified in the initial testing and has been designed to confirm that the soil testing completed as part of this investigation has been conducted to the required standard to fully satisfy and confirm compliance with all relevant consent conditions outlined above.

4 Site History and Contamination Background

4.1 Historic Use and Aerial Imagery

Historical aerial imagery dating from 1958 to 2024 (Appendix 4) confirms the property has remained largely undeveloped aside from the shed structure. The area has been vegetated with typical garden plantings and minor charcoal like fragments observed in initial soil samples suggest historic domestic burning, *but* no significant HAIL activities. This is consistent with typical residential land use.

4.2 Lead Hotspots Identified in 2024

The initial detailed site investigation identified two isolated hotspots, where lead concentrations exceeded the residential Soil Contaminant Standards (SCS). These locations were not situated near any known HAIL-related activities (structures), and their distance from the former shed structure suggests they are unlikely to be directly linked to lead-based paint. Given their isolated nature and lack of an obvious source, it is more plausible that these exceedances reflect diffuse, historic influences, such as atmospheric deposition from leaded petrol emissions (the site is within 100m of Brighton Road). This interpretation aligns with the guidance in CLMG No. 5, which recognises that minor exceedances may result from widespread, low-level legacy inputs rather than specific contamination events.

4.3 Remediation Summary

The localised remedial works were carried out under favourable weather conditions and with appropriate environmental controls and processes. The remediation process was included in the initial SVR that was submitted to council on 9/5/2025, an overview of the remediation undertaken can be found in the Appendix 6. Based on the available evidence, it is reasonable to conclude that the remediation was effective in addressing the immediate area where lead concentrations previously exceeded the residential Soil Contaminant Standard. To confirm this, these areas were tested during investigations undertaken for this report and are described below.

---

5 Sampling Rationale

5.1 Asbestos Sampling

An asbestos survey was conducted prior to demolition. No asbestos-containing materials were detected during laboratory testing (Appendix 7). Visual inspection also showed no signs of asbestos fragments in soil or structures. As such, further testing was deemed unnecessary.

5.2 Soil Sampling

The purpose of the soil sampling undertaken is to adequately characterize the presence of a range of contaminants that may be present within the soil. The September 2024 investigation, documented in the CSMP/RAP, unfortunately did not provide enough data to statistically validate site-wide lead concentrations. Based on the recommendations in CLMG No. 5, the collection of nine soil samples provides sufficient spatial coverage for a site of this size and land use, ensuring results are representative of overall site conditions.

Three samples were collected from within the 2 m halo surrounding the now-demolished shed, which was identified as the primary area of concern for potential lead contamination from paint flakes. Two surface samples (0–0.15 m) were taken to assess whether lead-based paint had impacted the surrounding soils, as this zone was considered the highest risk area due to the potential historical use of lead based paints. One additional sample was collected at 0.15–0.35 m to evaluate potential vertical migration into the subsoil below.

5.3 Supplementary Sampling Across Site

Six additional soil samples were collected. Two of these were taken within the previously remediated hotspots (these are displayed as 3P5 and 3P4 on the map below) to verify the remediation was effective. The other four samples targeted parts of the site that had not been well covered before, to give a more complete picture of soil conditions across the whole property. Location 3p6 was also taken from sub-surface levels of .15-.3m to delineate the site. Overall, this sampling approach provides a thorough assessment of any remaining contamination risk and follows the best practice recommendations in CLMG No. 5. The sampling was designed to achieve adequate spatial representation and provide sufficient statistical power to support a statistically defensible assessment, in accordance with the sampling design principles and statistical requirements outlined in CLMG No. 5 (MfE, 2021A). Further, to satisfy Condition 3 of LUC-2024-329, samples were collected within the 2-meter halo surrounding the shed. The shed was manually demolished to minimise contaminant redistribution if any. Two samples, 3p1 and 3p3, were taken from surface soils (0–0.15 m) and one, 3p2, from sub-surface depths (0.15–0.30 m). The sample plan can be referenced in Figure 1 below. The field test pits were photographed and are viewed in Appendix 3.

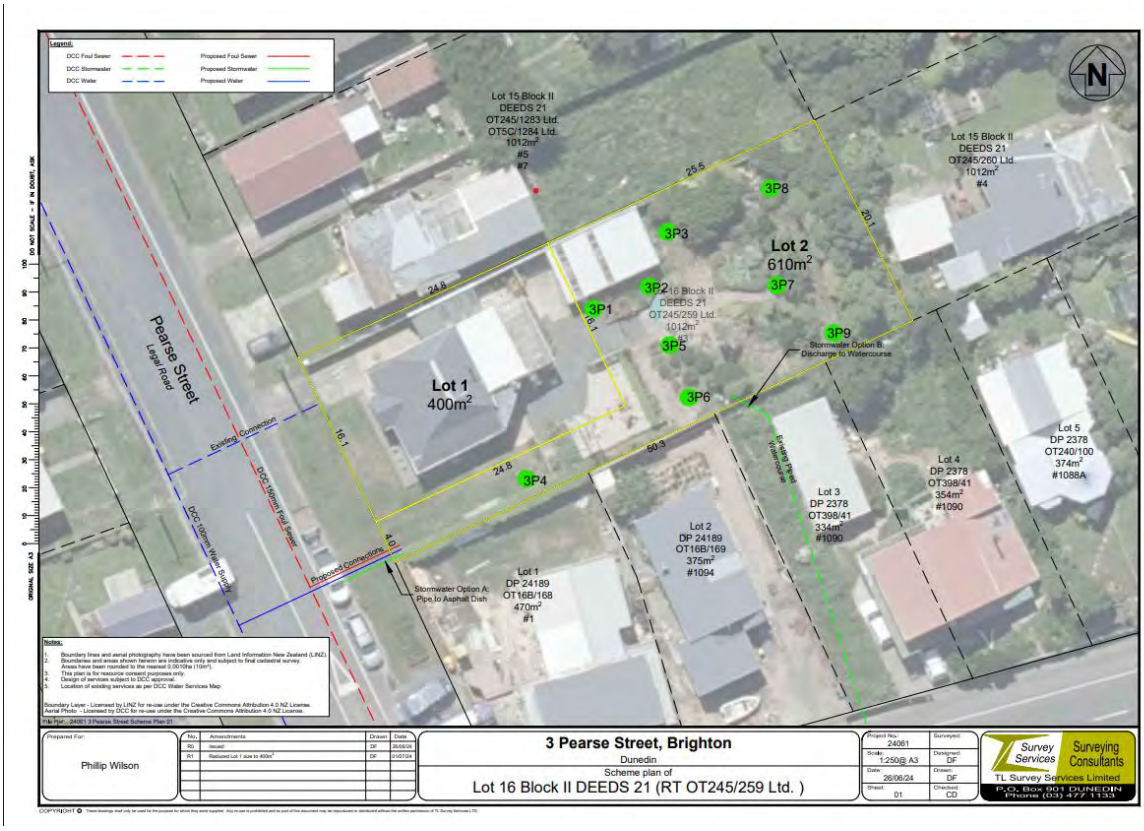


Figure 1 Sampling Plan

6 Field Sampling and Screening Techniques

The sampling was undertaken by Dave Hanan. The sampling was undertaken in accordance with the MfE (2021) Contaminated Land Management Guidelines No 5. All samples were sent to a

certified IANZ Laboratory. A small hole was dug using a spade excavating a square to a depth of approximately 350 mm. We noted that the soil was relatively easy to excavate. A photo of each sample site was taken, which can be viewed in Appendix 3. Care was also undertaken to sample only the removed soil from the sample site.

Standard quality assurance (QA) and quality control (QC) programme was implemented as part of good field practice. This included the following:

- All samples were taken on the same day
- Sterile, glass soil sample jars with an air-tight Teflon lid were supplied by an IANZ laboratory
- These jars were filled to the rim so that there was minimal/no air gap, the rim was also cleaned before securing the lid to ensure a good airtight seal.
- Sample equipment was decontaminated using DeCon90 and deionised water between each sample location
- New gloves were worn for each sample location
- Samples were placed in a chiller bin with a chain of custody form enclosed
- The chiller bin was couriered to the laboratory the same day of sampling
- The laboratory used was an International Accreditation New Zealand laboratory
- The material was noted as being received (via e-mail receipt) by the laboratory the following day.
- For the asbestos sampling, a plastic 500g semi-quantitative plastic container, provided by an IANZ laboratory was used.

7 Laboratory Quality Assurance / Quality Control

7.1 Evaluation of Laboratory Results with relevant guideline values

The guideline values used to assess this site were the soil contaminant standards for residential use where 25% of the site could be used as produce along with the trace metal background soil concentration values. The 95th percentile of the key trace metals for all soil types in New Zealand is published by the Landcare Research Soils Database (https://lris.scinfo.org.nz/data/?q=background). Background soil concentration trace metal values are defined as the 99th percentile (Wasteminz, 2023). In this particular case the relevant background soil concentration value is the Pakahi Mudstone. The laboratory reports results are included in Appendix 1.

7.2 Laboratory Quality Assurance / Quality Control

The laboratory used are accredited by International Accreditation New Zealand (IANZ) for the analyses performed. ensuring compliance with ISO/IEC 17025 standards for laboratory competence. To maintain their accreditation, Hills undertake rigorous cross checking and routine duplicate sample testing to ensure the accuracy of their results. If further information regarding the Laboratory QA/QC is required, then this can be provided upon request.

8 Field Observations

There was no evidence of any odour, ground staining, drums or chemical containers or dead or dying vegetation. The shed had been removed at the time of sampling and the site appeared contaminant free.

It was previously reported that the shed's stucco plaster cladding was observed to be in good condition prior to demolition, which further reduced the likelihood of contamination.

9 Results and Discussion

9.1 Soil Sampling Results

During testing, a mixture of sandy and clay based soils were found. Some sample sites were also found to contain small amounts of compost based materials and small gravel and rock fragments, typical of a site that has been used for residential use. No contaminants of concern were noted during testing and the site appeared to have been undeveloped other than the remediated areas and the area where the shed used to be (Appendix 2). The results of the soil tests are displayed below.

Table 1 Soil Sampling results compared to the SCS values for the intended use and background soil concentration levels

Sample	Arsenic mg/kg	Cadmium mg/kg	Chromium mg/kg	Copper mg/kg	Lead mg/kg	Nickel mg/kg	Zinc mg/kg
3P1	4.0	0.12	18	15	14.8	14	75
3P2	4.0	0.11	18	14	14.5	13	67
3P4	4.0	0.11	19	14	14.6	14	68
3P5	5.0	0.14	22	17	17.0	15	85
3P3	5.0	0.10	22	16	15.7	15	73
3P6	4.0	0.13	18	16	14.4	14	76
3P7	5.0	0.13	20	15	17.1	15	73
3P9	4.0	0.13	19	14	15.1	13	68
3P8	4.0	0.12	17	14	14.6	13	69
Mean Concentration	4.3	0.12	19.0	15.3	15.3	14.2	71.4
95% UCL	4.7	0.13	20.1	16.3	16.1	15.1	75.7
Background Soil Concentration levels (Pakahi Mudstone) 99th %tile	14.46	0.34	72.0	46.26	32.77	40.56	115.91
Soil Contaminant Standards for the end use	17	0.8	290	>10000	210	400*	8000*

*Australian NEPM Schedule 1B - Guideline on Investigation Levels for Soil and Groundwater

9.2 Soil Sampling Discussion

Lead concentrations in soil samples collected from 3 Pearse Street on 8 July 2025 are low, with all individual results and the 95% Upper Confidence Limit (UCL) of 16.10 mg/kg well below the applicable Soil Contaminant Standard (210 mg/kg) for residential land use as well as being below local background levels. No sample exceeded natural background expectations for Dunedin, and no hotspot or trend indicative of anthropogenic contamination was observed. This also applies to all heavy metals on the site.

9.3 Asbestos sampling note

Asbestos was not detected in previous samples and therefore not tested.

10 Risks to Human Health

10.1 Conceptual Site Model

When assessing any contaminated site, the development of a conceptual site model (CSM) is an essential step to ensure that all potential pathways to prevent harm to human health are considered. Figure 4 describes the fundamentals of a CSM. The purpose of a CSM is to consider the current and future land use and whether there is a potential risk to human health or the surrounding environment in relation to any potential contaminants as a result of the site's historical or current activities (MfE, 2011). The CSM is designed to identify any / all of the potential sources of contamination, receptors (dermal, inhalation, ingestion) and pathways (how does it get there). If a pathway is incomplete (for example a barrier between the receptor and the contamination) or the material removed, then exposure is effectively eliminated.

In this situation, the source contamination has been shown not to be at a level where human health could be affected and therefore the pathway to any receptor (dermal, inhalation, ingestion) doesn't exist.

Figure 4 Conceptual Pathway

10.2 Evaluation of Whether Contamination Exists

The results from the sampling indicate that the soils meet background soil concentration levels, and therefore by default there is negligible risk to human health for the future proposed activity.

10.3 NESCS Requirements

Results from this investigation confirm that the site no longer contains contaminants exceeding applicable SCS values, and that residual concentrations are consistent with either background levels. No unacceptable risk to human health or the environment has been identified.

The outcomes of this report support the HAIL status for Proposed Lot 2 be updated as "remediated HAIL" and the continuation of subdivision and future residential development should proceed without the need for further contaminated land consents.

---

11 Conclusion and Recommendations

This investigation confirms that the remedial works have removed the contaminated soil to the extent all soils sampled now meet background soil concentration levels. This now means that the NES-CS regulations are no longer applicable. In accordance with *CLMG No. 5* and Council recommendations, no further investigation or remedial action is required for lead at this site. The site poses a negligible risk to human health for the intended residential land use

Otago Regional Council's Contaminated Land Practice Note further clarifies that no regional resource consent is required for activities complying with NESCS standards where no unremediated HAIL sources exist. Similarly, guidance from Dunedin City Council states that subdivision involving land with contaminant levels at or below background, and posing no identifiable risk, can proceed without NESCS resource consent, provided that an appropriate site validation report is lodged.

Therefore, the subdivision and any subsequent residential development meet all necessary criteria to be considered permitted activities under the NESCS.

The site meets all validation and risk assessment criteria specified in CLMG No. 1 and No. 5 and satisfies Condition 3 of LUC-2024-329 and Condition 4(b) of SUB-2024-113.

As such, it is recommended that the HAIL classification on Proposed Lot 2 be updated to "**remediated HAIL**" on the ORC register.

12 Testing Limitations, Assumptions and Data

The sampling was carried out in accordance with the Contaminated Land Management Guidelines No 5. Sufficient testing and sampling have been undertaken to provide statistically robust results that are required to understand the risks associated with the in-situ soils and to provide assurance that the proposed soils were suitable for the intended use.

This report has been prepared using accepted procedures and practices of the environmental consulting profession. The opinions recommendations and conclusions set out in the report are made in accordance with general accepted principles and practices of this profession.

The report is based on information gained from site soil sampling. The assessment has been scoped with consideration to industry standards, regulations guidelines and the client's specific requirements (DCC HAIL Report). The characterisation of site conditions is an interpretation of information collected during our assessment and is in accordance with best practice.

The report is valid at the date of preparation. The condition of the site can change over time as a result of natural processes or human influences. GHC should be kept appraised of any such events and should be consulted for further investigations if any changes are noted, particularly during construction where excavations often reveal subsurface conditions not discovered at the time of the investigation works.

Environmental site assessments identify actual conditions only at these points where samples are taken and the date collected. Data derived from indirect field measurements and sometimes other reports about the site can have a bearing on the recommended actions. Variations in soil may occur between test or sample locations and actual conditions may differ from those taken and reported on in this report. No environmental assessment programme, no matter how comprehensive, can reveal all subsurface anomalies. Similarly, no professional, no matter how qualified, can reveal what is hidden by earth, rock or changed through time.

13 Certification

This site investigation meets the requirements of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (the NESCS) because it has been:

a) done by a suitably qualified and experienced practitioner, and

b) done in accordance with the current edition of Contaminated Land Management Guidelines No 5 – Site investigation and analysis of soils, and

c) reported on in accordance with the current edition of Contaminated Land Management Guidelines No 1 – Reporting on Contaminated sites in New Zealand, and

d) the report is certified by a suitably qualified and experienced practitioner.

---

14 Evidence of Experience of the Certifying Practitioner

Dave Hanan has over 30 years contaminated land experience. In the last 8 years, in conjunction with Canterbury Environmental Solutions Limited (CESL), he has developed a soil remediation facility located at Temuka and is the Principal and Contractors Representative for the recently commissioned (December 2024) Taiko Landfill in South Canterbury. As CESL's SQEP, Dave regularly assesses and approves waste to both these facilities. The facility processes well over 150 jobs annually.

Dave has also been the technical advisor to Waitaki District Council for the removal of the Beach Road and Hampden Landfills. This project is the winner of the prestigious Apopo Infrastructure New Zealand - Sustainability Category.

In his earlier career he established waste acceptance for the Green Island landfill, when no national guidance was available. He essentially pioneered a landfill waste acceptance method, well before any national guidance was available.

Dave is the Principal Environmental Engineer and Managing Director of GHC Consulting Limited. Dave holds a B.Sc., NZCE (Civil) and is a member of Wasteminz.

Signed

Dave Hanan B.Sc. NZCE (Civil)

Director and Principal Environmental Engineer
M +64 27 282 4401
W www.ghcconsulting.co.nz
GHC Consulting Limited
1 Thomas Burns Road,
Dunedin 9045, New Zealand

Date: 5 August 2025

References

BRANZ, 2017. New Zealand Guidelines for Assessing and Managing Asbestos in Soil. The Building Research Association New Zealand.

Landcare Research (2015) Background soil concentrations of selected trace elements and organic contaminants in New Zealand. Envirolink Tools Grant: C09X1402 https://lris.scinfo.org.nz/data/?q=predicted+

MfE (2012) Users' Guide National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health

MfE (2021) Contaminated Land Management Guidelines No 1: Reporting on contaminated sites in New Zealand

MfE (2021) Contaminated Land Management Guidelines No 5: Site Investigation and Analysis of Soils

NEPM Schedule 1b (2013) Guideline on Investigation Levels for Soil and Groundwater

Appendix 1: Chain of Custody and Laboratory Reports

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Certificate of Analysis

Client:	GHC Consulting Limited	**Lab No:**	3936844 SPV1
Contact:	Dave Hanan C/- GHC Consulting Limited 1 Thomas Burns Street Dunedin 9016	**Date Received:**	14-Jul-2025
		Date Reported:	16-Jul-2025
		Quote No:	136289
		Order No:	
		Client Reference:	3 Pearce Street
		Submitted By:	Dave Hanan

Sample Type: Soil

Sample Name:		3P1 08-Jun-2025 10:30 am	3P2 08-Jun-2025 10:35 am	3P3 08-Jun-2025 10:40 am	3P4 08-Jun-2025 10:45 am	3P5 08-Jun-2025 10:50 am
Lab Number:		3936844.1	3936844.2	3936844.3	3936844.4	3936844.5
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	4	4	4	5	5
Total Recoverable Cadmium	mg/kg dry wt	0.12	0.11	0.11	0.14	0.10
Total Recoverable Chromium	mg/kg dry wt	18	18	19	22	22
Total Recoverable Copper	mg/kg dry wt	15	14	14	17	16
Total Recoverable Lead	mg/kg dry wt	14.8	14.5	14.6	17.0	15.7
Total Recoverable Nickel	mg/kg dry wt	14	13	14	15	15
Total Recoverable Zinc	mg/kg dry wt	75	67	68	85	73

Sample Name:		3P6 08-Jun-2025 10:55 am	3P7 08-Jun-2025 11:00 am	3P8 08-Jun-2025 11:05 am	3P9 08-Jun-2025 11:10 am
Lab Number:		3936844.6	3936844.7	3936844.8	3936844.9
Heavy Metals, Screen Level					
Total Recoverable Arsenic	mg/kg dry wt	4	5	4	4
Total Recoverable Cadmium	mg/kg dry wt	0.13	0.13	0.13	0.12
Total Recoverable Chromium	mg/kg dry wt	18	20	19	17
Total Recoverable Copper	mg/kg dry wt	16	15	14	14
Total Recoverable Lead	mg/kg dry wt	14.4	17.1	15.1	14.6
Total Recoverable Nickel	mg/kg dry wt	14	15	13	13
Total Recoverable Zinc	mg/kg dry wt	76	73	68	69

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed).	-	1-9
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion US EPA 200.2. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required.	0.10 - 4 mg/kg dry wt	1-9

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked * or any comments and interpretations, which are not accredited.

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 14-Jul-2025 and 16-Jul-2025. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

Graham Corban MSc Tech (Hons)
Client Services Manager - Environmental

Appendix 2: Site Photos

GHC Consulting Site Photos	
Client Name: Phil Wilson	**Client Site Location:** 3 Pearse Street, Brighton, Dunedin 9035
Photo NO: 01 / **Date:** 8 July 2025 **Image location:** Front of property	

Photo NO: 02 / **Date:** 8 July 2025 **Image location:** Sampling area of property	

Appendix 3: Sample photos

GHC Consulting Sample Photos	
Client Name: Phil Wilson	**Client Site Location:** 3 Pearse Street, Brighton, Dunedin 9035

Photo NO: 03	**Date:** 8 July 2025
Sample Number: 3P1	
Depth: 0-300mm	

Photo NO: 04	**Date:** 8 July 2025
Sample Number: 3P2	
Depth: 0-350mm	

Photo NO: 05	**Date:** 8 July 2025	
Sample Number: 3P3		
Depth: 0-350mm		

3 Pearse Street, Brighton, Dunedin 9035

Photo NO: 06	**Date:** 8 July 2025	
Sample Number: 3P4		
Depth: 0-350mm		
Photo NO: 07	**Date:** 8 July 2025	
Sample Number: 3P5		
Depth: 0-350mm		

Photo NO: 08	**Date:** 8 July 2025
Sample Number: 3P6	
Depth: 0-350mm	

Photo NO: 09	**Date:** 8 July 2025
Sample Number: 3P7	
Depth: 0-350mm	

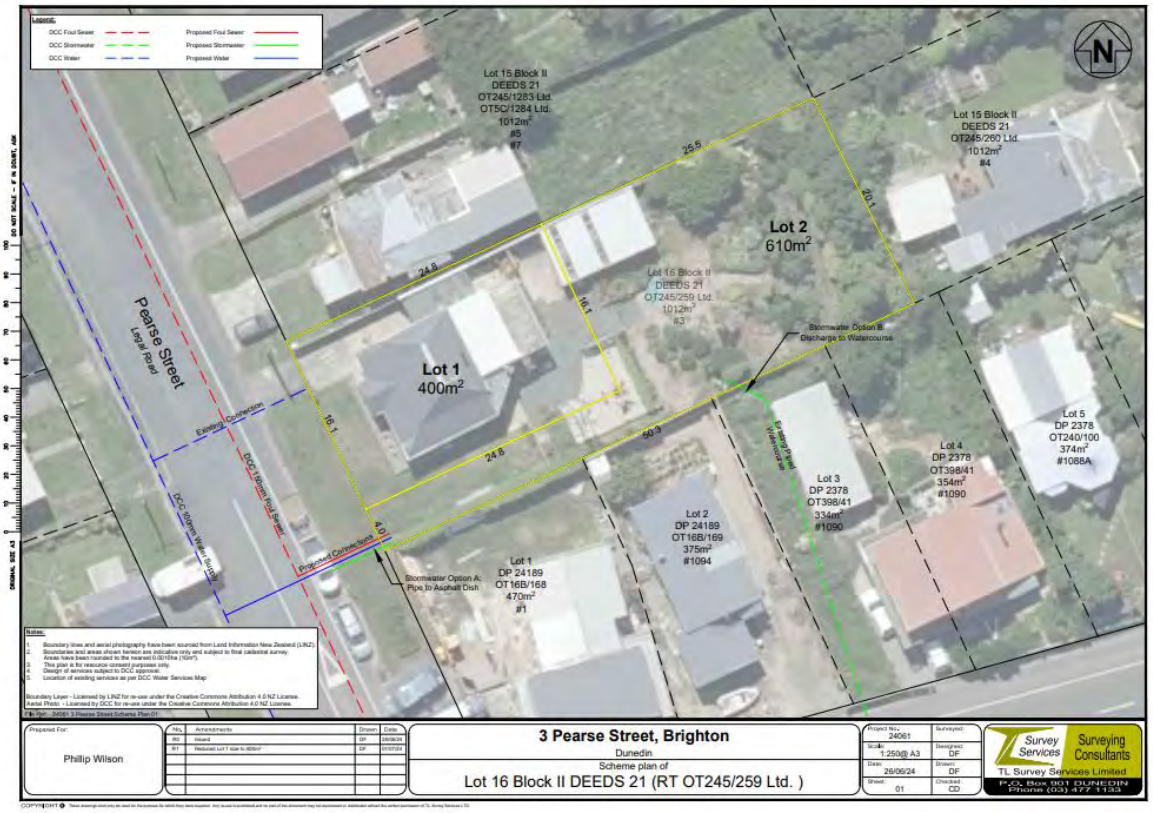
Photo NO: 10	**Date:** 8 July 2025
Sample Number: 3P8	
Depth: 0-350mm	

Photo NO: 11	**Date:** 8 July 2025
Sample Number: 3P9	
Depth: 0-350mm	

Appendix 4: DCC HAIL Report Imagery

Historical aerial imagery obtained from the DCC HAIL Report (HAIL-2024-95) indicates the presence of the shed structure, which is highlighted in yellow in the 1958 photograph.

Appendix 5: Site Plan



Appendix 6: Remedial Earthworks Summary

Appendix 1. Site Remediation Photos

Imported Top Soil from Wals Plant Land, Mosgiel

Imported Top Soil being blended with contaminated soil in a 2m square radius around site location 3P5 as per CSMP and RAP

Remediated site location 3P5, Flag indicating remediation sampling location, noted on Hills Laboratory report as 3P5 (B)

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SITE VALIDATION REPORT
3 Pearse Street, Dunedin

Site Location 3P1 prior to remediation works

Site location 3P1 with soil being exposed to blend in new clean top soil as per CSMP and RAP

Site location 3P1 after soil remediation works, flag indicating remediation sampling location, noted on the Hills Laboratory results as 3P1 (B)

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SITE VALIDATION REPORT
3 Pearse Street, Dunedin

Appendix 7: Asbestos report

D.A.L
Occupational Hygiene Analysts and Consultants

0400 369 335
info@dal.kiwi
www.dowdelliassociates.co.nz
2 Carroll Street, Dunedin

ASBESTOS IDENTIFICATION CERTIFICATE

Job Number:	25-118442	Certificate Issue Date:	29/01/2025
Date Samples Received:	29/01/2025		
No of Samples:	1		
Sampled By:	Client		
Sample Obtained:	Submitted by client		
Date Analysed:	29/01/2025		
Analyst:	Sam Agnew KTP		
Method:	AS 4964 (2004) Method for the Qualitative Identification of Asbestos in Bulk Samples		
Client:	Phil Wilson		
Client Address:	3 Pearse Street		
Client Ref No:	-		
Contact:	Phil Wilson		
Site Address:	3 Pearse Street		

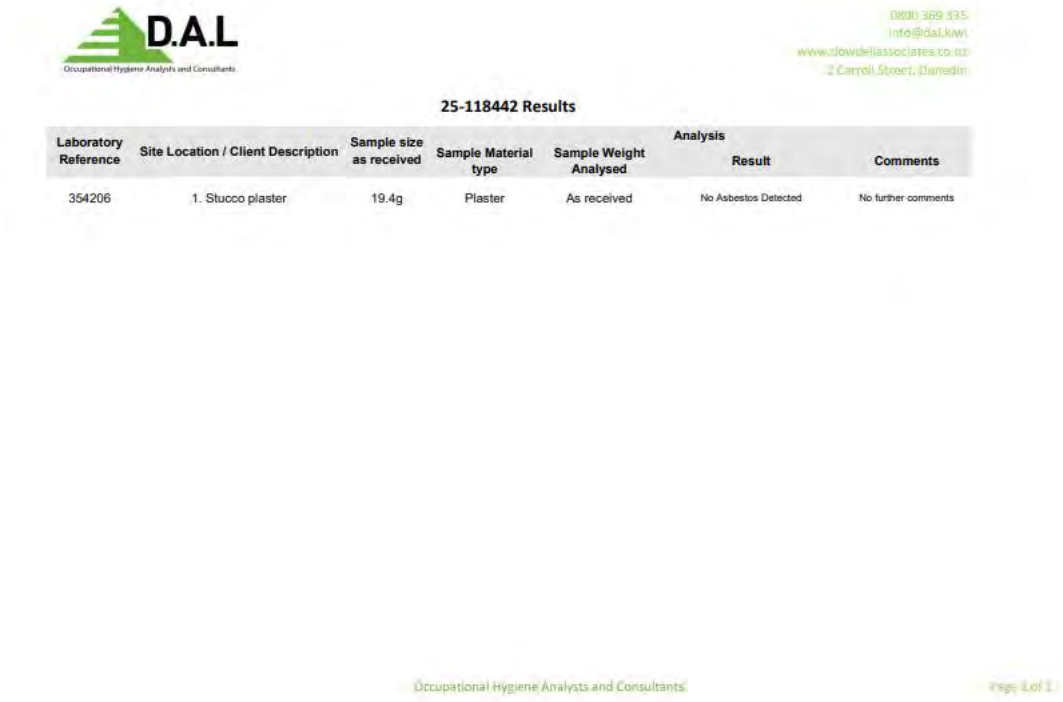
Samples are analysed in accordance with *AS 4964 (2004) Method for the Qualitative Identification of Asbestos in Bulk Samples*. This method includes:
- Low Powered Stereomicroscopy
- Polarised Light Microscopy
- Dispersion Staining

Trace analysis is performed on homogenous and non-homogenous samples as required in the above method.
Detection Limit: 0.1g/kg.
Swab, wipe and tape sample results are not individually IANZ accredited
The results in this certificate relate only to the samples as received. DAL cannot be held responsible for sampling errors or validity of results where samples have been submitted by external clients.

NOTE: This report must not be altered, or reproduced, except in full.

Analyst:	Sam Agnew KTP	All tests reported herein have been performed in accordance with the laboratory's scope of accreditation
Approved By:	Rob Nicholson KTP	

Occupational Hygiene Analysts and Consultants Page 1 of 2



D.A.L
Occupational Hygiene Analysts and Consultants

0800 369 435
info@dal.kiwi
www.dowdeliassociates.co.nz
2 Carroll Street, Dunedin

25-118442 Results

Laboratory Reference	Site Location / Client Description	Sample size as received	Sample Material type	Sample Weight Analysed	Analysis Result	Comments
354206	1. Stucco plaster	19.4g	Plaster	As received	No Asbestos Detected	No further comments

Occupational Hygiene Analysts and Consultants

Page 1 of 1

Asbestos report of stucco plaster on shed pre demolition

ECOtago

Environmental Consultants Otago Ltd

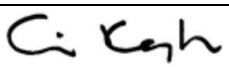
Remedial Action Plan and Contaminated Site Management Plan

3 Pearse Street
Brighton
Dunedin

for
Phillip Wilson

October 2024

Environmental Consultants Otago Ltd
Environmental and Contaminated Site Assessment
PO Box 6 Hampden 9442 ▪ www.ecotago.co.nz

Task	Responsibility	Signature
Project Manager:	Ciaran Keogh, MBA, MRRP	
Prepared By:	Aleasha King, MSc	
Reviewed By:	Bernice Chapman, CEnvP, PhD, MEIANZ	
Approved For Issue By:	Ciaran Keogh, MBA, MRRP	

Prepared By:
Environmental Consultants Otago Ltd

PO Box 6
Hampden 9442
www.ecotago.co.nz
Email: ciaran@ecotago.co.nz

Client: Phillip Wilson
Job Reference: 567-24 3 Pearse
Date: October 2024

Table of Contents

Abbreviations

CCA	Copper Chrome Arsenate
CCME	Canadian Council of Ministers of the Environment
CSMP	Contaminated Soil Management Plan
DCC	Dunedin City Council
HAIL	Hazardous Activities and Industries List
H&S	Health & Safety
HSO	Environmental H&S Officer
NES	Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011
ORC	Otago Regional Council
PPE	Personal Protection Equipment
RAP	Remedial Action Plan
RMA	Resource Management Act 1991
SCS	Soil Contaminant Standards
SGV	Soil Guideline Values

1 Introduction

1.1 Background

The residential property at 3 Pearse Street, Brighton, Dunedin, is proposed to be subdivided into two lots, with one lot containing the existing dwelling and a new dwelling proposed to be constructed on the second lot. The property is not listed on the Otago Regional Council (ORC) HAIL Database[1]. However, due to the long residential history of the site, there is potential for contaminants from building materials to have been released to site soils, such as asbestos or flaking lead paint, and HAIL Categories I (*Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment*) and E1 (*Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition*) may apply to the site. In addition, council records from 1972 indicate that fill may have been placed on the property, and if any of the fill is not clean fill, then HAIL Category G3 (*Landfill sites*) may also apply.

Only limited information is available about the site history, there is no record of consents prior to 1951 (extension to the dwelling). No structures are shown in topographical map of the area from 1901, however the dwelling is present in the earliest aerial image from 1942. The estimated date of construction is recorded as 1920-1930 on a number of property websites[2,3].

Sampling and analysis of site soils conducted by Environmental Consultants Otago Limited (EC Otago) found widespread heavy metal contamination (primarily cadmium, lead and zinc) to be present across proposed Lot 2. Concentrations of lead were found to exceed the *Residential* Soil Contaminant Standards (SCS) guidelines protective of human health in surface soils at two of the six locations analysed, indicating that parts of the site may present a risk to human health under a residential land use. Remediation of the site has been advised.

Detailed plans of the proposed works have not been provided. However, it has been advised that the new dwelling is proposed to be piled, requiring minimal disturbance of the existing site soils. Given that the *Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011* (NES) applies to the property, a land use consent will be required from the Dunedin City Council (DCC) if the proposed works exceed the permitted activity limits of the disturbance of 25 m^3 per 500 m^2 or disposal off-site of 5 m^3 per 500 m^2 per year. As average contaminant concentrations are below the applicable human and environmental health guidelines, consent is unlikely to be required from the ORC for soil disturbance.

As a result of the contamination reported, EC Otago were engaged to prepare this combined Remedial Action Plan (RAP) and Contaminated Site Management Plan (CSMP) on behalf of Phillip Wilson. This RAP and CSMP has been developed to set out responsibilities for soil handling, management and disposal procedures and controls to minimise or mitigate the effects of earthworks, in accordance with any consent conditions that will be imposed by the regulatory authorities, and to address the requirements of the NES. A statement of EC Otago's experience is attached as Appendix A.

1.2 Location of Earthworks

The relevant property details are provided in Table 1. For the purposes of this report, the site is defined as the area of proposed Lot 2, approximately 560 m^2 of the total 0.1012 ha property, as outlined in magenta in Figure 1.

[1] https://maps.orc.govt.nz/portal/apps/MapSeries/index.html?appid=052ba04547d74dc4bf070e8d97fd6819

[2] https://homes.co.nz/address/dunedin/brighton/3-pearse-street/jRP4x

[3] https://www.propertyvalue.co.nz/otago/dunedin-city/brighton-9035/3-pearse-street-brighton-dunedin-9035-8590333

Table 1: Summary of relevant property details

Address	3 Pearse Street, Brighton
Legal description	LOT 16 BLK II DEEDS 21
Certificate of Title	245/259
Total Area	0.1012 ha
District Plan / zoning	Township and Settlement

Figure 1: The property at 3 Pearse Street outlined in turquoise, with the site extent (Proposed Lot 2) outlined in magenta (DCC GIS, 2023-2024. Copyright DCC/ORC, CC BY 4.0).

1.3 Description of Project and Development

The property at 3 Pearse Street is proposed to be subdivided into two lots, with the existing dwelling remaining on proposed Lot 1 (450 m^2), the existing shed demolished and a new dwelling constructed on proposed Lot 2 (560 m^2), as shown in Figure 2. No detailed plans for the proposed residential development on Lot 2 have been provided. However, it has been advised that the new dwelling is proposed to be of dimensions approximately 13 m by 6 m, constructed on the western half of Lot 2. The dwelling is proposed to have a pile foundation, requiring minimal disturbance of the existing site soils.

Figure 2: The proposed subdivision of 3 Pearse Street (dated 26 June 2024, TL Survey Services Limited).

1.4 Contamination Summary

On 18 September 2024, samples were collected from six locations across proposed Lot 2, as shown in Figure 3. Surface samples (0 – 0.15 m depth) were collected from each location. Samples were generally found to comprise topsoil, although minor combustion wastes/charcoal were observed in soils throughout the backyard.

All samples were analysed individually for heavy metals, as the primary contaminants of concern associated with the long residential history of the site. No analysis was conducted for asbestos, as no evidence of asbestos was observed during the site investigation. However, an asbestos survey is advised to be conducted prior to the demolition of any structures. If asbestos is found on any exterior locations during the survey, additional sampling and analysis for asbestos is required to be conducted in soils adjacent to the identified asbestos.

The results are summarised in Table 2, and the full laboratory reports are attached.

The results indicate that heavy metal concentrations (primarily cadmium, lead and zinc) are elevated above predicted background levels based on the underlying geology across Lot 2. Concentrations of lead were reported to exceed the *Residential* SCS at two locations (3P 1 and 3P 5). No heavy metal results reported exceedances of the *Commercial/Industrial* SCS/Soil Guideline Values (SGV).

1.4.1 Disposal

Due to the widespread heavy metal contamination, site soils cannot be considered 'clean fill' and must be disposed to an appropriately consented location. Average concentrations of lead and zinc were found to exceed the Green Island Landfill total concentration acceptance criteria. However, all contaminant concentrations reported meet the Burnside Landfill acceptance criteria.

Soils from locations 3P 1 and 3P 5, which reported exceedances of the residential human health guidelines for lead, should not be kept for reuse on site, if excavated.

Figure 3: Sampling locations across the site (aerial imagery sourced from DCC GIS, 2023-2024. Copyright DCC/ORC, CC BY 4.0).

Table 2: Summary results of laboratory analysis

Sample [A]	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc
3P 1 (0 – 0.15 m)	14	0.43	19	39	290	8	340
3P 2 (0 – 0.15 m)	6	0.21	10	19	120	5	166
3P 3 (0 – 0.15 m)	9	0.44	17	70	141	14	260
3P 4 (0 – 0.15 m)	5	0.30	11	20	171	5	290
3P 5 (0 – 0.15 m)	12	0.40	21	32	290	8	300
3P 6 (0 – 0.15 m)	5	0.16	27	21	77	20	116
Average	*9*	*0.32*	*18*	*34*	*182*	*10*	*245*
RSD	*45%*	*37%*	*36%*	*58%*	*49%*	*59%*	*35%*
Soil Acceptance Criteria (Human Health) – Residential							
NES[B] SCS	20	3	460	>10,000	210	-	-
NEPM[C] SGV	-	-	-	-	-	400	7,400
Soil Quality Guidelines (Environmental Health)							
CCME[D]	17	10	64	63	300	45	250
Predicted Background [E]							
Median	3.03	0.054	12.5	9.37	8.27	5.83	24.53
95th Quantile	12.67	0.28	60.5	40.17	30.08	32.88	101.8
Landfill Screening Acceptance Criteria [F]							
Green Island	100	20	100	100	100	200	200
Burnside	100	20	400	400	400	200	800

[A] Results for total concentration analysis, average, and SCSs/SGVs in mg/kg dry weight; relative standard deviation (RSD) in %. Sample numbers are as marked in Figure 3. Cells highlighted yellow exceed the predicted background concentration and cells highlighted red exceed the residential human health guidelines.

[B] Ministry for the Environment, 2012. *Users' Guide, National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health.* Wellington. Cr SCS is reported as Cr(VI). *Residential* scenario applied.

[C] National Environment Protection Council (Australia), 2013. *National Environment Protection (Assessment of Site Contamination) Measure 1999.* Health Investigation Levels (HIL) for Low Density Residential land use (HIL A) applied.

[D] Canadian Council of Ministers of the Environment, 2021. *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health*. Soil quality guideline for environmental health for residential/parkland land use quoted.

[E] Landcare Research, 2015. *Background soil concentrations of selected trace elements and organic contaminants in New Zealand*. Predicted median and 95th Quantile reported for the site (Chemical4 Factor: Sandstone Pakihi. Also refer: https://lris.scinfo.org.nz/layer/48470-pbc-predicted-background-soil-concentrations-new-zealand/.

[F] Ministry for the Environment, 2004. *Module 2: Hazardous Waste Guidelines - Landfill Waste Acceptance Criteria and Landfill Classification.* And Burnside Landfill in Dunedin (RM17.198.01.V3). Blue cells indicate Landfill Acceptance Criteria that are exceeded by the average.

1.4.2 Conclusions

The results of sampling and analysis has found heavy metal contamination to be present within surface soils across proposed Lot 2, with concentrations of lead exceeding the residential human health guidelines at two out of six locations. However, average concentrations of all heavy metals, including lead, were found to be below the *Residential* SCS and applicable guidelines protective of environmental health. These results indicate that while parts of the site may present a potential risk to human health, the overall risk to human and environmental health from heavy metal contamination is considered low.

Note that the depth of contamination present on the site has not been characterised, and all soils should be considered contaminated unless additional sampling and analysis has been conducted to confirm otherwise. Also note that if asbestos is found to be present on the exterior of any buildings, particularly the shed on proposed Lot 2 which is intended to be demolished, additional sampling and analysis for asbestos is required.

1.5 Conceptual Site Model and Exposure Routes

Based on the results of the soil sampling presented in this report, there is potential for site soils at locations 3P 1 and 3P 5 to pose a risk to human health under a residential land use scenario due to exceedances of the *Residential* SCS for lead at these two locations. A conceptual site model has been developed, and the likely routes of exposure and potential receptors are outlined in Table 3, which has been developed based on the proposed residential land use.

The pathways for human exposure to contaminants consist of ingestion of soil, dust or contaminated groundwater, dust and vapour inhalation, consumption of produce grown in contaminated soils and absorption through the skin during contact with contaminated soil. As the property is presently served by an urban water (municipal) supply, the consumption of potentially contaminated groundwater is not considered a valid pathway. Consequently, ingestion of soil or contaminated produce is the primary pathway for lead contamination, with dermal absorption being insignificant.

Future and current residents on the property are the primary receptors. Other receptors include construction/site workers during site development works, and ongoing maintenance activities. Residents on the adjoining land may also be exposed, primarily from dust emissions or run-off.

Table 3: Assessment of exposure routes and receptors

Receptor	Pathways					Risk/Justification
	Soil Ingestion	Produce Ingestion	Water Ingestion	Dermal Contact	Inhalation	
Residents	Complete	Complete	Incomplete	Complete	Complete	Low – minor exceedances of the *Residential* SCS were reported at two out of six locations, indicating a localised potential risk to human health.
Maintenance & Service Staff	Complete	Incomplete	Incomplete	Complete	Complete	Low - no heavy metal concentrations were found to exceed the commercial/industrial guidelines and the site is highly unlikely to present a risk to human health from heavy metals during development works.
Construction Workers	Complete	Incomplete	Incomplete	Complete	Complete	
Neighbouring Properties	Possibly Complete	Incomplete	Incomplete	Possibly Complete	Possibly Complete	Low, particularly if the works are appropriately managed. Surface water/rainwater run off carrying contaminants could potentially enter neighbouring properties, and dust emissions could affect all neighbours.

2 Remedial Actions

2.1 Remediation Goal

The goal of the remedial earthworks is to prevent exposure of current and future site occupants to contamination that presents a risk to human health (i.e. to prevent contact with, ingestion and inhalation of soil containing contaminants that exceed the applicable human health guidelines).

The remediation options include:

1. Capping/containment to prevent direct contact.
2. Excavate soil with disposal off-site at a suitable landfill.
3. Dilution of the contaminated soils to levels below the *Residential* SCS.

Given the proposed development of the site, capping is the primary mechanism for management of the contamination. Capping will consist of either permanent hard surfaces (buildings or paving) or a permeable soft cap (imported clean gravel or soil) to prevent direct access to and contact with the contaminated soils. However, where surface soils are scraped to facilitate the development, soils from the vicinity of 3P 1 and 3P 5 should either be removed from site for disposal to landfill or thoroughly mixed with other soils from the site or imported clean soil to dilute the overall level of contamination to below the applicable guidelines. Consequently, a combination of the remediation options is likely to be employed on the site.

2.2 Remediation Methodology

The property is proposed to be subdivided into two lots, with a new dwelling constructed on proposed Lot 2 in the general location indicated in Figure 4. It has been advised that the dwelling foundations are proposed to be piled, requiring minimal soil disturbance.

Soils reporting exceedances of the *Residential* SCS (locations highlighted red in Figure 4) may be remediated by being capped in permanent hard surfaces including the building footprint and paving, or with a permeable soft cap consisting of a geotextile layer (such as Bidim®) overlain by a minimum of 100 mm clean fill (imported clean soil, gravel or mulch, etc). This depth of clean fill will be sufficient to maintain a grass lawn. If other plantings which have deeper root systems are intended in area that are capped, a deeper soil layer will be required to ensure that the root systems shall not penetrate the barrier layer.

As capping will result in contaminated materials exceeding the *Residential* SCS remaining on site, an Ongoing Site Management Plan will be required.

If soils in the vicinity of 3P 1 and 3P 5 are scraped as part of the development works, they may be removed to landfill or remediated via dilution, by mixing with clean imported soil, or by mixing with less contaminated soils sourced from within the site. However, additional sampling and analysis will be required to confirm that resultant contamination levels are below the *Residential* SCS/SGV.

If the affected soils at locations 3P 1 and 3P 5 are diluted or excavated and removed from the site during development works, no ongoing site management will be required, provided that validation sampling is conducted to confirm that contaminant concentrations in the remaining soils are below the *Residential* SCS/SGV.

If edible plantings are proposed for the site (such as herb or vegetable gardens), raised planting beds that are isolated from any remaining contaminated site soils are recommended. A permeable barrier such as Bidim® shall be placed over the contaminated site soils at the base of the planter box to prevent roots having direct contact with contaminated soils. If the planter box is constructed from timber, care must be taken to ensure this is not Copper Chrome Arsenate (CCA)-treated timber as significant amounts of arsenic

and chromium migrate from treated timber into surrounding soils. H3 to H6 timbers are frequently CCA treated.

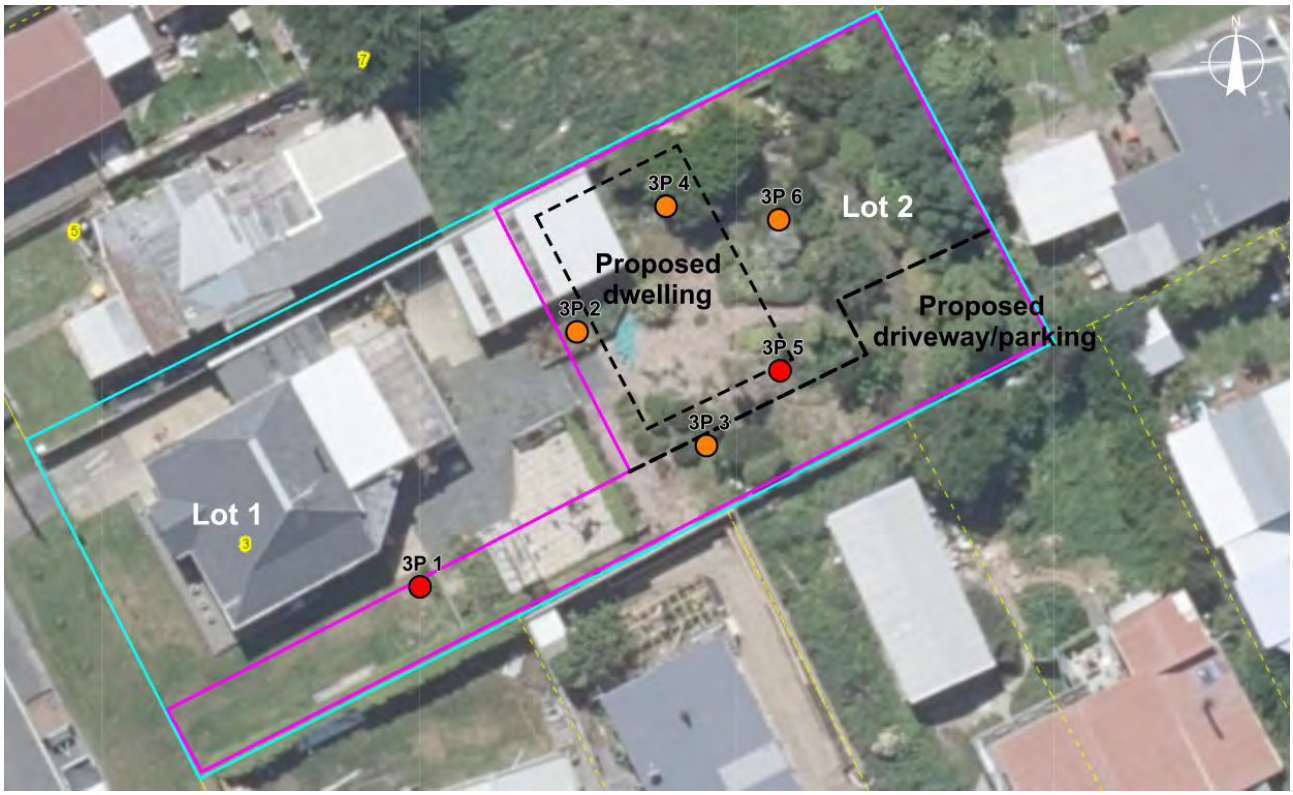


Figure 4: Sampling locations across the site, coloured orange to show locations elevated above the predicted background and locations reporting exceedances of the Residential SCS for lead coloured red. The site extent (proposed Lot 2) is outlined in magenta, and the proposed location of the new dwelling and driveway/parking area is outlined in black (aerial imagery sourced from DCC GIS, 2023-2024. Copyright DCC/ORC, CC BY 4.0).

Site soils intended for off-site disposal shall be excavated and loaded directly on to a truck for transport, if possible. If stockpiling is required, the excavated material will be subject to the stockpiling procedures in the CSMP (Section 4.4.2).

If any unexpected contamination is encountered during earthworks, the Contaminated Land Advisor should be consulted.

The Site Manager shall maintain records to demonstrate that any imported material is obtained from a quarry or other certified source. Any material not meeting this criterion shall be demonstrated to be acceptable to the client and relevant regulatory authorities subsequent to high-density sampling and analysis by a Suitably Qualified and Experienced Practitioner in contaminated land management.

2.3 Site Management Plan

All works will be undertaken in accordance with the CSMP (Sections 3 - 6 of this report).

2.4 Validation Testing

If the affected soils at locations 3P 1 and 3P 5 are effectively diluted or removed from the site, no ongoing site management will be required. In which case, validation sampling shall be conducted to confirm that all remaining contamination is below the *Residential* SCS. Details of the validation sampling, if undertaken, will be determined by a Suitably Qualified and Experienced Practitioner based on the development works undertaken and the site condition at the time of sampling.

Validation sampling must be undertaken prior to the importation of clean fill (unless clean fill is being used for dilution purposes). If the affected soils at locations 3P 1 and 3P 5 are to remain on site and be capped by hard or soft surfaces, no validation sampling is required.

2.5 Validation Reporting

A Site Validation Report (SVR) will be prepared at the completion of the works to confirm the details of the works undertaken, including volume of soil removed from site, the disposal location, the volume and source of imported clean fill materials, incidences and/or complaints that occurred during the earthworks, and report on any additional sampling undertaken during the works.

If the clean fill materials were not obtained from a quarry or other certified source, the SVR will also report on the sampling and analysis to confirm the material meets the *Residential* SCS/SGV.

The SVR will also report on any validation sampling that may be undertaken to confirm that contamination has been removed from the site, or that contamination in exposed soils remaining at the site is below the *Residential* SCS/SGV. If contamination exceeding the guidelines remains and has been capped, an Ongoing Site Management Plan will be provided as part of the SVR.

2.6 Regulatory Requirements and Procedures

Given that the NES applies to the site, land use consent is required from the DCC if earthworks exceed the disturbance of more than 25 m^3 per 500 m^2 or disposal off-site of more than 5 m^3 per 500 m^2 per year.

As average contaminant concentrations are below the applicable human and environmental health guidelines, consent is unlikely to be required from the ORC for soil disturbance.

Prior to disposal, the contractor shall obtain approval from the chosen landfill for disposal based on the soil composition.

Prior to disturbance of the contaminated soils, a pre-earthworks site meeting will be held and attended by staff involved with the earthworks to discuss the risks associated with the works, the RAP and CSMP, the safe handling of contaminated soils and the Health and Safety Plan requirements.

Load registers and weigh bridge dockets must be maintained for all soil disposed of at landfill, together with details of imported clean fill materials.

3 Responsibilities and Basis for CSMP Procedures

3.1 Roles

The following roles and responsibilities shall be assigned at the start of the project:

Site Manager

The appointed earthworks contractor will assign a site manager to the project, who will be responsible for the implementation of this RAP and CSMP on the site and notifying the contaminated land specialist of any contamination complications that may arise during site works.

Contaminated Land Advisor

A Suitably Qualified and Experienced Practitioner in the area of contaminated land management (Contaminated Land Advisor) will be appointed to provide advice to the contractor on contaminated land issues encountered. The advisor will also be responsible for soil sampling, disposal recommendations, and validation reporting.

3.2 Responsibilities

The overall responsibility for the implementation of this CSMP shall be held by Phillip Wilson and their agents. However, the specific requirements and provisions of this CSMP shall be under the control of Phillip Wilson's nominated agent or contractor (hereafter Site Manager). The Site Manager shall be responsible for management of the works and implementation of the procedures set out below during earthworks at the site. Additional provisions regarding responsibility apply, as follows:

- Phillip Wilson shall be responsible for providing the contents of investigations relevant to soils within the earthworks site to the Site Manager;
- Phillip Wilson or their Site Manager shall engage a Suitably Qualified and Experienced Practitioner in the area of contaminated land management (Contaminated Land Advisor) to observe works and sample soils as required;
- While this CSMP is intended to assist the Site Manager in meeting legal obligations related to contaminated soils with respect to health, safety and the environment, this CSMP does not and shall not relieve the Site Manager of legal responsibilities in this respect and it does not cover the general site safety procedures required for typical excavation and construction activities within the earthworks site;
- The Site Manager shall ensure that any conditions imposed by regulatory authorities must be adhered to. However, this CSMP shall be incorporated into any consent/permit involving excavation/disturbance work at the earthworks site to ensure the risks associated with contaminated soils are managed appropriately;
- All personnel involved in the earthworks shall be familiar with this CSMP and ensure that the requirements of this CSMP have been followed; and
- Additional responsibilities for work safety with contaminated soils are described in Sections 4 and 5.

3.3 Basis for Procedures

The rationale behind procedures set out herein is to ensure appropriate controls are in place during earthworks to manage the potential for exposure effects to workers and to the general public. Potential off-site human health and environmental effects are addressed by ensuring that discharges are avoided during earthworks, and by disposing of excavated soil to an appropriately consented location. Both general and specific management and control procedures and requirements shall be considered as directives. General management directives are as follows:

- This CSMP applies to the site, as defined in Section 1 above, but may be applied to specific earthworks areas within the site as development proceeds;
- A copy of this CSMP is to remain available on-site at all times so that reference can be made to it when undertaking any earthworks; and
- This CSMP shall be enforced throughout the duration of the earthworks.

4 Earthworks Controls and Management

Material exists within the site that may present a risk to health and safety. Routine personal hygiene, including the washing of hands before breaks or after contact with the site soils, and use of overalls during earthworks are required.

The NES requires active prevention of discharges of materials during works. Procedures to ensure this are detailed below and shall be implemented by the Site Manager. All procedures are to comply with the relevant regulatory conditions, Council bylaws, and conditions of land use and earthworks consent conditions, as detailed in Section 3.

4.1 Earthworks Site Establishment and Management

Prior to works' commencing, the Site Manager shall ensure the following to aid in the management of aspects of site safety and environmental compliance:

- The terms stipulated in this CSMP for Health and Safety planning are incorporated into the overall worksite Health and Safety Plan;
- That security fencing is installed to prevent unauthorised access to the earthworks site;
- That access to the earthworks site is restricted to authorised personnel, and that access is only allowed following appropriate induction procedures;
- That, as the earthworks site is under the Site Manager's control, staff and visitors shall also fulfil the Site Manager's Site Safe requirements;
- That signage is posted, including earthworks site information, Health and Safety requirements, and earthworks site reporting requirements – signage shall include a large notice board at the entrance to the earthworks site, providing site management contact details;
- That Health and Safety facilities and equipment such as washing facilities for earthworks site staff, appropriate personal protection equipment (PPE) and first aid points are in place;
- That a preventative maintenance programme and contingency measures shall be implemented to minimise equipment failure and unplanned downtime;
- That procedures for receiving and responding to complaints are in place;
- That dust control systems are in place;
- That storm water (surface runoff) diversion and collection systems and silt control measures are in place;
- That any needed stockpiling plans are in place and ready for implementation;
- That equipment required for vehicle cleaning is in place;
- That provisions are made in order to maintain the earthworks site in an orderly, litter-free, condition at all times; and
- Further, the Site Manager shall ensure that formed access for truck entry and exit from the earthworks site are used.

The following contact details shall be provided on the site entrance notice board:

- Site Manager's contact;
- Alternate contact if the Site Manager is unavailable;

4.2 Dust Control Procedures

Dust generated by earthworks, excavation and loading has the potential to contain levels of contaminants above background levels, and this could result in the discharge of contaminated airborne particulate matter. To control this risk, the Site Manager shall ensure that works comply with the *Good Practice Guide for Assessing and Managing Dust* (Ministry for the Environment, 2016), and the following practices are enforced:

- Take account of daily forecast wind speed, wind direction and soil conditions before commencing an operation that has a high dust potential;
- The earthworks site is to be kept free of dust and mud by minimising earthworks when adverse site conditions exist (e.g. wind or heavy rain);
- Work with a high potential for dust creation should be stopped if wind speeds exceed 10 m/s;
- Any existing sealed surfaces are to be maintained around excavations and at the earthworks site entry and exit points to the greatest extent possible;
- Sealed surfaces should be cleaned by sweeping or water flushing if required;
- Vehicles entering and exiting the earthworks site are to remain on hard surfaces if possible, and whenever this is not possible clean aggregate roadways or other appropriate surface protection measures are to be formed and used to provide all-weather access free of contaminated material;
- Limit vehicle speeds on unsealed surfaces to 10 km/h in order to minimise dust;
- Trucks that have come into contact with earthworks site soils shall have their wheels either swept down or washed in a designated area with silt containment before they leave the earthworks site. Should the earthworks site become wet, wheels shall be washed before a vehicle exits the earthworks site;
- Limit exposed surfaces as much as possible, retain as much vegetation as possible, and keep exposed surfaces damp in dry windy conditions;
- Material to be excavated is to be maintained in a damp (not wet) condition during excavation and cartage;
- Drop heights from loaders and diggers are to be minimised as far as possible;
- Limit load sizes to avoid spillages;
- Trucks shall have their loads dampened or covered during transport. The measures applied need to ensure there are no dust discharges during transport; and
- Any stockpiles formed are to be covered when not being actively worked, over weekends, or when strong winds or heavy rains are predicted.

4.3 Storm/Surface Water, Groundwater and Silt/Sediment Control Procedures

Off-site transport of contaminated or potentially contaminated soils via water or erosion of exposed silt/sediments is a risk during earthworks. Given the site is lower-lying than the road, discharges from site are relatively unlikely as long as measures to prevent tracking of material off-site by vehicles are in place. The Site Manager shall ensure that works comply with the Auckland Council Guideline Document 2016/005 (*Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region*), and the following practices are enforced:

- The Site Manager shall undertake inspections on a daily basis, and after every significant rainfall event, and shall ensure that consent conditions are adhered to;
- That excavation of earthworks site soils shall not occur when it is raining or when free water is present in any excavated area;
- That the movement of saturated soils is avoided;
- That erosion and sediment controls are installed prior to the commencement of earthworks or excavation and that these are suitable to ensure that no silt or sediments are transported off-site, particularly into the roadside storm water channel, including during unpredictably high rain events;

- That all soil, silt or sediment exposed or generated on the property during development shall be construed as part of earthworks, and within the earthworks site, as defined above, and that all such material captured by erosion controls are managed in the same manner as other earthworks site soils, as described in Section 4.4.
- That surface water in contact with exposed earthworks is contained within the earthworks site and prevented from entering any nearby storm water drains;
- That surface water entering excavations is avoided (by working in dry conditions);
- That any surface water entering excavations is allowed to soak into the ground;
- If groundwater is encountered during earthworks, the Site Manager shall ensure it is contained within the site and shall be allowed to soak back into the ground; and
- If persistent water accumulates, dewatering may be required. In this event, the pumped water shall be treated as potentially contaminated until demonstrated otherwise or removed by an appropriately licensed contractor. The Contaminated Land Advisor should be consulted to determine water quality and the risk posed. No water is to be discharged to the stormwater network unless sampling shows contaminant levels to be below the Australian and New Zealand Guidelines for Fresh and Marine Water Quality criteria. Water should be retained on-site until further directions are received from the Contaminated Land Advisor.

4.4 Soil Handling Control Procedures

Contaminated and potentially contaminated soils, geomaterials, and buried wastes at the earthworks site may pose an exposure risk, and earthworks have great potential to exacerbate risks if not properly controlled, particularly during off-site disposal. To control these risks, the Site Manager shall ensure that the terms herein are strictly adhered to.

4.4.1 On-site management and control

- The Site Manager shall ensure that records are kept of all excavations and soil movements on-site including the location and dimensions of the excavation, ground conditions, relocation or reuse of soil, and whether waste materials, or other visual or olfactory indicators of potential contamination are observed. Visual and olfactory indicators include:
    - Unusual odours;
    - Discolouration, stained water seeps and soils;
    - Suspected petroleum hydrocarbon contaminated soil and/or free product;
    - Any material that might appear to be hazardous waste (liquid or solid), putrescible waste, household refuse, or combustion by-products;
    - Intact or broken drums or other containers;
    - Inclusions of non-clean fill allowable deleterious materials[4], such as:
        - combustible, putrescible, degradable or leachable components;
        - hazardous substances or materials (such as municipal solid waste) likely to create leachate by means of biological breakdown;
        - products or materials derived from hazardous waste treatment, stabilisation or disposal practices;
        - materials such as medical and veterinary waste, asbestos, or radioactive substances that may present a risk to human health if excavated;
        - contaminated soil and other contaminated materials; and
        - liquid waste.
    - Suspected asbestos containing materials (ACM); and
    - Groundwater with an oil sheen, odour or discolouration.

[4] Ministry for the Environment, 2002. *A Guide to the Management of Cleanfills*. And WasteMINZ, 2023. *Technical Guidelines for Disposal to Land – Revision 3.1*.

- Any potentially contaminated material that is to be reused at the earthworks site shall be placed to ensure that future human exposure risk is highly unlikely, as determined by the Contaminated Land Advisor;
- Any observation of unexpected waste materials or visual or olfactory indicators of potential contamination shall be treated as an incident. Works in the affected area shall cease, and the Contaminated Land Advisor shall be consulted immediately. Works shall only resume in the affected area again once the Contaminated Land Advisor has indicated that works' resumption is suitable;
- Any base course that is intermixed with contaminated soil is to be managed as contaminated soil; and
- Any excavated material that is stockpiled on the earthworks site shall be subject to stockpile control procedures outlined below.

4.4.2 Stockpile management and control

Excavated soils for off-site disposal shall be removed directly if possible and not stockpiled on site. If stockpiling is required, the following procedures shall be implemented:

- Stockpiles shall be maintained at minimum reasonable heights to reduce chances for erosion in the event of unforeseen precipitation and dust discharge from wind;
- Stockpiles shall be placed in an area where runoff can be controlled, and shall be located in a manner to avoid off-site transport and on-site remobilisation;
- Stockpiles shall be located to minimise potential contact by earthworks site workers;
- Stockpiles should be located to maximise shelter from winds as far as practicable;
- Stockpiles being actively worked should be kept damp at all times;
- Stockpiled materials shall be placed on suitable material (e.g. polyethylene sheet or Bidim® liner) to prevent contamination of clean soils; and
- Stockpiled material, when not being actively worked, shall be covered by a suitable material (e.g. polyethylene sheet or Bidim®) to prevent the ingress of rainwater into the stockpile and dust discharges. Stockpiles must be covered overnight and over weekends, or when strong winds or heavy rains are predicted.

4.4.3 Off-site management and control

Soil disposal must adhere to the following procedures:

- When off-site disposal is proposed, plans for off-site disposal shall be in place prior to the removal of any material;
- All material must be demonstrated to have been disposed of at an appropriately consented location based on the contaminant levels;
- Material scheduled for off-site disposal shall be excavated and removed directly where reasonably possible. Alternatively, if soil must be stockpiled on the earthworks site, it shall be subject to the stockpile control procedures outlined in Section 4.4.2;
- Trucks shall be loaded within the earthworks site in locations where runoff and possible spills/dust during loading can be controlled and contained;
- Any vehicle in contact with earthworks site soils shall have its wheels either swept down or washed before leaving the earthworks site;
- Trucks shall have their loads dampened or covered during transport. The measures applied need to ensure there are no dust discharges during transport;
- The site manager shall maintain a log of each truck transporting material off-site; and

- All weighbridge dockets shall be retained by the Site Manager and copies provided to the relevant authority with the SVR.

4.5 Imported Material Procedure

Material imported to the earthworks site for the purposes of filling shall be clean fill, and the Site Manager shall maintain records to demonstrate that any imported material is obtained from a quarry or other certified source. Any material not meeting this criterion shall be demonstrated to be acceptable to the client and relevant regulatory authorities subsequent to high-density sampling and analysis by a Suitably Qualified and Experienced Practitioner in contaminated land management. No material shall be imported from any location that is or might be considered to constitute a HAIL site.

5 Health & Safety Plan – Contaminated Soils

5.1 Introduction

This Health & Safety (H&S) plan provides guidance that the Site Manager shall adhere to when working with contaminated or potentially contaminated soil or geomaterials during the earthworks at the site. It should be read in accordance with and in addition to the WorkSafeNZ guide *Managing Occupational Health on Contaminated Sites,* a copy of which is appended to this CSMP, and the Department of Labour's *Health and Safety Guidelines on the Cleanup of Contaminated Sites*. The guidance has been developed to provide a framework for managing potential contamination-related effects at the earthworks site. However, this CSMP H&S plan does not replace or supersede the Site Manager's overall responsibility for the H&S of people within or adjoining the earthworks site, or their responsibility for protecting the environment, as outlined in other relevant guidance documents and H&S plans and legislation. General H&S based on the requirements of the *Health and Safety at Work Act 2015* shall be covered in the Site H&S Plan. The H&S procedures described in this section of the CSMP shall be implemented by the Site Manager. However, this shall not be taken as absolving either Phillip Wilson or their agents from the overarching responsibility of ensuring that the earthworks site is managed appropriately.

The purpose of this contaminated land-related H&S Plan is as follows:

- To provide and maintain a safe working environment for workers while handling contaminated soils;
- To ensure provision of facilities and procedures to prevent exposure to contaminated soil by workers, residents and the general public;
- To ensure awareness of potential exposure and harm resulting from handling contaminated soils; and
- To provide guidance on relevant industrial hygiene procedures.

5.2 Earthworks Site Establishment

The Site Manager shall ensure the following with respect to contaminated land-related H&S during earthworks site establishment:

- Hazard identification signage is in place to warn workers that the earthworks site soils are contaminated;
- A washing facility is established, and appropriate PPE is available and used by earthworks site workers; and
- First aid points are in place.

5.2.1 Hazard management

The hazard of contaminated soil shall be managed by minimising exposure to and contact with contaminated soils *AT ALL TIMES*. Adherence to all of the controls/directives herein is essential to contaminated soil hazard management.

5.3 Inductions and Responsibility for Work Safety with Contaminated Soils

All staff at the earthworks site shall be required to undergo a contaminated soil safety induction before commencing work. The purpose of the safety induction is to make sure each worker is aware of the exposure risk related to the contaminated soil, of safe working procedures, of safety equipment and requirements, and of the action plan in case of an emergency. An environmental H&S officer (HSO) shall be appointed by the Site Manager for the duration of the works so that in the event contaminated soils are encountered there is a person responsible for ensuring the contaminated land-related H&S procedures are adhered to, alongside of those required under the Site H&S Plan. The HSO shall ensure that all personnel are familiar with the application and use of PPE and procedures specified in this CSMP before commencement of site work.

5.4 Contaminated Soils Safety and Hazard Minimisation Procedures

The following safety and hazard minimisation procedures are specific to the issue of contaminated soil at the earthworks site, and shall be followed by all staff working on-site:

- Any incidents shall be reported to the HSO. Incidents involving discovery of unexpected waste materials or unexpected visual or olfactory indicators of potential contamination shall result in immediate cessation of works in the affected area, the Contaminated Land Advisor shall be consulted immediately, and works shall only resume in the affected area again once the Contaminated Land Advisor has indicated that works' resumption is suitable;
- Earthworks site workers shall avoid unnecessary contact with contaminated soil or suspected contaminated soil;
- Earthworks site workers shall wear gloves at any time they might be in contact with contaminated soils and dust masks if there is any breach of dust control. Failure of dust control shall constitute an H&S incident;
- Overalls are to be worn by workers at the earthworks site when exposed soils exist and the worker is involved in earthworks, or if the worker might otherwise be in contact with soils at the earthworks site*;*
- Overalls are to be removed on-site at the end of each day and these are to be laundered if dirty or disposable overalls are to be worn and disposed of daily;
- Appropriate footwear is to be worn and if this has come in contact with the earthworks site soils, is to be washed before leaving the earthworks site or entering a vehicle or earthworks site building;
- Contact with water at the earthworks site that has been in contact with soils shall be avoided;
- There shall be no eating, drinking or smoking in the works area other than in an appropriately designated location (earthworks site office or other location outside of earthworks site) in order to prevent contaminated soil from contacting food or being ingested directly via soiled hands;
- Food, drink, and any other item that might be in oral contact, shall not be allowed within the works area other than in an appropriately designated location, as defined above;
- Hand to mouth and hand to face contact shall be avoided during work; and
- Hands are to be washed before eating, drinking or smoking, and on every occasion wherein a person on site leaves the site.

Based on the hazard minimisation procedures above, the Site Manager shall ensure availability and supply of the following contaminated land-related PPE that is to be used when site conditions require:

- Overalls;
- P2 respiratory protection; and
- Disposable nitrile /rubber gloves or construction gloves.

PPE shall be used and replaced as appropriate to site conditions.

5.5 Emergency Procedures

Direct contact of any person with potentially contaminated dust, soil or groundwater shall be treated as an incident and a potential emergency situation and shall be reported to the HSO for immediate assessment and action.

6 Closure

On completion of earthworks, an SVR shall be provided to the consent authority providing the following:

- Confirmation that the earthworks are complete;
- Confirmation that all earthworks were carried out according to this RAP and CSMP and the conditions of consent, and that there were no variations during the works;
- Confirmation that any failure to carry out work as specified herein is detailed, along with measures taken to rectify the failure and/or mitigate effects;
- Validation sampling, if applicable;
- Load registers and weigh bridge dockets; and
- Confirmation of the disposal destination for contaminated soils removed from the earthworks site is specified and that guidelines for disposal at the landfill are confirmed to have been met.

7 Limitations

Services for this project have been performed in accordance with current professional standards for environmental site assessments. No guarantees are either expressed or implied. This report meets the requirements of the NES as it has been undertaken in accordance with the *Contaminated Land Management Guidelines (No. 1 and No. 5)* and is certified by a suitably qualified and experienced practitioner. A statement of EC Otago's experience is attached as Appendix A. This report does not attempt to fulfil the requirements of legal due diligence.

There is no investigation that is thorough enough to preclude the presence of materials at the site that presently, or in the future, may be considered hazardous. As regulatory criteria are subject to change, a status with respect to contamination that is presently considered to be acceptable may, in the future, become subject to different regulatory standards that cause the site to become unacceptable for existing or proposed land use activities. Any recommendations, opinions or findings stated in this report are based on circumstances, facts and assessment criteria as they existed at the time that we performed the work and on data obtained from the investigations and site observations as detailed in this report.

Opinions and judgments expressed in this report, which are based on an understanding and interpretation of assessment standards should not be construed as legal opinions. This report, and the information it contains have been prepared solely for the use of Phillip Wilson. Any reliance on this report by other parties shall be at such party's own risk without prior agreement to the contrary.

8 References

Auckland Council, 2018. *Erosion and sediment control guide for land disturbing activities in the Auckland region. Auckland Council Guideline Document GD2016/005. Incorporating amendment 1*. Prepared by Beca Ltd and Southern Skies Environmental for Auckland Council.

Department of Labour, 1994. *Health and Safety Guidelines on the Cleanup of Contaminated Sites*. ISBN 0-477-03546-9.

Landcare Research, 2015. *Background soil concentrations of selected trace elements and organic contaminants in New Zealand*.

Ministry for the Environment, 2016. *Good Practice Guide for Assessing and Managing Dust*. Publication number: ME 1277. ISBN: 978-0-908339-73-0.

Ministry for the Environment, 2004. *Module 2: Hazardous Waste Guidelines - Landfill Waste Acceptance Criteria and Landfill Classification*. Publication Number: ME 510.

Ministry for the Environment, 2002. *A Guide to the Management of Cleanfills*. Publication number: ME 418; ISBN 0-478-24047-3.

Waste Management Institute New Zealand (WasteMINZ), 2023. *Technical Guidelines for Disposal to Land Revision 3.1.* ISBN 978-0-473-65609-6 (PDF).

WorkSafe New Zealand, 2016. *Managing Occupational Health on Contaminated Sites*. Reference WSNZ_2215_APR 16.

Appendix A - EC Otago Statement of Experience

Environmental Consultants Otago Limited (EC Otago) was established in Dunedin in 2014 when the principal, Ciaran Keogh, recognized the need for a dedicated environmental consultancy in the region. The company is particularly focused on contaminated land issues, with more than 400 site investigations completed. EC Otago undertakes the preparation of Preliminary and Detailed Site Investigation Reports, Assessments of Environmental Effects, Site Remedial Action Plans, Soil Disposition Reports and Site Validation Reports, working together with other environmental consultancies when a broader range of experience is required.

Ciaran Keogh - Principal and Senior Environmental Planner
Master of Regional and Resource Planning, Master of Business Administration.

Ciaran has over 13 years' experience focussing specifically on contaminated land investigations in Otago, and over 30 years' experience in environmental and RMA planning, and executive management in regional and local government. His experience includes feasibility, planning and visual assessments, site rehabilitation projects for landfills, mines and transmission lines and switchyards, and management of the preparation of regional and district plans and the supporting policy.

Ciaran has previously worked as the Director of Planning with Taupo District Council, CEO of Clutha District Council, General Manager of Wakool Shire Council (Australia) and CEO of Environment Southland.

Bernice Chapman - Senior Contaminated Land Consultant
CEnvP, PhD in Biochemistry, Member of the Environment Institute of Australia and New Zealand.

Berni is a Certified Environmental Practitioner (Certification Number 1376) who has worked in consultancy firms for over 20 years in the waste management, waste-to-energy and contaminated land sectors, with a focus on contaminated land management for the past 7 years with EC Otago. She has a strong ethos of waste minimisation, containment and management, the effective operation of existing resources with beneficial reuse where possible, protection of the environment and overall sustainability coupled with a pragmatic approach from direct involvement in day-to-day operations. Her experience includes preliminary and detailed site investigations, sampling and analysis, site remediation, feasibility studies, problem solving and process design. This work includes the management of a range of environmentally polluting industrial effluents, contaminated land investigations and site remediation.

Berni has previously worked as Laboratory Manager for Waste Solutions Ltd, an Associate for CPG New Zealand Ltd, and a Wastewater Treatment Specialist for ADI Systems.

Aleasha King – Contaminated Land Consultant
Graduate diploma in Geology, Master in Geophysics.

Aleasha is a Contaminated Land Consultant with a background in geology and geophysics and a strong commitment to the environment. Her experience in contaminated land investigations includes three years with EC Otago undertaking preliminary and detailed site investigations, sampling, data analysis and site remediation.

Aleasha has previously worked in Engineering Geology with experience in site soils investigations and bearing capacity assessments. For her master's degree, she studied the structure of the Alpine Fault at a formerly unmapped location on the West Coast of New Zealand.

Appendix B - Hill Labs Reports

Site Manager Checklist – 3 Pearse Street, Dunedin

Note: this checklist does not absolve the Site Manager from responsibility to read, fully understand, and abide by all of the terms of this CSMP.

Prior to commencement of works

- Establish earthworks (dust, erosion, sediment, storm water, odour) controls as per CSMP;
- Provide hazard board to state contaminated soil is present and indicating H&S requirements for workers;
- Obtain PPE appropriate to the extent of exposure/contact;
- Arrange disposal permits.

During works

- Maintain earthworks controls as per CSMP;
- Implement CSMP H&S procedures, in addition to all other needed and applicable H&S procedures;
- Retain all weighbridge dockets;
- Cease work and contact the Contaminated Land Advisor in the event of potential unforeseen contamination incidents, including encountering visual and or olfactory indicators of contamination, as follows:
    - Unusual odours;
    - Discolouration, stained water seeps and soils;
    - Suspected petroleum hydrocarbon contaminated soil and/or free product;
    - Any material that might appear to be hazardous waste (liquid or solid), putrescible waste, household refuse, or combustion by-products;
    - Intact or broken drums or other containers;
    - Inclusions of non-clean fill allowable deleterious materials, such as:
        - combustible, putrescible, degradable or leachable components;
        - hazardous substances or materials (such as municipal solid waste) likely to create leachate by means of biological breakdown;
        - products or materials derived from hazardous waste treatment, stabilisation or disposal practices;
        - materials such as medical and veterinary waste, asbestos, or radioactive substances that may present a risk to human health if excavated;
        - contaminated soil and other contaminated materials; and
        - liquid waste.
    - Suspected asbestos containing materials (ACM); and
    - Groundwater with an oil sheen, odour or discolouration;
- Dispose of contaminated soil to an appropriately consented location in accordance with the terms herein and the operator's requirements.

Following completion of earthworks

- Document and report the following for the Site Validation Report:
    - Any incidents relating to discharges during the works;
    - Any complaints;
    - Details of unexpected encounters/events and the action taken;
    - Details of visits made by council representatives;
    - Validation sampling and analysis;
    - Summary of weighbridge information for disposal verification; and
    - Confirmation that all other records of earthworks and tracking of potentially contaminated soils was undertaken, as described herein.

Site Contact Details – 3 Pearse Street, Dunedin

Note: these details must be completed prior to initiation of the works.

Site Owner	Name	
	Phone	
	Email	
Contractor	Name	
	Phone	
	Email	
Site Manager	Name	
	Phone	
	Email	
Health & Safety Officer	Name	
	Phone	
	Email	
Environmental H&S Officer (if different from above)	Name	
	Phone	
	Email	
Contaminated Land Advisor	Name	
	Phone	
	Email	
Emergency/After Hours Contact	Name	
	Phone	

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Certificate of Analysis

Client:	Environmental Consultants Otago Limited	**Lab No:**	3675419 SPv1
Contact:	Ciaran Keogh	**Date Received:**	19-Sep-2024
	C/- Environmental Consultants Otago Limited	**Date Reported:**	23-Sep-2024
	PO Box 5522	**Quote No:**	86979
	Dunedin 9058	**Order No:**	
		Client Reference:	3 Pearse
		Submitted By:	Bernice Chapman

Sample Type: Soil

		Sample Name:	3P 1 18-Sep-2024 12:00 pm	3P 2 18-Sep-2024 12:05 pm	3P 3 18-Sep-2024 12:10 pm	3P 4 18-Sep-2024 12:15 pm	3P 5 18-Sep-2024 12:20 pm
		Lab Number:	3675419.1	3675419.2	3675419.3	3675419.4	3675419.5
Heavy Metals, Screen Level							
Total Recoverable Arsenic	mg/kg dry wt		14	6	9	5	12
Total Recoverable Cadmium	mg/kg dry wt		0.43	0.21	0.44	0.30	0.40
Total Recoverable Chromium	mg/kg dry wt		19	10	17	11	21
Total Recoverable Copper	mg/kg dry wt		39	19	70	20	32
Total Recoverable Lead	mg/kg dry wt		290	120	141	171	290
Total Recoverable Nickel	mg/kg dry wt		8	5	14	5	8
Total Recoverable Zinc	mg/kg dry wt		340	166	260	290	300

		Sample Name:	3P 6 18-Sep-2024 12:25 pm
		Lab Number:	3675419.6
Heavy Metals, Screen Level			
Total Recoverable Arsenic	mg/kg dry wt		5
Total Recoverable Cadmium	mg/kg dry wt		0.16
Total Recoverable Chromium	mg/kg dry wt		27
Total Recoverable Copper	mg/kg dry wt		21
Total Recoverable Lead	mg/kg dry wt		77
Total Recoverable Nickel	mg/kg dry wt		20
Total Recoverable Zinc	mg/kg dry wt		116

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request.
Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed).	-	1-6
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion US EPA 200.2. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required.	0.10 - 4 mg/kg dry wt	1-6

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 19-Sep-2024 and 23-Sep-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.

Ara Heron BSc (Tech)
Client Services Manager - Environmental