March 2015

185 FIFTEENTH AVENUE, WEST HOXTON

Preliminary Environmental Assessment

Submitted to:
Western Sydney Parklands Trust

Report Number. 147622023-004-R-Rev0

Distribution:

Western Sydney Parklands Trust
Golder Associates Pty Ltd

REPORT

Golder Associates

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1.0 INTRODUCTION

1.1 Background

This report presents the results of an environmental assessment conducted by Golder Associates Pty Ltd (Golder) on behalf of Western Sydney Parklands Trust (WSPT) for the property located at 185 Fifteenth Avenue, West Hoxton (the site). The location of the site in relation to the surrounding area is shown on Figure 001.

The site abuts the eastern side of the Fifteenth Avenue Commercial Precinct, which is a proposed State Significant Development. The proposed commercial precinct, which will include a new service station, childcare, mixed light commercial and associated parking, was the subject of a Preliminary Environmental Assessment performed by Golder (Golder 2014). The site is proposed to be incorporated into the commercial precinct.

The environmental assessment, as part of a geotechnical investigation, was authorised by Tim Ireson of WSPT in an email dated 2 February 2015. The work was conducted in general accordance with our proposal 147622023-003-L-Rev0, dated 19 January 2015.

The geotechnical component of this investigation is described in the Golder report 147622023-R-005-RevB dated March 2015 (Golder 2015).

1.2 Objectives

The objective of the environmental assessment was to identify current and previous activities on the site that may have resulted in contamination of soil or groundwater at the site, or create a material risk for such contamination to occur.

1.3 Scope

The scope of work comprised an assessment of the historical and current conditions at the site that could have resulted in contamination of surface water, soil or groundwater at the site.

The scope of work included the following components.

1.3.1 Records Review

The following third party records were obtained and reviewed where relevant and readily available:

- Current and historical Certificates of Title within the New Titles System to provide a history of ownership and land use.
- Selected aerial photographs and on-line aerial imagery of the site from the years 1955 to 2012 obtained from the NSW Department of Land and Property Information to provide evidence of the history of development of the site and indications of potential sources of contamination.
- Certificates issued by local Council under Section 149(2)&(5) of the *Environmental Planning and Assessment Act 1979* to confirm zoning and restrictions on approved land uses.
- Historical Licences for the Keeping of Dangerous Goods and Notifications for the Keeping of Dangerous Goods held by WorkCover NSW for the site.
- Advice from the NSW Environment Protection Authority (EPA) for information on environment protection licences (including associated notices and other regulatory action) issued under the *Protection of the Environment Operations Act 1997* and list of contaminated sites notified to the NSW EPA and records of notices issued by the NSW EPA under the *Contaminated Land Management Act 1997*.
- Search for details of groundwater bores registered on the groundwater bore database maintained by the NSW Office of Water and located within 500 metres (m) of the site.

- Published topographical, geological and soil maps of the area.

1.3.2 Site Inspection

An inspection of the site was undertaken by Golder on 5 February 2015 to provide further information, via visual inspection, of potential sources and areas of contamination.

A drive-by inspection of neighbouring properties was undertaken to identify the presence and proximity of sensitive receptors which could be significantly impacted upon by the site, and off-site operations which could have a significant negative impact on the site.

1.3.3 Interviews

A discussion was held with workers on the site at the time of the site inspection to attempt to obtain an understanding of current and previous activities on the site that may have resulted in contamination of structures on the property or the ground, groundwater or surface water of the site, or create a material risk for such contamination to occur.

Unless otherwise stated in this report no approach was made to regulatory authorities beyond the information searches identified in this proposal.

2.0 SITE DESCRIPTION

The characteristics of the site presented in the following sections are based on a site walkover inspection and a review of available documents.

2.1 Site Location and Setting

A site location plan is presented in Figure 1 attached. Site details are summarised below provided in **Table 1**.

Table 1: Site Location and Setting

Item	Details	Source
Current Owner	Liverpool Transport Co Pty Limited	Certificate of Title
Street Address	195 Fifteenth Avenue	NSW LPI Six Maps
Suburb, State, Postcode	West Hoxton, NSW, 2171	NSW LPI Six Maps
Legal Description	Lot 345 DP 2475	NSW LPI Six Maps
Council and Current Zoning	Liverpool City Council WSP SEPP Western Sydney Parklands	NSW LPI Six Maps Liverpool LEP 2008 zoning maps
Site Area	1.21 hectares (approximately)	NSW LPI Six Maps
Buildings or Structures	Main workshop, bus wash bay, storage sheds and small workshop, office/store buildings, demountable amenities buildings, two 45 kL diesel above ground storage tanks.	Visual inspection
Surrounding Land Use	North: vacant land (formerly market gardens) then Flynn Avenue. South: Roadway (Fifteenth Avenue) residential land use with commercial land use to the south west. East: Residential smallholding, with residential further to east. West: Former commercial (manure packaging) and market garden site, then roadway (Twenty Seventh Avenue), water supply channel and then market gardening	Site inspection and Nearmap aerial photographs

2.2 Topography and Drainage

The *Liverpool 1: 25,000 Topographic Sheet 9030-II-S* (Central Mapping Authority of NSW) indicates the site has an elevation of approximately 95 metres Australian Height Datum (m AHD).

The site is located on a ridge line running approximately north-south, with a steep fall to the east of the site and a gentler fall to the west.

2.3 Geology and Hydrogeology

A review of the *Penrith 1:100,000 Geological Series Sheet 9030* (Geological Survey of New South Wales) indicates that the site is located in an area mapped with Bringelly Shale as the underlying formation. Bringelly shale comprises shale, carbonaceous claystone, claystone, laminate, fine to medium-grained lithic sandstone, rare coal and tuff.

Review of the *Penrith 1:100,000 Soil Landscape Series Sheet 9030* (Soil Conservation Service of New South Wales), indicates the site is located in an area belonging to the Luddenham soil landscape. The sheet describes the landscape as undulating to gently rolling hills with local relief of between 50 m to 80 m and slopes between 5% and 20%. Typical soils of this landscape are shallow dark podzolic soils or massive earthy clays on crests, moderately deep red podzolic soils on upper slopes and moderately deep yellow podzolic soils and prairie soils on lower slopes and drainage lines.

An on-line search of acid sulfate soil (ASS) risk maps on the *Australian Soil Resource Information System* (ASRIS) maintained by CSIRO, performed in February 2015, showed the site as being in an area of "No Known Occurrence" of ASS (ASRIS 2011). ASS are generally only expected at elevations of less than 5 m AHD in coastal areas (RTA 2005), and are not expected at the site due to its elevation of approximately 90 to 100 m AHD.

The soils at the site have been modified by cut and fill earthworks to provide level bus parking areas. Fill material is likely to have been imported as part of the site levelling works.

A groundwater bore records search conducted through the *NSW Natural Resource Atlas* in February 2015 indicates that there are no registered groundwater bores located within 500 m of the site. The closest registered bore is located on the grounds of the Thomas Hassall Anglican College located approximately 520 m to the north east. The bore was licensed as a test bore. Groundwater bearing zones were observed at approximate depths of 60 m, 160 m and 190 m below ground level.

As the site is located on a ridge line trending north-south groundwater is generally inferred to flow following the topography to the east and the west.

A copy of the bore search results is included in **Appendix A**.

3.0 HISTORICAL RECORDS REVIEW

The following section presents a summary of the site's historical information reviewed as part of the assessment. The historical review was completed to develop a general understanding of the site and surrounding area (within 500 m), with the intention of identifying previous activities on, or nearby, the site which may represent an issue of potential environmental concern.

3.1 Aerial Photographs

Historical aerial photographs for the site and surrounding area from 1955, 1961, 1970, 1978, 1994 and 2002 were obtained from the NSW Land and Property Management Authority for review. Aerial imagery from 2009 and 2014 was observed via Nearmap (https://maps.au.nearmap.com). Copies of the aerial photographs referenced above are included in **Appendix B**. The aerial photograph review was conducted to ascertain a general history of the development of the site and surrounding area (within approximately 500 m). This review is summarised in **Table 2**.

Table 2: Historical Aerial Photograph Review

Year	Comment	
1955	Site	Two structures, which were in locations consistent with the existing cottage in the south west corner of the site and the workshop/storage sheds in the south eastern corner of the site were visible. Two additional objects, consistent with the size and shape of a bus, were visible on this site. The northern two-thirds of the site had not been cleared and had trees present.
	Surrounding area	Fifteenth Avenue and Twenty Seventh Avenue were visible, but appeared to be unsealed. The existing cut on the Fifteenth Avenue alignment was visible on the southern side of the site. Flynn Avenue had not been formed. The existing water supply channel was present to the west of Twenty Seventh Avenue. The site to the east had not been cleared and had trees present. The site to the west was primarily cleared land, with some scattered trees, and may have been in use for grazing purposes. A small dam was present to the west. A number of small structures, assumed to be a residential dwelling and sheds, were visible on the location of Browns Reserve near the water supply channel. A number of apparent residential dwellings and associated outbuildings were located on the southern side of Fifteenth Avenue in the location of the existing shops. Sheds were visible on nearby properties to the north of the current Flynn Avenue and to the west of the water supply channel. The structures were consistent with poultry farming activities. Evidence of market gardening was present on lots further to the east, southeast and west of the site.
1961	Site	A small structure was present in the approximate location of the existing service pits, with additional features present to the north-east of the cottage. The number of buses parked on the site had increased since 1955.
	Surrounding area	The surrounding area was generally similar in appearance to that shown in the 1955 aerial photograph. The number of residential type structures on the southern side of Fifteenth Avenue opposite the site had increased, as had the extent of land in the vicinity of the site that appeared to be under cultivation for market gardens. Additional sheds had been constructed on the assumed poultry farm located on the northern side of the current Flynn Avenue.
1970	Site	Features were present in the location of the existing service pits. The workshops/sheds in the south east corner of the site had been extended to the south. Vegetation on the northern part of the site had been partially

Year	Comment	
		cleared.
	Surrounding area	Flynn Avenue to the north of the site had been formed. A structure consistent with that observed during the site inspection on the existing service station site (less the forecourt awning) was present at 198 Fifteen Avenue. Evidence of market gardening was present on the adjoining site to the east and west. Structures including a residential cottage were visible on the adjoining site to the east. Godfrey Avenue was visible further to the south of the site, with an increased number of residential type structures in the area. Additional sheds had been constructed on the assumed poultry farm located on the northern side of the current Flynn Avenue.
1978	Site	The site appeared similar to that shown in the 1970 aerial photograph (noting poor resolution image).
	Surrounding area	An additional residential type structure was present at the southern end of the adjoining site to the east. The surrounding area otherwise appeared similar to that shown in the 1970 aerial photograph (noting poor resolution image).
1994	Site	A small feature, possibly a shed or awning, was visible on the southern boundary of the site to the east of the entrance gate. A structure was visible in the location of the existing workshop office, with a smaller feature in the location of the existing toilet block. The southern part of the site appeared to have an asphalt or hardstand surface, with a possible bench indicating a change of level running north-south to the west of the current location of the bus wash structure.
	Surrounding area	The south eastern corner of the adjoining site to the west appeared to have a number of storage structures and other objects on a hardstand area. Further commercial type structures were visible on the southern side of Fifteenth Avenue opposite the site. The awning observed at the service station site during the site inspection was visible in the aerial photograph. Additional residential type development was present further to the south.
2002	Site	Structures appeared present in the location of the existing workshop and bus wash bay. The northern part of the site had been cleared of vegetation and appeared to have a hardstand or asphalt surface (noting poor resolution image).
	Surrounding area	Market gardening appeared to be occurring on site to the west and north west. Additional commercial type structures were visible on the southern side of Fifteenth Avenue to the south west of the site.
2009 (Nearmap)	Site	The site appeared similar to that observed during the site inspection. A rectangular feature, consistent with an above ground diesel tank observed during the site inspection, was present on a concrete pad to the west of the bus wash bay. A concrete pad was visible to the north of the bus wash bay, with a smaller concrete pad visible to the south. Areas of apparent oil staining were visible on the hard stand area at the northern end of the site. Two rectangular structures, consistent with the toilet block and lunch shed observed during the site inspection, were observed on the northern side of the cottage in the south western corner of the site. Circular features, consistent with septic tank tops, were present to the west of the demountable toilet building.
	Surrounding area	The area surrounding the site appeared similar to that shown in 2002 aerial photograph.

Year	Comment	
2015 (Nearmap)	Site	An area of new asphalt surface cover was present at the southern end of the site, in an area consistent with the former location of USTs removed in November 2014. The site appeared similar to that shown in 2009 aerial imagery.
	Surrounding area	Increasing residential development had occurred in the area to the east of the site.

3.2 Certificates of Title

Certificates of Title obtained from the Land and Property Information NSW (through VJ Ralph & Co. City Legal Services) were reviewed in order to identify a history of ownership of the site. The current Certificate of Title for the site is Volume 1102 Folio 132.

A summary of the historical ownership is presented in **Table 3**. Copies of the Certificates of Title are included as **Appendix C**.

Table 3: Summary of Land Title Information

Date	Certificate of Title Reference	Comments
1893 to 1932	Vol 1102 Fol 132	Owned by Caroline Catherine Mackay, wife of Angus John Mackay of Balmain
1932 to 1940	Vol 1102 Fol 132	Owned by Laura Vida Scott, wife of Thomas George Scott of West Hoxton, storekeeper.
1940 to 1957	Vol 1102 Fol 132	Owned by Cecil Scott of West Hoxton, motor driver.
1957 onwards	Vol 1102 Fol 132	Owned by Liverpool Transport Co Pty Limited.
2 February 2015	Folio 245/2475	Owner at date of search was Liverpool Transport Co Pty Limited.

Notes: Vol: Volume
Fol: Folio

3.3 Summary of Site History

The local area appears to have been primarily used for agricultural land uses, including grazing, market gardening and poultry farming. The southern portion of the site was cleared prior to the mid 1950s (the earliest aerial photograph reviewed), and based on evidence from aerial photographs and on land title records, has been used as a bus depot since 1957, with assumed use as a bus depot from 1940 based on land title records. Infrastructure, including a newer bus wash and workshop, was constructed in the middle of the site at some point after 1994. The northern part of the site cleared prior to 2002 to provide additional bus parking areas.

4.0 REGULATORY AGENCY RECORDS SEARCHES

4.1 NSW Environment Protection Authority

A search of online records held by the NSW Environment Protection Authority (EPA) was undertaken. The search findings are presented below.

An on-line search on 17 February 2015 of the EPA's "Record of Notices" issued under the *Contaminated Land Management Act 1997* (the *CLM Act*) did not identify any sites within West Hoxton as being subject to current or prior notices. Two premises within the Liverpool City Council local government area were identified as having current or former notices issued under the provisions of the *CLM Act*. The result of the search is presented in the **Table 4**.

Table 4: CLM Notice Search Results

Site	Distance and direction from site (approx.)
Australian Chemical Refiners, 85-107 Alfred Road, Chipping Norton	12 km to east
ABB Australia, Bapaume Road, Moorebank	8.5 km to east

It is considered that the premises identified in the search would not impact on the site. A copy of the results of the notice search is provided in **Appendix D**.

The NSW EPA also maintains a "List of NSW contaminated sites notified to the EPA" under Section 60 of the CLM Act. Sites on this list indicate that the notifiers consider that the sites are contaminated and warrant reporting to EPA. The contamination at the site may or may not be significant enough to warrant regulation by the EPA and the EPA reviews relevant site information before making a determination as to whether or not the site warrants regulation. An online search for NSW sites in West Hoxton and the surrounding suburbs of Austral, Horningsea Park and Hoxton Park was performed on 17 February 2015. No notified sites were reported for West Hoxton, Austral or Horningsea Park. The result of the search is presented in **Table 5**.

Table 5: Section 60 Notification Search Results

Site	Distance from site (approx.)	EPA management status
Endeavour Energy, 490 Hoxton Park Road, Hoxton Park	3.5 km to east	The contamination is being assessed by the EPA to determine whether regulation is required.

A search for Environment Protection Licences (EPLs) under the *Protection of the Environment Operations Act 1997* identified one premise with an EPL in West Hoxton. A search was also performed for EPLs on premises in the neighbouring suburbs Austral, Horningsea Park and Hoxton Park. The search results are summarised in **Table 6**.

Table 6: EPL Search Results

Site	Distance and direction from site (approx.)	Activity	Status
West Hoxton Priority Sewage Program, Lowry Avenue, West Hoxton	1 km to south south west	Sewage treatment	Surrendered
Inghams Enterprises Pty Limited, Kurrajong Road, Hoxton Park	2.5 km to south east	Slaughtering or processing animals	Surrendered
Scalabrini Village Ltd, 65 Edmondson Avenue, Austral	3.5 km to south east	Sewage treatment	Surrendered

Site	Distance and direction from site (approx.)	Activity	Status
Endeavour Energy, 490 Hoxton Park Road, Hoxton Park	3.5 km to east	Hazardous, Industrial or Group A Waste Generation or Storage	No longer in force
Visy Board Proprietary Limited10/10 Lyn Parade, Hoxton Park	5 km to east	Hazardous, Industrial or Group A Waste Generation or Storage	No longer in force

The nearest of the premises identified in the search, formerly occupied by the West Hoxton Priority Sewage Program, is located approximately 1 km to the south south west of the site. Review of aerial imagery provided by Nearmap showed the presence of an assumed works compound on the northern side of Lowry Avenue in May 2013. The assumed compound had been cleared by May 2014.

It is considered that the licensed or formerly licensed premises identified in the search would not impact on the site.

A copy of the results of the EPL searches is provided in **Appendix D**.

4.2 Local Council

Local councils issue planning certificates under Section 149 (2) and (5) of the *Environmental Planning and Assessment Act 1979*, which contain information on permissible uses of a property and identify restrictions on development. Section 149 certificates contain information pertaining to potential or actual contamination at the subject site.

The following information was provided in the Section 149 certificate for the site issued by Liverpool City Council (Certificate No: 4581) on 6 February 2015:

"The following matters are prescribed by section 59 (2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate:

a) *that the land to which the certificate relates is significantly contaminated land within the meaning of that Act-if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,*

   Not Applicable

b) *that the land to which the certificate relates is subject to a management order within the meaning of that Act-if it is subject to such an order at the date when the certificate is issued,*

   Not Applicable

c) *that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act-if it is the subject of such an approved proposal at the date when the certificate is issued,*

   Not Applicable

d) *that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act-if it is subject to such an order at the date when the certificate is issued,*

   Not Applicable

e) *that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act-if a copy of such a statement has been provided at any time to the local authority issuing the certificate.*

Not Applicable"

Information provided under Part B of the planning certificate pursuant to Section 149(5) of the *EP&A Act* included:

"7. Contaminated Land

Nil

10. Environmentally Significant Land

Nil

12 Unhealthy Building Land Proclamation

Nil"

Under Section 50 of the *CLM Act 1997*, the EPA must inform the local authority after the occurrence of any of the following in relation to land:

- The land being declared to be significantly contaminated land or ceasing to be significantly contaminated land.
- A management order in relation to the land being served on a person or being revoked.
- The EPA giving its approval or withdrawing its approval for a voluntary management proposal in relation to the land or a voluntary management proposal in relation to the land being completed to the satisfaction of the EPA.
- An ongoing maintenance order in relation to the land being served on a person or being revoked.

The information contained in the Section 149 Certificate therefore reflects the information from the search of online records held by the NSW Environment Protection Authority (EPA) (**Section 4.1**).

The Section 149 Certificate did not include information on the land zoning of the site. Review of land zoning maps for the *Liverpool Local Environment Plan 2008* indicates the site is zoned WSP SEPP Western Sydney Parklands.

A copy of the land use planning certificate is provided in **Appendix D**.

4.3 Notified Dangerous Goods

A search of the files relating to historical storage of Dangerous Goods at the site held by WorkCover NSW was undertaken and reported in a response dated 9 February 2015. WorkCover NSW advised that a search of their Stored Chemical Information Database (SCID) and microfiche records indicated that Liverpool Transport Co P/L held licence 35/002071 for one underground storage tank (UST) of 5,000 L capacity.

A copy of the response from WorkCover NSW is included in **Appendix D**.

5.0 SITE INSPECTION

As part of the assessment, Golder (Mr Shane Doyle) completed a site inspection on 5 February 2015. During the site inspection Golder met with and discussed site operations with two site employees. The findings of the site inspection and discussions are presented in the following sections.

5.1 Site Activities

At the time of the inspection the site was in the process of being vacated. Two employees (names not disclosed) were on site, performing maintenance tasks on plant. A number of buses were parked at the northern end of the site.

5.2 Site Infrastructure

The infrastructure at the site comprises the following:

- A main workshop in the central part of the site, with a fibre cement clad workshop office and store building and toilet block to the east.
- A bus wash bay to the west of the main workshop, with waste water treatment plant.
- A 45 kL above ground storage tank (AST) labelled as containing diesel on a concrete pad to the west of the wash bay.
- A 45 kL AST labelled as containing diesel to the north of the main workshop located on a hardstand area.
- A cottage structure in the south west corner of the site formerly used for office or storage. A demountable lunch shed and a demountable ablutions block were located to the immediate north of the cottage.
- A workshop and store sheds located in the southeast corner of the site.
- Two bus service bays located to the south west of the main workshop.

5.3 Site Observations

The majority of the site was paved with asphalt (southern side of the site) or had aggregate hardstand (northern side of the site). The western section of the site was at a lower level than the eastern section. Based on the ground levels on the adjoining sites the northern part of the site had been filled to provide a level bus parking surface, with fill being place on the eastern and western sides of the site. Localised areas of assumed surface hydrocarbon staining were observed on the hardstand areas. (See Photographs 1 to 5 in **Appendix E**.)

One of the site workers reported that three USTs had been removed from an area adjacent to the southern boundary of the site in November 2014, and showed the Golder representative photographs of the USTs taken on a mobile phone. One of the USTs was reported to have contained liquid at the time, which was pumped out prior to the tanks being removed. The site worker did not know if any soil validation works had occurred. (See Photograph 6 in **Appendix E**.)

The main workshop and bus wash building were constructed of clip lock metal, with concrete floor slabs. No significant staining to the concrete floor slabs was evident at the time of the inspection. A number of 200 L drums and one 1000 L intermediate bulk container (IBC) were stored at the northern exterior of the main workshop on a concrete slab and adjacent hardstand area. The bus wash effluent treatment plant was located in a concrete bunded area to the west of the bus wash area. The site workers interviewed did not have knowledge of the location of discharge points for the treated effluent. The treatment plant appeared to discharge to an inground pit further to the west, which was assumed to connect to a drainage line discharging on the western boundary of the site. (See Photographs 7 to 12 in **Appendix E**.)

A concrete slab was located to the south of the bus wash building. A number of in-ground pits were located next to the slab and power supply was present to a pole in the vicinity, indicating the slab may have been used as a bus wash. However, site workers interviewed did not have knowledge of the purpose of the slab. (See Photograph 13 in **Appendix E**.)

The workshop office/store building to the east of the workshop was constructed of fibre cement sheet (fibro) wall cladding with a timber floor. There is the potential for the fibro to contain asbestos based on the apparent age of the structure. Oil staining was evident on the timber floor of the store building. A small toilet block was located to the north of the office/store building, with a septic tank located to the north of the building. The toilet block was locked at the time of the inspection preventing access. (See Photographs 14 to 16 in **Appendix E**.)

Two 45 kL diesel ASTs were located on site. One of the ASTs was located on a concrete slab to the west of the bus wash bay. Sediment on the concrete slab was discoloured at the time of the inspection, but due to recent rain it was unable to determine if the discolouration was due to historical diesel spillages or moist soil due to rainfall. The second AST was located on a hardstand area to the north of the main workshop. Minor areas of hydrocarbon staining were evident below the AST. (See Photographs 17 to 20 in **Appendix E**.)

The small workshop and storage sheds in the south eastern corner of the site were constructed of galvanised iron cladding on timber and metal frames with concrete floor slabs. A former driver's meal room located at the northern end of the buildings had a timber floor. Significant oil staining was present on the concrete floor slab in the workshop at the southern end of the group of buildings. Items of plant stored in the workshop included a tractor and slasher, an air compressor and air vessel. Two waste skips were located on the western exterior at the time of the inspection. (See Photographs 21 to 22 in **Appendix E**.)

Two bus service bays were located to the south west of the main workshop. One service bay was a concrete area with a pneumatic hoist to elevate buses to allow serving. A bus was present on the area at the time, which precluded an inspection of the depression in the slab housing the hoist equipment. The service bay had a raised area for buses to drive onto to allow inspection from a service area excavated below ground level. There was evidence of oil staining of the interior of the service pit. Water entering the pit collected in a blind sump at the northern end of the pit. Based on site observations, water collecting in the pit appeared to be pumped to an effluent pipe, which discharged to an area to the north of the service bay. The discharge point was not located during the inspection due to the presence of long grass in this area. (See Photographs 23 to 24 in **Appendix E**.)

The structures in the south west corner of the site included a cottage style building with vinyl wall cladding and a brick skillion extension. It is considered that the vinyl cladding may cover fibro wall cladding. The building was locked at the time of the inspection preventing access. A demountable lunch shed and a demountable toilet/ablutions block were located to the north of the cottage building. Two septic tanks were located to the north of the cottage and west of the demountable structures. (See Photographs 25 to 27 in **Appendix E**.)

Miscellaneous items were stored on the hardstand area on the northern side of the site. These included shipping containers, breeze blocks, concrete pipes, a portable metal fuel tank and a trailer mounted IBC apparently used to dispense diesel. (See Photographs 28 to 31 in **Appendix E**.)

6.0 POTENTIAL SOURCES OF SOIL AND GROUNDWATER CONTAMINATION

The potential sources of soil and groundwater contamination on the site are discussed in the following sections.

Underground Storage Tanks

The search of WorkCover dangerous goods records indicated that there was one licensed UST on the site in the early 1990s. During the site inspection Golder was informed that three USTs were removed in November 2014. It therefore seems that the licensing records held by WorkCover were incomplete, and it appears that the removal of the USTs has not been notified to WorkCover.

There is the potential for hydrocarbon impact to soil and groundwater in the vicinity of the former UST pit located adjacent to the southern boundary of the site.

The underground fuel storage tanks at the petrol station located on the southern side of Fifteenth Avenue are not considered to represent a potential source of contamination as the service station site is considered to be down gradient of the site.

Aboveground Storage Tanks

At the time of the inspection two 45 kL diesel ASTs were present at the site. The ASTs were double skinned, and it is considered the potential for significant hydrocarbon impact from use of the ASTs was considered low, notwithstanding assumed surficial hydrocarbon staining observed near the tanks.

Maintenance Activities

There is the potential for impact from vehicle maintenance activities on the site. Evidence of hydrocarbon staining was observed in the base of the in-ground vehicle bay inspection pit, and it is assumed that water collecting in this pit is disposed to ground. Hydrocarbon staining on the concrete slab of the small workshop in the south east corner of the site was observed, with the potential for sub slab impact. There were numerous small areas of assumed surficial hydrocarbon staining on the hardstand areas of the site, which are considered to pose a lower risk to the site than activities at the bus service bays and workshop areas.

Storage of waste materials, including drums of assumed hydrocarbon products, were stored on concrete slabs and hardstand areas around the northern side of the main workshop. There is the potential for impact to site soils from spillage or leakage of waste oils.

Effluent from the bus wash appears to discharge via an underground pipe, to ground at the western side of the site and may flow overland to the west via a drainage line. There is the potential for off-site impact if the effluent from the bus wash bay had not been appropriately treated.

Former Market Gardening Activities

There is a low potential that market gardening activities occurred on the site prior to the 1940s. Market gardening activities, if any, may have involved the use of herbicides and pesticides, presenting a risk of soil contamination. However, the potential for broad acre impact is considered to be low. It is noted that soil at the site has been cut and filled since the 1940s, which may have resulted in herbicide and pesticide contamination (if present) being relocated or buried.

Filling

Areas of the site may have been subject to cut and fill, and fill appears to have been imported in the late 1990s or early 2000s to provide a level bus parking surface at the northern end of the site. As the source of any imported fill is unknown, there is the potential contaminated fill to have been imported to site.

Structures

There is the potential that the building in the south-west corner of the site and the workshop office/store building are clad with asbestos cement sheet. There is the potential for localised surficial asbestos impact from damage to the wall cladding.

6.1 Preliminary Sampling Program

A limited number of samples were collected to gain preliminary information on potential for contamination of soils on the site during geotechnical investigations performed on 9 February 2014, reported under separate cover (Golder 2015). The sample locations are shown in Figure 001. Bore logs are presented in **Appendix F**.

Selected soil samples were analysed for the following analytical suite:

- Total recoverable hydrocarbons (TRH);
- Benzene, toluene, ethylbenzene, xylene, naphthalene (BTEXN);
- Metals (arsenic, cadmium, copper, chromium, lead, mercury, nickel and zinc);
- Polycyclic aromatic hydrocarbons (PAH);
- Organochlorine pesticides (OCP);
- Polychorinated biphenyls (PCB) and
- Asbestos.

The results of the analysis performed are presented in Table 1 for the soil samples and Table 2 for the rinsates blank (quality control) sample in **Appendix G**.

The soil samples were analysed by Envirolab Services Pty Ltd (Envirolab). A field triplicate sample was analysed by Australian Laboratory Services Pty Ltd (ALS) for quality control purposes. Both ELS and ALS are accredited by the National Association of Testing Authorities, Australia (NATA) for the testing performed. Copies of certificates of analysis and chain of custody documentation are presented in **Appendix H**.

6.1.1 Soil analysis results

The results for the sediment samples were compared to soil investigation levels presented in *the National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPC 2013) (“the NEPM”). The NEPM presents human health and ecological investigation levels, which are the concentrations of contaminants above which further appropriate investigation and evaluation will be required. The investigation levels have been derived considering relevant exposure settings for low and high density residential; recreational/open space; and commercial / industrial land uses. Given the proposed redevelopment of the site, soil results have been compared to investigation levels for commercial/industrial land use. The results were compared to the following investigation levels and limits for commercial/industrial land use:

- Health investigation levels (HILs) for metals, PAH, OCP and PCBs;
- Health screening levels (HSLs) for vapour intrusion for TRH fractions and BTEXN. Where no guidance for vapour intrusion was included in the NEPM, the TRH fractions were compared to the health screening levels for direct contact on commercial/industrial sites documented in *Health screening levels for petroleum hydrocarbons in soil and groundwater. Part 1: Technical development document, CRC CARE Technical Report no. 10* (CRC 2011);

- Management limits (MLs) for hydrocarbons. The management limits are intended to minimise the potential for phase separated hydrocarbons, fire and explosive hazards and effects on buried infrastructure;
- Default environmental investigation levels (EILs) for arsenic, lead, naphthalene (a PAH compound) and DDT (an OCP compound); and
- Ecological screening levels (ESLs) for TRH, BTEX and benzo[a]pyrene (a PAH compound).

In general, organic analytes (C_6-C_{10} TRH, >C_{10}-C_{16} TRH, BTEXN, OCP and PCB) were not detected above the laboratory limits of reporting. However, heavier fraction TRH (>C_{16}-C_{34} TRH and >C_{34}-C_{40} TRH) were detected in four of the primary soil samples. Low levels of PAH were detected in four of the primary soil samples. Metals were detected in all samples.

No exceedances of the adopted criteria occurred. The concentrations reported for the analyses were generally at least one order of magnitude below the relevant guidance for commercial/industrial land use sites.

Asbestos was not identified in the two soil samples analysed. No respirable fibres were detected and asbestos was not detected (at the reporting limit of 0.1 g/kg).

7.0 DISCUSSION AND RECOMMENDATIONS

7.1 Discussion

A preliminary environmental assessment of the bus depot site at 185 Fifteenth Avenue, West Hoxton has been performed. It is proposed that the site be redeveloped as part of a larger commercial precinct including the adjoining land to the west. The desktop review and site inspection indicated that the site has been used as a bus depot since 1957, and possibly since 1940.

Review of site records indicated that the site was licensed for one 5,000 L capacity underground storage tank in the 1990s, however a site worker reported that three USTs were removed in November 2014. It is understood that validation sampling of the UST pit was not performed during the tank removal works.

Natural soils on the site are expected to be podzolic soils or earthy clays of the Luddenham soil landscape. Areas of the site have been filled, and there is the potential for cut and fill activities to have taken place. The underlying geology of the site is expected be Bringelly shale formation, which comprises shale, carbonaceous claystone, claystone, laminate, fine to medium-grained lithic sandstone, rare coal and tuff. There is no known occurrence of acid sulfate soil on the site. Groundwater was not reported to have been encountered during the geotechnical investigations, which comprised drilling to a maximum depth of 5.5 m below ground level.

The site inspection identified a number of areas with the potential to contaminate surface and subsurface soil and groundwater. These areas included the location of the former USTs, the bus service bays, the bus wash bay, the workshops and storage sheds, the location of the existing diesel ASTs, the storage of waste materials across the site and the presence of fill material. Numerous areas of assumed surficial hydrocarbon staining were observed in locations where buses and vehicles have been parked.

Soil analysis results from preliminary environmental sampling performed as part of geotechnical investigations were generally below soil investigation levels presented in *the National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPC 2013) for commercial/industrial land use. A quality control sample from location BH14 reported elevated results for the $>C_{10} – C_{16}$, F2 ($>C_{10} – C_{16}$ minus naphthalene) and F3 ($>C_{16} – C_{34}$) hydrocarbon fractions which were above the respective ecolological screening levels or management limits, but below the respective health investigation levels. The results for the corresponding primary sample were below the adopted criteria, with the variation in laboratory results potentially due to sample heterogeneity or impact from surface asphalt at this location.

There is the potential for contamination arising from site activities at locations not investigated during the geotechnical investigations.

7.2 Recommendations

Based on the findings of the preliminary environmental assessment, it is considered the site could be made suitable for the proposed use, subject to the following conditions/actions:

- Performing a Detailed Environmental Site Assessment (ESA) in accordance with guidance issued or endorsed by the EPA under Section 105 of the *Contaminated Land Management Act* 1997 including the *Sampling Design Guidelines* (EPA 1995), the *Guidelines for the Assessment and Management of Groundwater Contamination* (DEC 2007) and the *Technical Note: Investigation of Service Station Sites* (EPA 2014). This should include an assessment of soil and groundwater quality across the site with particular attention to the location of the former USTs, areas below structures on the site, and fill materials. The specific number and location of sampling points and types of analytes would need to be identified through the preparation of a Sampling and Analytical Quality Plan, including a conceptual site model, prior to commencement of the detailed assessment.
- Given the discrepancy between WorkCover's records and the number of USTs reported to be removed in 2014 it is recommended that a formal interview be performed with persons who have detailed knowledge of site activities to identify the number and location of USTs and ASTs on the site as part of the Detailed ESA.

Prior to commencement of any future work including demolition of the existing buildings and structures, the following work will be required:

- A hazardous building materials survey report should be prepared for structures on the site.
- Demolition of structures on the site should be performed after the removal of asbestos and other hazardous building materials in accordance with the requirements of Australian Standard *AS 2601 The demolition of structures*. Asbestos should be removed in accordance with *Code of Practice How to Safely Remove Asbestos* (SWA 2011) and relevant WorkCover NSW guidance.

8.0 REFERENCES

ASRIS 2011 *ASRIS – Australian Soil Resource Information System.* http://www.asris.csiro.au. Accessed February 2015.

CRC 2011 *Health screening levels for petroleum hydrocarbons in soil and groundwater. Part 1: Technical development document, CRC CARE Technical Report no. 10*, CRC for Contamination Assessment and Remediation of the Environment, 2011.

DEC 2007 *Guidelines for the Assessment and Management of Groundwater Contamination* , Department of Environment and Conservation NSW, March 2007.

EPA 1995 *Sampling Design Guidelines*, NSW Environment Protection Authority, September 1995.

EPA 2014 *Technical Note: Investigation of Service Station Sites*, NSW Environment Protection Authority, April 2014.

Golder 2014 *Fifteenth Avenue, West Hoxton Preliminary Environmental Site Assessment for Commercial Precinct*, Golder Associates Pty Ltd, reference 147622023-001-R-RevA, July 2014.

Golder 2015 *185 Fifteenth Avenue, West Hoxton Draft Geotechnical Investigation for Commercial Precinct*, Golder Associates Pty Ltd, reference 147622023-005-R-RevB, March 2015.

NEPC 2013 *National Environment Protection (Assessment of Site Contamination) Measure 1999*, National Environment Protection Council, 2013.

SWA 2011 *How to Safely Remove Asbestos*, Safe Work Australia, December 2011.

RTA 2005 *Guidelines for the Management of Acid Sulfate Materials: Acid Sulfate Soils, Acid Sulfate Rock and Monosulfidic Black Ooze*, Roads and Traffic Authority NSW, April 2005.

9.0 LIMITATIONS

Your attention is drawn to the following limitations, which must be read in conjunction with this report.

This Document has been provided by Golder Associates Pty Ltd ("Golder") subject to the following limitations:

This Document has been prepared for the particular purpose outlined in Golder's proposal and no responsibility is accepted for the use of this Document, in whole or in part, in other contexts or for any other purpose.

The scope and the period of Golder's Services are as described in Golder's proposal, and are subject to restrictions and limitations. Golder did not perform a complete assessment of all possible conditions or circumstances that may exist at the site referenced in the Document. If a service is not expressly indicated, do not assume it has been provided. If a matter is not addressed, do not assume that any determination has been made by Golder in regards to it.

Conditions may exist which were undetectable given the limited nature of the enquiry Golder was retained to undertake with respect to the site. Variations in conditions may occur between investigatory locations, and there may be special conditions pertaining to the site which have not been revealed by the investigation and which have not therefore been taken into account in the Document. Accordingly, additional studies and actions may be required.

In addition, it is recognised that the passage of time affects the information and assessment provided in this Document. Golder's opinions are based upon information that existed at the time of the production of the Document. It is understood that the Services provided allowed Golder to form no more than an opinion of the actual conditions of the site at the time the site was visited and cannot be used to assess the effect of any subsequent changes in the quality of the site, or its surroundings, or any laws or regulations.

Any assessments made in this Document are based on the conditions indicated from published sources and the investigation described. No warranty is included, either express or implied, that the actual conditions will conform exactly to the assessments contained in this Document.

Where data supplied by the client or other external sources, including previous site investigation data, have been used, it has been assumed that the information is correct unless otherwise stated. No responsibility is accepted by Golder for incomplete or inaccurate data supplied by others.

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Report Signature Page

GOLDER ASSOCIATES PTY LTD

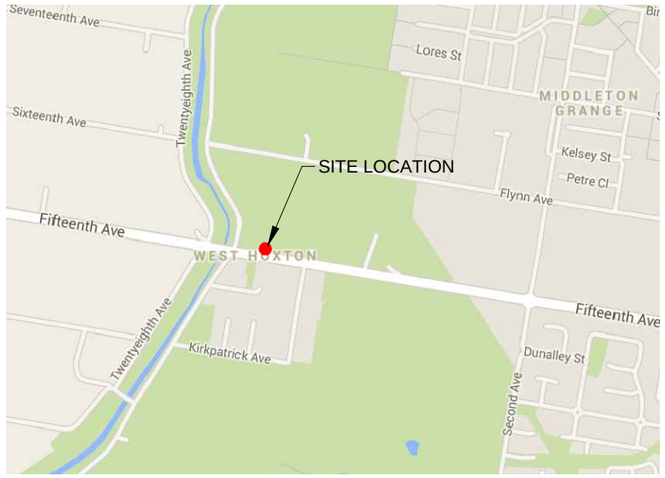
Shane Doyle
Principal Environmental Scientist

Tom Carmichael
Principal Environmental Scientist

SPD/TC/spd:bms

A.B.N. 64 006 107 857

\\golder.gds\gap\sydney\jobs\geo\2014\147622023_wspt_site gi_west hoxton\correspondence out\147622023_004_r_rev0 - bus depot environmental report.docx



LOCALITY PLAN
NOT TO SCALE

LEGEND

BOREHOLE LOCATIONS

REFERENCE

BASE SURVEY CONTOUR TAKEN FROM TOTAL SURVEYING SOLUTION DRAWING 15060_A.DWG, RECEIVED DATED 2015-02-10

IMAGE DATED 24-05-2014
SOURCED WITH PERMISSION FROM NEARMAP ON 17-06-2014
IMAGE GEOREFERENCED BY GOLDER AND INTENDED FOR INDICATIVE PURPOSES ONLY
www.nearmap.com.au

0 50 100
1:2,000 METRES

CLIENT
WESTERN SYDNEY PARKLANDS TRUST

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-02-10
PREPARED	EJJ
DESIGN	AS
REVIEW	BMS
APPROVED	-

PROJECT
185 FIFTEENTH AVENUE, WEST HOXTON

TITLE
INVESTIGATION LOCATIONS

PROJECT No.	REPORT	Rev.	FIGURE
147622023	003 - R	0	F001

Path: \\golder.gds\gal\Sydney\Jobs\ge\2014\147622023_WSPT_Site GI_West Hoxton\Technical Docs\CAD\DFIG\FIGURES\ | File Name: 147622023-003-R-F001-REV_.dwg

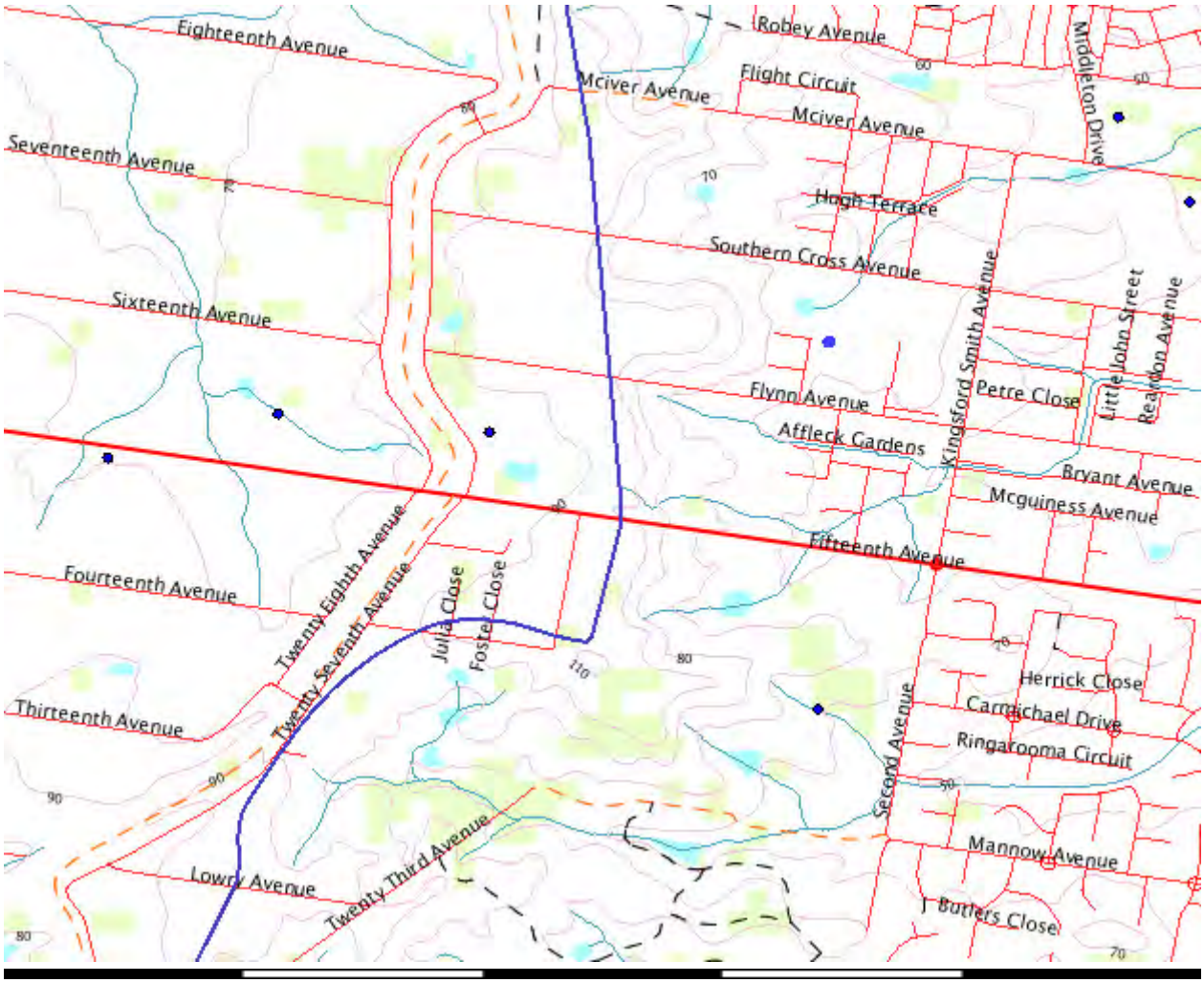
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ISO A3
25 mm
0

APPENDIX A

Groundwater Bore Search Results

147622023 West Hoxton

Map created with NSW Natural Resource Atlas - http://www.nratlas.nsw.gov.au
Tuesday, February 17, 2015



Legend

Symbol	Layer	Custodian
	Cities and large towns renderImage: Cannot build image from features	
Cowra	Populated places renderImage: Cannot build image from features	
	Towns	
	Groundwater Bores	
	Catchment Management Authority boundaries	
	Major rivers	
	Topographic base map	

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Thursday, June 19, 2014

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW105305

Works Details (top)

GROUNDWATER NUMBER	GW105305
LIC-NUM	10BL162877
AUTHORISED-PURPOSES	TEST BORE
INTENDED-PURPOSES	TEST BORE
WORK-TYPE	Bore
WORK-STATUS	
CONSTRUCTION-METHOD	Rotary Air
OWNER-TYPE	
COMMENCE-DATE	
COMPLETION-DATE	2004-03-05
FINAL-DEPTH (metres)	240.00
DRILLED-DEPTH (metres)	240.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	ANGLICAN COLLEGE
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	91.00
SALINITY	4610.00
YIELD	0.30

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	213 - SYDNEY COAST - GEORGES RIVER
AREA-DISTRICT	
CMA-MAP	9030-2S
GRID-ZONE	56/1
SCALE	1:25,000
ELEVATION	
ELEVATION-SOURCE	(Unknown)
NORTHING	6244887.00
EASTING	300098.00
LATITUDE	33 55' 3"
LONGITUDE	150 50' 15"
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	CABRAMATTA
PORTION-LOT-DP	241 2475

Licensed (top)

COUNTY	CUMBERLAND
PARISH	CABRAMATTA
PORTION-LOT-DP	241 2475

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	5.60	205			Down Hole Hammer
1		Hole	Hole	5.60	150.00	165			Down Hole Hammer
1		Hole	Hole	150.00	240.00	160			Down Hole Hammer
1	1	Casing	Steel	-0.40	5.60	168.3	158.7		C: 0-5.6m; Suspended in Clamps
1	1	Casing	PVC Class 9	0.40	78.60	140			Screwed and Glued; Suspended in Clamps; Other

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
61.00	62.00	1.00				0.10	66.00	0.25	10000.00
159.50	159.60	0.10				0.10	162.00	0.25	5600.00
191.00	192.00	1.00				0.30	192.00	0.25	5800.00

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	2.50	2.50	CLAY		
2.50	68.70	66.20	FRACT.SHALE AND SILTSTONE		
68.70	127.50	58.80	SILTSTONE		
127.50	134.00	6.50	SANDSTONE DARK GREY F/G		
134.00	149.00	15.00	SANDSTONE GREY LT GREY M/G		
149.00	150.50	1.50	HARD SHALE		
150.50	159.50	9.00	SANDSTONE GREY		
159.50	159.70	0.20	F.SANDSTONE GREY		
159.70	186.00	26.30	SANDSTONE LT GREY		

186.00	198.00	12.00	SANDSTONE GREY DARK GREY
198.00	240.00	42.00	SANDSTONE GREY

APPENDIX B

Aerial Photographs

1955

1961

1970

1978

1994

2002

j:\geo\2014\147622023_wspt_site gi_west hoxton\correspondence out\147622023_004 appendices\appendix b - aerial photographs\147622023_004_r_rev0 appendix b.docx

APPENDIX C

Land Title Certificates

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 345/2475

SEARCH DATE	TIME	EDITION NO	DATE
4/2/2015	4:06 PM	-	-

VOL 1102 FOL 132 IS THE CURRENT CERTIFICATE OF TITLE

LAND

LOT 345 IN DEPOSITED PLAN 2475
AT HOXTON PARK
LOCAL GOVERNMENT AREA LIVERPOOL
PARISH OF CABRAMATTA COUNTY OF CUMBERLAND
TITLE DIAGRAM DP2475

FIRST SCHEDULE

LIVERPOOL TRANSPORT CO PTY LIMITED (T G631164)

SECOND SCHEDULE (3 NOTIFICATIONS)

---

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 J543 MORTGAGE TO COMMONWEALTH BANK OF AUSTRALIA
3 C115629 THIS EDITION ISSUED PURSUANT TO S.111 REAL PROPERTY ACT, 1900 31.5.1932

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 345/2475

SEARCH DATE	TIME	EDITION NO	DATE
4/2/2015	4:10 PM	-	-

VOL 1102 FOL 132 IS THE CURRENT CERTIFICATE OF TITLE

LAND

LOT 345 IN DEPOSITED PLAN 2475
AT HOXTON PARK
LOCAL GOVERNMENT AREA LIVERPOOL
PARISH OF CABRAMATTA COUNTY OF CUMBERLAND
TITLE DIAGRAM DP2475

FIRST SCHEDULE

LIVERPOOL TRANSPORT CO PTY LIMITED (T G631164)

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3 C115629 THIS EDITION ISSUED PURSUANT TO S.111 REAL PROPERTY ACT, 1900 31.5.1932

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

CERTIFICATE OF TITLE.

(C.)

New South Wales.

[*Reference to last Certificate.*]
[*Vol.* 1101 *Folio* 115]

REGISTER BOOK,
VOL. 1102 FOLIO 132

CANCELLED
ON ISSUE OF NEW FOLIO 345/2475

Caroline Catherine Mackay *Wife of Angus John Mackay of Balmain*

TRANSFEREE under Instrument of Transfer ~~from~~ *Number 213736 from Marie Sophie Nicholson Bellanis Mortgagee exercising power of Sale is* ~~numbered~~ now the proprietor of an Estate *in fee simple* for her separate use, subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such Power of Appointment, encumbrances, liens, and interests as are notified hereon, in *That* piece of land situated *at Hurston Park* in the Parish of *Cabramatta*, and County of *Cumberland* containing *Three acres*, or thereabouts, as shown on the Plan hereon, and therein edged red, being Lot *345*

~~of Section~~ on a Plan deposited in the Land Titles Office, Sydney, numbered *2475 and part of Eight hundred acres delineated in the Public Map of the said Parish deposited in the Office of the Surveyor-General, originally granted to Thomas Herrop Esmr by Crown Grant dated the Thirtenth day of January One thousand eight hundred and eighteen* *x&W.*

In witness whereof, I have hereunto signed my name and affixed my Seal, this *Eighth* day of *August* one thousand eight hundred and ninety *three*

Signed the *8th* day of *August* 189*3*,
in the presence of *P. H. Loakes*

Deputy Registrar General.

REGISTRAR GENERAL NEW SOUTH WALES

SIXTEENTH AVENUE

306	307	308
346	345 (400 OK, 3 ac, 150 OK, 150 OK, 400 OK)	344

FIFTEENTH AVENUE

Scale 8 Chains to an Inch

NOTIFICATION REFERRED TO.

Power of Appointment exercisable by the said *Caroline Catherine Mackay* by any Instrument to be registered under the provisions and for the purposes of the Real Property Act, or by Will or any Codicil or Codicils thereto, which Instrument, Will, or Codicil she is authorized to make at any time notwithstanding coverture over the Fee Simple and Inheritance of the land above described.

Deputy Registrar General.

A Provisional Certificate of Title has been issued with the following endorsement:
This Provisional Certificate of Title is issued owing to the loss of the original Certificate of Title Vide C 115624
Dated this 31st May 1932

Acting Registrar General

REGISTRAR GENERAL NEW SOUTH WALES

No. C 130106 TRANSFER dated 8th July 1932
from the said Caroline Catherine Mackay to Laula Vida Scott wife of Thomas George Scott of West Hoxton Storekeeper
of the land within described
Produced and entered 19th July 1932
at 10 mts past 11 o'clock in the fore noon.
Acting REGISTRAR GENERAL

No. C 901342 TRANSFER dated 30th April 1940
from the said Laula Vida Scott to Cecil Breakey Scott of West Hoxton, Motor Driver
of the land within described
Produced 10th May 1940 and entered 27th May 1940
at 2 o'clock in the after noon.
REGISTRAR GENERAL

No. D193379 MORTGAGE dated 1st June 1940
from the said Cecil Breakey Scott to The Commercial Banking Company of Sydney Limited
Produced and entered 26th March 1943
at 3 mts past 11 o'clock in the fore noon.
REGISTRAR GENERAL

MORTGAGE No. D193379 has been discharged.
See G631163 Entered 29th January 1957
J. Wells
REGISTRAR GENERAL

Liverpool Transport Co. Pty. Limited is
now the registered proprietor of the land within described
See TRANSFER No. G631164 dated 10th November 1956
Entered 29th January 1957
J. Wells
REGISTRAR GENERAL

G631165 MORTGAGE dated 10th November 1956
from the said Liverpool Transport Co. Pty. Limited
to Cecil Breaky Scott Bus Proprietor and Laura Vida Scott Widow both of West Hoxton
Entered 29th January 1957
J. Wells
REGISTRAR GENERAL

MORTGAGE No. G631165 has been discharged.
See I542 Entered 19th March 1962
REGISTRAR GENERAL

No. I543 MORTGAGE dated 20th February 1962
to Commonwealth Trading Bank of Australia
Entered 19th March 1962
REGISTRAR GENERAL

COMPUTER FOLIO NO FURTHER
DEALINGS TO BE REGISTERED.

APPENDIX D

Regulatory Search Results

CLM NOTICE SEARCH RESULTS

Search results

Your search for: LGA: Liverpool City Council

Matched 12 notices relating to 2 sites.

Search Again | Refine Search

Suburb	Address	Site Name	Notices related to this site
Chipping Norton	85-107 Alfred Road	Australian Chemical Refiners	3 current
Moorebank	Bapaume Road	ABB Australia	1 current and 8 former

Page 1 of 1

17 February 2015

SECTION 60 NOTIFICATION SEARCH RESULTS

The suburbs searched were West Hoxton (no listings) and the nearby suburbs of Austral (no listings), Horningsea Park (no listings) and Hoxton Park (1 listing).

List current as of 23 December 2014.

Suburb/City	Site description and address	Activity that caused contamination	EPA site management class see explanations
Hoxton Park	Endeavour Energy Hoxton Park 490 Hoxton Park Road	Other Industry	Under assessment

POEO SEARCH RESULTS

The search suburbs searched were West Hoxton (1 formerly licensed site) and the nearby suburbs of Austral (1 formerly licensed site), Horningsea Park (no licensed sites) and Hoxton Park (3 formerly licensed sites).

Your search for: **POEO Licences** with the following criteria

Suburb - west hoxton

returned 1 results

Export to excel 1 of 1 Pages Search Again

Number	Name	Location	Type	Status	Issued date
20202	SYDNEY WATER CORPORATION	Lowry Ave, WEST HOXTON, NSW 2171	POEO licence	Surrendered	11 Jan 2013

17 February 2015

Your search for: **POEO Licences** with the following criteria

Suburb - austral

returned 1 results

Export to excel 1 of 1 Pages Search Again

Number	Name	Location	Type	Status	Issued date
1789	SCALABRINI VILLAGE LTD	65 EDMONDSON AVE, AUSTRAL, NSW 2171	POEO licence	Surrendered	25 Sep 2000

17 February 2015

Search results

Your search for: **POEO Licences** with the following criteria

Suburb - HORNINGSEA PARK

returned 0 results

Search Again

Your search for: **POEO Licences** with the following criteria

Suburb - HOXTON PARK

returned 3 results

Export to excel 1 of 1 Pages Search Again

Number	Name	Location	Type	Status	Issued date
11288	ENDEAVOUR ENERGY	490 Hoxton Park Road, HOXTON PARK, NSW 2171	POEO licence	No longer in force	08 Jan 2001
949	INGHAMS ENTERPRISES PTY. LIMITED	KURRAJONG ROAD, HOXTON PARK, NSW 2171	POEO licence	Surrendered	23 Jan 2001
11323	VISY BOARD PROPRIETARY LIMITED	UNIT 10/10 LYN PARADE, HOXTON PARK, NSW 2171	POEO licence	No longer in force	22 Mar 2001

17 February 2015

NSW GOVERNMENT | WorkCover

WorkCover NSW
92-100 Donnison Street, Gosford, NSW 2250
Locked Bag 2906, Lisarow, NSW 2252
T 02 4321 5000 F 02 4325 4145
WorkCover Assistance Service 13 10 50
DX 731 Sydney workcover.nsw.gov.au

Our Ref: D15/016789
Your Ref: Shane Doyle

9 February 2015

Attention: Shane Doyle
Golder Associates Pty Ltd
124 Pacific Hwy
St Leonards NSW 2065

Dear Mr Doyle,

RE SITE: 185 Fifteenth Ave West Hoxton NSW

I refer to your site search request received by WorkCover NSW on 5 February 2015 requesting information on licences to keep dangerous goods for the above site.

Enclosed are copies of the documents that WorkCover NSW holds on Dangerous Goods Licence 35/002071 relating to the storage of dangerous goods at the above-mentioned premises, as listed on the Stored Chemical Information Database (SCID).

If you have any further queries please contact the Dangerous Goods Licensing Team on (02) 4321 5500.

Yours Sincerely

Brent Jones
Senior Licensing Officer
Dangerous Goods Notification Team

WORKCOVER AUTHORITY
Dangerous Goods Section
Locked Mail Bag 2 P O, ROSEBERY NSW 2018
Ph: (02) 287 6239 OR (02) 287 6237

Reference

Licensee
LIVERPOOL TRANSPORT CO P/L
"FIFTEENTH AVE"
WEST HOXTON 2171

DANGEROUS GOODS BRANCH
17 SEP 1991

06 SEP 1991

D 24/2

Dear Sir/Madam,

RE **APPLICATION FOR RENEWAL** OF LICENCE FOR THE KEEPING OF DANGEROUS GOODS

Our records indicate you hold licence number 35/002071 for keeping dangerous goods at NO. 185 FIFTEENTH AVE WEST HOXTON 2171.

Details of depots at site.

Depot No.	Depot type	Goods stored in depot	Quantity kg/litres/no.
1	UNDERGROUND TANK	FLAMMABLE LIQUIDS	5 000

Data Entered
10 Feb 92

This licence is now due for renewal. **TO RENEW YOUR LICENCE.** Please carefully check the details shown in this letter and make any required corrections. Then, **SIGN and DATE** the declaration below and return this letter to the WorkCover Authority, Dangerous Goods Section. **Fees for these licences have been abolished. DO NOT SEND ANY MONIES.**

Declaration: I wish to renew this licence to 15/09/92. I certify that the licence details shown in this letter are correct.

G. Savanick ..... 13.9.91...
(Signature) *(Date)*

If you do not wish to renew the licence. Please provide the Dangerous Goods Section with a signed statement giving the reason why it is not to be renewed. If you have sold/vacated the site please provide the name and address of the new owner/occupier so we may contact them.

Yours faithfully

Chief Inspector of Dangerous Goods.

Licences may take some time to be issued. **Please DETACH THIS SECTION** and keep it with your previous licence expiring in 1990 or 1991 as evidence that your site is licenced.

Licence number 35/002071

Expiry month: SEPTEMBER

Liverpool city council
creating our future together

PLANNING CERTIFICATE UNDER SECTION 149
ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

Ref.: 147622023/500:21379
Ppty: 8629

Cert. No.: 4581
Page No.: 1

Applicant:
GOLDER ASSOCIATES PTY LTD
124 PACIFIC HWY
ST LEONARDS NSW 2065

Receipt No.: 2942821
Receipt Amt.: 133.00
Date: 06-Feb-2015

Property Desc: 185 FIFTEENTH AVENUE, WEST HOXTON NSW 2171
LOT 345 DP 2475

PART A
PRESCRIBED INFORMATION PROVIDED PURSUANT
TO SECTION 149(2) OF THE ENVIRONMENTAL PLANNING AND
ASSESSMENT ACT 1979

NOTE: The following information is provided pursuant to Section 149(2) of the Environmental Planning and Assessment Act (EP&A Act) 1979 as prescribed by Schedule 4 of the Environmental Planning and Assessment Regulation (EP&A Regulation) 2000 and is applicable to the subject land as of the date of this certificate.

The Environmental Planning and Assessment Amendment Act 1997 commenced operation on the 1 July 1998. As a consequence of this Act the information contained in this certificate needs to be read in conjunction with the provisions of the Environmental Planning and Assessment (Amendment) Regulation 1998, Environmental Planning and Assessment (Further Amendment) Regulation 1998 and Environmental Planning and Assessment (Savings and Transitional) Regulation, 1998.

(1) Names of relevant planning instruments and DCPs

(1) The name of each environment planning instrument that applies to the carrying out of Development on the land is/are listed below: -

Local Environmental Plans (LEPs)

Not Applicable

State Environmental Planning Policies (SEPPs)

State Environmental Planning Policy No. 65 – Design Quality of Residential Flat Development
State Environmental Planning Policy – (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy – (Infrastructure) 2007
State Environmental Planning Policy – (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy – (Miscellaneous Consent Provisions) 2007
State Environmental Planning Policy No. 62 – Sustainable Aquaculture
State Environmental Planning Policy – (State and Regional Development) 2011
State Environmental Planning Policy No. 1 – Development Standards
State Environmental Planning Policy – (Affordable Rental Housing) 2009
State Environmental Planning Policy (Western Sydney Parklands) 2009
State Environmental Planning Policy No. 33 – Hazardous and Offensive Development
State Environmental Planning Policy No. 44 – Koala Habitat
State Environmental Planning Policy No. 50 – Canal Estate Development
State Environmental Planning Policy No. 55 – Remediation of Land

Deemed State Environmental Planning Policies (Deemed SEPPs)

Sydney Regional Environmental Plan No. 20 – Hawkesbury – Nepean River (No. 2 – 1997)
This plan applies to all the land within the Hawkesbury – Nepean River catchment. This plan aims to protect the environment of the Hawkesbury – Nepean River system by ensuring that the impacts of future land uses are considered in regional context. The plan provides specific planning policies and strategies and development controls for specific land use.

Greater Metropolitan Regional Environmental Plan No. 2 – Georges River Catchment
This plan aims to preserve and protect and to encourage the restoration or

rehabilitation of regionally significant sensitive natural environments, to preserve, enhance and protect the freshwater and estuarine ecosystems within the Catchment and to ensure that development achieves the environmental objectives for the Catchment.

(2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

Draft Local Environmental Plans (LEPs)

Not Applicable

Draft State Environmental Planning Policies (SEPPs)

Draft State Environmental Planning Policy (Competition) 2010

(3) The name of each development control plan that applies to the carrying out of development on the land.

Not Applicable

(4) In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

2. ZONING AND LAND USE UNDER RELEVANT LOCAL ENVIRONMENTAL PLANS
For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):

Not Applicable

2A. Zoning and land use under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

Not Applicable

3. COMPLYING DEVELOPMENT

(1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses

1.17A (1) (c) to (e), (2), (3) and (4) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Not Applicable

(2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.

Not Applicable

(3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

Not Applicable

4. Coastal Protection Act 1979
There has been no notification from the Department of Public Works that the land is subject to the operation of Section 38 or 39 of the Coastal Protection Act, 1979.

4A Certain information relating to beaches and coasts

(1) In relation to a coastal council—whether an order has been made under Part 4D of the Coastal Protection Act 1979 in relation to temporary coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land), except where the council is satisfied that such an order has been fully complied with.

Not Applicable

(2) In relation to a coastal council:

(a) whether the council has been notified under section 55X of the Coastal Protection Act 1979 that temporary coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land), and

(b) if works have been so placed—whether the council is satisfied that the works have been removed and the land restored in accordance with that Act.

Not Applicable

4B Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works
In relation to a coastal council—whether the owner (or any previous owner) of the land has consented in writing to the land being subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

Not Applicable

5. Mine Subsidence
Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 15 of the Mine Subsidence Compensation Act 1961.

The land is not a mine subsidence district.

6. Road Widening and Road Realignment
Whether or not the land is affected by any road widening or road realignment under:

(a) Division 2 of Part 3 of the Roads Act 1993, or
(b) any environmental planning instrument, or
(c) any resolution of the council.

The land is not affected by any road widening or road realignment.

7. Council and Other Public Authority Policies on Hazard Risk Restrictions
The policies applying to the land from Council and other Public Authorities regarding hazard risk restrictions is/are outlined below: -

(a) Council Policy – Other Risks

Land Slip
The land is not affected by a policy adopted by the Council, or any other public authority and notified to the council for the express purpose of its adoption being referred to in a planning certificate that restricts the development of the land because of the likelihood of land slip.

Bushfire
The land is not affected by a policy adopted by the Council, or any other public authority and notified to the council for the express purpose of its adoption being referred to in a planning certificate which restricts the development of the land because of the likelihood of bushfire.

Tidal Inundation
The land is not affected by a policy adopted by the Council, or any other public authority and notified to the council for the express purpose of its adoption being referred to in a planning certificate that restricts the development of the land because of the likelihood of tidal inundation.

Subsidence
The land is not affected by a policy adopted by the Council, or any other public authority and notified to the council for the express purpose of its adoption being referred to in a planning certificate that restricts the development of the land because of the likelihood of subsidence.

Acid Sulfate Soil
The land is not affected by a policy adopted by the Council, or any other public authority and notified to the council for the express purpose of its adoption being referred to in a planning certificate that restricts the development of the land because of the likelihood of acid sulfate soil.

Other Risks
The land is not affected by a policy adopted by the Council, or any other public authority and notified to the council for the express purpose of its adoption being referred to in a planning certificate that restricts the development of the land because of the likelihood of any other risk.

(b) Public Authority Policies
The land is not affected by a policy adopted by any other public authority and notified to the Council for the express purpose of its adoption by that authority being referred to in the planning certificates issued by the Council, that restricts the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence, acid sulphate soils or any other risk.

7A. Flood Related Development Controls Information
Whether or not development on that land or part of the land for purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls.

(1) Whether or not development on that land or part of the land for purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat

buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls.

Development on all of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings is not subject to flood related development controls.

(2) Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.

Development on all of the land for any other purpose is not subject to flood related development controls.

(3) Words and expressions in this clause have the same meanings as in the instrument set out in the Schedule to the Standard Instrument (Local Environmental Plans) Order 2006.

8. Land Reserved for Acquisition
Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

An environmental planning instrument or proposed environmental planning instrument applying to the land makes provision for all or part of the land to be acquired by a public authority.

9. Contribution Plans
The name of each contribution plan applying to the land is/are outlined below: -
Liverpool Contributions Plan 2009

9A Biodiversity certified land
If the land is biodiversity certified land (within the meaning of Part 7AA of the Threatened Species Conservation Act 1995), a statement to that effect.

The land is not biodiversity certified land within the meaning of Part 7AA of the Threatened Species Conservation Act (1995).

10. Bio banking agreements
If the land is land to which a bio banking agreement under Part 7A of the Threatened Species Conservation Act 1995 relates, a statement to that effect (but only if the council has been notified of the existence of the agreement by the Director-General of the Department of Environment, Climate Change and Water).

The land is not land to which a biobanking agreement under part 7A of the *Threatened Species Conservation Act 1995* relates.

11. Bushfire Prone Land
None of the land is bush fire prone land as defined in the Environmental Planning and Assessment Act 1979.

12. Property Vegetation Plans
If the land is land to which a property vegetation plan under the Native Vegetation Act 2003 applies, a statement to that effect (but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act).

The land is not land to which a property vegetation plan relates, as all land in the Liverpool Local Government Area is excluded from the operation of the *Native Vegetation Act 2003.*

13. Orders under Trees (Disputes Between Neighbours) Act 2006
Whether an order has been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land (but only if the council has been notified of the order).

Council has not been notified of an order made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land.

14. Directions under Part 3A
If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

No such direction applies to the land.

15. Site Compatibility Certificates and Conditions for Seniors Housing
If the land is land to which State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 applies:

(a) a statement of whether there is a current site compatibility certificate (seniors housing), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

(i) the period for which the certificate is current, and
(ii) that a copy may be obtained from the head office of the Department of Planning, and

Council is not aware of a current site compatibility certificate (seniors housing) on the land

(b) a statement setting out any terms of a kind referred to in clause 18 (2) of that Policy that have been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land.

There have been no such terms imposed as a condition of consent to development on the land.

16. Site Compatibility Certificates for Infrastructure
A statement of whether there is a valid site compatibility certificate (infrastructure), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

(a) the period for which the certificate is valid, and
(b) that a copy may be obtained from the head office of the Department of Planning.

Council is not aware of a current site compatibility certificate (infrastructure) on the land.

17. Site compatibility certificates and conditions for affordable rental housing
(1) A statement of whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

(a) the period for which the certificate is current, and
(b) that a copy may be obtained from the head office of the Department of Planning.

Council is not aware of a current site compatibility certificate (affordable rental housing) on the land.

(2) A statement setting out any terms of a kind referred to in clause 17 (1) or 38 (1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 that have been imposed as a condition of consent to a development application in respect of the land.

There have been no such terms imposed as a condition of consent to development on the land.

18. Paper subdivision information

(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.

No such plan applies to the land.

(2) The date of any subdivision order that applies to the land.

No subdivision order applies to the land

(3) Words and expressions used in this clause have the same meaning as they have in Part 16C of this Regulation.

19. Site verification certificates

A statement of whether there is a current site verification certificate, of which the council is aware, in respect of the land and, if there is a certificate, the statement is to include:

(a) the matter certified by the certificate, and

Council is not aware of a current site verification certificate on the land.

Note. A site verification certificate sets out the Director-General's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

(b) the date on which the certificate ceases to be current (if any), and

Not Applicable

(c) that a copy may be obtained from the head office of the Department of Planning and Infrastructure.

Not Applicable

Note. The following matters are prescribed by section 59 (2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate:

(a) that the land to which the certificate relates is significantly contaminated land within the

meaning of that Act—if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

Not Applicable

(b) that the land to which the certificate relates is subject to a management order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,

Not Applicable

(c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act—if it is the subject of such an approved proposal at the date when the certificate is issued,

Not Applicable

(d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,

Not Applicable

(e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act—if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

Not Applicable

Note. Section 26 of the Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009 provides that a planning certificate must include advice about any exemption under section 23 or authorisation under section 24 of that Act if the council is provided with a copy of the exemption or authorisation by the Co-ordinator General under that Act.

No such exemption or authorisation applies to the land.

PART B
ADDITIONAL INFORMATION PROVIDED PURSUANT
TO SECTION 149(5) OF THE ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

1. Threatened Species Conservation Act
It is advisable for any application intending to purchase and/or develop land within the Liverpool Local Government Area to approach Council to ascertain if the requirements of the Threatened Species Act, 1995 are likely to apply to their land.

If the land has native vegetation of any sort (ie trees, shrubs, ground covers etc), has recently been cleared or is vacant land, it may have impediments to development under the Threatened Species Act, 1995.

This notation should be read in conjunction with Liverpool Local Environmental Plan 2008, and the Threatened Species Act, 1995.

Enquiries should be directed to Council's Infrastructure and Environment Department on 1300 362 170.

2. Tree Preservation Provision
The land is subject to a tree preservation provision under the Liverpool Local Environmental Plan 2008.

3. Controlled Access Road
The land does not have a boundary to a controlled access road under the provisions of the Liverpool Local Environmental Plan 2008.

4. Other Information in Relation to Water
Nil

5. Sydney Water Corporation
Nil

6. Foreshore Building Line
Nil

7. Contaminated Land
Nil

8. Airport Noise Affectation
Badgerys Creek Airport
Nil

9. Airport Acquisition
Nil

10. Environmentally Significant Land
Nil

11. Archaeological Management Plan
Nil

12. Unhealthy Building Land Proclamation
Nil

Jan McCredie
Acting Manager – Strategic Planning
Liverpool City Council

For further information, please contact
CALL CENTRE – 1300 36 2170

APPENDIX E

Site Photographs

1 View from southern boundary showing (from left to right) diesel AST, bus wash building, main workshop, workshop office/stores building. Note concrete slab in foreground (possible former wash down area) and bus service bays in front of office stores building.

2 View to the north along the eastern boundary of the site showing storage areas.

3 View from the north eastern corner of the site indicating the amount of fill placed to level parts of the northern end of the site.

4 Typical hydrocarbon staining on hardstand at northern end of the site.

5 View from north showing fall from east to west across the site.

6 New pavement material over area at southern boundary of the site disturbed by removal of USTs in November 2014.

7

8 Interior of main workshop showing floor slab.

9 Interior of main workshop showing engine oil ASTs.

10 Drums, IBC and waste material stored at the northern exterior of the main building.

11 Bus wash effluent treatment plant, western side of bus wash building.

12 Bus wash effluent treatment plant, western side of bus wash building.

13 Concrete slab with power supply, assumed former wash down slab.

14 Workshop office/stores building.

15 Interior of workshop office/stores building showing oil staining of floorboards.

16 Toilet block to the north of the workshop office/store building.

17 Diesel AST on concrete pad to west of wash bay.

18 Potential hydrocarbon staining on concrete slab for diesel AST.

19 Diesel AST on hardstand to north of main workshop building.

20 Hydrocarbon staining on hardstand below diesel AST

21 Interior of small workshop building showing plant and oil staining on concrete floor.

22 Typical storage area.

23 Bus service bay with inground inspection pit. The bus in the background was parked on the second bus service bay fitted with a pneumatic hoist. The air vessel associated with the hoist is visible near the front of the bus.

24 Water collection sump at the northern end of the in-ground inspection pit of the bus service bay. Note hydrocarbon staining visible on brick wall and on floor. The white discharge pipe is assumed to discharge to ground on the northern side of the pit.

25 Office building with brick skillion extension in south west corner of the site.

26 Brick skillion extension to office building, demountable lunch shed and demountable toilet block located in south west corner of the site.

27 Septic tank covers located to the north of the office building in the south west corner of the site.

28 Shipping containers at north west corner of main workshop building.

29 Metal fuel tank, evidence of hydrocarbon staining on hardstand in foreground.

30 Concrete pipe, breeze blocks located near eastern boundary of the site.

31 Trailer mounted IBC used to dispense diesel. Note hydrocarbon staining below trailer.

APPENDIX F

Bore Logs

DRAFT REPORT OF BOREHOLE: BH11

SHEET: 1 OF 1

CLIENT: Western Sydney Parklands Trust
COORDS: 299618.0 m E 6244535.0 m N MGA94 56
DRILL RIG: Hanjin8D

PROJECT: Former Bus Depot
SURFACE RL: DATUM: AHD
CONTRACTOR: Rockwell

LOCATION: 185 Fifteenth Ave, West Hoxton
INCLINATION: -90°
LOGGED: AMS DATE: 9/2/15

JOB NO: 147622023
HOLE DEPTH: 2.00 m
CHECKED: BMS DATE: 20/2/15

Drilling					Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	DCP TEST (AS1289.6.3.2) Blows per 100 mm
AST	M	GWNE	0		DS 0.00-0.10 m enviro., PID=0ppm BDS 0.20-0.90 m enviro., PID=0ppm SPT 0.50-0.95 m 4, 3, 2 N=5				FILL: Gravelly Sandy CLAY high plasticity, orange brown, with rubber bands	M (<<PL)		FILL	31 31
			1	0.90	SPT 1.00-1.45 m 1, 1, 2 N=3 BDS 1.10-2.00 m			CH	CLAY high plasticity, orange brown, with some black roots			RESIDUAL SOIL	
	L			1.50	SPT 1.50-1.95 m 2, 2, 4 N=6				becoming mottled grey red	M (c PL)	F		
			2						END OF BOREHOLE @ 2.00 m TARGET DEPTH BACKFILLED				
			3										
			4										
			5										
			6										
			7										
			8										
			9										
			10										

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01h RL3

DRAFT REPORT OF BOREHOLE: BH12

SHEET: 1 OF 1

CLIENT: Western Sydney Parklands Trust
COORDS: 299630.0 m E 6244605.0 m N MGA94 56
DRILL RIG: Hanjin8D

PROJECT: Former Bus Depot
SURFACE RL: DATUM: AHD
CONTRACTOR: Rockwell

LOCATION: 185 Fifteenth Ave, West Hoxton
INCLINATION: -90°
LOGGED: AMS DATE: 9/2/15

JOB NO: 147622023
HOLE DEPTH: 2.00 m
CHECKED: BMS DATE: 20/2/15

Drilling					Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	DCP TEST (AS1289.6.3.2) Blows per 100 mm
ADT	L	GWNE	0	0.30	DS 0.10-0.20 m environ., PID=0ppm BDS 0.20-1.20 m enviro., PID=0.3ppm SPT 0.50-0.95 m 3, 12, 9 N=21 environmental sample SPT 1.00-1.45 m 3, 3, 3 N=6 SPT 1.50-1.95 m 2, 2, 4 N=7				FILL: Sandy GRAVEL crushed sandstone and sub rounded to sunangular igneous origin			FILL	augered
			1	1.20					FILL: Gravelly CLAY high plasticity	M (<<PL)			DCP at high angle
								CH	CLAY high plasticity, mottled grey red		F	RESIDUAL SOIL	
			2						END OF BOREHOLE @ 2.00 m TARGET DEPTH BACKFILLED				
			3										
			4										
			5										
			6										
			7										
			8										
			9										
			10										

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GAP gINT FN. F01h RL3

DRAFT REPORT OF BOREHOLE: BH13

SHEET: 1 OF 1

CLIENT: Western Sydney Parklands Trust
PROJECT: Former Bus Depot
LOCATION: 185 Fifteenth Ave, West Hoxton
JOB NO: 147622023

COORDS: 299698.0 m E 6244606.0 m N MGA94 56
SURFACE RL: DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 2.00 m

DRILL RIG: Hanjin8D
CONTRACTOR: Rockwell
LOGGED: AMS DATE: 9/2/15
CHECKED: BMS DATE: 20/2/15

Drilling					Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	DCP TEST (AS1289.6.3.2) Blows per 100 mm
AST	L	GWNE	0	0.20	DS 0.00-0.10 m enviro. BDS 0.20-0.90 m				FILL: Gravelly CLAY medium to high plasticity, grey, with some fine to medium grained, subangular igneous gravel	M (<<PL)		FILL	0 5 10 15 20 25
									FILL: CLAY high plasticity, brown, with traces of fine to medium grained, subangular igneous gravel				
				0.90				CH	CLAY high plasticity, pale brown		H	RESIDUAL SOIL	
			1	1.20	BDS 1.00-2.00 m SPT 1.00-1.45 m 4, 12, 13 N=25				SHALE pale brown extremely weathered, extremely low to very low strength			WEATHERED ROCK	
			2						END OF BOREHOLE @ 2.00 m TARGET DEPTH BACKFILLED				
			3										
			4										
			5										
			6										
			7										
			8										
			9										
			10										

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DRAFT REPORT OF BOREHOLE: BH14

SHEET: 1 OF 1

CLIENT: Western Sydney Parklands Trust
PROJECT: Former Bus Depot
LOCATION: 185 Fifteenth Ave, West Hoxton
JOB NO: 147622023

COORDS: 299661.0 m E 6244477.0 m N MGA94 56
SURFACE RL: DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 3.62 m

DRILL RIG: Hanjin8D
CONTRACTOR: Rockwell
LOGGED: AMS DATE: 9/2/15
CHECKED: BMS DATE: 20/2/15

Drilling					Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	DCP TEST (AS1289.6.3.2) Blows per 100 mm
AST	L	GWNE	0	0.20	DS 0.00-0.10 m enviro.			CH	FILL: GRAVEL (asphalt)			FILL	0 5 10 15 20 25
					BDS 0.30-1.00 m enviro., PID=0ppm SPT 0.50-0.95 m 3, 5, 7 N=12 environmental sample				CLAY high plasticity, red	M (<PL)	VSt	RESIDUAL SOIL	
			1	1.70					SHALE pale grey, with some iron-cemented bands extremely weathered, extremely low to very low strength			WEATHERED ROCK	
			2		SPT 2.00-2.45 m 3, 9, 15 N=24								
	M-H		3	2.90					SHALE pale grey, with some iron-cemented bands distinctly weathered, very low to low strength				
					SPT 3.50-3.62 m 16/120mm N=R				END OF BOREHOLE @ 3.62 m REFUSAL BACKFILLED				
			4										
			5										
			6										
			7										
			8										
			9										
			10										

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GAP gINT FN. F01h RL3

DRAFT REPORT OF BOREHOLE: BH15

SHEET: 1 OF 1

CLIENT: Western Sydney Parklands Trust
PROJECT: Former Bus Depot
LOCATION: 185 Fifteenth Ave, West Hoxton
JOB NO: 147622023

COORDS: 299655.0 m E 6244500.0 m N MGA94 56
SURFACE RL: DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 2.00 m

DRILL RIG: Hanjin8D
CONTRACTOR: Rockwell
LOGGED: AMS DATE: 9/2/15
CHECKED: BMS DATE: 20/2/15

Drilling					Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	DCP TEST (AS1289.6.3.2) Blows per 100 mm
ADT	L	GWNE	0	0.15	DS 0.00-0.10 m enviro., PID=0.1ppm				FILL: GRAVEL dark grey, asphalt			FILL	augered augered
									FILL: SANDSTONE BOULDER pale yellow				
					enviro., PID=0.8ppm SPT 0.50-0.95 m 2, 2, 3 N=5				FILL: CLAY brown, with some fine to medium grained igneous and ironstone gravel	M (<PL)			
			1	1.20				CH	CLAY high plasticity, red, trace ironstone gravel	M (<PL)	St	RESIDUAL SOIL	
					SPT 1.40-1.85 m 2, 4, 5 N=9								
			2						END OF BOREHOLE @ 2.00 m TARGET DEPTH BACKFILLED				
			3										
			4										
			5										
			6										
			7										
			8										
			9										
			10										

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

DRAFT REPORT OF BOREHOLE: BH16

SHEET: 1 OF 1

CLIENT: Western Sydney Parklands Trust
PROJECT: Former Bus Depot
LOCATION: 185 Fifteenth Ave, West Hoxton
JOB NO: 147622023

COORDS: 299674.0 m E 6244554.0 m N MGA94 56
SURFACE RL: DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 5.50 m

DRILL RIG: Hanjin8D
CONTRACTOR: Rockwell
LOGGED: AMS DATE: 9/2/15
CHECKED: BMS DATE: 20/2/15

Drilling					Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	DCP TEST (AS1289.6.3.2) Blows per 100 mm
AST	L	GWNE	0		BDS 0.10-0.50 m enviro. SPT 0.50-0.95 m 4, 3, 2 N=5				FILL: Clayey SAND crushed sandstone	M		FILL	augered augered
			1	0.80	BDS 0.80-1.50 m			CH	CLAY high plasticity, mottled pale grey and pale orange, with trace tree roots		F	RESIDUAL SOIL	
			2	1.40	SPT 1.50-1.95 m 3, 3, 4 N=7				pale grey, with trace ironstone gravel	M (c PL)			
				2.20	SPT 2.50-2.95 m 3, 6, 9 N=15				mottled pale grey and red	M (<PL)	St		
			3	3.50					SHALE pale grey and brown extremely weathered, extremely low to very low strength			WEATHERED ROCK	
			4		SPT 4.30-4.53 m 14, 10/80mm HB N>10								
				4.80					SHALE pale grey slightly weathered, very low to low strength				
	H		5										
			6						END OF BOREHOLE @ 5.50 m REFUSAL BACKFILLED				
			7										
			8										
			9										
			10										

APPENDIX G

Analytical Results Summary Tables

147622023

Table 1: Summary Analytical Results - Soil Samples

Sample Location	BH11	BH11	BH12	BH13	BH14
Sample Depth	0.5-0.95	0.5-0.95	0.5-0.95	0.1-0.2	0.0-0.1
Sample Date	9/02/2015	9/02/2015	9/02/2015	9/02/2015	9/02/2015
Sample Description					
Sample Type	PS	LD	PS	PS	PS
Batch	123357	123357	123357	123357	123357

			NEPM Soil Investigation Levels[1]								
Analyte	**Units**	**LOR**	**HILs - Commercial / industrial land use**	**HSL - D Vapour Instrusion Sand 0-1m**	**EILs / ESL - Commercial and Industrial Coarse Grain**	**Management limits Commercial / Industrial Coarse Grain**					
TRH											
C6 - C10 Fraction	mg/kg	25				700	<25	<25	<25	<25	<25
C6 - C10 Fraction minus BTEX (F1)	mg/kg	25		260	215^		<25	<25	<25	<25	<25
>C10 - C16 Fraction	mg/kg	50				1000	<50	<50	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	mg/kg	50		NL/20,000[+]	170^		<50	<50	<50	<50	<50
>C16 - C34 Fraction (F3)	mg/kg	100		27,000[+]	1700	3500	**230**	**340**	**120**	**620**	**320**
>C34 - C40 Fraction (F4)	mg/kg	100		38,000[+]	3300	10000	**140**	**160**	<100	**1000**	**210**
BTEX											
Benzene	mg/kg	0.2		3	75		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.5		NL/99,000[+]	135		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	1		NL/27,000[+]	165		<1	<1	<1	<1	<1
meta- & para-Xylene	mg/kg	2		230/81,000*	95		<2	<2	<2	<2	<2
ortho-Xylene	mg/kg	1					<1	<1	<1	<1	<1
Inorganics											
Arsenic	mg/kg	4	3000		160		**8**	**9**	**13**	<4	<4
Cadmium	mg/kg	0.4	900				**0.5**	**0.5**	<0.4	<0.4	<0.4
Chromium *	mg/kg	1	3600				**76**	**74**	**13**	**4**	**23**
Copper	mg/kg	1	240000				**20**	**17**	**21**	**150**	**53**
Lead	mg/kg	1	1500		1800		**23**	**24**	**41**	**12**	**3**
Nickel	mg/kg	1	6000				**19**	**15**	**8**	**5**	**76**
Zinc	mg/kg	1	400000				**33**	**24**	**49**	**74**	**41**
Mercury	mg/kg	0.1	180				<0.1	<0.1	**0.1**	<0.1	<0.1
Polycyclic Aromatic Hydrocarbons											
Naphthalene	mg/kg	0.1		NL/11,000+	370		<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1					**0.1**	**0.1**	**0.2**	**0.1**	**0.1**
Anthracene	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1					**0.1**	**0.1**	**0.4**	**1.1**	<0.1
Pyrene	mg/kg	0.1					**0.2**	**0.2**	**0.4**	**1.3**	**0.1**
Benz(a)anthracene	mg/kg	0.1					<0.1	<0.1	**0.2**	**0.3**	<0.1
Chrysene	mg/kg	0.1					<0.1	<0.1	**0.2**	**0.3**	<0.1
Benzo(b+k)fluoranthene	mg/kg	0.2					<0.2	<0.2	**0.4**	**0.6**	<0.2
Benzo(a)pyrene	mg/kg	0.05			1.4		**0.1**	**0.1**	**0.2**	**0.3**	<0.05
Indeno(1.2.3.cd)pyrene	mg/kg	0.1					**0.1**	**0.2**	**0.1**	**0.2**	<0.1
Dibenz(a.h)anthracene	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g.h.i)perylene	mg/kg	0.1					**0.2**	**0.3**	**0.2**	**0.2**	<0.1
Benzo(a)pyrene TEQ	mg/kg	0.5	40				<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve	mg/kg	0.5	4000				**0.97**	**1.1**	**2.3**	**4.5**	**0.21**
Organochlorine Pesticides											
HCB	mg/kg	0.1	80				<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC (Lindane)	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	50				<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	0.1	530				<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	0.1	2000				<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	45				<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	0.1	100				<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	0.1	3600				<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	0.1			640		<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	2500				<0.1	<0.1	<0.1	<0.1	<0.1
Polychlorinated Biphenyls											
Arochlor 1016	mg/kg	0.1	7				<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos											
Asbestos ID in soil	g/kg	0.1					-	**ND**	**ND**	-	-
Trace analysis	-	-					-	**NAD**	**NAD**	-	-

Notes

-: Not analysed, not applicable
mg/kg: Milligram per kilogram
PS: primary sample
LD: laboratory duplicate
FD: field duplicate, analysed by ALS
Sample identified as Dup on ELS certificate of analysis 123357 reported as BH14/0.0-0.1
Sample identified as Trip 1 on ALS certificate of analysis ES 1503478 reported as BH14/0.0-0.1
ND: no asbestos detected at reporting limit of 0.1g/kg (0.01 % w/w)
NAD: no asbestos detected
TRH: Total recoverable hydrocarbons
BTEXN: Benzene, toluene, ethylbenzene, xylene
LOR: Limits of Reporting
* Criteria for chromium (VI) adopted for total chromium.
† HSLs for direct contact where HSL for vapour intrusion is non limiting (NL)
Criteria for course grained soils have been adopted as a conservative measure.
1: NEPC (2013), National Environmental Protection (Assessment of Site Contamination) Measure 1999. Guideline on the Investigation Levels for Soil and Groundwater, Health Based Investigation Levels (HILs)-D (for commercial/industrial sites).

Exceeds HILs - Commercial / industrial land use
Exceeds HSL - D Vapour Instrusion Sand 0-1m
Exceeds EIL / ESL - Commercial and Industrial Coarse Grain
Exceeds Management limits Commercial / Industrial Coarse Grain
Exceeds multiple critera

Prepared By: SPD 4/3/2015
Checked By: TC 4/3/2015

147622023

Table 1: Summary Analytical Results - Soil Samples

Sample Location	BH14	BH14	BH15	BH16
Sample Depth	0.0-0.1	0.5-0.95	0.5-0.95	0.5-0.95
Sample Date	9/02/2015	9/02/2015	9/02/2015	9/02/2015
Sample Description				
Sample Type	FD	PS	PS	PS
Batch	ES1503478	123357	123357	123357

			NEPM Soil Investigation Levels[1]							
Analyte	**Units**	**LOR**	**HILs - Commercial / industrial land use**	**HSL - D Vapour Instrusion Sand 0-1m**	**EILs / ESL - Commercial and Industrial Coarse Grain**	**Management limits Commercial / Industrial Coarse Grain**				
TRH										
C6 - C10 Fraction	mg/kg	25				700	<10	<25	<25	<25
C6 - C10 Fraction minus BTEX (F1)	mg/kg	25		260	215^		<10	<25	<25	<25
>C10 - C16 Fraction	mg/kg	50				1000	**1810**	<50	<50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	mg/kg	50		NL/20,000†	170^		**1810**	<50	<50	<50
>C16 - C34 Fraction (F3)	mg/kg	100		27,000†	1700	3500	**5410**	<100	<100	<100
>C34 - C40 Fraction (F4)	mg/kg	100		38,000†	3300	10000	<100	<100	<100	<100
BTEX										
Benzene	mg/kg	0.2		3	75		<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.5		NL/99,000†	135		<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	1		NL/27,000†	165		<0.5	<1	<1	<1
meta- & para-Xylene	mg/kg	2		230/81,000*	95		<0.5	<2	<2	<2
ortho-Xylene	mg/kg	1					<0.5	<1	<1	<1
Inorganics										
Arsenic	mg/kg	4	3000		160		<5	**7**	<4	<4
Cadmium	mg/kg	0.4	900				<1	<0.4	<0.4	<0.4
Chromium *	mg/kg	1	3600				**41**	**13**	**18**	**14**
Copper	mg/kg	1	240000				**45**	**22**	**24**	**20**
Lead	mg/kg	1	1500		1800		<5	**11**	**31**	**54**
Nickel	mg/kg	1	6000				**152**	**4**	**14**	**6**
Zinc	mg/kg	1	400000				**87**	**21**	**45**	**67**
Mercury	mg/kg	0.1	180				**0.2**	<0.1	<0.1	**0.1**
Polycyclic Aromatic Hydrocarbons										
Naphthalene	mg/kg	0.1		NL/11,000+	370		<0.5	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1					<0.5	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1					<0.5	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1					<0.5	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1					<0.5	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1					<0.5	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1					<0.5	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1					<0.5	<0.1	<0.1	<0.1
Benz(a)anthracene	mg/kg	0.1					<0.5	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1					<0.5	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	0.2					<0.5	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.05			1.4		<0.5	<0.05	<0.05	<0.05
Indeno(1.2.3.cd)pyrene	mg/kg	0.1					<0.5	<0.1	<0.1	<0.1
Dibenz(a.h)anthracene	mg/kg	0.1					<0.5	<0.1	<0.1	<0.1
Benzo(g.h.i)perylene	mg/kg	0.1					<0.5	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	mg/kg	0.5	40				**0.6**	<0.5	<0.5	<0.5
Total +ve	mg/kg	0.5	4000				<0.5	**NIL (+)VE**	**NIL (+)VE**	**NIL (+)VE**
Organochlorine Pesticides										
HCB	mg/kg	0.1	80				<0.25	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	0.1					<0.25	<0.1	<0.1	<0.1
gamma-BHC (Lindane)	mg/kg	0.1					<0.25	<0.1	<0.1	<0.1
beta-BHC	mg/kg	0.1					<0.25	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	50				<0.25	<0.1	<0.1	<0.1
delta-BHC	mg/kg	0.1					<0.25	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	0.1					<0.25	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	0.1	530				<0.25	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	0.1					<0.25	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	0.1	2000				<0.25	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	0.1					<0.25	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	45				<0.25	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.1					<0.25	<0.1	<0.1	<0.1
Endrin	mg/kg	0.1	100				<0.25	<0.1	<0.1	<0.1
pp-DDE	mg/kg	0.1	3600				<0.25	<0.1	<0.1	<0.1
pp-DDD	mg/kg	0.1					<0.25	<0.1	<0.1	<0.1
pp-DDT	mg/kg	0.1			640		<0.2	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1					<0.25	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	0.1					<0.25	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	2500				<0.2	<0.1	<0.1	<0.1
Polychlorinated Biphenyls										
Arochlor 1016	mg/kg	0.1	7				-	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	0.1					-	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	0.1					-	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	0.1					-	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	0.1					-	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	0.1					-	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	0.1					-	<0.1	<0.1	<0.1
Asbestos										
Asbestos ID in soil	g/kg	0.1					-	-	-	-
Trace analysis	-	-					-	-	-	-

Notes

-: Not analysed, not applicable
mg/kg: Milligram per kilogram
PS: primary sample
LD: laboratory duplicate
FD: field duplicate, analysed by ALS
Sample identified as Dup on ELS certificate of analysis 123357 reported as BH14/0.0-0.1
Sample identified as Trip 1 on ALS certificate of analysis ES 1503478 reported as BH14/0.0-0.1
ND: no asbestos detected at reporting limit of 0.1g/kg (0.01 % w/w)
NAD: no asbestos detected
TRH: Total recoverable hydrocarbons
BTEXN: Benzene, toluene, ethylbenzene, xylene
LOR: Limits of Reporting
* Criteria for chromium (VI) adopted for total chromium.
† HSLs for direct contact where HSL for vapour intrusion is non limiting (NL)
Criteria for course grained soils have been adopted as a conservative measure.
1: NEPC (2013), National Environmental Protection (Assessment of Site Contamination) Measure 1999. Guideline on the Investigation Levels for Soil and Groundwater, Health Based Investigation Levels (HILs)-D (for commercial/industrial sites).

Exceeds HILs - Commercial / industrial land use
Exceeds HSL - D Vapour Instrusion Sand 0-1m
Exceeds EIL / ESL - Commercial and Industrial Coarse Grain
Exceeds Management limits Commercial / Industrial Coarse Grain
Exceeds multiple critera

Prepared By: SPD 4/3/2015
Checked By: TC 4/3/2015

147622023

Table 1: Summary Analytical Results - Soil Samples

						Sample Location	Maximum reported value (mg/kg)	No exceeding guidelines
						Sample Depth		
						Sample Date		
						Sample Description		
						Sample Type		
						Batch		
			NEPM Soil Investigation Levels[1]					
Analyte	**Units**	**LOR**	**HILs - Commercial / industrial land use**	**HSL - D Vapour Instrusion Sand 0-1m**	**EILs / ESL - Commercial and Industrial Coarse Grain**	**Management limits Commercial / Industrial Coarse Grain**		
TRH								
C6 - C10 Fraction	mg/kg	25				700	<25	0
C6 - C10 Fraction minus BTEX (F1)	mg/kg	25		260	215^		<25	0
>C10 - C16 Fraction	mg/kg	50				1000	1810	1
>C10 - C16 Fraction minus Naphthalene (F2)	mg/kg	50		NL/20,000+	170^		1810	1
>C16 - C34 Fraction (F3)	mg/kg	100		27,000+	1700	3500	5410	1
>C34 - C40 Fraction (F4)	mg/kg	100		38,000+	3300	10000	1000	0
BTEX								
Benzene	mg/kg	0.2		3	75		<0.2	0
Toluene	mg/kg	0.5		NL/99,000+	135		<0.5	0
Ethylbenzene	mg/kg	1		NL/27,000+	165		<1	0
meta- & para-Xylene	mg/kg	2		230/81,000*	95		<2	0
ortho-Xylene	mg/kg	1					<1	0
Inorganics								
Arsenic	mg/kg	4	3000		160		13	0
Cadmium	mg/kg	0.4	900				<1	0
Chromium *	mg/kg	1	3600				76	0
Copper	mg/kg	1	240000				150	0
Lead	mg/kg	1	1500		1800		54	0
Nickel	mg/kg	1	6000				152	0
Zinc	mg/kg	1	400000				87	0
Mercury	mg/kg	0.1	180				0.2	0
Polycyclic Aromatic Hydrocarbons								
Naphthalene	mg/kg	0.1		NL/11,000+	370		<0.5	0
Acenaphthylene	mg/kg	0.1					<0.5	-
Acenaphthene	mg/kg	0.1					<0.5	-
Fluorene	mg/kg	0.1					<0.5	-
Phenanthrene	mg/kg	0.1					<0.5	-
Anthracene	mg/kg	0.1					<0.5	-
Fluoranthene	mg/kg	0.1					1.1	-
Pyrene	mg/kg	0.1					1.3	-
Benz(a)anthracene	mg/kg	0.1					<0.5	-
Chrysene	mg/kg	0.1					<0.5	-
Benzo(b+k)fluoranthene	mg/kg	0.2					0.6	-
Benzo(a)pyrene	mg/kg	0.05			1.4		<0.5	0
Indeno(1.2.3.cd)pyrene	mg/kg	0.1					<0.5	-
Dibenz(a.h)anthracene	mg/kg	0.1					<0.5	-
Benzo(g.h.i)perylene	mg/kg	0.1					<0.5	-
Benzo(a)pyrene TEQ	mg/kg	0.5	40				0.6	0
Total +ve	mg/kg	0.5	4000				4.5	0
Organochlorine Pesticides								
HCB	mg/kg	0.1	80				<0.25	0
alpha-BHC	mg/kg	0.1					<0.25	-
gamma-BHC (Lindane)	mg/kg	0.1					<0.25	-
beta-BHC	mg/kg	0.1					<0.25	-
Heptachlor	mg/kg	0.1	50				<0.25	0
delta-BHC	mg/kg	0.1					<0.25	-
Heptachlor Epoxide	mg/kg	0.1					<0.25	-
gamma-Chlordane	mg/kg	0.1	530				<0.25	0
alpha-chlordane	mg/kg	0.1					<0.25	0
Endosulfan I	mg/kg	0.1	2000				<0.25	0
Endosulfan II	mg/kg	0.1					<0.25	0
Aldrin	mg/kg	0.1	45				<0.25	0
Dieldrin	mg/kg	0.1					<0.25	0
Endrin	mg/kg	0.1	100				<0.25	0
pp-DDE	mg/kg	0.1	3600				<0.25	0
pp-DDD	mg/kg	0.1					<0.25	0
pp-DDT	mg/kg	0.1			640		<0.2	0
Endrin Aldehyde	mg/kg	0.1					<0.25	-
Endosulfan Sulphate	mg/kg	0.1					<0.25	-
Methoxychlor	mg/kg	0.1	2500				<0.2	0
Polychlorinated Biphenyls								
Arochlor 1016	mg/kg	0.1	7				<0.1	0
Arochlor 1221	mg/kg	0.1					<0.1	0
Arochlor 1232	mg/kg	0.1					<0.1	0
Arochlor 1242	mg/kg	0.1					<0.1	0
Arochlor 1248	mg/kg	0.1					<0.1	0
Arochlor 1254	mg/kg	0.1					<0.1	0
Arochlor 1260	mg/kg	0.1					<0.1	0
Asbestos								
Asbestos ID in soil	g/kg	0.1					**ND**	-
Trace analysis	-	-					**NAD**	-

Notes

-: Not analysed, not applicable
mg/kg: Milligram per kilogram
PS: primary sample
LD: laboratory duplicate
FD: field duplicate, analysed by ALS
Sample identified as Dup on ELS certificate of analysis 123357 reported as BH14/0.0-0.1
Sample identified as Trip 1 on ALS certificate of analysis ES 1503478 reported as BH14/0.0-0.1
ND: no asbestos detected at reporting limit of 0.1g/kg (0.01 % w/w)
NAD: no asbestos detected
TRH: Total recoverable hydrocarbons
BTEXN: Benzene, toluene, ethylbenzene, xylene
LOR: Limits of Reporting
* Criteria for chromium (VI) adopted for total chromium.
† HSLs for direct contact where HSL for vapour intrusion is non limiting (NL)
Criteria for course grained soils have been adopted as a conservative measure.
1: NEPC (2013), National Environmental Protection (Assessment of Site Contamination) Measure 1999. Guideline on the Investigation Levels for Soil and Groundwater, Health Based Investigation Levels (HILs)-D (for commercial/industrial sites).

Exceeds HILs - Commercial / industrial land use
Exceeds HSL - D Vapour Instrusion Sand 0-1m
Exceeds EIL / ESL - Commercial and Industrial Coarse Grain
Exceeds Management limits Commercial / Industrial Coarse Grain
Exceeds multiple critera

Prepared By: SPD 4/3/2015
Checked By: TC 4/3/2015

147622023

Table 2: Summary Analytical Results - Rinsate Sample

Sample Location	BH11
Sample Depth	-
Sample Date	9/02/2015
Sample Description	Rinsate
Sample Type	PS
Batch	123357

Analyte	Units	LOR	
TRH			
C6 - C10 Fraction	ug/L	25	<10
C6 - C10 Fraction minus BTEX (F1)	ug/L	25	**15**
>C10 - C16 Fraction	ug/L	50	<50
>C10 - C16 Fraction minus Naphthalene (F2)	ug/L	50	<50
>C16 - C34 Fraction (F3)	ug/L	100	<100
>C34 - C40 Fraction (F4)	ug/L	100	<100
BTEX			
Benzene	ug/L	0.2	<1
Toluene	ug/L	0.5	<1
Ethylbenzene	ug/L	1	<1
meta- & para-Xylene	ug/L	2	<2
ortho-Xylene	ug/L	1	<1
Inorganics			
Arsenic	mg/L	0.05	<0.05
Cadmium	mg/L	0.01	<0.01
Chromium *	mg/L	0.01	<0.01
Copper	mg/L	0.01	<0.01
Lead	mg/L	0.03	<0.03
Nickel	mg/L	0.02	<0.02
Zinc	mg/L	0.02	<0.02
Mercury	mg/L	0.0005	<0.0005
Polycyclic Aromatic Hydrocarbons			
Naphthalene	ug/L	1	<1
Acenaphthylene	ug/L	1	<1
Acenaphthene	ug/L	1	<1
Fluorene	ug/L	1	<1
Phenanthrene	ug/L	1	<1
Anthracene	ug/L	1	<1
Fluoranthene	ug/L	1	<1
Pyrene	ug/L	1	<1
Benz(a)anthracene	ug/L	1	<1
Chrysene	ug/L	1	<1
Benzo(b+k)fluoranthene	ug/L	2	<2
Benzo(a)pyrene	ug/L	1	<1
Indeno(1.2.3.cd)pyrene	ug/L	1	<1
Dibenz(a.h)anthracene	ug/L	1	<1
Benzo(g.h.i)perylene	ug/L	1	<1
Benzo(a)pyrene TEQ	ug/L	5	<5
Total +ve	ug/L	-	NIL (+)VE
Organochlorine Pesticides			
HCB	ug/L	0.2	<0.2
alpha-BHC	ug/L	0.2	<0.2
gamma-BHC (Lindane)	ug/L	0.2	<0.2
beta-BHC	ug/L	0.2	<0.2
Heptachlor	ug/L	0.2	<0.2
delta-BHC	ug/L	0.2	<0.2
Heptachlor Epoxide	ug/L	0.2	<0.2
gamma-Chlordane	ug/L	0.2	<0.2
alpha-chlordane	ug/L	0.2	<0.2
Endosulfan I	ug/L	0.2	<0.2
Endosulfan II	ug/L	0.2	<0.2
Aldrin	ug/L	0.2	<0.2
Dieldrin	ug/L	0.2	<0.2
Endrin	ug/L	0.2	<0.2
pp-DDE	ug/L	0.2	<0.2
pp-DDD	ug/L	0.2	<0.2
pp-DDT	ug/L	0.2	<0.2
Endrin Aldehyde	ug/L	0.2	<0.2
Endosulfan Sulphate	ug/L	0.2	<0.2
Methoxychlor	ug/L	0.2	<0.2
Polychlorinated Biphenyls			
Arochlor 1016	ug/L	2	<2
Arochlor 1221	ug/L	2	<2
Arochlor 1232	ug/L	2	<2
Arochlor 1242	ug/L	2	<2
Arochlor 1248	ug/L	2	<2
Arochlor 1254	ug/L	2	<2
Arochlor 1260	ug/L	2	<2

Notes

-: Not analysed, not applicable
mg/L: Milligram per litre
ug/L: Microgram per litre
PS: primary sample
TRH: Total recoverable hydrocarbons
BTEX: Benzene, toluene, ethylbenzene, xylene
LOR: Limits of Reporting

Prepared By: SPD 18/2/2015
Checked By: TC 19/2/2015

APPENDIX H

Laboratory Certificates and Chain of Custody Documentation

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 123357

Client:

Golder Associates Pty Ltd
124 Pacific Highway
St Leonards
NSW 2065

Attention: Ben Seaford, Anastasia Suchowerska

Sample log in details:

Your Reference:	**147622023, West Hoxton**
No. of samples:	7 soils 1water
Date samples received / completed instructions received	11/02/15 / 11/02/15

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	13/02/15 / 13/02/15
Date of Preliminary Report:	Not Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	123357-1	123357-2	123357-3	123357-4	123357-5
Your Reference	----------	BH11	BH12	BH13	BH14	BH15
Depth	----------	0.5-0.95	0.5-0.95	0.1-0.2	0.5-0.95	0.5-0.95
Date Sampled		09/02/2015	09/02/2015	09/02/2015	09/02/2015	09/02/2015
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/02/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015
Date analysed	-	12/02/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	82	94	94	94	94

vTRH(C6-C10)/BTEXN in Soil			
Our Reference:	UNITS	123357-6	123357-7
Your Reference	----------	BH16	DUP
Depth	----------	0.5-0.95	-
Date Sampled		09/02/2015	09/02/2015
Type of sample		soil	soil
Date extracted	-	12/02/2015	12/02/2015
Date analysed	-	12/02/2015	12/02/2015
TRHC$_6$ - C$_9$	mg/kg	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	87	92

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	123357-1	123357-2	123357-3	123357-4	123357-5
Your Reference	----------	BH11	BH12	BH13	BH14	BH15
Depth	----------	0.5-0.95	0.5-0.95	0.1-0.2	0.5-0.95	0.5-0.95
Date Sampled		09/02/2015	09/02/2015	09/02/2015	09/02/2015	09/02/2015
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/02/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015
Date analysed	-	12/02/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	110	<100	170	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	180	100	720	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	230	120	620	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	140	<100	1,000	<100	<100
Surrogate o-Terphenyl	%	101	85	90	86	86

svTRH (C10-C40) in Soil			
Our Reference:	UNITS	123357-6	123357-7
Your Reference	----------	BH16	DUP
Depth	----------	0.5-0.95	-
Date Sampled		09/02/2015	09/02/2015
Type of sample		soil	soil
Date extracted	-	12/02/2015	12/02/2015
Date analysed	-	12/02/2015	12/02/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	160
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	240
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	320
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	210
Surrogate o-Terphenyl	%	85	104

PAHs in Soil						
Our Reference:	UNITS	123357-1	123357-2	123357-3	123357-4	123357-5
Your Reference	----------	BH11	BH12	BH13	BH14	BH15
Depth	----------	0.5-0.95	0.5-0.95	0.1-0.2	0.5-0.95	0.5-0.95
Date Sampled		09/02/2015	09/02/2015	09/02/2015	09/02/2015	09/02/2015
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/02/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015
Date analysed	-	12/02/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	0.2	0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	0.4	1.1	<0.1	<0.1
Pyrene	mg/kg	0.2	0.4	1.3	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.2	0.3	<0.1	<0.1
Chrysene	mg/kg	<0.1	0.2	0.3	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.4	0.6	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.1	0.2	0.3	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	0.1	0.2	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.2	0.2	0.2	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	0.97	2.3	4.5	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	118	108	118	109	109

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ---------- -	123357-6 BH16 0.5-0.95 09/02/2015 soil	123357-7 DUP - 09/02/2015 soil
Date extracted	-	12/02/2015	12/02/2015
Date analysed	-	12/02/2015	12/02/2015
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	0.21
Surrogate p-Terphenyl-d14	%	108	121

Organochlorine Pesticides in soil						
Our Reference:	UNITS	123357-1	123357-2	123357-3	123357-4	123357-5
Your Reference	----------	BH11	BH12	BH13	BH14	BH15
Depth	----------	0.5-0.95	0.5-0.95	0.1-0.2	0.5-0.95	0.5-0.95
Date Sampled		09/02/2015	09/02/2015	09/02/2015	09/02/2015	09/02/2015
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/02/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015
Date analysed	-	12/02/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	100	94	97	94	94

Organochlorine Pesticides in soil			
Our Reference:	UNITS	123357-6	123357-7
Your Reference	----------	BH16	DUP
Depth	----------	0.5-0.95	-
Date Sampled		09/02/2015	09/02/2015
Type of sample		soil	soil
Date extracted	-	12/02/2015	12/02/2015
Date analysed	-	12/02/2015	12/02/2015
HCB	mg/kg	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Surrogate TCMX	%	93	94

PCBs in Soil						
Our Reference:	UNITS	123357-1	123357-2	123357-3	123357-4	123357-5
Your Reference	----------	BH11	BH12	BH13	BH14	BH15
Depth	----------	0.5-0.95	0.5-0.95	0.1-0.2	0.5-0.95	0.5-0.95
Date Sampled		09/02/2015	09/02/2015	09/02/2015	09/02/2015	09/02/2015
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	12/02/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015
Date analysed	-	12/02/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	100	94	97	94	94

PCBs in Soil			
Our Reference:	UNITS	123357-6	123357-7
Your Reference	----------	BH16	DUP
Depth	----------	0.5-0.95	-
Date Sampled		09/02/2015	09/02/2015
Type of sample		soil	soil
Date extracted	-	12/02/2015	12/02/2015
Date analysed	-	12/02/2015	12/02/2015
Arochlor 1016	mg/kg	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1
Surrogate TCLMX	%	93	94

Acid Extractable metals in soil						
Our Reference:	UNITS	123357-1	123357-2	123357-3	123357-4	123357-5
Your Reference	----------	BH11	BH12	BH13	BH14	BH15
Depth	----------	0.5-0.95	0.5-0.95	0.1-0.2	0.5-0.95	0.5-0.95
Date Sampled		09/02/2015	09/02/2015	09/02/2015	09/02/2015	09/02/2015
Type of sample		soil	soil	soil	soil	soil
Date digested	-	12/02/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015
Date analysed	-	12/02/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015
Arsenic	mg/kg	8	13	<4	7	<4
Cadmium	mg/kg	0.5	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	76	13	4	13	18
Copper	mg/kg	20	21	150	22	24
Lead	mg/kg	23	41	12	11	31
Mercury	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	19	8	5	4	14
Zinc	mg/kg	33	49	74	21	45

Acid Extractable metals in soil			
Our Reference:	UNITS	123357-6	123357-7
Your Reference	----------	BH16	DUP
Depth	----------	0.5-0.95	-
Date Sampled		09/02/2015	09/02/2015
Type of sample		soil	soil
Date digested	-	12/02/2015	12/02/2015
Date analysed	-	12/02/2015	12/02/2015
Arsenic	mg/kg	<4	<4
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	14	23
Copper	mg/kg	20	53
Lead	mg/kg	54	3
Mercury	mg/kg	0.1	<0.1
Nickel	mg/kg	6	76
Zinc	mg/kg	67	41

Moisture						
Our Reference:	UNITS	123357-1	123357-2	123357-3	123357-4	123357-5
Your Reference	----------	BH11	BH12	BH13	BH14	BH15
Depth	----------	0.5-0.95	0.5-0.95	0.1-0.2	0.5-0.95	0.5-0.95
Date Sampled		09/02/2015	09/02/2015	09/02/2015	09/02/2015	09/02/2015
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	12/02/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015
Date analysed	-	13/02/2015	13/02/2015	13/02/2015	13/02/2015	13/02/2015
Moisture	%	14	11	1.3	17	14

Moisture			
Our Reference:	UNITS	123357-6	123357-7
Your Reference	----------	BH16	DUP
Depth	----------	0.5-0.95	-
Date Sampled		09/02/2015	09/02/2015
Type of sample		soil	soil
Date prepared	-	12/02/2015	12/02/2015
Date analysed	-	13/02/2015	13/02/2015
Moisture	%	19	3.2

Asbestos ID - soils			
Our Reference:	UNITS	123357-1	123357-2
Your Reference	----------	BH11	BH12
Depth	----------	0.5-0.95	0.5-0.95
Date Sampled		09/02/2015	09/02/2015
Type of sample		soil	soil
Date analysed	-	13/02/2015	13/02/2015
Sample mass tested	g	Approx. 35g	Approx. 30g
Sample Description	-	Brown coarse-grain soil	Brown coarse-grain soil
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected

vTRH(C6-C10)/BTEXN in Water		
Our Reference:	UNITS	123357-8
Your Reference	----------	RB1
Depth	----------	-
Date Sampled		09/02/2015
Type of sample		water
Date extracted	-	12/02/2015
Date analysed	-	13/02/2015
$TRHC_6$ - C_9	µg/L	<10
$TRHC_6$ - C_{10}	µg/L	15
$TRHC_6$ - C_{10} less BTEX (F1)	µg/L	15
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	108
Surrogate toluene-d8	%	101
Surrogate 4-BFB	%	102

svTRH (C10-C40) in Water		
Our Reference:	UNITS	123357-8
Your Reference	----------	RB1
Depth	----------	-
Date Sampled		09/02/2015
Type of sample		water
Date extracted	-	12/02/2015
Date analysed	-	13/02/2015
TRHC$_{10}$ - C$_{14}$	µg/L	<50
TRHC$_{15}$ - C$_{28}$	µg/L	<100
TRHC$_{29}$ - C$_{36}$	µg/L	<100
TRH>C$_{10}$ - C$_{16}$	µg/L	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	µg/L	<50
TRH>C$_{16}$ - C$_{34}$	µg/L	<100
TRH>C$_{34}$ - C$_{40}$	µg/L	<100
Surrogate o-Terphenyl	%	96

PAHs in Water		
Our Reference:	UNITS	123357-8
Your Reference	----------	RB1
Depth	----------	-
Date Sampled		09/02/2015
Type of sample		water
Date extracted	-	12/02/2015
Date analysed	-	12/02/2015
Naphthalene	µg/L	<1
Acenaphthylene	µg/L	<1
Acenaphthene	µg/L	<1
Fluorene	µg/L	<1
Phenanthrene	µg/L	<1
Anthracene	µg/L	<1
Fluoranthene	µg/L	<1
Pyrene	µg/L	<1
Benzo(a)anthracene	µg/L	<1
Chrysene	µg/L	<1
Benzo(b,j+k)fluoranthene	µg/L	<2
Benzo(a)pyrene	µg/L	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1
Dibenzo(a,h)anthracene	µg/L	<1
Benzo(g,h,i)perylene	µg/L	<1
Benzo(a)pyrene TEQ	µg/L	<5
Total +ve PAH's	µg/L	NIL (+)VE
Surrogate p-Terphenyl-d14	%	98

OCP in water		
Our Reference:	UNITS	123357-8
Your Reference	----------	RB1
Depth	----------	-
Date Sampled		09/02/2015
Type of sample		water
Date extracted	-	12/02/2015
Date analysed	-	12/02/2015
HCB	µg/L	<0.2
alpha-BHC	µg/L	<0.2
gamma-BHC	µg/L	<0.2
beta-BHC	µg/L	<0.2
Heptachlor	µg/L	<0.2
delta-BHC	µg/L	<0.2
Aldrin	µg/L	<0.2
Heptachlor Epoxide	µg/L	<0.2
gamma-Chlordane	µg/L	<0.2
alpha-Chlordane	µg/L	<0.2
Endosulfan I	µg/L	<0.2
pp-DDE	µg/L	<0.2
Dieldrin	µg/L	<0.2
Endrin	µg/L	<0.2
pp-DDD	µg/L	<0.2
Endosulfan II	µg/L	<0.2
pp-DDT	µg/L	<0.2
Endrin Aldehyde	µg/L	<0.2
Endosulfan Sulphate	µg/L	<0.2
Methoxychlor	µg/L	<0.2
Surrogate TCMX	%	99

PCBs in Water		
Our Reference:	UNITS	123357-8
Your Reference	----------	RB1
Depth	----------	-
Date Sampled		09/02/2015
Type of sample		water
Date extracted	-	12/02/2015
Date analysed	-	12/02/2015
Arochlor 1016	µg/L	<2
Arochlor 1221	µg/L	<2
Arochlor 1232	µg/L	<2
Arochlor 1242	µg/L	<2
Arochlor 1248	µg/L	<2
Arochlor 1254	µg/L	<2
Arochlor 1260	µg/L	<2
Surrogate TCLMX	%	99

Metals in Water - Dissolved		
Our Reference:	UNITS	123357-8
Your Reference	----------	RB1
Depth	----------	-
Date Sampled		09/02/2015
Type of sample		water
Date digested	-	12/02/2015
Date analysed	-	12/02/2015
Arsenic - Dissolved	mg/L	<0.05
Cadmium - Dissolved	mg/L	<0.01
Chromium - Dissolved	mg/L	<0.01
Copper - Dissolved	mg/L	<0.01
Lead - Dissolved	mg/L	<0.03
Mercury - Dissolved	mg/L	<0.0005
Nickel - Dissolved	mg/L	<0.02
Zinc - Dissolved	mg/L	<0.02

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Org-013	Water samples are analysed directly by purge and trap GC-MS.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			12/02/2015	123357-1	12/02/2015 || 12/02/2015	LCS-1	12/02/2015
Date analysed	-			12/02/2015	123357-1	12/02/2015 || 12/02/2015	LCS-1	12/02/2015
$TRHC_6$ - C_9	mg/kg	25	Org-016	<25	123357-1	<25 || <25	LCS-1	100%
$TRHC_6$ - C_{10}	mg/kg	25	Org-016	<25	123357-1	<25 || <25	LCS-1	100%
Benzene	mg/kg	0.2	Org-016	<0.2	123357-1	<0.2 || <0.2	LCS-1	95%
Toluene	mg/kg	0.5	Org-016	<0.5	123357-1	<0.5 || <0.5	LCS-1	99%
Ethylbenzene	mg/kg	1	Org-016	<1	123357-1	<1 || <1	LCS-1	98%
m+p-xylene	mg/kg	2	Org-016	<2	123357-1	<2 || <2	LCS-1	105%
o-Xylene	mg/kg	1	Org-016	<1	123357-1	<1 || <1	LCS-1	100%
naphthalene	mg/kg	1	Org-014	<1	123357-1	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	96	123357-1	82 || 69 || RPD: 17	LCS-1	91%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			12/02/2015	123357-1	12/02/2015 || 12/02/2015	LCS-1	12/02/2015
Date analysed	-			12/02/2015	123357-1	12/02/2015 || 12/02/2015	LCS-1	12/02/2015
$TRHC_{10}$ - C_{14}	mg/kg	50	Org-003	<50	123357-1	<50 || <50	LCS-1	116%
$TRHC_{15}$ - C_{28}	mg/kg	100	Org-003	<100	123357-1	110 || 170 || RPD: 43	LCS-1	117%
$TRHC_{29}$ - C_{36}	mg/kg	100	Org-003	<100	123357-1	180 || 250 || RPD: 33	LCS-1	80%
$TRH>C_{10}$-C_{16}	mg/kg	50	Org-003	<50	123357-1	<50 || <50	LCS-1	116%
$TRH>C_{16}$-C_{34}	mg/kg	100	Org-003	<100	123357-1	230 || 340 || RPD: 39	LCS-1	117%
$TRH>C_{34}$-C_{40}	mg/kg	100	Org-003	<100	123357-1	140 || 160 || RPD: 13	LCS-1	80%
Surrogate o-Terphenyl	%		Org-003	97	123357-1	101 || 96 || RPD: 5	LCS-1	119%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			12/02/2015	123357-1	12/02/2015 || 12/02/2015	LCS-1	12/02/2015
Date analysed	-			12/02/2015	123357-1	12/02/2015 || 12/02/2015	LCS-1	12/02/2015
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	123357-1	<0.1 || <0.1	LCS-1	100%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	123357-1	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	123357-1	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	123357-1	<0.1 || <0.1	LCS-1	99%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	123357-1	0.1 || 0.1 || RPD: 0	LCS-1	95%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	123357-1	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	123357-1	0.1 || 0.1 || RPD: 0	LCS-1	97%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	123357-1	0.2 || 0.2 || RPD: 0	LCS-1	115%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	123357-1	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	123357-1	<0.1 || <0.1	LCS-1	93%
Benzo(b,j+k) fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	123357-1	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	123357-1	0.1 || 0.1 || RPD: 0	LCS-1	100%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	123357-1	0.1 || 0.2 || RPD: 67	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	123357-1	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	123357-1	0.2 || 0.3 || RPD: 40	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	113	123357-1	118 || 107 || RPD: 10	LCS-1	106%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			12/02/2015	123357-1	12/02/2015 || 12/02/2015	LCS-1	12/02/2015
Date analysed	-			12/02/2015	123357-1	12/02/2015 || 12/02/2015	LCS-1	12/02/2015
HCB	mg/kg	0.1	Org-005	<0.1	123357-1	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	123357-1	<0.1 || <0.1	LCS-1	108%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	123357-1	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	123357-1	<0.1 || <0.1	LCS-1	107%
Heptachlor	mg/kg	0.1	Org-005	<0.1	123357-1	<0.1 || <0.1	LCS-1	98%
delta-BHC	mg/kg	0.1	Org-005	<0.1	123357-1	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	123357-1	<0.1 || <0.1	LCS-1	107%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	123357-1	<0.1 || <0.1	LCS-1	106%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	123357-1	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	123357-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	123357-1	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	123357-1	<0.1 || <0.1	LCS-1	103%
Dieldrin	mg/kg	0.1	Org-005	<0.1	123357-1	<0.1 || <0.1	LCS-1	105%
Endrin	mg/kg	0.1	Org-005	<0.1	123357-1	<0.1 || <0.1	LCS-1	113%
pp-DDD	mg/kg	0.1	Org-005	<0.1	123357-1	<0.1 || <0.1	LCS-1	109%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	123357-1	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	123357-1	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	123357-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	123357-1	<0.1 || <0.1	LCS-1	78%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	123357-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	98	123357-1	100 || 92 || RPD: 8	LCS-1	93%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			12/02/2015	123357-1	12/02/2015 || 12/02/2015	LCS-1	12/02/2015
Date analysed	-			12/02/2015	123357-1	12/02/2015 || 12/02/2015	LCS-1	12/02/2015
Arochlor 1016	mg/kg	0.1	Org-006	<0.1	123357-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1221	mg/kg	0.1	Org-006	<0.1	123357-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	Org-006	<0.1	123357-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	Org-006	<0.1	123357-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	Org-006	<0.1	123357-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	Org-006	<0.1	123357-1	<0.1 || <0.1	LCS-1	102%
Arochlor 1260	mg/kg	0.1	Org-006	<0.1	123357-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	98	123357-1	100 || 92 || RPD: 8	LCS-1	130%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date digested	-			12/02/2015	123357-1	12/02/2015 || 12/02/2015	LCS-1	12/02/2015
Date analysed	-			12/02/2015	123357-1	12/02/2015 || 12/02/2015	LCS-1	12/02/2015
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	123357-1	8 || 9 || RPD: 12	LCS-1	111%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	123357-1	0.5 || 0.5 || RPD: 0	LCS-1	102%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	123357-1	76 || 74 || RPD: 3	LCS-1	110%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	123357-1	20 || 17 || RPD: 16	LCS-1	108%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	123357-1	23 || 24 || RPD: 4	LCS-1	101%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	123357-1	<0.1 || <0.1	LCS-1	90%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	123357-1	19 || 15 || RPD: 24	LCS-1	105%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	123357-1	33 || 24 || RPD: 32	LCS-1	104%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			12/02/2015	123357-8	12/02/2015 || 12/02/2015	LCS-W3	12/02/2015
Date analysed	-			13/02/2015	123357-8	13/02/2015 || 13/02/2015	LCS-W3	13/02/2015
TRHC$_6$ - C$_9$	µg/L	10	Org-016	<10	123357-8	<10 || <10	LCS-W3	95%
TRHC$_6$ - C$_{10}$	µg/L	10	Org-016	<10	123357-8	15 || <10	LCS-W3	95%
Benzene	µg/L	1	Org-016	<1	123357-8	<1 || <1	LCS-W3	94%
Toluene	µg/L	1	Org-016	<1	123357-8	<1 || <1	LCS-W3	96%
Ethylbenzene	µg/L	1	Org-016	<1	123357-8	<1 || <1	LCS-W3	94%
m+p-xylene	µg/L	2	Org-016	<2	123357-8	<2 || <2	LCS-W3	95%
o-xylene	µg/L	1	Org-016	<1	123357-8	<1 || <1	LCS-W3	96%
Naphthalene	µg/L	1	Org-013	<1	123357-8	<1 || <1	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	101	123357-8	108 || 108 || RPD: 0	LCS-W3	100%
Surrogate toluene-d8	%		Org-016	101	123357-8	101 || 101 || RPD: 0	LCS-W3	100%
Surrogate 4-BFB	%		Org-016	99	123357-8	102 || 99 || RPD: 3	LCS-W3	101%

QUALITY CONTROL svTRH (C10-C40) in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			12/02/2015	[NT]	[NT]	LCS-W1	12/02/2015
Date analysed	-			13/02/2015	[NT]	[NT]	LCS-W1	13/02/2015
TRHC$_{10}$ - C$_{14}$	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	107%
TRHC$_{15}$ - C$_{28}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	97%
TRHC$_{29}$ - C$_{36}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	74%
TRH>C$_{10}$ - C$_{16}$	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	107%
TRH>C$_{16}$ - C$_{34}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	97%
TRH>C$_{34}$ - C$_{40}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	74%
Surrogate o-Terphenyl	%		Org-003	84	[NT]	[NT]	LCS-W1	71%

QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			12/02/2015	[NT]	[NT]	LCS-W1	12/02/2015
Date analysed	-			12/02/2015	[NT]	[NT]	LCS-W1	12/02/2015
Naphthalene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	78%
Acenaphthylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	72%
Phenanthrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	70%

QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	70%
Pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	79%
Benzo(a)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	70%
Benzo(b,j+k) fluoranthene	µg/L	2	Org-012 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	78%
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	79	[NT]	[NT]	LCS-W1	86%
QUALITY CONTROL OCP in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			12/02/2015	[NT]	[NT]	LCS-W1	12/02/2015
Date analysed	-			12/02/2015	[NT]	[NT]	LCS-W1	12/02/2015
HCB	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-BHC	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	88%
gamma-BHC	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
beta-BHC	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	84%
Heptachlor	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	76%
delta-BHC	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
Aldrin	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	83%
Heptachlor Epoxide	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	79%
gamma-Chlordane	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-Chlordane	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan I	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
pp-DDE	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	78%
Dieldrin	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	81%
Endrin	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	74%
pp-DDD	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	89%
Endosulfan II	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
pp-DDT	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	79%
Methoxychlor	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL OCP in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Surrogate TCMX	%		Org-005	85	[NT]	[NT]	LCS-W1	88%
QUALITY CONTROL PCBs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			12/02/2015	[NT]	[NT]	LCS-W1	12/02/2015
Date analysed	-			12/02/2015	[NT]	[NT]	LCS-W1	12/02/2015
Arochlor 1016	µg/L	2	Org-006	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1221	µg/L	2	Org-006	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	µg/L	2	Org-006	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	µg/L	2	Org-006	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	µg/L	2	Org-006	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	µg/L	2	Org-006	<2	[NT]	[NT]	LCS-W1	89%
Arochlor 1260	µg/L	2	Org-006	<2	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		Org-006	85	[NT]	[NT]	LCS-W1	109%
QUALITY CONTROL Metals in Water - Dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date digested	-			12/02/2015	[NT]	[NT]	LCS-W1	12/02/2015
Date analysed	-			12/02/2015	[NT]	[NT]	LCS-W1	12/02/2015
Arsenic - Dissolved	mg/L	0.05	Metals-020 ICP-AES	<0.05	[NT]	[NT]	LCS-W1	87%
Cadmium - Dissolved	mg/L	0.01	Metals-020 ICP-AES	<0.01	[NT]	[NT]	LCS-W1	97%
Chromium - Dissolved	mg/L	0.01	Metals-020 ICP-AES	<0.01	[NT]	[NT]	LCS-W1	94%
Copper - Dissolved	mg/L	0.01	Metals-020 ICP-AES	<0.01	[NT]	[NT]	LCS-W1	97%
Lead - Dissolved	mg/L	0.03	Metals-020 ICP-AES	<0.03	[NT]	[NT]	LCS-W1	96%
Mercury - Dissolved	mg/L	0.0005	Metals-021 CV-AAS	<0.0005	[NT]	[NT]	LCS-W1	96%
Nickel - Dissolved	mg/L	0.02	Metals-020 ICP-AES	<0.02	[NT]	[NT]	LCS-W1	96%
Zinc - Dissolved	mg/L	0.02	Metals-020 ICP-AES	<0.02	[NT]	[NT]	LCS-W1	94%

Report Comments:

Asbestos-ID in soil: A portion of the supplied samples were sub-sampled for asbestos analysis according to Envirolab procedures.
We cannot guarantee that these sub-samples are indicative of the entire samples. Envirolab recommends supplying 40-50g of sample in its own container.

Asbestos ID was analysed by Approved Identifier: Lulu Guo
Asbestos ID was authorised by Approved Signatory: Lulu Guo

INS: Insufficient sample for this test
NA: Test not required
<: Less than

PQL: Practical Quantitation Limit
RPD: Relative Percent Difference
>: Greater than

NT: Not tested
NA: Test not required
LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

CHAIN OF CUSTODY DOCUMENTATION

Sheet..... of.....

Project No:	147622023	Lab Name:	ELS
Site Location:	WEST HOXTON	Quote No:	
Sampled By:	Anastasia Suchowerska (AMS)	Order No:	
Turnaround Time	24hrs ☐ 48hrs ☐ Standard ☑		
	36hrs ☐ 5 Days ☐ Date Required By:		
Delivery Option	HARD ☐ EMAIL ☑		
Report Format	PDF ☑ EXCEL ☑ ESDAT ☐ EQUIS ☐		

GOLDER ASSOCIATES PTY LTD
124 Pacific Highway, St Leonards NSW 2065
Phone: : (02) 9478 3900
Fax : (02) 9478 3901
Project Manager: Ben Seaford
Reviewed:
Job Contact : Anastasia Suchowerska Phone: 0438636590 Email: ASuchowerska@golder.com.au

Golder Associates

Comments/Special Instructions:
SEND TRIP TO ALS FOR ANALYSIS FOR TRH/BTEX/PAH/OCP/HMx8

ANALYSIS REQUIRED

LAB ID	SAMPLE ID	SAMPLE DEPTH	SAMPLE DATE	SAMPLE TYPE	SAMPLE MATRIX	No CONTAINERS	Level of Contamination (Low/High/Unknown)	COMBINATION L	COMBINATION SA
1	147622023 BH11 0.5-0.95		9/2/15		SOIL	1	L		✓
2	147622023 BH12 0.5-0.95					1	L		✓
3	147622023 BH13 0.1-0.2					1	L	✓	
4	147622023 BH14 0.5-0.95					1	L	✓	
5	147622023 BH15 0.5-0.95					1	L	✓	
6	147622023 BH16 0.5-0.95					1	L	✓	
7	DUP	—				1	L	✓	
8	TRIP	—				1	L	SEE NOTES.	
	QB1	—			H2O	4	L	✓	

ENVIROLAB
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 123357
Date Received: 11/2/15
Time Received: 13:00
Received by: LSB
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

SAMPLE MATRIX = Soil/Sediment/Fill/Water/Other
SAMPLE TYPE = Composite(C)/Discrete(DC)/Disturbed(DS)/Core(CR), Grab Sample (GS)
HIGH CONCENTRATION: circle expected parameters in analysis list

	SIGNATURE	COMPANY	DATE	TIME
RELEASED BY	ASuchowerska	Golder Pss.	11/2/15	8:00am
RECEIVED BY	LSB	ELS	11/2/15	13:00
RELEASED BY				
RECEIVED BY				
RELEASED BY				
RECEIVED BY				

	SIGNATURE	COMPANY	DATE	TIME	Method of Shipment
RELEASED BY					Shipping Ref:
RECEIVED BY					

To Be Filled Out By Analysing Laboratory — LAB: BATCH NUMBER

Security Seal		Chilled		Bill to:	
Suitable Containers		Frozen		Address:	
Cool Box		Ambient			

RL3
SNT004
July 2012

THIS FORM IS TO BE SIGNED BY GOLDER STAFF; COURIER/S; LABORATORY ON RECEIPT OF SAMPLES.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Golder Associates Pty Ltd
124 Pacific Highway
St Leonards NSW 2065

ph: 9478 3900
Fax: 9478 3901

Attention: Ben Seaford, Anastasia Suchowerska

Sample log in details:

Your reference:	**147622023, West Hoxton**
Envirolab Reference:	**123357**
Date received:	11/02/15
Date results expected to be reported:	**18/02/15**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	7 soils 1water
Turnaround time requested:	Standard
Temperature on receipt (°C)	13.8
Cooling Method:	Ice
Sampling Date Provided:	YES

Comments:

If there is sufficient sample after testing, samples will be held for the following time frames from date of receipt of samples:
Water samples - 1 month
Soil and other solid samples - 2 months
Samples collected in canisters - 1 week. Canisters will then be cleaned.
All other samples are not retained after analysis
If you require samples to be retained for longer periods then retention fees will apply as per our pricelist.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst
ph: 02 9910 6200 fax: 02 9910 6201
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1503478**	Page	: 1 of 6
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: ANASTASIA SUCHOWERSKA	Contact	: Loren Schiavon
Address	: LEVEL 1, 124 PACIFIC HIGHWAY ST LEONARDS NSW, AUSTRALIA 2065	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: asuchowerska@golder.com.au	E-mail	: loren.schiavon@alsglobal.com
Telephone	: +61 02 9478 3900	Telephone	: +61 2 8784 8503
Facsimile	: +61 02 9478 3901	Facsimile	: +61 2 8784 8500
Project	: 147622023	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 12-FEB-2015
Sampler	: AS	Issue Date	: 19-FEB-2015
Site	: WEST HOXTON		
		No. of samples received	: 1
Quote number	: EN/002/14	No. of samples analysed	: 1

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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

- **Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.**
- **EP068: Particular samples required dilution due to sample matrix interferences. LOR values have been adjusted accordingly.**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TRIP 1	----	----	----	----
				Client sampling date / time	09-FEB-2015 15:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1503478-001	----	----	----	----
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		**10.0**	----	----	----	----
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg		**41**	----	----	----	----
Copper	7440-50-8	5	mg/kg		**45**	----	----	----	----
Lead	7439-92-1	5	mg/kg		<5	----	----	----	----
Nickel	7440-02-0	2	mg/kg		**152**	----	----	----	----
Zinc	7440-66-6	5	mg/kg		**87**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		**0.2**	----	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.25	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.25	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.25	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg		<0.25	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.25	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.25	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.25	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.25	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.25	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.25	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.25	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.25	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.25	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.25	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.25	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.25	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.25	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.25	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.25	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.25	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TRIP 1	----	----	----	----
				Client sampling date / time	09-FEB-2015 15:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1503478-001	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
Endrin ketone	53494-70-5	0.05	mg/kg		<0.25	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.25	----	----	----	----
^ Sum of DDD + DDE + DDT	----	0.05	mg/kg		<0.25	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		**490**	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		**6710**	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		**7200**	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TRIP 1	----	----	----	----
				Client sampling date / time	09-FEB-2015 15:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1503478-001	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg		**1810**	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		**5410**	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		**7220**	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		**1810**	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	----	----	----	----
^ **Total Xylenes**	1330-20-7	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.1	%		**81.1**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.1	%		**103**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%		**78.5**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%		**77.8**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%		**66.2**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		**79.4**	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%		**74.6**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%		**77.6**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**99.8**	----	----	----	----
Toluene-D8	2037-26-5	0.1	%		**112**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		**98.9**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

QUALITY CONTROL REPORT

Work Order	: **ES1503478**	Page	: 1 of 10
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Sydney
Contact	: ANASTASIA SUCHOWERSKA	Contact	: Loren Schiavon
Address	: LEVEL 1, 124 PACIFIC HIGHWAY ST LEONARDS NSW, AUSTRALIA 2065	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: asuchowerska@golder.com.au	E-mail	: loren.schiavon@alsglobal.com
Telephone	: +61 02 9478 3900	Telephone	: +61 2 8784 8503
Facsimile	: +61 02 9478 3901	Facsimile	: +61 2 8784 8500
Project	: 147622023	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: WEST HOXTON		
C-O-C number	: ----	Date Samples Received	: 12-FEB-2015
Sampler	: AS	Issue Date	: 19-FEB-2015
Order number	: ----		
		No. of samples received	: 1
Quote number	: EN/002/14	No. of samples analysed	: 1

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

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

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (QC Lot: 3822874)									
ES1503434-017	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	6.3	6.1	4.0	No Limit
ES1503553-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	9.2	10.0	9.2	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 3825238)									
ES1503359-006	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	7	6	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	6	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	14	13	8.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	23	14	50.7	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	48	43	10.2	No Limit
ES1503360-010	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	13	12.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	9	8	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	16	15	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	35	32	10.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	78	76	2.6	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3825239)									
ES1503359-006	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1503360-010	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 3822666)									
ES1503576-001	Anonymous	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	<0.05	<0.05	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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 3822666) - continued									
ES1503576-001	Anonymous	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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3822665)									
ES1503576-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3822664)									
ES1503576-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3822674)									
ES1503433-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1503433-012	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3822664)									
ES1503576-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3822674)									
ES1503433-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3822674) - continued									
ES1503433-012	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 3822674)									
ES1503433-001	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
ES1503433-012	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 Spike (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 Spike (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 (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 3825238)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	106	92	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	99.5	87	121
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	91.0	80	136
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	104	93	127
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	94.6	86	124
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	103	93	131
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	96.6	81	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3825239)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	78.1	70	105
EP068A: Organochlorine Pesticides (OC) (QCLot: 3822666)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	98.3	71	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	104	66	122
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	107	69	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.0	71	115
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	81.3	65	113
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.7	68	116
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	94.6	68	118
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	81.8	68	116
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	81.4	68	120
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.4	69	119
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.8	67	121
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	89.8	66	118
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	69	117
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	67	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.3	76	120
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	76	120
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	76.4	57.3	115
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	60	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	84.8	67	127
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	87.8	65	123
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	98.8	65	129
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3822665)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3822665) - continued								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	110	80	124
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	82.8	77	123
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	89.1	79	123
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	88.2	77	123
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	112	79	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	111	79	123
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	106	79	123
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	110	79	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	98.6	73	121
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	111	81	123
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	4 mg/kg	93.8	70	118
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	104	77	123
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	95.6	76	122
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	94.4	71	113
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	94.7	71.7	113
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	94.2	72.4	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3822664)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	103	71	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	99.6	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	93.1	64	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3822674)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	95.9	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3822664)								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	97.4	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	99.7	74	138
EP071: >C34 - C40 Fraction	----	50	mg/kg	<100	150 mg/kg	102	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3822674)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	95.6	68.4	128
EP080: BTEXN (QCLot: 3822674)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	82.5	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	88.6	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	84.6	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	88.2	60	120
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	94.1	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	101	62	138

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**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 3825238)							
ES1503359-006	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	105	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	96.7	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	101	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	105	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	95.6	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	98.2	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	92.4	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3825239)							
ES1503359-006	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	89.9	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 3822666)							
ES1503576-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	103	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	106	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	105	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	104	70	130
		EP068: Endrin	72-20-8	2 mg/kg	94.6	70	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	92.2	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3822665)							
ES1503576-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	74.6	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	84.0	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3822664)							
ES1503576-001	Anonymous	EP071: C10 - C14 Fraction	----	560 mg/kg	92.8	73	137
		EP071: C15 - C28 Fraction	----	2370 mg/kg	122	53	131
		EP071: C29 - C36 Fraction	----	1695 mg/kg	126	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3822674)							
ES1503433-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	84.2	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3822664)							
ES1503576-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	902 mg/kg	77.9	73	137
		EP071: >C16 - C34 Fraction	----	3190 mg/kg	83.6	53	131
		EP071: >C34 - C40 Fraction	----	1087 mg/kg	100	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3822674)							
ES1503433-001	Anonymous						

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3822674) - continued							
ES1503433-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	84.8	70	130
EP080: BTEXN (QCLot: 3822674)							
ES1503433-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	72.2	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	74.5	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	73.5	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	76.1	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	78.6	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	78.4	70	130

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report: Spike Concentration	Spike Recovery (%): MS	Spike Recovery (%): MSD	Recovery Limits (%): Low	Recovery Limits (%): High	RPDs (%): Value	RPDs (%): Control Limit
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3822664)										
ES1503576-001	Anonymous	EP071: C10 - C14 Fraction	----	560 mg/kg	92.8	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	2370 mg/kg	122	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	1695 mg/kg	126	----	52	132	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3822664)										
ES1503576-001	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	902 mg/kg	77.9	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	3190 mg/kg	83.6	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	1087 mg/kg	100	----	52	132	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3822665)										
ES1503576-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	74.6	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	84.0	----	70	130	----	----
EP068A: Organochlorine Pesticides (OC) (QCLot: 3822666)										
ES1503576-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	103	----	70	130	----	----
		EP068: Heptachlor	76-44-8	0.5 mg/kg	106	----	70	130	----	----
		EP068: Aldrin	309-00-2	0.5 mg/kg	105	----	70	130	----	----
		EP068: Dieldrin	60-57-1	0.5 mg/kg	104	----	70	130	----	----
		EP068: Endrin	72-20-8	2 mg/kg	94.6	----	70	130	----	----
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	92.2	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3822674)										

Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3822674) - continued										
ES1503433-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	84.2	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3822674)										
ES1503433-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	84.8	----	70	130	----	----
EP080: BTEXN (QCLot: 3822674)										
ES1503433-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	72.2	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	74.5	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	73.5	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	76.1	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	78.6	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	78.4	----	70	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3825238)										
ES1503359-006	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	105	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	96.7	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	101	----	70	130	----	----
		EG005T: Copper	7440-50-8	250 mg/kg	105	----	70	130	----	----
		EG005T: Lead	7439-92-1	250 mg/kg	95.6	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	98.2	----	70	130	----	----
		EG005T: Zinc	7440-66-6	250 mg/kg	92.4	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3825239)										
ES1503359-006	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	89.9	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **ES1503478**	Page	: 1 of 5
Client	: GOLDER ASSOCIATES	Laboratory	: Environmental Division Sydney
Contact	: ANASTASIA SUCHOWERSKA	Contact	: Loren Schiavon
Address	: LEVEL 1, 124 PACIFIC HIGHWAY ST LEONARDS NSW, AUSTRALIA 2065	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: asuchowerska@golder.com.au	E-mail	: loren.schiavon@alsglobal.com
Telephone	: +61 02 9478 3900	Telephone	: +61 2 8784 8503
Facsimile	: +61 02 9478 3901	Facsimile	: +61 2 8784 8500
Project	: 147622023	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: WEST HOXTON		
C-O-C number	: ----	Date Samples Received	: 12-FEB-2015
Sampler	: AS	Issue Date	: 19-FEB-2015
Order number	: ----		
		No. of samples received	: 1
Quote number	: EN/002/14	No. of samples analysed	: 1

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (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
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103)							
TRIP 1	**09-FEB-2015**	**----**	----	----	**13-FEB-2015**	23-FEB-2015	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
TRIP 1	**09-FEB-2015**	**16-FEB-2015**	08-AUG-2015	✓	**17-FEB-2015**	08-AUG-2015	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
TRIP 1	**09-FEB-2015**	**16-FEB-2015**	09-MAR-2015	✓	**18-FEB-2015**	09-MAR-2015	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
TRIP 1	**09-FEB-2015**	**16-FEB-2015**	23-FEB-2015	✓	**17-FEB-2015**	28-MAR-2015	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071)							
TRIP 1	**09-FEB-2015**	**16-FEB-2015**	23-FEB-2015	✓	**17-FEB-2015**	28-MAR-2015	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
TRIP 1	**09-FEB-2015**	**16-FEB-2015**	23-FEB-2015	✓	**17-FEB-2015**	28-MAR-2015	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
TRIP 1	**09-FEB-2015**	**15-FEB-2015**	23-FEB-2015	✓	**17-FEB-2015**	23-FEB-2015	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
TRIP 1	**09-FEB-2015**	**15-FEB-2015**	23-FEB-2015	✓	**17-FEB-2015**	23-FEB-2015	✓

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)							
Moisture Content	EA055-103	2	18	**11.1**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.5**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	4	**25.0**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	12	**16.7**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	**10.0**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	9	**11.1**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	2	13	**15.4**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.5**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	4	**25.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	12	**8.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	9	**11.1**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	13	**7.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.5**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	4	**25.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	12	**8.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	9	**11.1**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	13	**7.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.5**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	4	**25.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	12	**8.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	9	**11.1**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	13	**7.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

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
Moisture Content	EA055-103	SOIL	In-house. A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 21st ed., 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 (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 21st ed., 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 (2013) Schedule B(3)
Pesticides by GCMS	EP068	SOIL	(USEPA SW 846 - 8270B) 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 (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve.

Preparation Methods	Method	Matrix	Method Descriptions
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(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.

Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW 846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- **For all matrices, no Method Blank value outliers occur.**
- **For all matrices, no Duplicate outliers occur.**
- **For all matrices, no Laboratory Control outliers occur.**
- **For all matrices, no Matrix Spike outliers occur.**

Regular Sample Surrogates

- **For all regular sample matrices, no surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

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

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- **No Quality Control Sample Frequency Outliers exist.**

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