Information sheet for environmental audits and preliminary risk screen assessments (PRSAs)

Publication 2009 June 2021

Victoria's audit system

An environmental audit system has operated in Victoria since 1989. The *Environment Protection Act 2017* (the Act) provides for the appointment of environmental auditors. It also provides for Environment Protection Authority (EPA or the Authority) to have a system of preliminary risk screen assessments (PRSAs) and environmental audits. These are used in the planning, approval, regulation and management of activities, and in protection of human health and the environment.

Under the Act, the functions of an environmental auditor include to:

- conduct PRSAs and environmental audits
- prepare and issue PRSA statements and reports, and environmental audit statements and reports.

The purpose of a PRSA is to:

- assess the likelihood of the presence of contaminated land
- determine if an environmental audit is required
- recommend a scope for the environmental audit if an environmental audit is required.

The purpose of an environmental audit is to:

- assess the nature and extent of the risk of harm to human health or the environment from contaminated land, waste, pollution, or any activity
- recommend measures to manage the risk of harm to human health or the environment from contaminated land, waste, pollution, or any activity
- make recommendations to manage any contaminated land, waste, pollution or activity.

Upon completion, all PRSAs and environmental audits require preparation of either a PRSA statement, accompanied by a PRSA report, or an environmental audit statement, accompanied by an environmental audit report.

A person may engage an environmental auditor to conduct a PRSA or an environmental audit.

EPA administers the environmental audit system and ensures an acceptable quality of environmental auditing is maintained. This is achieved by assessing auditor applications and conducting a quality assurance program. These measures ensure that PRSAs and environmental audits that environmental auditors undertake are completed in accordance with the relevant sections of the Act or any other Act, and with the guidelines the Authority or other government agencies have published.

Environment Protection Authority Victoria
GPO BOX 4395 Melbourne VIC 3001
1300 372 842 (1300 EPA VIC) **epa.vic.gov.au**

File structures

EPA stores digital statements and reports from PRSAs and environmental audits in three parts:

- Part A, the PRSA or environmental audit report
- Part B, report appendices
- Part C, the PRSA statement and executive summary or environmental audit statement and executive summary.

Report executive summaries, findings and recommendations should be read and relied upon only in the context of the whole document, including any appendices and the PRSA statement or environmental audit statement.

Currency of PRSAs and environmental audits

PRSAs and environmental audits are based on the conditions encountered and information reviewed at the time of preparation. They don't represent any changes that may have occurred since the completion date. As it's not possible for the PRSA or audit report to present all data that could be of interest to all readers, consideration should be made to any appendices or referenced documentation for further information.

When information about the site changes from what was available at the time the PRSA or environmental audit was completed, or where an administrative error is identified, an environmental auditor may amend or withdraw PRSA or environmental audit statements and/or reports. Users are advised to check EPA's website to ensure documents' currency.

PDF searchability and printing

EPA can only provide PRSAs and environmental audit statements, reports and appendices that the environmental auditor provided to EPA via the EPA portal on the EPA website.

All statements and reports should be in a Portable Document Format (PDF) and searchable; however at times some appendices may be provided as image-only PDFs, which can affect searchability.

The PDF is compatible with Adobe Acrobat Reader, which is downloadable free from Adobe's Website (www.adobe.com).

Further information

For more information on Victoria's environmental audit system, visit EPA's website or contact EPA's Environmental Audit Unit.

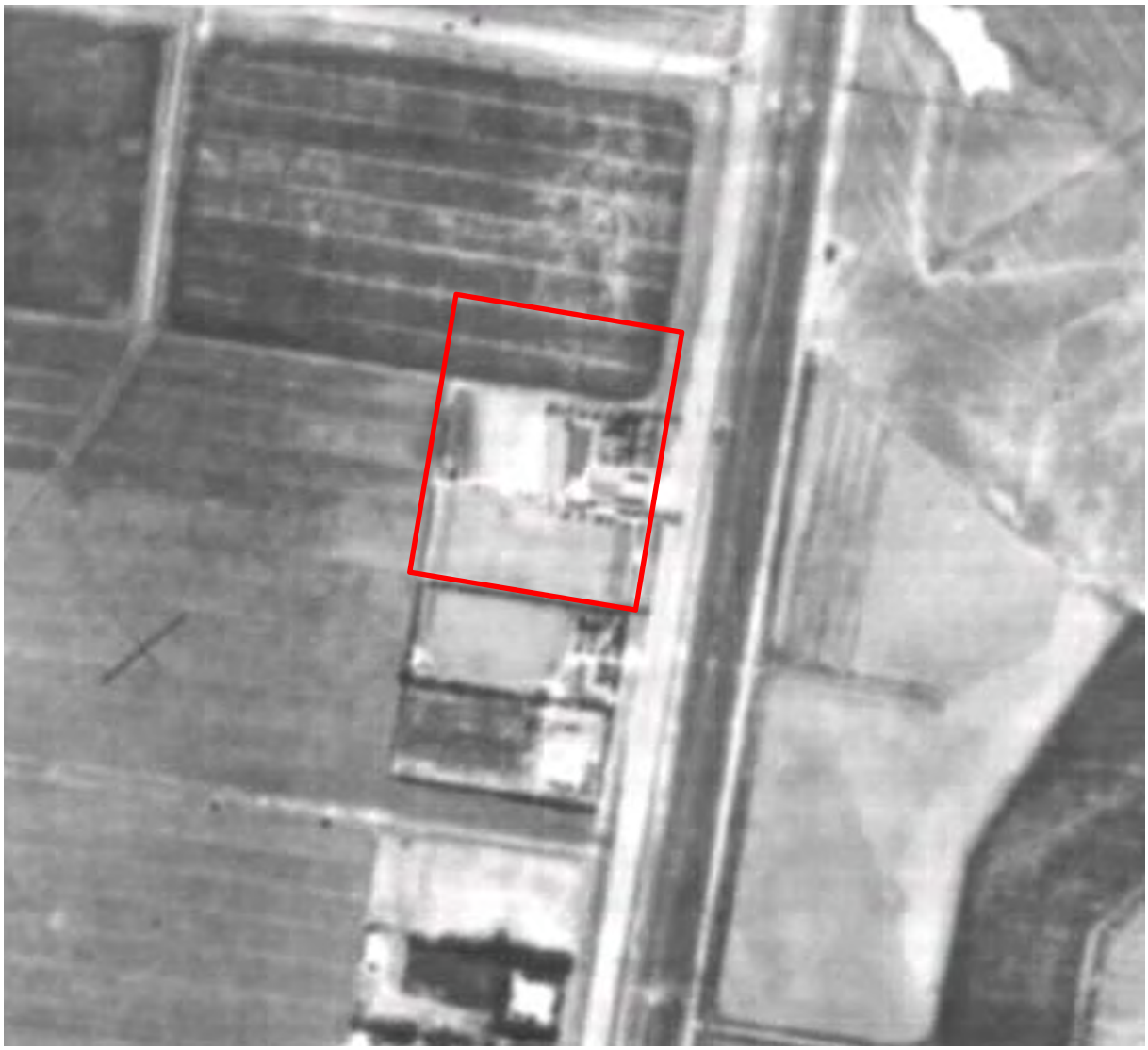
Web: www.epa.vic.gov.au

Email: environmental.audit@epa.vic.gov.au

EPA VICTORIA

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

APPENDIX A: AERIAL IMAGERY



1945

1964

1970

1974

1984

1991

2003

2013

2017

2020

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

APPENDIX B: ROYAL HISTORICAL SOCIETY OF VICTORIA TRANSCRIPT

ROYAL HISTORICAL SOCIETY OF VICTORIA INC.

239 A'Beckett Street, Melbourne 3000

Date: **8 October 2021**

Attention: **Patrick Carroll**

Company: **Environmental Earth Sciences**

Email: **pcarroll@eesigroup.com**

From: **Rosemary Cameron (Executive Officer)**

NOTE: Email address: sitesearch@historyvictoria.org.au

SITE SEARCH: 650 Diggers Road, Werribee South, 3030

The site is located on the west side of the road south of Cuttriss Road and north of the bend to Beach Road. It is a block of grassed land with a building in the middle facing onto the road, which could be a small house and used as a shop and petrol station in the past.

The main settlement in the district Werribee district began in 1850 as the village of Wyndham on the Werribee River. It became a town in 1861 and in 1884 the name was changed to Werribee. The land in and around Werribee was originally owned by the Chirnside family from 1863 onwards, where they leased and owned 28, 300 acres. In the 1890s the Chirnside's leased land to tenant farmers, who, in the early 1900 became free holders. They also sold large areas of land to the Government for the Closer Settlement Scheme, a sewerage farm and a State Research Farm. The area was largely agricultural and horticultural and used for grazing of sheep and cattle. Werribee South is near the sea therefore sandy.

The Sands and McDougall Directories, published from 1858 to 1974, only cover this area as a country town and as such the residents are listed in alphabetical order by surname, and there are no streets. In 1969, the last edition to list Werribee, many of the residents are farmers, poultry farmers, fruit and market gardeners and dairy farmers. In the 1945 Melbourne University aerial photographs of Melbourne this site and its surroundings were completely open country with not a building, road or tree to be seen.

ROYAL HISTORICAL SOCIETY OF VICTORIA INC.
239 A'Beckett Street, Melbourne 3000

In the Victorian Municipal Directories in 1976 to 1994, Werribee South was bracketed with Point Cook and they were noted as being an 'Irrigation area, intensive agriculture and market gardening, dairy farming and grazing'.
In 1961 the Werribee by-pass highway was opened.

The Melway Street Directories 1966-2020 first list this area of Werribee South in 1978 and show Diggers, Whites and Cutriss Roads in place. The area to the south of your site along Beach Road is developed with a caravan park and Price Reserve for beach holidays and fishing.

Google Earth 2003 – 2021 shows the area to be small farms with market gardening as the major occupier. Melway shows your site established in 1984 (although it could have been a lot earlier) with a shop, about 6 sheds and one petrol bowser, but closed down in the early 2000s. The site looks to be used right up to 2018 as a residence with a garden. The sheds around the main building are removed in 2018.

We cannot say when the houses were built along the road either side, nor can we say when the site buildings were erected, but the area around has been used for farmland for market gardens.

Researched by Margaret Fleming.

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

APPENDIX C: TITLE HISTORY

REGISTER SEARCH STATEMENT (Title Search) Transfer of Land Act 1958

VOLUME 11907 FOLIO 071

Security no : 124092906248C
Produced 06/10/2021 01:26 PM

LAND DESCRIPTION

Land in Plan of Consolidation 377788L.
PARENT TITLES :
Volume 09040 Folio 446 Volume 09518 Folio 220
Created by instrument PC377788L 14/08/2017

REGISTERED PROPRIETOR

Estate Fee Simple
Sole Proprietor
MARY PORTELLI of 650 DIGGERS ROAD WERRIBEE SOUTH VIC 3030
PC377788L 14/08/2017

ENCUMBRANCES, CAVEATS AND NOTICES

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE PC377788L FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

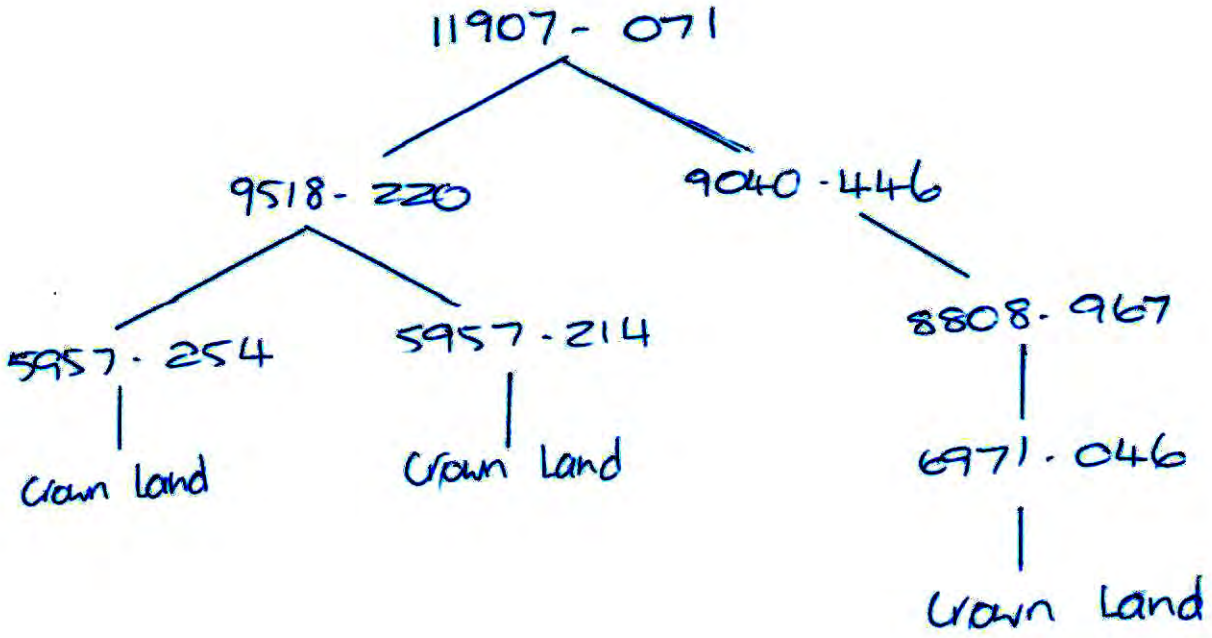
NIL

----------END OF REGISTER SEARCH STATEMENT----------

Additional information: (not part of the Register Search Statement)

Street Address: 650 DIGGERS ROAD WERRIBEE SOUTH VIC 3030

DOCUMENT END


11907 - 071
9518 - 220
9040 - 446
5957 - 254
5957 - 214
8808 - 967
Crown Land
Crown Land
6971 - 046
Crown Land

Historical Search

The Victorian Government acknowledges the Traditional Owners of Victoria and pays respects to their ongoing connection to their Country, History and Culture. The Victorian Government extends this respect to their Elders, past, present and emerging.

HISTORICAL SEARCH STATEMENT Land Use Victoria

Produced 06/10/2021 03:05 PM

Volume 11907 Folio 071
Folio Creation: Created as a computer folio

Parent titles :
Volume 09040 Folio 446 Volume 09518 Folio 220

STATEMENT END

VOTS Snapshot

VOLUME 11907 FOLIO 071
124067569045P
Produced 14/08/2017 03:46 pm

LAND DESCRIPTION

Land in Plan of Consolidation 377788L.
PARENT TITLES :
Volume 09040 Folio 446 Volume 09518 Folio 220
Created by instrument PC377788L 14/08/2017

REGISTERED PROPRIETOR

Estate Fee Simple
Sole Proprietor
MARY PORTELLI of 650 DIGGERS ROAD WERRIBEE SOUTH VIC 3030
PC377788L 14/08/2017

ENCUMBRANCES, CAVEATS AND NOTICES

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE PC377788L FOR FURTHER DETAILS AND BOUNDARIES

CP 155619

ORIGINAL

NOT TO BE TAKEN FROM THE OFFICE OF TITLES

VICTORIA

REGISTER BOOK

VOL. 9518 FOL. 220

Certificate of Title

UNDER THE "TRANSFER OF LAND ACT"

FOL.

VOL.

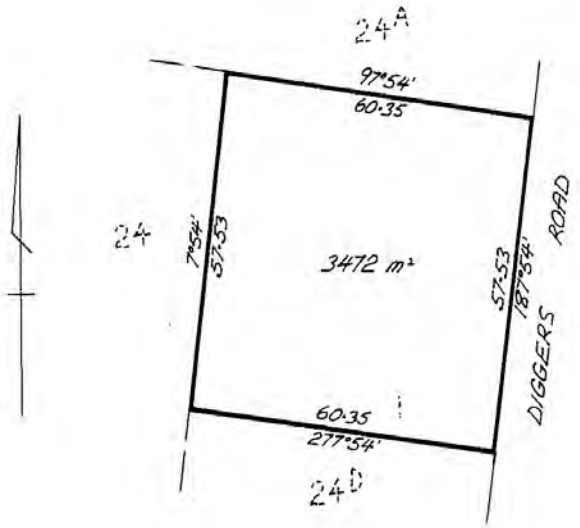
SALVATORE PORTELLI of Diggers Road Werribee South Proprietor is the - - - - - -- proprietor of an estate in fee simple subject to the encumbrances notified - - hereunder in so much as lies above the depth of 15.24 METRES below the surface of all that piece of land in the Parish of Deutgam County of Bourke being the- land in Plan of Consolidation No.155619 and being Crown Allotments 24B and 24C which land is shown enclosed by continuous lines on the map hereon - - - - - -

Issued pursuant to Section 97A (2)
of the Transfer of Land Act 1958

Assistant Registrar of Titles

OFFICE OF TITLES VICTORIA

ENCUMBRANCES REFERRED TO



AREA IS IN SQUARE METRES (m²)
MEASUREMENTS ARE IN METRES

T09518-220-1-1

Derived from Vol.5957 Fols.214
254
- 1 JUL 1983

F. D. Atkinson, Government Printer, Melbourne

ORIGINAL

NOT TO BE TAKEN FROM THE OFFICE OF TITLES

VICTORIA

REGISTER BOOK

VOL. 9040 FOL. 446

INDEX PLAN No. 223

Certificate of Title

UNDER THE "TRANSFER OF LAND ACT"

VOL. 9040 FOL. 446

RALPH WALLACE GRAHAM of Diggers Road Werribee ----- Farmer is the proprietor of an estate in fee simple subject - to the encumbrances notified hereunder in so much as lies ----- above the depth of Fifty feet below the surface of ALL THAT - piece of land coloured on the map hereon being Lot 2 on Plan- of Subdivision No.111609 Parish of Deutgam County of Bourke

Issued under Regulation 12 on the approval of the -- above Plan of Subdivision-

OFFICE OF TITLES VICTORIA

Assistant Registrar of Titles

ENCUMBRANCES REFERRED TO

MORTGAGE D.525572 --

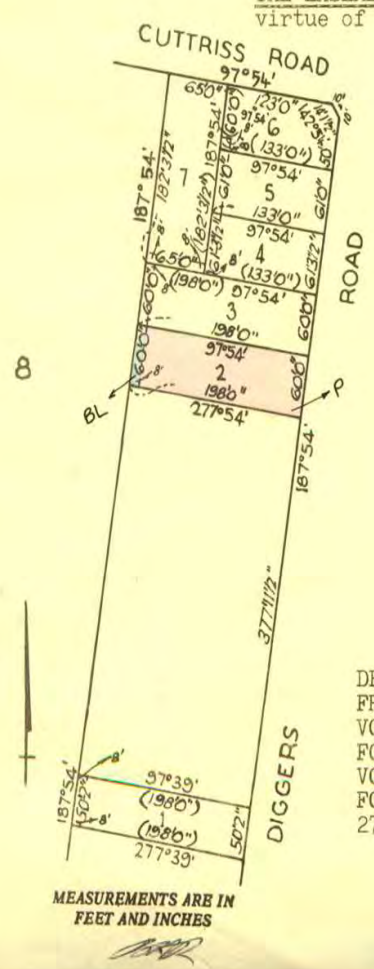
As to any land coloured blue

THE EASEMENTS (if any) existing over the same by --- virtue of Section 98 of the Transfer of Land Act ---

The above mortgage is discharged as to part being the within Land

2 MAR 1976

OFFICE OF TITLES D.W.H. VICTORIA



MEASUREMENTS ARE IN FEET AND INCHES

DERIVED FROM VOL.8790 FOL.668 VOL.8808 FOL.967 27/8/'74.

PHILLIP ANTHONY PORTELLI of Diggers Road
Werribee South Television Technician
is now the proprietor
Registered 2nd March 1976
No.G52781

OFFICE OF TITLES D.W.H. VICTORIA

MORTGAGE TO THE COMMERCIAL BANKING COMPANY OF SYDNEY LIMITED

Registered 15 SEP 1982

No. K87214

R.I.J.

ORIGINAL

NOT TO BE TAKEN FROM THE OFFICE OF TITLES

REGISTER BOOK

VOL. 8808 FOL. 967

VICTORIA

INDEX PLAN No. 223

PARCEL No. 536

Certificate of Title

UNDER THE "TRANSFER OF LAND ACT"

VOL. 8808 FOL. 967

RALPH WALLACE GRAHAM of 23 Beamish Street Werribee Farmer is now the- -- proprietor of an estate in fee simple subject to the encumbrances notified -- hereunder in so much as lies above the depth of Fifty feet below the surface- of ALL THAT piece of land delineated and coloured purple and blue on the map- in the margin containing Seven acres or thereabouts being Crown Allotment 24A Section G Parish of Deutgam County of Bourke - - - - - - - - - - - - - - - - -

DATED the 7th day of October 1969.

L R Hall

Assistant Registrar of Titles

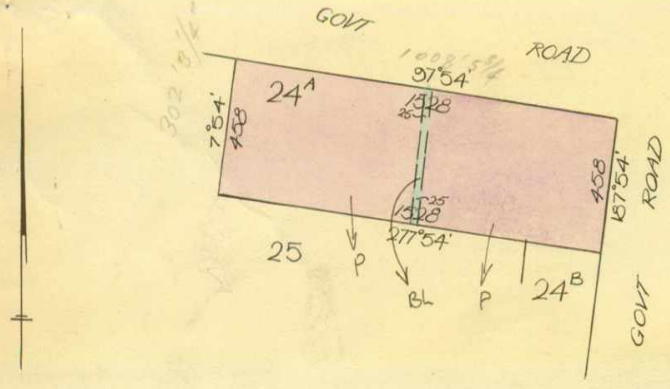
OFFICE OF TITLES VICTORIA

THE WHOLE OR PART OF THE WITHIN L.A.D. HAS BEEN SUBDIVIDED SEE Unregistered Plan 111609 113267 Misc. Plan 111609 P 113267

ENCUMBRANCES REFERRED TO

As to the land coloured blue -

THE CHANNEL CONDITION in favour of State Rivers and Water Supply - - - Commission set out in Crown Grant - Vol.6971 Fol.046 -



SEE SKETCH ATTACHED TO C/T VOL.8790 FOL.668

MEASUREMENTS ARE IN LINKS

Derived from Vol.6971 Fol.046 D525571.

VOL.	FOL.	INSTRUMENT	APPLICATION

MORTGAGE to JEAN ELIZABETH ALICE GRAHAM
Registered 7th October 1969
No. D525572.

DISCHARGED 12 AUG 1976

OFFICE OF TITLES D.B. VICTORIA

OFFICE OF TITLES W.M.S. VICTORIA

CANCELLED AS TO PART
Pursuant to Regulation 12 and Titles
Issued as set out hereunder on 27th August 1974

Lots one to 7 in Vol 9040 Fol 445
to Vol 9040 Fol 451

L.P. 111609

OFFICE OF TITLES R.E.S. VICTORIA

TRANSFER AS TO PART No. K11059
registered 16th July 1982.
CANCELLED AS TO PART
See Vol. 9482 Fol. 370

OFFICE OF TITLES I.R.S. VICTORIA

TRANSFER AS TO PART No. K 11060
registered 16th July 1982.
CANCELLED AS TO PART
See Vol. 9482 Fol. 371

OFFICE OF TITLES I.R.S. VICTORIA

T08808-967-1-6

V.8808 F.967

CHANNEL CONDITION.

2019
12

Entered in the Register Book Vol. 6971 Fol. 1394046

PARCELS INDEX
SECONDARY STORAGE

CANCELLED

15.10.47.

Assistant Registrar of Titles.

George VI., by the Grace of God of Great Britain Ireland and the British Dominions beyond the Seas King Defender of the Faith Emperor of India

To all to whom these presents shall come Greeting Whereas in conformity with the laws relating to the sale and occupation of Crown lands in Our State of Victoria the person hereinafter named has in consideration of the sum of Nine hundred and seventy-eight pounds twelve shillings and eleven pence which sum has been duly paid become entitled to a grant in fee simple of the surface and down to the depth of **FIFTY** feet below the surface of the land hereinafter described Now know ye that in consideration of the sum so paid and in pursuance of the law Us in that behalf enabling We do hereby grant unto PUBLIC TRUSTEE of 412 Collins Street Melbourne as Administrator of the Estate of William Duncan Cameron late of Digger's Road Werribee Farmer deceased intestate

so much and such parts as lie above the depth of **FIFTY** feet below the surface of All that piece of Land in the said State containing thirty-five acres one rood and fourteen perches more or less being Allotments twenty-three and twenty-four^A of Section G in the Parish of Deutgam County of Bourke

delineated with the measurements and abuttals thereof in the map drawn in the margin of these presents and therein colored yellow and red Provided nevertheless that the grantee shall be entitled to sink wells for water and to the use and enjoyment of any wells or springs of water upon or within the boundaries of the said land for any and for all purposes as though he held the land without limitation as to depth Excepting nevertheless unto Us Our heirs and successors all gold and silver and minerals as defined in the *Mines Act* 1928 in upon or under or within the boundaries of the land hereby granted And reserving to Us Our heirs and successors free liberty and authority for Us Our heirs and successors and Our and their licensees agents and servants at any time or times hereafter to enter upon the said land and to search and mine therein for gold silver and minerals as aforesaid and to extract and remove therefrom any such gold silver and minerals and to search for and work dispose of and carry away the said gold silver and minerals lying in upon or under the land hereby granted and for the purposes aforesaid to sink shafts make drives erect machinery and to carry on any works and do any other things which may be necessary or usual in mining and with all other incidents that are necessary to be used for the getting of the said gold silver and minerals and the working of all mines seams lodes and deposits containing such gold silver and minerals in upon or under the land hereby granted And also reserving to Us Our heirs and successors—

(i) all petroleum as defined in the *Mines (Petroleum) Act* 1935 on or below the surface of the said land and

(ii) the right of access for the purpose of searching for and for the operations of obtaining such petroleum in any part or parts of the said land and

(iii) rights of way for access and for pipe-lines and other purposes necessary for obtaining and conveying such petroleum in the event of such petroleum being obtained in any part or parts of the said land

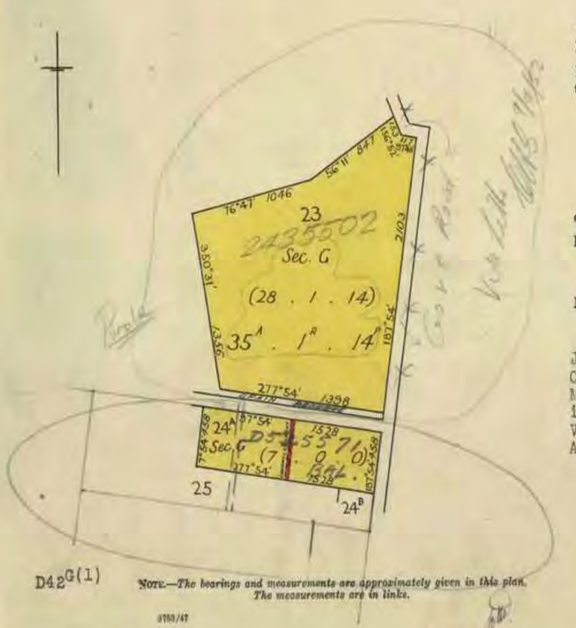
It is a further condition that the State Rivers and Water Supply Commission shall have all that the full and free right and liberty to and for it and its servants agents and workmen at all times hereafter to enter in and upon so much of the said land as is approximately shown by red color in the said map and to clear the same of obstructions and to dig out excavate and construct a water channel and waterworks for the purposes of water supply and drainage through in and upon the said land colored red in such manner and of such width depth and nature as the said Commission may deem advisable and to use such channel and waterworks for all purposes of water supply and drainage and also to repair and alter the said channel and waterworks and also to deposit or place and allow to remain on or along the said land colored red or any part thereof all timber earth soil stone gravel or other substance matter or thing which may be removed or excavated in clearing the said land colored red or in the making or construction of the said channel and waterworks or in repairing or altering the same and also to go pass and repass for all the purposes aforesaid either with or without horses or other animals carts or other carriages through over and along the land colored red aforesaid.

To hold unto the said Public Trustee as such Administrator as aforesaid

in fee simple

Provided always that the said land is and shall be subject to be resumed for mining purposes under Section 168 of the *Land Act* 1928.

And provided also that the said land is and shall be subject to the right of any person being the holder of a miner's right or of a mining lease or mineral lease under the *Mines Act* 1928 or any corresponding previous enactment to enter therein and to mine for gold silver or minerals within the meaning of the said Act and to erect and occupy mining plant or machinery thereon in the same manner and under the same conditions and provisions as those to which such person would for the time being be entitled to mine for gold and silver in and upon Crown lands Provided that compensation shall be paid to the said Public Trustee his successors ~~executors administrators~~ assigns or transferees by such person for surface damage to be done to such land by reason of mining thereon such compensation to be determined as provided for the time being by law and the payment thereof to be a condition precedent to such right of entry.



Dated the third day of October in the year of our Lord One thousand nine hundred and forty-seven being the day the person herein named became entitled to this Grant.

In testimony whereof We have caused this Our Grant to be sealed at Melbourne with the Seal of the said State.

Witness Our trusty and well-beloved Major-General SIR WINSTON JOSEPH DUGAN, Knight Grand Cross of the Most Distinguished Order of Saint Michael and Saint George, Companion of the Most Honourable Order of the Bath, Companion of the Distinguished Service Order, Governor of the said State of Victoria and its Dependencies in the Commonwealth of Australia.

Winston Dugan.

L.S.

D42^G(1)

Note.—*The bearings and measurements are approximately given in this plan. The measurements are in links.*

T06971-046-1-7

ORIGINAL CROWN GRANT.
Not to be dealt with outside the Titles Office.

William John Gordon Graham of Werribee South Farmer is now the proprietor of the within described estate by transfer registered on 7th October 1947 and numbered 2104364

10.2.48

J.V. Sweeney
Assistant Registrar of Titles

MORTGAGE to THE NATIONAL BANK OF AUSTRALASIA LIMITED registered ... numbered 897983

Assistant Registrar of Titles

Discharged as to part being the within land
C.W. Mitchell
Assistant Registrar of Titles
3rd August 1951

Discharged as to ... being the balance of the land
... April 1958
15 MAY 1958

TRANSFER AS TO PART to Ernesto Lago and Giannina Lago registered on 7 Aug 1951 numbered 2425502
CANCELLED AS TO PART See Certificate of Title Vol. 7658 Fol. 162
Area 28a. 1r. 14p.
W.P. Fitzgerald
Assistant Registrar of Titles

CAVEAT No. B896319 LODGED 25 JAN 1960

CAVEAT LAPSED - 3 FEB 1970 (OFFICE OF TITLES R.J.C. VICTORIA)

WILLIAM JOHN GORDON GRAHAM died on 6th July 1959 Probate of his Will has been granted to JEAN ELIZABETH ALICE - - GRAHAM of Werribee South Widow for her life
DATED 22nd July 1964
No.B988970

(OFFICE OF TITLES KWC VICTORIA)

TRANSFER AS TO BALANCE No. D525571
registered 7th October 1969
CANCELLED See Vol. 8808 Fol. 967

(OFFICE OF TITLES W.N.S. VICTORIA)

CANCELLED

35/46

INDEX PLAN No. 223
PARCEL No. 537

Entered in the Register Book.
Vol. 5957 Fol. 1191254
McNeaby
Assistant Registrar of Titles.

CANCELLED 31.5.35

George V., by the Grace of God of Great Britain Ireland and the British Dominions beyond the Seas KING Defender of the Faith EMPEROR of India **To** all to whom these presents shall come GREETING **Whereas** in conformity with the laws relating to the alienation (*otherwise than by the same being taken up under a conditional purchase lease*) of lands in Our State of Victoria *acquired for Closer Settlement* the person hereinafter named has in consideration of the sum of *Twenty pounds* which sum has been duly paid become entitled to a grant in fee simple of the surface and down to the depth of **FIFTY** feet below the surface of the land hereinafter described **Now know ye** that in consideration of the sum so paid and in pursuance of the laws made in that behalf WE DO HEREBY GRANT unto *Fillipo Portelli of Digger's Road Werribee Laborer*

his heirs and assigns so much and such parts as lie above the depth of **FIFTY** feet below the surface of **All** THAT PIECE OF LAND in the said State containing *one rood and twenty nine perches more or less being Allotment twenty four B of Section G in the Parish of Deutgam County of Bourke*

delineated with the measurements and abuttals thereof in the map drawn in the margin of these presents and therein colored yellow PROVIDED nevertheless that the grantee shall be entitled to sink wells for water and to the use and enjoyment of any wells or springs of water upon or within the boundaries of the said land for any and for all purposes as though he held the land without limitation as to depth EXCEPTING nevertheless unto Us Our heirs and successors all gold and silver and minerals as defined in the *Mines Act* 1928 in upon or under or within the boundaries of the land hereby granted AND ALSO reserving to Us Our heirs and successors free liberty and authority for Us Our heirs and successors and Our and their licensees agents and servants at any time or times hereafter to enter upon the said land and to search and mine therein for gold silver and minerals as aforesaid and to extract and remove therefrom any such gold silver and minerals and to search for and work dispose of and carry away the said gold silver and minerals lying in upon or under the land hereby granted and for the purposes aforesaid to sink shafts make drives erect machinery and to carry on any works and do any other things which may be necessary or usual in mining and with all other incidents that are necessary to be used for the getting of the said gold silver and minerals and the working of all mines seams lodes and deposits containing such gold silver and minerals in upon or under the land hereby granted.

To hold unto the said *Fillipo Portelli*

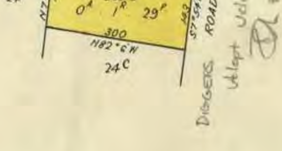
his heirs and assigns for ever

PROVIDED ALWAYS that the said land is and shall be subject to be resumed for mining purposes under Section 168 of the *Land Act* 1928.

AND PROVIDED also that the said land is and shall be subject to the right of any person being the holder of a miner's right or of a mining lease or mineral lease under the *Mines Act* 1928 or any corresponding previous enactment to enter therein and to mine for gold silver or minerals within the meaning of the said Act and to erect and occupy mining plant or machinery thereon in the same manner and under the same conditions and provisions as those to which such person would for the time being be entitled to mine for gold and silver in and upon Crown lands. PROVIDED that compensation shall be paid to the said *Fillipo Portelli*

his heirs executors administrators assigns or transferees by such person for surface damage to be done to such land by reason of mining thereon such compensation to be determined as provided for the time being by law and the payment thereof to be a condition precedent to such right of entry.

ORIGINAL CROWN GRANT.
Not to be dealt with outside the Titles Office.



Ublapt Ude Cleart 30/6/67

Dated the *seventh* day of *June* in the year of our Lord One thousand nine hundred and *thirty three* being the day the person herein named became entitled to this Grant.

In testimony whereof We have caused this Our Grant to be sealed at Melbourne with the Seal of the said State. **Witness** Our trusty and well-beloved Captain the Right Honorable WILLIAM CHARLES ARCEDECKNE, BARON HUNTINGFIELD, Knight Commander of the Most Distinguished Order of Saint Michael and Saint George, Governor of the said State of Victoria and its Dependencies in the Commonwealth of Australia.

Huntingfield.

L.S.

T05957-254-1-8

D 42 R(1)

NOTE.—*The bearings and measurements are approximately given in this plan. The measurements are in links.*

PLAN C.P. 155619 AFFECTS LAND HEREIN

1

DISCHARGED 29 MAR 1960 J.W. Office of Titles Victoria

Australia and New Zealand Bank Limited

on 25 FEB 1952 registered numbered 997505

Assistant Registrar of Titles

FILIPPO PORTELLI (herein called FILLIPO PORTELLI) died on 18th April 1971 Probate of his Will has been granted to SALVATORE PORTELLI of Diggers Road Werribee Proprietor
Registered 1st October 1971
No.E177877

SALVATORE PORTELLI of Diggers Road Werribee Proprietor is now the proprietor
Registered 1st October 1971
No.E177879

CANCELLED
PURSUANT TO PLAN OF CONSOLIDATION
No. C.P. 155619
See Vol. 9518 Fol. 220

1 JUL 1983
CANCELLED

35/21

INDEX PLAN No. 223
PARCEL No. 538

Entered in the Register Book.
Vol. 5957 Fol. 1191214
H.C. Lucaly
Assistant Registrar of Titles.

CANCELLED 31.5.35

George V.,

by the Grace of God of Great Britain Ireland and the British Dominions beyond the Seas King Defender of the Faith Emperor of India

To all to whom these presents shall come Greeting Whereas in conformity with the laws relating to the alienation (*otherwise than by the same being taken up under a conditional purchase lease*) of lands in Our State of Victoria *acquired for Closer Settlement* the person hereinafter named has in consideration of the sum of *Twenty pounds* which sum has been duly paid become entitled to a grant in fee simple of the surface and down to the depth of **FIFTY** feet below the surface of the land hereinafter described Now know ye that in consideration of the sum so paid and in pursuance of the laws made in that behalf We do hereby grant unto *Sebastiano Di Gregorio of Geelong Road Werribee Laborer*

his heirs and assigns so much and such parts as lie above the depth of **FIFTY** feet below the surface of All that piece of Land in the said State containing *one rood and twenty nine perches more or less being Allotment twenty four C of Section G in the Parish of Deutgam County of Bourke*

delineated with the measurements and abuttals thereof in the map drawn in the margin of these presents and therein colored yellow Provided nevertheless that the grantee shall be entitled to sink wells for water and to the use and enjoyment of any wells or springs of water upon or within the boundaries of the said land for any and for all purposes as though he held the land without limitation as to depth Excepting nevertheless unto Us Our heirs and successors all gold and silver and minerals as defined in the *Mines Act* 1928 in upon or under or within the boundaries of the land hereby granted And also reserving to Us Our heirs and successors free liberty and authority for Us Our heirs and successors and Our and their licensees agents and servants at any time or times hereafter to enter upon the said land and to search and mine therein for gold silver and minerals as aforesaid and to extract and remove therefrom any such gold silver and minerals and to search for and work dispose of and carry away the said gold silver and minerals lying in upon or under the land hereby granted and for the purposes aforesaid to sink shafts make drives erect machinery and to carry on any works and do any other things which may be necessary or usual in mining and with all other incidents that are necessary to be used for the getting of the said gold silver and minerals and the working of all mines seams lodes and deposits containing such gold silver and minerals in upon or under the land hereby granted.

To hold unto the said *Sebastiano Di Gregorio*

his heirs and assigns for ever

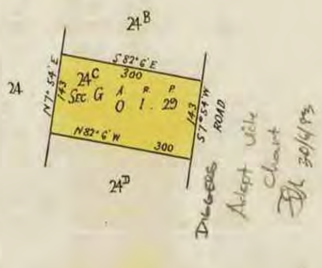
Provided always that the said land is and shall be subject to be resumed for mining purposes under Section 168 of the *Land Act* 1928.

And provided also that the said land is and shall be subject to the right of any person being the holder of a miner's right or of a mining lease or mineral lease under the *Mines Act* 1928 or any corresponding previous enactment to enter therein and to mine for gold silver or minerals within the meaning of the said Act and to erect and occupy mining plant or machinery thereon in the same manner and under the same conditions and provisions as those to which such person would for the time being be entitled to mine for gold and silver in and upon Crown lands. Provided that compensation shall be paid to the said *Sebastiano Di Gregorio*

his heirs executors administrators assigns or transferees by such person for surface damage to be done to such land by reason of mining thereon such compensation to be determined as provided for the time being by law and the payment thereof to be a condition precedent to such right of entry.

ORIGINAL CROWN GRANT.
Not to be dealt with outside the Titles Office.

Dated the *seventh* day of *June* in the year of our Lord One thousand nine hundred and *thirty-three* being the day the person herein named became entitled to this Grant.



In testimony whereof We have caused this Our Grant to be sealed at Melbourne with the Seal of the said State. Witness Our trusty and well-beloved Captain the Right Honorable WILLIAM CHARLES ARCEDECKNE, BARON HUNTINGFIELD, Knight Commander of the Most Distinguished Order of Saint Michael and Saint George, Governor of the said State of Victoria and its Dependencies in the Commonwealth of Australia.

Huntingfield

L.S.

T05957-214-1-6

Note.—The bearings and measurements are approximately given in this plan. The measurements are in links.

PLAN CP 155619
AFFECTS LAND HEREIN

2

Filippo Portelli of Werribee South Storekeeper is now the proprietor of the within described estate by transfer registered on 31 MAR 1954 numbered 263028/

6/5/54

Assistant Registrar of Titles

FILIPPO PORTELLI died on 18th April 1971 Probate of his Will has been granted to SALVATORE PORTELLI of Diggers Road Werribee Proprietor
Registered 1st October 1971
No.E177877

OFFICE OF TITLES N.W.O. VICTORIA

SALVATORE PORTELLI of Diggers Road Werribee Proprietor is now the proprietor
Registered 1st October 1971
No.E177879

OFFICE OF TITLES N.W.O. VICTORIA

CANCELLED
PURSUANT TO PLAN OF CONSOLIDATION
No. C.P. 155619
See Vol. 9518 Fol. 220
- 1 JUL 1983

OFFICE OF TITLES D.C.W. VICTORIA

CANCELLED

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

APPENDIX D: CATHODIC PROTECTION SYSTEMS SEARCH

CATHODIC PROTECTION SYSTEM DATABASE SEARCH

Primary Search criteria: Address contains "650 Diggers Rd Werribee South"
Secondary Search criteria: None

CPS Reg Number	Address	Suburb	Structure Protected	Owner	Approved current output	Status	Type of system

No record found

Disclaimer

Energy Safe Victoria provides Cathodic Protection system information in good faith, but cannot guarantee the completeness or accuracy of or validate the information provided. The Cathodic Protection (CP) database is a register of currently operating Cathodic Protection systems in Victoria and was established in 1970. The CP database is administered under the Electricity Safety Act 1998 and the Electricity Safety (Cathodic Protection) Regulations 2019. Some underground fuel tanks may not be listed in the CP database including: if the tank is not metallic (therefore not requiring CP); the tank is metallic but CP was not installed; the CP system was not registered, the CP was installed after 26 November 2019 after which galvanic anodes under 250mA were no longer required to be registered; or the CP system has been de-commissioned. If you believe underground tanks may be present and not shown on ESV's CP database you should conduct your own tests and investigations. ESV accepts no responsibility or liability for or arising from your use of, or reliance on, information obtained from the CPS database.

**** If a drawing of the CPS system is required, please contact the CPS Owner**

Energy Safe Victoria
ABN 27 462 247 657

Level 5 Building 2
4 Riverside Quay
Southbank VIC 3006

PO Box 262
Collins St West VIC 8007
DX 212569 Melbourne VIC

T (03) 9203 9700
F (03) 9686 2197
www.esv.vic.gov.au

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

APPENDIX E: WORKSAFE DANGEROUS GOODS REGISTER SEARCH

Patrick Carroll

From: Dangerous Goods Unit (WorkSafe) <dangerousgoodsunit@worksafe.vic.gov.au>
Sent: Monday, 11 October 2021 9:45 AM
To: Patrick Carroll
Subject: RE: 221082 - Dangerous Goods search request - 650 Diggers Rd Werribee South

Good morning Patrick,

Thank you for your email,

I could not find any records of Dangerous Goods Being stored at that location.

Your Sincerely

Michael Smith
Dangerous Goods Project Coordinator
Regulated Industries Division

dangerousgoodsunit@worksafe.vic.gov.au

Head Office, 1 Malop Street
Geelong VIC 3220
www.worksafe.vic.gov.au

.

BE GREEN, READ FROM THE SCREEN
----- Forwarded by on 11/10/2021 09:38 AM -----

Patrick Carroll <pcarroll@eesigroup.com>

06/10/2021 01:54 PM

To: DG_Notifications@worksafe.vic.gov.au@worksafetac.onmicrosoft.com, Licence/Field_Services/VWA@WorkCover

cc:

Subject: 221082 - Dangerous Goods search request - 650 Diggers Rd Werribee South

Hi Worksafe,

May I please request a dangerous good search for the following property:

- 650 Diggers Rd Werribee South.

Ive attached the current title to help you identify the property.

Thanks,

Pat

Environmental Earth Sciences - Contamination Resolved

Patrick Carroll –
Environmental Scientist

Level 1, 98 Maribyrnong Street Footscray Vic 3011
P: +613 9687 1666
M: +61 400 907 487
www.eesigroup.com

(See attached file: image001.png)

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

APPENDIX F: SITE PHOTOGRAPHS

Lot 2 - General store facing east

Lot 1 – Facing north

Lot 2 - Facing west

Lot 2 - Location of USTs

BH01 – Sampling location at boundary of Lot 1 and Lot 2, boundary marked by garden bed.

BH01 – Soil profile

Bowser outside Lot 2 along Diggers Rd

Lot 2 – UST vent pipes

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

APPENDIX G: GEOLOGICAL BORELOGS

Geological Borelog

LOCATION 650 Diggers Rd Werribee South		**Borehole Log: BH01**	**Logged by** PC
SURFACE ELEVATION -	**JOB NUMBER** 221082		
GROUNDWATER -	**DATUM** -	**PROJECT:** Storgad - Werribee PRSA	**Proj. Manager** PC
DRILL METHOD Hand auger	**DATE DRILLED** 16/11/21		

STRATIGRAPHY	GRAPHIC LOG	Depth metres	SAMPLES				Moisture Content	PID/FID		pH		Construction Details	Comments
			Undisturbed	Disturbed	Lost	Duplicate		Background	Reading	pH - soil	pH - water		
Natural Brown/grey top soil (sandy clay) with rounded quartz fragment													
Red/brown soft silty CLAY				X			D	0	0	6.5			No odour throughout BH01_0.1
		0.2											
		0.4											
Red/brown firm silty CLAY				X			D	0	0	7			BH01_0.5
		0.6											
		0.8											End of hole @ 0.7m bgl, target in natural
		1.0											

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

Geological Borelog

LOCATION 650 Diggers Rd Werribee South		**Borehole Log: BH02**	**Logged by** PC
SURFACE ELEVATION -	**JOB NUMBER** 221082		
GROUNDWATER -	**DATUM** -	**PROJECT:** Storgad - Werribee PRSA	**Proj. Manager** PC
DRILL METHOD Hand auger	**DATE DRILLED** 16/11/21		

STRATIGRAPHY	GRAPHIC LOG	Depth metres	SAMPLES				Moisture Content	PID/FID		pH		Construction Details	Comments
			Undisturbed	Disturbed	Lost	Duplicate		Background	Reading	pH - soil	pH - water		
Fill Brown/grey top soil (silty sandy clay) with minor angular gravel													
Natural Red/brown soft silty CLAY		0.2		X			X	0	0	6.5			No odour throughout BH02_0.4
		0.4											End of hole @ 0.4 m bgl, target in natural
		0.6											
		0.8											
		1.0											

NOTE: This bore log is for environmental purposes only and is not intended to provide geotechnical information.

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

APPENDIX H: LABORATORY DOCUMENTATION

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2122848**	Page	: 1 of 7
Client	: **ENVIRONMENTAL EARTH SCIENCES**	Laboratory	: Environmental Division Melbourne
Contact	: PATRICK CARROLL	Contact	: Hannah White
Address	: P.O.BOX 2253 FOOTSCRAY VIC, AUSTRALIA 3011	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: 221083	Date Samples Received	: 16-Nov-2021 18:35
Order number	: ----	Date Analysis Commenced	: 18-Nov-2021
C-O-C number	: ----	Issue Date	: 22-Nov-2021 18:07
Sampler	: PC		
Site	: Werribee South		
Quote number	: EN/010/20		
No. of samples received	: 3		
No. of samples analysed	: 3		

ilac-MRA NATA
Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Vincent Emerton-Bell	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- ALS is not NATA accredited for the analysis of Exchangeable Cations on Alkaline Soils when performed under ALS Method ED006.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H+ + Al3+).

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH01_0.1	BH01_0.5	BH02_0.4	----	----
			Sampling date / time	16-Nov-2021 00:00	16-Nov-2021 00:00	16-Nov-2021 00:00	----	----
Compound	CAS Number	LOR	Unit	EM2122848-001	EM2122848-002	EM2122848-003	--------	--------
				Result	Result	Result	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	6.3	----	----	----	----
EA055: Moisture Content								
Moisture Content	----	1.0	%	----	12.1	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	8.1	----	12.0	----	----
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	35	----	----	----	----
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.45	----	----	----	----
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	4.6	----	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	2.5	----	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	1.4	----	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	0.6	----	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	9.1	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Iron	7439-89-6	0.005	%	1.88	----	----	----	----
Arsenic	7440-38-2	5	mg/kg	5	7	6	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	21	41	21	----	----
Copper	7440-50-8	5	mg/kg	6	12	25	----	----
Lead	7439-92-1	5	mg/kg	12	13	68	----	----
Nickel	7440-02-0	2	mg/kg	12	25	16	----	----
Zinc	7440-66-6	5	mg/kg	25	31	249	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EP004: Organic Matter								
Organic Matter	----	0.5	%	2.1	----	----	----	----
Total Organic Carbon	----	0.5	%	1.2	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH01_0.1	BH01_0.5	BH02_0.4	----	----
				Sampling date / time	16-Nov-2021 00:00	16-Nov-2021 00:00	16-Nov-2021 00:00	----	----
Compound	CAS Number	LOR	Unit		EM2122848-001	EM2122848-002	EM2122848-003	--------	--------
					Result	Result	Result	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
delta-BHC	319-86-8	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		**0.12**	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg		**0.12**	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH01_0.1	BH01_0.5	BH02_0.4	----	----
			Sampling date / time	16-Nov-2021 00:00	16-Nov-2021 00:00	16-Nov-2021 00:00	----	----
Compound	CAS Number	LOR	Unit	EM2122848-001	EM2122848-002	EM2122848-003	--------	--------
				Result	Result	Result	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg	<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	----	----
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**89.2**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH01_0.1	BH01_0.5	BH02_0.4	----	----
				Sampling date / time	16-Nov-2021 00:00	16-Nov-2021 00:00	16-Nov-2021 00:00	----	----
Compound	CAS Number	LOR	Unit		EM2122848-001	EM2122848-002	EM2122848-003	--------	--------
					Result	Result	Result	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**79.2**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**96.5**	**96.5**	----	----	----
Toluene-D8	2037-26-5	0.2	%		**79.3**	**80.1**	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**80.8**	**81.0**	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	62	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	40	139
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(SOIL) EA150: Soil Classification based on Particle Size

(SOIL) EA152: Soil Particle Density

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM2122848**	Page	: 1 of 9
Client	: **ENVIRONMENTAL EARTH SCIENCES**	Laboratory	: Environmental Division Melbourne
Contact	: PATRICK CARROLL	Contact	: Hannah White
Address	: P.O.BOX 2253 FOOTSCRAY VIC, AUSTRALIA 3011	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: 221083	Date Samples Received	: 16-Nov-2021
Order number	: ----	Date Analysis Commenced	: 18-Nov-2021
C-O-C number	: ----	Issue Date	: 22-Nov-2021
Sampler	: PC		
Site	: Werribee South		
Quote number	: EN/010/20		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Vincent Emerton-Bell	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4021880)									
EM2122871-001	Anonymous	EG005T: Lead	7439-92-1	5	mg/kg	54	42	24.0	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	120	121	1.0	0% - 20%
EM2122848-001	BH01_0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	21	23	9.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	12	12	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	21	53.9	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	25	25	0.0	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	1.88 %	19100	1.8	0% - 20%
EM2122871-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	2	77.3	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	24	28	13.4	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	87	98	12.3	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21	122	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	32	49	43.1	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	35300	35600	1.0	0% - 20%
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 4024638)									
EM2122848-001	BH01_0.1	EA001: pH (CaCl2)	----	0.1	pH Unit	6.3	6.3	0.0	0% - 20%
EM2123023-001	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	8.0	7.9	0.0	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4023024)									
EM2122826-001	Anonymous	EA055: Moisture Content	----	0.1	%	28.0	29.0	3.5	0% - 20%
EM2122907-004	Anonymous	EA055: Moisture Content	----	0.1	%	15.4	15.2	1.8	0% - 50%
ED007: Exchangeable Cations (QC Lot: 4025736)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED007: Exchangeable Cations (QC Lot: 4025736) - continued									
EM2122848-001	BH01_0.1	ED007: Exchangeable Calcium	----	0.1	meq/100g	4.6	4.8	3.3	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	2.5	2.6	0.0	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	1.4	1.4	0.0	0% - 50%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.6	0.7	0.0	No Limit
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	9.1	9.4	3.2	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4021881)									
EM2122848-001	BH01_0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2122871-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP004: Organic Matter (QC Lot: 4019894)									
EM2122534-002	Anonymous	EP004: Organic Matter	----	0.5	%	<0.5	<0.5	0.0	No Limit
		EP004: Total Organic Carbon	----	0.5	%	<0.5	<0.5	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4025709)									
EM2122848-001	BH01_0.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	0.12	0.11	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4025709)									
EM2122848-001	BH01_0.1	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4025709) - continued									
EM2122848-001	BH01_0.1	EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4021752)									
EM2122704-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EM2122870-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4022181)									
EM2122813-042	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	720	500	36.5	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	680	470	36.3	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	60	<50	27.1	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	1460	# 970	40.3	0% - 20%
EM2122941-003	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	150	<100	37.7	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	130	<100	25.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	280	<50	139	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4021752)									
EM2122704-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EM2122870-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4022181)									
EM2122813-042	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	1260	880	35.9	0% - 50%
		EP071: >C34 - C40 Fraction	----	100	mg/kg	310	180	54.7	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	1570	# 1060	38.8	0% - 20%
EM2122941-003	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	240	100	82.1	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	240	100	82.4	No Limit
EP080: BTEXN (QC Lot: 4021752)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 4021752) - continued									
EM2122704-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EM2122870-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4021880)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	105	70.0	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	71.7	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	119	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	95.1	70.0	130
EG005T: Iron	7439-89-6	50	mg/kg	<50	33227 mg/kg	114	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	98.9	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	107	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	75.1	70.0	130
EA001: pH in soil using 0.01M CaCl extract (QCLot: 4024638)								
EA001: pH (CaCl2)	----	----	pH Unit	----	4 pH Unit	101	98.8	101
				----	7 pH Unit	100	99.3	101
ED007: Exchangeable Cations (QCLot: 4025736)								
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	24.13 meq/100g	90.7	80.0	130
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	1.96 meq/100g	106	72.2	130
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	1.01 meq/100g	115	77.4	130
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	0.86 meq/100g	124	89.2	130
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4021881)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	85.9	70.0	130
EP004: Organic Matter (QCLot: 4019894)								
EP004: Organic Matter	----	0.5	%	<0.5	77 %	101	70.0	130
EP004: Total Organic Carbon	----	0.5	%	<0.5	43.5 %	104	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 4025709)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.3	71.8	126
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	86.2	72.2	125
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	84.5	70.0	124
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	81.8	69.1	124
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.1	69.2	125
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	83.9	66.6	122
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	85.2	68.8	123
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	84.7	67.2	124
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	82.1	66.0	126
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.2	70.2	126
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	85.0	72.1	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 4025709) - continued								
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	87.5	68.0	122
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	86.7	68.9	124
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	77.8	55.8	130
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	85.3	67.9	124
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.2	72.0	127
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	125	66.3	131
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	97.9	62.4	131
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	89.0	55.4	130
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	100	68.8	128
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	89.9	55.5	132
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4025709)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	93.6	65.6	127
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.4	63.0	129
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	70.9	10.0	136
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	75.1	58.3	128
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	82.8	69.0	122
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	83.2	68.0	122
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	74.7	59.6	124
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	82.2	63.8	128
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	84.6	71.1	124
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	67.4	126
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	74.9	57.9	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	83.8	66.2	123
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	76.1	59.8	123
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.1	65.4	127
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	69.9	52.1	128
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	83.1	65.2	122
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	79.9	63.2	124
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.7	65.9	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	78.6	43.1	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4021752)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	87.7	58.6	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4022181)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	650 mg/kg	110	75.0	128
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	2920 mg/kg	108	82.0	123
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1380 mg/kg	105	82.4	121
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4021752)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4021752) - continued								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	92.8	59.3	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4022181)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	920 mg/kg	124	77.0	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3700 mg/kg	106	81.5	120
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	270 mg/kg	116	73.3	137
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN (QCLot: 4021752)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	96.2	61.6	117
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	96.5	65.8	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	97.1	65.8	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	96.6	64.8	134
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	99.7	68.7	132
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	104	61.8	123

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4021880)							
EM2122848-002	BH01_0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	94.1	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	93.8	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	97.0	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	95.4	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	95.3	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	96.0	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	89.7	80.0	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4021881)							
EM2122848-002	BH01_0.5	EG035T: Mercury	7439-97-6	0.5 mg/kg	86.1	76.0	116
EP004: Organic Matter (QCLot: 4019894)							
EM2122704-001	Anonymous	EP004: Organic Matter	----	5.12293 %	74.9	70.0	120
		EP004: Total Organic Carbon	----	2.9713 %	74.9	70.0	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4021752)							
EM2122730-002	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	67.4	33.4	124

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4022181)							
EM2122813-043	Anonymous	EP071: C10 - C14 Fraction	----	650 mg/kg	108	71.2	125
		EP071: C15 - C28 Fraction	----	2920 mg/kg	102	75.6	122
		EP071: C29 - C36 Fraction	----	1380 mg/kg	101	78.0	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4021752)							
EM2122730-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	60.4	30.8	120
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4022181)							
EM2122813-043	Anonymous	EP071: >C10 - C16 Fraction	----	920 mg/kg	122	72.2	128
		EP071: >C16 - C34 Fraction	----	3700 mg/kg	99.2	76.5	119
		EP071: >C34 - C40 Fraction	----	270 mg/kg	96.4	66.8	138
EP080: BTEXN (QCLot: 4021752)							
EM2122730-002	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	93.4	54.4	127
		EP080: Toluene	108-88-3	2 mg/kg	91.2	57.1	131

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM2122848**	Page	: 1 of 6
Client	: **ENVIRONMENTAL EARTH SCIENCES**	Laboratory	: Environmental Division Melbourne
Contact	: PATRICK CARROLL	Telephone	: +61-3-8549 9600
Project	: 221083	Date Samples Received	: 16-Nov-2021
Site	: Werribee South	Issue Date	: 22-Nov-2021
Sampler	: PC	No. of samples received	: 3
Order number	: ----	No. of samples analysed	: 3

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EP080/071: Total Petroleum Hydrocarbons	EM2122813--042	Anonymous	**C10 - C36 Fraction (sum)**	----	40.3 %	0% - 20%	**RPD exceeds LOR based limits**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	EM2122813--042	Anonymous	**>C10 - C40 Fraction (sum)**	----	38.8 %	0% - 20%	**RPD exceeds LOR based limits**

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Matrix Spikes (MS)					
Pesticides by GCMS	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
BH01_0.1	**16-Nov-2021**	**19-Nov-2021**	23-Nov-2021	✓	**19-Nov-2021**	19-Nov-2021	✓
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055)							
BH01_0.5	**16-Nov-2021**	**----**	----	----	**18-Nov-2021**	30-Nov-2021	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
BH01_0.1, BH02_0.4	**16-Nov-2021**	**----**	----	----	**18-Nov-2021**	30-Nov-2021	✓
EA150: Soil Classification based on Particle Size							
Snap Lock Bag (EA150H)							
BH01_0.1	**16-Nov-2021**	**----**	----	----	**19-Nov-2021**	15-May-2022	✓
EA152: Soil Particle Density							
Snap Lock Bag (EA152)							
BH01_0.1	**16-Nov-2021**	**----**	----	----	**19-Nov-2021**	15-May-2022	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED006: Exchangeable Cations on Alkaline Soils							
Soil Glass Jar - Unpreserved (ED006)							
BH01_0.1	**16-Nov-2021**	**19-Nov-2021**	14-Dec-2021	✓	**22-Nov-2021**	14-Dec-2021	✓
ED007: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED007)							
BH01_0.1	**16-Nov-2021**	**19-Nov-2021**	14-Dec-2021	✓	**22-Nov-2021**	14-Dec-2021	✓
ED008: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED008)							
BH01_0.1	**16-Nov-2021**	**19-Nov-2021**	14-Dec-2021	✓	**22-Nov-2021**	14-Dec-2021	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
BH01_0.1, BH01_0.5, BH02_0.4	**16-Nov-2021**	**19-Nov-2021**	15-May-2022	✓	**19-Nov-2021**	15-May-2022	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
BH01_0.1, BH01_0.5, BH02_0.4	**16-Nov-2021**	**19-Nov-2021**	14-Dec-2021	✓	**19-Nov-2021**	14-Dec-2021	✓
EP004: Organic Matter							
Soil Glass Jar - Unpreserved (EP004)							
BH01_0.1	**16-Nov-2021**	**18-Nov-2021**	14-Dec-2021	✓	**18-Nov-2021**	14-Dec-2021	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
BH01_0.1	**16-Nov-2021**	**19-Nov-2021**	30-Nov-2021	✓	**19-Nov-2021**	29-Dec-2021	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
BH01_0.1	**16-Nov-2021**	**19-Nov-2021**	30-Nov-2021	✓	**19-Nov-2021**	29-Dec-2021	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
BH01_0.1, BH01_0.5	**16-Nov-2021**	**18-Nov-2021**	30-Nov-2021	✓	**19-Nov-2021**	30-Nov-2021	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
BH01_0.1, BH01_0.5	**16-Nov-2021**	**18-Nov-2021**	30-Nov-2021	✓	**19-Nov-2021**	30-Nov-2021	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
BH01_0.1, BH01_0.5	**16-Nov-2021**	**18-Nov-2021**	30-Nov-2021	✓	**19-Nov-2021**	30-Nov-2021	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Exchangeable Cations	ED007	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	20	**15.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Exchangeable Cations	ED007	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Exchangeable Cations	ED007	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Organic Matter	EP004	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Particle Size Analysis by Hydrometer	EA150H	SOIL	Particle Size Analysis by Hydrometer according to AS1289.3.6.3
Soil Particle Density	EA152	SOIL	Soil Particle Density by AS 1289.3.5.1: Methods of testing soils for engineering purposes - Soil classification tests - Determination of the soil particle density of a soil - Standard method
Exchangeable Cations on Alkaline Soils	* ED006	SOIL	In house: Referenced to Soil Survey Test Method C5. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with alcoholic ammonium chloride at pH 8.5. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil.
Exchangeable Cations	ED007	SOIL	In house: Referenced to Rayment & Lyons Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Exchangeable Cations with pre-treatment	ED008	SOIL	In house: Referenced to Rayment & Lyons Method 15A2. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Organic Matter	EP004	SOIL	In house: Referenced to AS1289.4.1.1. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.

Preparation Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Lyons 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Exchangeable Cations Preparation Method (Alkaline Soils)	ED006PR	SOIL	In house: Referenced to Rayment and Lyons method 15C1.
Exchangeable Cations Preparation Method	ED007PR	SOIL	In house: Referenced to Rayment & Lyons method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach following drying at 40°C	EN34-AD	SOIL	10 g of 40°C dried soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Organic Matter	EP004-PR	SOIL	In house: Referenced to AS1289.4.1.1. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

CHAIN OF CUSTODY - ANALYSIS REQUEST FORM

Job No: 221082 Laboratory: ALS

Project Manager: P.C. Sampler: P.C. Site Location: Werribee South. Sheet: 1 of 1

No. of samples	Sample ID/ Depth	Anticipated Result (PID)/EC reading	Date sampled	Time sampled	Sample Matrix: Soil	Water	Sediment	Analysis Required: TRH/BTEXN C6-C40	8 metals	NEPM soil characterisation (EC, pH etc.)										Sample-specific instructions/ notes
1	BH01_0.1		16/11		X			X	X	X										URGENT
2	BH01_0.5.		↓		X			X	X											
3	BH02_0.4				X				X											
	TOTAL																			

Environmental Division
Melbourne
Work Order Reference
EM2122848

Telephone : +61-3-8549 9600

Received: 16/11, 18:35 Carrier: courier
C/note:
Temp: 4.1 °C Seal: Y N
Ice bricks N/A
Tim

Turn Around *(circle)*: NORMAL / 3 DAYS / 48 HRS / 24 HRS *(confirm with lab in advance if quick turn-around is required)*

Comments/ Instructions:

Lab Quotation No. *(if applicable)*:

Send report to *(email address)*: pcarroll@eesigroup.com.

Cc: report to *(email address)*: mstuckey@ " "

Cc: invoice to *(email address)*: accounts@eesigroup.com

	Name	Signature	Date	Time
Sent off Site/Office by:	P. Carroll		16/11/21	4:00.
Receiving Lab:				
Receiving Lab:				

ENVIRONMENTAL EARTH SCIENCES
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Phone: (03) 9687 1666
Fax: (03) 9687 1844
Address: Level 1 98 Maribymong St, Footscray 3011
Email: eesVIC@eesigroup.com

APPENDIX I: REGISTERED GROUNDWATER BORE SEARCH RESULTS

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Groundwater Database Bore Radius Search Coordinates

Centre of Site		
Easting	**Northing**	**Radius Required (m)**
296 635.0	5 795 286.0	2000
Distance from Centre (m)	1414	1414
Minimum Extent of Radius	**295221**	**5793872**
Maximum Extent of Radius	**298049**	**5796700**

2.00 RADIUS (km)

DISTANCE (m)*	Angle (east-west axis)	Direction Cell 1	Direction Cell 2	Site ID	MGA Zone	Easting	Northing	Date Completed	Total Depth (m)	Screen top	Screen bottom	Screened lithology	Uses
428	45	Refer Cell to Right	SE	145551	55	296938.1	5794984.2		13				
552	47	Refer Cell to Right	SE	133201	55	297013.1	5794884.2	28/03/1998	15	12	15	COARSE GRAVEL & PEBBLE	Domestic
590	72	N	Refer Cell to Left	59717	55	296820.1	5795846.2	1/01/1970	11.9				Domestic
670	27	Refer Cell to Right	SE	132352	55	297233.1	5794984.2	9/05/1997	15	7	15	COARSE SAND RIVER PEBBLES	Domestic
704	35	Refer Cell to Right	SE	134076	55	297213.1	5794884.2	28/03/1998	15	10.5	15	GRAVEL	Domestic
786	27	Refer Cell to Right	SE	135984	55	297333.1	5794924.2	21/11/1998	19.5	6	19.5	GREY CLAY - FINE SAND	Domestic
917	87	Refer Cell to Right	S	304090	55	296680.1	5794370.2	16/03/1973	30				
917	5	Refer Cell to Right	E	59619	55	297548.1	5795202.2	31/12/1970	13.1				Irrigation
917	30	Refer Cell to Right	SE	112804	55	297429.7	5794828.1	30/09/1992	27	19	25	COARSE SANDSTONE- CLAY CEMEN	Groundwater Investigation
918	30	Refer Cell to Right	SE	113018	55	297430.4	5794828.6	30/09/1992	8	5	8	COARSE SANDSTONE- CLAY CEMENTED GRAVEL	
1071	15	W	W	59534	55	295602.2	5795571.2	14/11/1985	23.5	18.1	23.5	GRAVEL	
1085	15	W	W	59535	55	295588.9	5795573	24/04/2002	120				
1092	15	W	W	145272	55	295581.7	5795574	25/01/2002	15	11	14	MOTTLED CLAY	Groundwater Investigation
1134	61	Refer Cell to Right	SW	304091	55	296077.1	5794298.2	20/03/1973	45				
1167	37	Refer Cell to Right	SE	59533	55	297570	5794588	6/11/1985	43	14.2	20.2	GRAVEL	
1190	75	Refer Cell to Right	S	304087	55	296318.1	5794139.2	10/05/1972	36.58				
1220	6	W	W	112803	55	295422.3	5795418.2	22/09/1992	27	19.5	25.5	SAND LARGE STONES	Groundwater Investigation
1274	77	Refer Cell to Right	S	304089	55	296341.1	5794046.2	16/03/1973	36				
1290	35	NE	Refer Cell to Left	59767	55	297688.1	5796031.2	1/01/1970	12.1				Domestic
1330	54	NE	Refer Cell to Left	129560	55	297413.1	5796364.2	15/12/1996	16	13.5	16	COARSE SAND RIVER PEBBLES	Domestic
1359	60	Refer Cell to Right	SW	304086	55	295962.1	5794105.2	4/05/1972	30.48				
1427	38	NW	Refer Cell to Left	59598	55	295503.1	5796155.2	31/12/1983	3.5				Irrigation
1601	78	N	Refer Cell to Left	59750	55	296966.1	5796852.2	1/01/1970	40				
1622	52	NE	Refer Cell to Left	59527	55	297633.1	5796564.2	4/10/1984	19				
1643	23	NE	Refer Cell to Left	59752	55	298146.1	5795930.2	1/01/1970	25.9				Stock
1666	63	NE	Refer Cell to Left	59720	55	297379.1	5796776.2	1/01/1970	12.8				
1685	10	W	W	119941	55	294976.1	5795583.2	5/02/1992	8.44	6.94	8.44	SILT TO SANDY SILT RED/BROWN FI	Groundwater Investigation
1685	10	W	W	114688	55	294976.1	5795583.2		8.44				
1698	15	E	E	59751	55	298279.1	5795711.2	1/01/1970	8.2				Stock
1704	52	NW	Refer Cell to Left	59682	55	295594.1	5796635.2	31/12/1967	15.2				Irrigation
1738	69	Refer Cell to Right	S	304088	55	296000.1	5793668.2	15/03/1973	66.5				
1770	77	N	Refer Cell to Left	59738	55	296229.1	5797009.2	1/01/1970	0				Domestic
1774	19	W	W	119940	55	294958.1	5795865.2	5/03/1992	8.79	7.29	8.79	SILT TO SANDY SILT RED/BROWN SC	Groundwater Investigation
1774	19	W	W	114689	55	294958.1	5795865.2		8.79				
1814	55	NE	Refer Cell to Left	125091	55	297673.1	5796774.2	15/11/1994	9	6	8	SANDY CLAY WET	Groundwater Investigation
1819	55	NE	Refer Cell to Left	59536	55	297669.1	5796782.9	26/11/1985	41	17	23	GRAVEL	
1847	84	N	Refer Cell to Left	128928	55	296813.1	5797124.2	28/04/1996	18	12	18	GRAVEL - RIVER PEBBLES	
1861	73	N	Refer Cell to Left	59768	55	297164.1	5797070.2	1/01/1970	11.6				Stock
1877	10	W	W	119942	55	294786.1	5795609.2	6/03/1992	6.6	5.1	6.6	SILT RED/BROWN WITH SOME FINE S	Groundwater Investigation
1877	10	W	W	114687	55	294786.1	5795609.2		6.6				
1933	55	NW	Refer Cell to Left	130359	55	295533.1	5796874.2	17/06/1997	15	13.5	15	RIVER PEBBLES COARSE GRAVEL	Irrigation
1938	27	NE	Refer Cell to Left	142331	55	298363.1	5796164.2	19/12/1999	28.5	22.5	28.5	COARSE SAND	
1941	72	N	Refer Cell to Left	130947	55	296043.1	5797134.2		10.8				Irrigation
1949	88	N	Refer Cell to Left	59737	55	296693.1	5797234.2	1/01/1970	13.4				Irrigation

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CONTAMINATION RESOLVED

APPENDIX J: EIL CALCULATIONS

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

Hamon et al. 2004 - Background metals concentrations derived from iron content

Predicted background metal concentrations

Sample	Fe (%)	a values						c values						log [M]						ABC					
		As	Cr	Cu	Ni	Pb	Zn	As	Cr	Cu	Ni	Pb	Zn	As	Cr	Cu	Ni	Pb	Zn	[M]	mg/kg				
																				As	Cr	Cu	Ni	Pb	Zn
BH01_0.1	1.88	0.574	0.75	0.612	0.702	1.039	0.589	1.064	1.916	1.235	1.381	0.558	1.529	1.221	2.122	1.403	1.573	0.843	1.690	16.64817396854	132.318	25.280	37.451	6.964	49.032
																			Mean	16.65	132.32	25.28	37.45	6.96	49.03

Sample	Fe (%)	a values						c values						log [M]						[M]	mg/kg				
		As	Cr	Cu	Ni	Pb	Zn	As	Cr	Cu	Ni	Pb	Zn	As	Cr	Cu	Ni	Pb	Zn	As	Cr	Cu	Ni	Pb	Zn
BH01_0.1	1.88	0.574	0.75	0.612	0.702	1.039	0.589	0.507	1.242	0.808	0.834	0.118	1.024	0.664	1.448	0.976	1.026	0.403	1.185	4.62	28.03	9.46	10.63	2.53	15.33
																			Mean	4.62	28.03	9.46	10.63	2.53	15.33

Inputs
Select contaminant from list below
Cr_III
Below needed to calculate fresh and aged ACLs
Enter % clay (values from 0 to 100%)
35
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
132
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
or for aged ABCs only
Enter State (or closest State)
VIC
Enter traffic volume (high or low)
low

Outputs		
Land use	Cr III soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	210	330
Urban residential and open public spaces	370	730
Commercial and industrial	530	1100

Inputs
Select contaminant from list below
Cu
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
9.1
Enter soil pH (calcium chloride method) (values from 1 to 14)
6.3
Enter organic carbon content (%OC) (values from 0 to 50%)
1.2
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
25
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
or for aged ABCs only
Enter State (or closest State)
VIC
Enter traffic volume (high or low)
low

Outputs		
Land use	Cu soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	70	85
Urban residential and open public spaces	120	200
Commercial and industrial	160	280

Inputs
Select contaminant from list below
Ni
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
9.1
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
37
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
or for aged ABCs only
Enter State (or closest State)
VIC
Enter traffic volume (high or low)
low

Outputs		
Land use	Ni soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	40	60
Urban residential and open public spaces	80	170
Commercial and industrial	120	270

Inputs
Select contaminant from list below
Zn
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
9.1
Enter soil pH (calcium chloride method) (values from 1 to 14)
6.3
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
49
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
or for aged ABCs only
Enter State (or closest State)
VIC
Enter traffic volume (high or low)
low

Outputs		
Land use	Zn soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	85	130
Urban residential and open public spaces	190	420
Commercial and industrial	280	630