

STAGE 1 AND STAGE 2 ENVIRONMENTAL SITE ASSESSMENT

307 - 311 Bexley Road & 88 - 96 New Illawarra Road, Bexley North NSW

> PREPARED FOR TONY SOUEID REPORT ID: E16016BN-R03F

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EXECUTIVE SUMMARY

Geo-Environmental Engineering Pty Ltd (GEE) was commissioned by Tony Soueid to undertake a preliminary and detailed Environmental Site Assessment (ESA) at 307 - 311 Bexley Road & 88 - 96 New Illawarra Road, Bexley North, New South Wales (herein referred to as the 'site'). The site covers a combined area of approximately 4,200m² and comprises nine allotments which are legally referred to as Lots 3, 4, 5 and 6 in Deposited Plan 508629, Lots A and B in DP388204, Lot 1 in DP1045200, Lot 1 in DP 400341 and Lot 35 in DP663036.

The ESA was required to support a planning proposal which relates to the proposed rezoning of the land to R4 – High Density Residential.

The objective of the ESA was to address the requirements of Council's Contaminated Land Policy (reference 1) and the provisions of the *State Environmental Planning Policy No. 55 – Remediation of Land* (reference 2) by providing a detailed assessment of contamination and in turn an assessment of the suitability of the site for the proposed land-use and possible constraints on future site development. In this regard, GEE has completed a *Stage 1 - Preliminary Site Investigation* (Stage 1 - PSI) and a *Stage 2 - Detailed Site Investigation* (Stage 2 DSI) in accordance with the *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites* (reference 3) and NEPM (2013) Schedule B(2) *Guideline on Site Characterisation* (reference 4).

The scope of works comprised a:

- A review of the previous investigation report,
- Review of the environmental and physical setting in which the site lies, including geology, hydrogeology and topography,
- Review of the history of the site using readily available records and historical aerial photographs,
- ◊ Detailed site inspection for potential sources of contamination, and
- A detailed soil and groundwater sampling and analysis program to characterise potential contamination in accessible areas across the site.

A summary of the information obtained and results of this assessment is presented below.



Site History and Potential For Contamination

The historical information indicates that the site was originally part of a larger parcel of land (likely rural/residential) before being progressively subdivided between 1914 and 1940 while owned by NSW Realty Co Limited. Initially the southern part of the site (88 and 90 New Illawarra Road and 311A Bexley Road) was subdivided and sold as two allotments in 1918 and has since been owned by various individuals. The allotments were further subdivided in the late 1960s to create the residential allotment known as 311A Bexley Road (Lot 5 DP508629). Historical aerial photographs suggest that this part of the site has predominately been used for residential purposes (low density). However, the dwelling at No. 90 New Illawarra Road is also known to have been partly used for commercial purposes, including a Butchers in the 1970s and 1980s.

The central part of the site (94 New Illawarra Road and 311 Bexley Road) was subdivided by NSW Realty Co Limited and sold off in 1919 as two allotments which currently exist. Historical aerial photographs indicate that this part of the site has been occupied by residential dwellings (low density) and associated garages, sheds and pools.

The northern part of the site (including 307 – 309 Bexley Road and 96 New Illawarra Road) was sold by NSW Realty Co Limited in 1940 and subdivided into the existing allotments by 1954. 96 New Illawarra Road (Lot A in DP388204) was developed into a dwelling circa 1954, while the remaining part of the land was developed into a service station (including mechanical repair workshop) soon after (late 1950s).

Of particular significance to this investigation are the activities associated with the service station at the northern end of the site, specifically the storage and use of fuels and mechanical repair of vehicles.

Soil Conditions

Soil conditions across the site were assessed at seventeen borehole locations positioned in accessible areas across the site and targeting areas of potential contamination. The number of sampling points exceeds the minimum number of sampling points required for adequate site characterisation as defined by the EPA NSW and Australian Standards, and it is the opinion of GEE that the number of sampling points was sufficient to support the planning proposal.

The majority of the boreholes drilled by GEE were dry during drilling and also upon completion. Exceptions included some seepage water encountered below 1.6m in



borehole BH102 and slight seepage noted between a depth of 2.0m and 2.8m depth within borehole BH107.

The subsurface conditions, as observed in the boreholes, typically comprised fill material over sandy clay soil which was underlain by sandstone bedrock. The thickness of the topsoil and/or fill unit ranged from 0.3m to 2.7m depth while the depth to the bedrock formation ranged from 0.75m to 2.7m depth.

During the drilling of boreholes, there were no unusual odours (that could be potentially associated with contamination) noted. Additionally, no potentially Asbestos Containing Materials (ACM) was observed below ground during sampling and logging.

GEE submitted a total of 41 primary soil samples from the 17 boreholes to Envirolab for NATA accredited laboratory analysis of metals (arsenic, cadmium, chromium, copper, nickel, lead, mercury and zinc), TRH, BTEX, PAHs, OCPs, PCBs and asbestos. The analytical results were compared against relevant set of ecological and health-based Site Acceptance Criteria (SAC) appropriate for the proposed land-use (high density residential).

In summary, the fill and natural soil was found to be free of significant contamination which would impact on the proposed future high density development of the site.

Groundwater Conditions

Groundwater conditions were assessed using three pre-existing monitoring wells (GW01 to GW03) and three recently installed monitoring wells (BH102, BH105, BH107).

The stabilised level of groundwater within the wells installed within BH102, BH107, GW01, GW02 and GW03 was measured on the 14^{th} November 2016 (approximately 13 days after installation of the wells) at depths of 1.28m, 1.78m, 2.21m, 2.13m and 1.34m bgs respectively. The well within borehole BH105 was dry to a depth of 2.4m bgs. Water within the wells was slightly to moderately acidic (4.5<pH<6.5) and low in conductivity.

The water encountered in the wells is considered to be perched water flowing along the soil/bedrock interface and such water is normally significantly influenced by rainfall events and therefore its presence can be intermittent. This is supported by the fact that the well installed within borehole BH105 was dry to a depth of 2.4m.



Taking into account the approximate surface elevation at each of the well locations, it is inferred that the perched water is following the regional topography and flowing in a northerly to north-easterly direction. Although the flow direction is expected to have been significantly altered by the presence of UST tankpit excavations in the northern end of the site.

To assess the presence of contamination within the groundwater, a sample of water was collected and submitted to Envirolab for NATA accredited analysis of dissolved metals (arsenic, cadmium, chromium, copper, nickel, lead, zinc and mercury), TRH, BTEX, PAHs and Phenols. The analytical results were then compared against a set of Groundwater Assessment Criteria (GAC) considered appropriate for the environmental setting of the site.

Conclusion and Recommendations

Based on observations made during the field investigations, the sampling and analysis program conducted at the site (including that completed previously by STS), the proposed land-use and with respect to relevant statutory guidelines, GEE conclude that the site can be made suitable for the proposed land-use described in the planning proposal, subject to the excavation, removal and validation of the existing UPSS. In accordance with Council's Contaminated Lands Policy and SEPP 55, a Remedial Action Plan should be prepared which details the methodology for the excavation, removal and validation of the existing UPSS.



1 PROJECT INFORMATION

1.1 INTRODUCTION AND OBJECTIVES

Geo-Environmental Engineering Pty Ltd (GEE) was commissioned by Tony Soueid to undertake a preliminary and details Environmental Site Assessment (ESA) at 307 - 311 Bexley Road & 88 - 96 New Illawarra Road, Bexley North, New South Wales (herein referred to as the 'site'). The site covers a combined area of approximately 4,200m² and comprises the following allotments:

- ♦ Lots 3, 4, 5 and 6 in Deposited Plan (DP) 508629,
- ♦ Lots A and B in DP 388204,
- ♦ Lot 1 in DP 1045200,
- ♦ Lot 1 in DP 400341, and
- ♦ Lot 35 in DP 663036.

A site survey plan is provided for reference in **Appendix A**, while a site location map is provided as **Figure 1**.

The ESA was required to support a planning proposal which relates to the proposed rezoning of the land to R4 – High Density Residential.

The objective of the ESA was to address the requirements of Council's Contaminated Land Policy (reference 1) and the provisions of the *State Environmental Planning Policy No. 55 – Remediation of Land* (reference 2) by providing a detailed assessment of contamination and, in turn, an assessment of the suitability of the site for the proposed land-use and possible constraints on future site development.

In this regard, GEE has completed a *Stage 1 - Preliminary Site Investigation* (Stage 1 - PSI) and a Stage *2 – Detailed Site Investigation* (Stage 2 – DSI), in accordance with the *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites* (reference 3) and NEPM (2013) Schedule B(2) *Guideline on Site Characterisation* (reference 4). The investigation was also conducted in accordance with relevant Office of Environment and Heritage (OEH)¹ endorsed guidelines, the SEPP 55 and relevant Australian Standards.

¹ The OEH incorporates the NSW Environment Protection Authority (EPA) and was formerly known as the NSW Department of Environment and Climate Change and Water (DECCW), the NSW Department of Environment and Climate Change (DECC) and NSW Department of Environment and Conservation (DEC).



1.2 PREVIOUS INVESTIGATIONS

GEE understands that a contamination assessment had previously been completed in 2011 for the northern part of the site (i.e. 307 – 309 Bexley Road), which is currently occupied by a Metro Petroleum service station. However, GEE has not been provided with a copy of this report.

More recently (early 2016), STS GeoEnvironmental Pty Ltd (STS) completed a geotechnical investigation at the northern end of the site (reference 5). The geotechnical report included:

- The drilling of five boreholes (BH1 to BH5 Refer Figure 2) across the northern part of the site (i.e. 307-309 Bexley Road) using a mechanical drilling rig equipped with solid flight augers,
- ◊ The performance of Dynamic Cone Penetrometer (DCP) tests at each borehole location to assess the consistency and/or relative density of the soil profile,
- Collection of samples from each of the borehole, and
- Analysis of selective samples for pH, sulphate and chloride content to provide a preliminary assessment of the aggressivity of the soil profile.

The subsurface conditions encountered by the STS boreholes comprised concrete and/or asphalt over fill material which was underlain by natural (i.e. previously undisturbed) sandy clays, clayey sands and weathered sandstone bedrock. The fill layer extended to a maximum depth of 1.6m, while the bedrock formation was encountered at depths of between 2.0m and 4.6m.

1.3 SCOPE OF WORKS

The scope of works completed by GEE, to achieve the above objectives, is provided below:

- ◊ A review of the previous investigation report,
- A review of the environmental and physical setting in which the site lies, including geology, hydrogeology and topography,
- A review of the history of the site using readily available records and historical aerial photographs,
- ♦ A site inspection for potential sources of contamination,
- ♦ Field investigations including:



- The drilling of seventeen boreholes (BH101 to BH109 and BH201 to BH208) across accessible areas of the site,
- The installation of a groundwater monitoring well within three of the nine boreholes. These three wells compliment three existing wells at the northern end of the site within the existing Metro Petroleum Service Station. The origin of the existing wells is not known although they are believed to have been installed during the 2011 contamination assessment mentioned above. For the purpose of this assessment the former wells were labelled as Well GW01, GW02 and GW02 (Figure 2),
- Sampling of soil from the boreholes, and
- Sampling of groundwater from the groundwater wells.
- Laboratory analysis of selected soil samples for a broad suite of potential contaminants,
- Laboratory analysis of the groundwater sample for a broad suite of potential contaminants, and
- Preparation of this report including the comparison of the laboratory analytical results against relevant NSW OEH endorsed guidelines.



2 SITE IDENTIFICATION

A summary of the site location details is provided below, while a site location map is provided as **Figure 1**:

Street Address:	307 - 311 Bexley Road & 88 - 96 New Illawarra Road, Bexley North (Figure 1)
Legal Description:	Lots 3, 4, 5 and 6 in Deposited Plan 508629, Lots A and B in DP388204, Lot 1 in DP1045200, Lot 1 in DP 400341 and Lot 35 in DP663036.
Coordinates (MGA 56):	325760m E, 6242900m N
Local Government Area:	Bayside (formerly Rockdale)
Site Area:	Approximately 4,200m ²
Current Zoning:	Low Density Residential (R2) ²
Current Use:	Mixture of low density residential and commercial/industrial (Metro Service Station)
Proposed Zoning:	High Density Residential (R4)
Proposed Use:	Commercial-residential mixed use

² Bayside (Rockdale) Local Environment Plan (LEP) 2011



3 SITE HISTORY

The history of the site was researched to provide an understanding of past and present site activities, which in turn may indicate sources and areas of potential contamination as well as potential chemicals of concern.

Information obtained and reviewed included:

- Historical aerial photographs dating back to 1943, as supplied by Lotsearch Pty Ltd using sources including the NSW Land and Property Information, or online aerial photography such as Google Earth, and Nearmap Limited (**Appendix B**).
- Historical title information, dating back to 1910, obtained from Hazlett Information Services (Appendix C).
- Historical business directory records from 1950, 1970 and 1991 which is provided in the Lotsearch Report (**Appendix B**).
- ◊ A search of dangerous good licences held with WorkCover NSW which often includes underground fuel storage tanks (USTs) (**Appendix D**).
- A search of the contaminated land database, which is available on the OEH website and reiterated in the Lotsearch report (**Appendix B**). This search reveals if there has been any past records of written notices issued on the site by OEH under the Contaminated Land Management Act 1997 (CLM Act), including preliminary investigation orders. Additionally, the search can reveal if the site has ever been notified to the OEH under Section 60 duty to report contaminated sites, of the CLM Act.

GEE notes that a search of WorkCover NSW records for licenced dangerous goods was not completed for the residential properties because it was considered highly unlikely that such dangerous goods would be stored or used.

3.1 HISTORICAL AERIAL PHOTOGRAPHS

Historical aerial photographs were examined for the years 1943, 1955, 1961, 1965, 1970, 1982, 1991, 2000, 2007 and 2014. A description of the site from each photograph is provided below while a copy of the aerial photography is provided in **Appendix B**:

1943 The earliest available aerial image reveals that Bexley Road and New Illawarr Roads were both formed. The northern part of the site (currently occupied by Metro Petroleum) was undeveloped land covered by grass with a tree (or two)



present in the north-western corner. Elsewhere, there was a residential dwelling occupying 94 New Illawarra Road (Lot 1 DP400341), 90 New Illawarra Road (Lot 4 DP508629) and 88 New Illawarra Road (Lot 3 DP508629) and each of these properties appeared to extend east to Bexley Road where there were a few sheds and or garages.

Surrounding land was predominately residential (low density) with much vacant grass covered land.

1955 By 1955 a residential dwelling had been constructed on 96 New Illawarra Road (Lot A DP388204) and 311 Bexley Road (Lot 6 DP 508629). No. 311A Bexley Road appeared to be the rear yard of the dwelling at 88 and 90 New Illawarra Road. The northern part of the site remained undeveloped.

On surrounding land there has been increased development, particularly low density residential.

1961 By 1961 the Service Station at the northern end of the site (Lot 1 DP1045200 and Lot B DP 388204) had been constructed. Elsewhere a new and larger residential dwelling had been constructed at 94 New Illawarra Road (Lot 1 DP400341).

On surrounding land there has been increased development for residential and commercial land use, with the most obvious addition being a large residentialcommercial development to the north (which is known to be a series of shops with residential apartments above).

- 1965 There appears to be little change to the site since 1961. The main change on surrounding land is the development of residential apartment buildings on the land immediately to the south of the site.
- 1970 By 1970 the land at the rear of 88 and 90 New Illawarra Road had been subdivided creating 311A Bexley Road) and a new residential dwelling had been constructed.

On surrounding land there appears to be little change when compared to the 1965 image.

- 1982 There appears to be little change to the site and surrounding land when compared to the 1970 image.
- 1991 There appears to be little change to the site and surrounding land when compared to the 1982 image.
- 2000 There appears to be little change to the site and surrounding land when



compared to the 1991 image.

- 2007 There appears to be little change to the site and the surrounding land when compared to the 2000 image.
- 2014 There appears to be little change to the site and the surrounding land when compared to the 2007 image.

Based on review of the aerial photographs, the most significant observation was the presence of the Service Station located at the northern end of the site, which is currently operated by Metro Petroleum. Elsewhere the site has been occupied by residential dwelling and associated sheds/garages since the earliest available photograph from 1943. However, the author of this report can confirm from local knowledge that the building at 90 New Illawarra Road was also partly used for commercial purposes some 20 to 30 years ago, specifically as butcher on the ground floor.

3.2 HISTORICAL TITLE INFORMATION

A copy of the historical title information obtained from circa 1910 to present is provided for reference in **Appendix C**, along with a summary table listing the past proprietors (owners) and leaseholders of the allotments.

The historical information indicates that the site was originally part of a larger parcel of land (likely rural/residential) before being progressively subdivided between 1914 and 1940, while owned by NSW Realty Co Limited. A summary of the title information is provided below and has been separated into the main areas of the site:

<u>307-309 Bexley Road (Lot 1 DP1045200 and Lot B DP 388204 and Lot 35 DP</u> <u>663036)</u>

From 1910 to 1954 this part of the site was owned by various individuals and when cross referenced with aerial photographs the land was undeveloped. In 1954 the land was sold to HC Sleigh Limited which is known to have operated Golden Fleece Service Stations. Caltex purchased the site from Golden Fleece (HC Sleigh Limited) in 1995 before being transferred to an individual (Daniel Anthony Ishkhanian) in the same year. Since then the site has been owned by other individuals and a company called Oriental Pacific Holdings Pty Limited which a Google search suggests is also related to the petroleum/service station industry.



In summary the title records support the aerial photographs and indicate that this part of the site has been a service station since 1954 to present. The current owners are Mtanios and Nazah Soueid and it is leased to Michael and Raed Hanna.

88 – 96 New Illawarra Road (Lot A DP 388204, Lot 1 DP400341 and Lots 3,4 and 6 DP 508629), 311 and 311A Bexley Road (Lots 5 and 6 in DP508629)

These allotments were progressively formed by subdivision between 1918 and 1962 and have all been owned by various individuals. This supports the historical aerial photographs which suggest that this part of the site has predominately been used for residential purposes (low density). However, the dwelling at No. 90 New Illawarra Road is also known to have been partly used for commercial purposes, including a Butchers circa 1980s.

3.3 BUSINESS DIRECTORY LISTINGS

A search of the historical business directory listings from 1950, 1970 and 1991 was completed to assist with determining any past land-use activities, and in particular past land-use activities that may cause contamination. A list of some activities that may cause contamination is provided in Table 1 of SEPP 55 (reference 2) and includes motor garages, dry cleaners and service stations.

The results are provided in the Lotsearch Report (**Appendix B**) and they confirmed the existence of a service station and motor vehicle repair centre in the northern part of the site in 1950, 1970 and 1991. The search also confirmed the presence of a Butchers at 90 New Illawarra Road both in 1950 and 1970 business directory.

Beyond the subject site there is another service station with mechanical workshop listed on the 1970 and 1991 director which is located approximately 60 to 70 m to the north of the site. There is also a dry cleaners located approximately 100m to the north/north-east. This service station and dry cleaners are both expected to be downhydraulic gradient of the site and therefore unlikely to have any impact on the site.

3.4 WORKCOVER NSW

WorkCover NSW has searched their Stored Chemical Information Database and has provided records of licensed dangerous goods (e.g. fuel) being kept on the premises. The WorkCover documents are provided in **Appendix D** and indicate that there are six Underground fuel Storage Tanks (USTs) located on the site. The earliest record of the USTs was from 1964 when the service station was being operated by Golden Fleece.



According to the plan of the site at this time there were four USTs present (identified herein as Tanks 1 to 4) and these were likely installed at the same time that the service station was developed (i.e. late 1950s). Around 1970 another UST was installed (Tank 5) and by mid 1970s two of the original USTs (Tanks 3 and 4) were abandoned and presumably remain below ground. Circa 1979 another larger UST was installed (Tank 6) and a small kerosene UST was also installed (Tank 7). Most recently (circa 1995) the largest UST (Tank 8) was installed, while recent plans provided by WorkCover NSW suggest that another tank (herein referred to as Tank 9) exists adjacent to the vehicle workshop and is used for waste oil. GEE has not confirmed the size of the waste oil tank or whether it was an Above ground Storage Tank (AST) or a UST.

A table summarising the UST details including estimated installation date, size and contents is provided in **Table 1**. The approximate locations of the USTs are shown on **Figure 3**.

Tank Number	Location	Installed Date	Contents	Size	Status
Tank 1	Next to main canopy	Approx 1959	Super (now unleaded)	7,500L	In Use
Tank 2	North of Office/Shop	Approx 1959	Super (now diesel)	7,500L	In Use
Tank 3	North of Office/Shop	Approx 1959	Not known	3,700L	Abandoned
Tank 4	North of Office/Shop	Approx 1959	Not known	3,700L	Abandoned
Tank 5	Northern End	Approx 1970	Super (now unleaded)	27,600L	In Use
Tank 6	Northern End	Approx 1979	Super (now unleaded)	27,600L	In Use
Tank 7	West of office/shop	Approx 1979	Kerosene	2,000L	Likely abandoned
Tank 8	South-eastern part of service station	Approx 1995	unleaded	34,000L	In Use
Tank 9	Adjacent to the Workshop	Approx 1995	Waste oil	Not known	In Use

Table 1: UST Details

According the dangerous goods licencing information, LPG is also stored on site in above ground tanks.



3.5 CONTAMINATED LAND DATABASE

A search of the contaminated land database, which is available on the Office of Environment and Heritage (OEH) website, was conducted and revealed there has been no past record of written notices issued on the site, by the OEH, under the Contaminated Land Management Act 1997 (CLM Act), including preliminary investigation orders. Additionally, the site has never been notified to the OEH under Section 60 duty to report contaminated sites, of the CLM Act.

Beyond the subject site, there were no properties within a 1km radius that that has been notified to the NSW EPA under Section 60 of the CLM Act or had notices issued on them by the OEH.

3.6 SUMMARY OF SITE HISTORY INFORMATION

The historical information indicates that the site was originally part of a larger parcel of land (likely rural/residential) before being progressively subdivided between 1914 and 1940 while owned by NSW Realty Co Limited. Initially the southern part of the site (88 and 90 New Illawarra Road and 311A Bexley Road) was subdivided and sold as two allotments in 1918 to George and Annie Gibbons and has since been owned by various individuals. The allotments extended between New Illawarra Road to the west and Bexley Road to the east and were further subdivided in the late 1960s to create the residential allotment known as 311A Bexley Road (Lot 5 DP508629). Historical aerial photographs suggest that this part of the site has predominately been used for residential purposes (low density). However, the dwelling at No. 90 New Illawarra Road is also known to have been partly used for commercial purposes, including a Butchers in the 1970s and 1980s.

The central part of the site (94 New Illawarra Road and 311 Bexley Road) was subdivided by NSW Realty Co Limited and sold off in 1919 as two allotments which currently exist. Historical aerial photographs indicate that this part of the site has been occupied by residential dwellings (low density) and associated garages, sheds and pools.

The northern part of the site (including 307 – 309 Bexley Road and 96 New Illawarra Road) was sold by NSW Realty Co Limited in 1940 and subdivided into the existing allotments by 1954. No. 96 New Illawarra Road (Lot A in DP388204) was developed into a dwelling circa 1954, while the remaining part of the land was developed into a service station (including mechanical repair workshop) soon after (late 1950s).



Of particular significance to this investigation are the activities associated with the service station at the northern end of the site, specifically the storage and use of fuels and mechanical repair of vehicles.



4 SITE CONDITION AND SURROUNDING ENVIRONMENT

4.1 SITE DESCRIPTION

The site bounded by New Illawarra Road to the west, Bexley Road to the east a park/recreational space to the north and residential land to the south.

At the time of the field investigation, a Metro service station, with shop and mechanical workshop, occupied the northern end of the site (307-309 Bexley Road). The buildings in this part of the site were constructed of fibro and brick with a corrugated iron roof. Additionally, there was a metal awning extending from the eastern side of the shop over three fuel dispensers. A fourth fuel dispenser was located midway along the northern boundary. There were several underground fuel Storage Tanks (USTs) across the Metro Service station property and the surface predominately comprised concrete or asphalt pavements with some garden beds along the perimeter of the property. The exact number of USTs was not confirmed but based on WorkCover NSW documents it is believed that there are nine tanks present (refer to **Table 1** and **Figure 3**).

Three groundwater monitoring wells were also observed across the Metro Service station forecourt and are likely from the former contamination assessment completed in 2011. As previously mentioned, GEE has not been provided with a copy of this report. Each of these wells were used to sample groundwater as part of this investigation and for the purpose of this investigation they were labelled GW01 to GW03. Their approximate locations are shown on **Figure 2**.

The remainder of the site was occupied by residential dwellings, associated garages, sheds and swimming pools, although the dwelling at 94 New Illawarra Road was being used for commercial purposes (specifically an office for the Mental Health Recovery Institute.

4.2 TOPOGRAPHY

During the site investigation, it was noted that the site was situated on a slope, highest in elevation at the southern end of the site, dipping down towards the north and northeast at approximately 5% to 10%.

4.3 GEOLOGY AND SOILS

4.3.1 Regional

A review of the Sydney 1:100,000 regional geological map (reference 6) indicates that the site is situated on the geological contact between the Ashfield Shale and



Hawkesbury Sandstone formations. The Ashfield Shale formation comprises "...black to dark-grey shale and laminite" whilst the Hawkesbury Sandstone typically consists "...medium to coarse-grained quartz sandstone, very minor shale and laminite lenses".

A review of the regional soils map (reference 7) indicates the site is located within the Gymea Soil Landscape Group, recognised by undulating to rolling rises and low hills on Hawkesbury Sandstone. Local reliefs are between 20-80m while slopes are typically between 10-25% in gradient. Soils of the Gymea Group are typically erosional sands and clays, have very low soil fertility and form a high soil erosion hazard.

4.3.2 Local

The subsurface conditions encountered by the STS boreholes (reference 5) comprised concrete and/or asphalt over fill material which was underlain by natural (i.e. previously undisturbed) sandy clays, clayey sands and weathered sandstone bedrock. The fill layer extended to a maximum depth of 1.6m, while the bedrock formation was encountered at depths of between 2.0m and 4.6m.

4.4 HYDROGEOLOGY

Permanent groundwater is likely to be confined or partly confined within discrete, water-bearing zones within the bedrock formation. However, intermittent 'perched' water seepage is likely to occur at the soil-bedrock interface following heavy and prolonged rainfall events.

Groundwater flow is dominated by water movement through fractures or joints, where stress has caused partial loss of cohesion in the rock, with evidence of potential water bearing fractures usually the presence of clay or iron-staining along the face of joints.

4.5 ACID SULFATE SOIL POTENTIAL

Acid Sulfate Soil is naturally occurring sediments and soils containing iron sulfides (principally iron sulfide, iron disulfide or their precursors). Oxidation of these soils through exposure to the atmosphere or through lowering of groundwater levels results in the generation of sulfuric acid.

Land that may contain potential acid sulfate soils was mapped by the NSW Department of Land and Water Conservation (DLWC) and based on these maps local Councils produced their own acid sulfate soil maps to be used for planning purposes.



The Acid Sulfate Soils Map produced by the NSW Department of Planning and Environment, via interactive online mapping, indicates that the site lies within area defined as "*Class 5*". In accordance with Clause 6.1 of Council's Local Environment Plan (LEP) 2011, a preliminary assessment of acid sulfate soil and potentially a management plan is recommended for any "*Works within 500 metres of adjacent Class 1, 2, 3 or 4 land that is below 5 metres Australian Height Datum by which the watertable is likely to be lowered below 1 metre Australian Height Datum on adjacent Class 1, 2, 3 or 4 land"*.

Firstly, the surface elevation is greater than 5m AHD (approximately between 10-20m AHD). Secondly, the maximum depth of proposed excavation is expected to be 7m below the ground surface (bgs) which equates to a bulk excavation level which is significantly greater 1m AHD. Additionally, there is no need for de-watering which would reduce the water table in adjoining Class 1 to Class 4 land below 1m AHD, which according to the acid sulphate maps produced by Council, is approximately 250m west of the site. In this regard, there is no need for an acid sulphate soil assessment or management plan



5 CONCEPTUAL SITE MODEL

The conceptual site model (CSM) is a representation, or summary, of information obtained regarding potential contamination sources, receptors and exposure pathways between the sources and receptors. The key elements of a CSM include:

- known and potential sources of contamination and contaminants of concern, including the mechanisms of contamination (such as 'top down' spills or subsurface releases from corroded tanks or pipes),
- potentially affected media (such as soil, sediment, groundwater, surface water, indoor and ambient air),
- ◊ human and ecological receptors, and
- ◊ potential and complete exposure pathways.

GEE notes that this CSM is based on existing information (i.e. the historical information and the review of the site physical and environmental setting).

5.1 CONTAMINANT SOURCES

Based on GEE's knowledge of the site, including review of the site's history and physical and environmental setting, the main sources of potential contamination include:

> Past development of the site, specifically the potential for contaminated fill.

With any site development works there is a possibility that fill material was used to raise site levels above predicted flood levels, or to create a level building platform. When sourced from an unknown origin, the quality of the fill is also unknown and potentially contaminated. Based on the regional topography, historical aerial photographs and an intrusive investigation completed by STS, filling up to 2.0m depth was encountered at the northern end of the site.

• Current use of the site as a petrol station and auto-repair workshop.

This may have resulted in 'top down' contamination of fuels from the service pumps and the fuels, oils, paints, and solvents during the machinery operations. However, the concrete pavement / floor slab across the site would have minimised any migration of contaminants into the ground.

◊ Current storage and use of petrol / diesel in USTs.

The USTs and any associated infrastructure has the potential to cause significant soil and groundwater contamination if leakage occurs. There is also the potential



for 'top down' spills or leaks of the fuel/solvents during filling and extraction of the products from the USTs, however, the concrete pavement would have minimised any migration of contaminants into the ground.

5.2 POTENTIAL CONTAMINANTS OF CONCERN

A summary of the potential contaminants of concern attributed to the fill is summarised below in **Table 1**.

Potential Contaminating Activity	Area of Environmental Concern (AEC)	Chemical of Potential Concern (COPC)
Past filling	Entire Site	Metals, TRH, Polycyclic Aromatic Hydrocarbons (PAHs), Pesticides (OCPs), PCBs and Asbestos ³
Current Vehicle Repair Shop	The likely use and storage of fuel products and oil	TRH, BTEX, Lead, PAHs, Phenols.
Current UST	Leakage of current contents and existing petroleum hydrocarbon impacted water	TRH, BTEX, Lead

Table 1: Summary of Potential Contamination

5.3 POTENTIAL OR KNOWN CONTAMINATED MEDIA

Potential contaminated media is the fill layer across the site and natural soil and/or bedrock in the vicinity of the existing USTs. Groundwater is likely to also be impacted, particularly nearby the existing USTs.

5.4 CONTAMINANT RECEPTORS

Potential receptors to the contamination include workers engaged to construct the proposed development including earthworks contractors. Future users of the site are not expected to be impacted because the majority of the site will be excavated to facilitate the construction of a basement.

5.5 POTENTIAL EXPOSURE PATHWAYS

At this preliminary stage, potential exposure pathways include direct contact for workers on site and future users of the site.

³ These are common contaminants of concern for developed areas across Sydney.



6 SAMPLING AND ANALYSIS PROGRAM

The sampling and analysis program was designed with reference to the site's history and a recent site inspection. The purpose of the program was to provide a preliminary assessment of the soil and groundwater conditions across the entire site, particularly in areas of environmental concern.

In accordance with the NSW DEC *Contaminated Sites: Guidelines for NSW Site Auditor Scheme* (reference 8), the Data Quality Objectives (DQOs) process was used to define the type, quantity and quality of the data needed to support decisions relating to the environmental condition of a site. Details of the DQO process adopted for the soil sampling and analysis program is provided in **Appendix E**.

6.1 SAMPLING PROGRAM

The sampling program was undertaken in two stages by Stephen McCormack from GEE and comprised:

- The drilling of seventeen boreholes (BH101 to BH109 and BH201 to 208) in accessible areas across the site,
- Installation of a groundwater monitoring well within three of the nine boreholes (BH102, BH105 and BH107),
- ◊ The collection of soil samples from each borehole for subsequent selective laboratory analysis, and
- The collection of a groundwater sample from each of the groundwater monitoring wells installed on the site, for subsequent laboratory analysis.

6.1.1 Borehole Drilling Operations and Logging

Fieldwork was completed in two stages and prior to the commencement of the bores a scan for potential underground services and utilities was completed by a specialist contractor and cross-checked with the results of a Dial Before you Dig (DBYD) search.

The initial stage of fieldwork was completed in November 2016 and comprised the drilling of nine boreholes (BH101 to BH109) in accessible areas across the site with a particular focus on the service station which represented the most significant risk of contamination. The second stage of fieldwork was completed in July 2017 and comprised the drilling of an additional eight boreholes (BH201 to BH208) to provide increased coverage across the site.



The number of sampling points (boreholes), when combined with the STS boreholes, exceeds the minimum number of sampling points required for adequate site characterisation as defined by the EPA NSW and Australian Standards (reference 10 and 11) and was considered by GEE to be appropriate for the current and past land-use.

The boreholes were positioned to provide broadly even coverage across the site, subject to the constraints of existing buildings and buries infrastructure. The boreholes were drilled using either an 85mm diameter stainless steel hand auger operated by Stephen McCormack from GEE, or with a mechanical Hanjin D&B track rig that was owned and operated by Total Drilling Pty Ltd and equipped with Solid Flight Augers (SFA) and a tungsten-carbide drill bit (TC-bit). The hand auger was used in areas where the mechanical rig could not access.

The majority of boreholes drilled by GEE were dry during drilling and also upon completion. Exceptions included some seepage water encountered below 1.6m in borehole BH102 and slight seepage noted between a depth of 2.0m and 2.8m depth within borehole BH107.

With the exception of borehole BH104, the boreholes were extended through any fill material into the natural soil profile before terminating on, or within, the underlying sandstone bedrock formation at depths of between 0.75m and 3.8m below ground surface (bgs). Borehole BH104 refused on an obstruction within the fill profile (likely concrete) at a depth of 1.2m bgs.

To minimise cross contamination between sampling locations, the hand auger and the lead SFA was washed with Decon90, a laboratory grade cleaning agent and decontaminant, at the start of the fieldwork and after each boreholes. The auger was then rinsed vigorously with water after to ensure the removal of all traces of contamination as well as the cleaning agent.

During drilling, the encountered fill material and any natural soil was geologically logged, taking care to describe the presence and depth of any adverse aesthetics such as discolouration or odours, of which there were none. Detailed descriptions of the subsurface conditions on site are provided in the borehole logs provided in **Appendix F**.



A summary of the borehole information, including total depth, is provided in **Table 2** and their locations are shown on **Figure 2**. Also included in Table 1 and Figure 2 are details and location of the geotechnical bores completed by STS (reference 5).

Borehole ID	Date Completed	Drilling Method	Total Depth	Depth of Filling ¹	Depth to Bedrock	Well Screen Interval
	•		(m BGS)	(m BGS)	(m BGS)	(m BGS)
		GEE	Boreholes			
BH101	1 Nov 2016	Mechanical	3.8	0.4	2.7	
BH102	1 Nov 2016	Mechanical	2.4	2.0	2.0	1.0 – 2.2
BH103	1 Nov 2016	Mechanical	1.4	1.1	1.1	
BH104	1 Nov 2016	Mechanical	1.2	>1.2		
BH105	1 Nov 2016	Mechanical	2.4	1.05	2.3	1.15 – 2.35
BH106	1 Nov 2016	Mechanical	2.2	0.6	1.9	
BH107	1 Nov 2016	Mechanical	2.8	0.7	1.4	1.6 – 2.8
BH108	1 Nov 2016	Hand Auger	0.75	0.3	0.75	
BH109	1 Nov 2016	Hand Auger	1.35	0.7	1.35	
BH201	19 Jul 2017	Hand Auger	1.6	1.0		
BH202	19 Jul 2017	Hand Auger	1.8	1.3		
BH203	19 Jul 2017	Hand Auger	1.2	0.6		
BH204	19 Jul 2017	Hand Auger	0.7	>0.7		
BH205	19 Jul 2017	Hand Auger	1.0	0.5		
BH206	19 Jul 2017	Hand Auger	1.1	0.6		
BH207	19 Jul 2017	Hand Auger	1.0	0.4		
BH208	19 Jul 2017	Hand Auger	1.0	0.5		
		STS Bor	eholes 2015			
BH1	14 Dec 2015	Mechanical	3.2	0.2	3.0	
BH2	14 Dec 2015	Mechanical	0.6	>0.6		
BH3	14 Dec 2015	Mechanical	5.0	1.6	4.6	
BH4	14 Dec 2015	Mechanical	2.2	0.6	2.0	
BH5	14 Dec 2015	Mechanical	0.8	>0.8		

Table 2: Summary of the Borehole Information

m BGS = metres below ground surface

Note 1: Depth of fill included topsoil, concrete and any soil which had been previously disturbed.



6.1.2 *Soil Sampling*

A total of 54 primary samples were collected from the seventeen GEE boreholes. This included a near-surface sample (approximately 0 - 200mm depth), followed by samples at regular intervals or changes in soils type. Each sample was collected by hand using dedicated, disposable nitrile gloves in general accordance with techniques described in Australian Standard AS4482.2 (reference 9) and NEPM (2013 – reference 4), to maintain the representativeness and integrity of the samples. The soil was then placed in laboratory supplied, acid washed glass jars.

Field screening of samples for the potential presence of volatile contaminants, such as fuel, was not carried out, however, there was no obvious hydrocarbon odour noted during the fieldwork and the majority of near surface soil samples were analysed for volatile component of Total Petroleum Hydrocarbons, which is more conclusive than field screening with a PID.

The samples for laboratory analysis were each labelled with a unique sample identification number, in addition to the date of collection and project number, before being placed on ice within an esky. The sample identification number was repeated on the borehole logs (**Appendix F**)

At the completion of each borehole, including logging and the sampling of soils, each borehole was backfilled with soil cuttings. A summary of the samples collected during this investigation is provided in **Table 4**.

6.1.3 *Groundwater Well Installations and Monitoring*

Groundwater monitoring wells were installed in boreholes BH102, BH105 and BH107 in general accordance with the Land and Water Biodiversity Committee (2012) *Minimum Construction Requirements for Water Bores in Australia* (reference 12), using 50 mm diameter uPVC pipe, with a machine slotted screen section, 2 mm sand pack and a bentonite seal. The depths of the screened section of the well is provided in **Table 2**.

The stabilised level of groundwater within the wells installed within BH102, BH107, GW01, GW02 and GW03 was measured on the 14th November 2016 (approximately 13 days after installation of the wells) at depths of 1.28m, 1.78m, 2.21m, 2.13m and 1.34m bgs respectively. As previously mentioned, the well within borehole BH105 was dry to a depth of 2.4m bgs.



The water encountered in the wells is considered to be perched water flowing along the soil/bedrock interface and such water is normally significantly influenced by rainfall events and therefore its presence can be intermittent. This is supported by the fact that the well installed within borehole BH105 was dry. Taking into account the approximate surface elevation at each of the well locations, it is inferred that the perched water is following the regional topography and flowing in a northerly to north-easterly direction. Although the flow direction is expected to have been significantly altered by the presence of UST tankpit excavations in the northern end of the site.

6.1.4 *Groundwater Sampling*

Groundwater was sampled from three existing monitoring wells (GW01 to GW03), as well as from two monitoring wells installed by GEE (BH102 & BH107). It is noted that a monitoring well was also installed within BH105, however it was dry at the time of sampling.

Sampling was undertaken following purging of the wells to remove stagnant water from the well casing and to ensure that the samples are representative of groundwater in the surrounding geological formation.

Immediately prior to purging and sampling, the well was dipped to determine the depth to stabilised water level and, using a clear disposable bailer, assessed for the presence of a hydrocarbon sheen and Light Non-Aqueous Phase Liquids (LNAPLs) which may be floating on the water. Neither sheen nor LNAPLs was observed on the surface of the water in each well. However, a slight hydrocarbon odour was noted within wells GW01, GW02 and GW03 during purging and sampling.

Purging of the monitoring wells took place on the 11th of November 2016. The well was installed within a low-transmissive formation, therefore, slow to re-charge and thus purging was undertaken using a high volume pump with dedicated tubing until practically dry. Following purging, the wells were allowed to recharge to at least 80% before sampling later the same day, using dedicated Waterra foot valves.

A calibrated water quality meter was used during the sampling to assess pH, redox potential (Eh), electrical conductivity (EC), dissolved oxygen (DO) and temperature.

The groundwater was collected directly into laboratory supplied sample containers in order of volatility, with the most volatile substances collected first. Samples to be analysed for metals were collected last and filtered in the field using a new disposable 0.45micron filter and syringe. Samples to be analysed for volatile substances (*e.g.*



BTEX), were filled to the container brim and capped, making sure that there were no bubbles / headspace.

All sample containers were immediately placed within an esky in which ice had been added. At the end of each sampling day the samples in the esky were transported to the GEE office where more ice was added and the samples delivered to the laboratory (within one working day).

All sample containers were labelled with the sample number, project number and date collected and the information repeated on a Chain-of-Custody (COC) form which accompanied the samples to the laboratory. The chain-of custody form (provided by the laboratory) demonstrates that the samples were properly received, documented, processed and stored.

While on site, the supervising engineer/scientist filled out a copy of the GEE "Groundwater Sampling Field Sheet" which documents, the sample identification, date of sampling, time of sampling, stabilised groundwater level, water quality field screening results, physical description of the water, presence or absence of odour, well condition and volumes purged. A copy of the "Groundwater Sampling Field Sheet" is provided in **Appendix G**.

Finally, it is noted that the purging and sampling equipment did not require decontamination because GEE used dedicated equipment for each well.

A summary of the groundwater samples collected and analysed during this investigation are provided in **Table 5**.

6.2 ANALYTICAL PROGRAM

In accordance with Section 5.2, selected soil samples were analysed for a broad suite of potential contaminants, including:

- Metals (Arsenic, Cadmium, Chromium, Copper, Nickel, Lead and Zinc)
- ♦ TRH
- ◊ BTEX
- ♦ PAH
- ◊ OCPs
- ◊ OPPs



- ♦ PCBs
- \diamond Asbestos.

Also, the pH and Cation Exchange Capacity (CEC) of some samples was also analysed to assist with determining the most appropriate ecological assessment criteria for some metals.

The groundwater samples collected from existing and recently installed groundwater wells were analysed for dissolved metals, TRH, BTEX, PAH and VOC. The primary soil and groundwater environmental samples were analysed by Envirolab Services Pty Ltd which is National Association of Testing Authorities (NATA) registered for the testing undertaken.

A summary of the soil analytical program, including which samples were selected for analysis and the chemicals analysed, is provided in **Table 4**, while a summary of the groundwater analytical program is provided in **Table 5**.



		Sample	Samnle	Analytical Program				
Location	Sample Id	Depth	Material Type	Metals	TRH/ BTEX	PAHs	OCPs / PCBs	Asbestos
			Primary Samples					
BH101	SMC011116-01	0.2 – 0.3	FILL	~	\checkmark	\checkmark		
BH101	SMC011116-02	0.4 – 0.5	SAND	~	\checkmark			
BH101	SMC011116-03	0.9 - 1.0	SAND					
BH101	SMC011116-04	1.3 – 1.5	SAND		\checkmark			
BH101	SMC011116-05	3.0 – 3.3	SANDSTONE	~				
BH102	SMC011116-06	0.2 – 0.3	FILL	~	\checkmark	\checkmark	\checkmark	\checkmark
BH102	SMC011116-07	0.6 - 0.7	FILL					
BH102	SMC011116-08	0.9 - 1.0	FILL					
BH102	SMC011116-09	1.8 – 2.0	FILL	~	\checkmark	\checkmark		
BH103	SMC011116-11	0.1 – 0.25	FILL	~	\checkmark	\checkmark		
BH103	SMC011116-13	0.5 – 0.7	FILL	~	\checkmark	\checkmark		
BH104	SMC011116-15	0.2 – 0.3	FILL	~	\checkmark	\checkmark	\checkmark	\checkmark
BH104	SMC011116-16	0.5 – 0.65	FILL	~				
BH104	SMC011116-17	0.8 – 0.95	FILL	\checkmark	\checkmark	\checkmark		
BH105	SMC011116-18	0.1 - 0.2	FILL	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
BH105	SMC011116-19	0.5 – 0.6	FILL					
BH105	SMC011116-20	0.9 - 1.0	FILL	~	\checkmark	\checkmark		
BH105	SMC011116-21	1.1 – 1.25	Sandy CLAY	~	\checkmark			
BH105	SMC011116-23	1.8 – 2.0	Sandy CLAY					
BH106	SMC011116-24	0.1 – 0.3	FILL	\checkmark	\checkmark	\checkmark		
BH106	SMC011116-25	0.7 – 0.9	Sandy CLAY	\checkmark	\checkmark			
BH106	SMC011116-27	1.3 – 1.5	Sandy CLAY	~				
BH107	SMC011116-29	0.1 - 0.2	FILL	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
BH106	SMC011116-30	0.4 - 0.5	FILL	\checkmark				
BH107	SMC011116-28	0.7 – 0.8	Silty CLAY					
BH107	SMC011116-31	1.5 – 1.6	SANDSTONE					
BH107	SMC011116-35	2.5 – 2.8	SANDSTONE					
BH108	SMC011116-32	0.0 – 0.15	TOPSOIL / FILL	~	\checkmark	\checkmark	\checkmark	\checkmark
BH108	SMC011116-33	0.3 – 0.5	Sandy CLAY	\checkmark				
BH109	SMC011116-34	0.0 - 0.15	TOPSOIL / FILL	~	\checkmark	\checkmark		
BH109	SMC011116-36	0.5 – 0.6	TOPSOIL / FILL					
BH109	SMC011116-37	0.7 – 0.85	Sandy CLAY	~				
BH201	JL190717-01	0.05 – 0.15	FILL	✓	\checkmark	✓		
BH201	JL190717-02	0.4 – 0.5	FILL					
BH201	JL190717-03	0.7 – 0.8	FILL	~	\checkmark	\checkmark		

Table 4: Summary of the Sampling and Analysis Program



BH201	JL190717-04	1.0 - 1.1	Clayey SAND	\checkmark				
BH201	JL190717-05	1.4 – 1.5	Sandy CLAY					
BH202	JL190717-06	0.25 – 0.35	FILL	\checkmark	\checkmark	\checkmark	\checkmark	
BH202	JL190717-08	0.6 - 0.7	FILL	\checkmark	\checkmark	\checkmark		
BH202	JL190717-09	1.1 – 1.2	FILL	\checkmark				
BH202	JL190717-10	1.4 – 1.5	Sandy CLAY	\checkmark	\checkmark	\checkmark		
BH203	JL190717-11	0.15 – 0.25	FILL	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
BH203	JL190717-12	0.7 – 0.8	Clayey SAND	\checkmark				
BH203	JL190717-13	1.1 – 1.2	Clayey SAND					
BH204	JL190717-14	0.2 – 0.3	FILL	\checkmark	\checkmark	\checkmark	\checkmark	
BH204	JL190717-15	0.6 - 0.7	FILL	\checkmark				
BH205	JL190717-16	0.05 – 0.15	FILL	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
BH205	JL190717-18	0.6 - 0.7	Sandy CLAY	\checkmark	\checkmark	\checkmark		
BH206	JL190717-19	0.05 - 0.15	TOPSOIL / FILL	\checkmark	\checkmark	\checkmark		
BH206	JL190717-20	0.7 – 0.8	SAND	\checkmark				
BH207	JL190717-21	0.05 - 0.15	TOPSOIL / FILL	\checkmark	\checkmark	\checkmark		
BH207	JL190717-22	0.5 – 0.6	Sandy CLAY	\checkmark				
BH207	JL190717-23	0.9 - 1.0	Sandy CLAY					
BH208	JL190717-24	0.05 - 0.15	TOPSOIL / FILL	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
BH208	JL190717-26	0.5 – 0.6	Sandy CLAY	\checkmark				
	-	Total		41	29	25	10	8
		(Quality Control Sample	es				
BH102	SMC011116-10	Blind Replicate	of `SMC011116-09'	\checkmark	\checkmark	\checkmark		
BH103	SMC011116-12	Split Replicate	of `SMC011116-11'	\checkmark	\checkmark	\checkmark		
BH103	SMC011116-14	Blind Replicate	of 'SMC011116-13'					
BH105	SMC011116-22	Blind Replicate	of 'SMC011116-21'					
BH106	SMC011116-26	Blind Replicate	of `SMC011116-25'					
	Trip Blank		Sand		\checkmark^1			
	Trip Spike		Sand		√2			
BH202	JL190717-07	Blind Replicat	e of `JL190717-06'	✓	✓	\checkmark	✓	
BH205	JL190717-17	Blind Replicat	e of `JL190717-16′					
BH208	JL190717-25	Blind Replicat	e of `JL190717-24′					
	Trip Blank		Sand		\checkmark^1			
	Trip Spike		Sand		√ ²			
Nete 4. DTC	V and TPU (CG CO)							

Note 1: BTEX and TRH (C6-C9) only

Note 2: BTEX only



Location	Sample Id		Analytical Program				
Location	Sample Iu	Metals	TRH/BTEX	PAHs	Phenols		
	Primary G	roundwater Samp	bles				
BH107	AC111116-01	\checkmark	\checkmark	\checkmark	\checkmark		
GW01	AC111116-03	\checkmark	\checkmark	\checkmark	\checkmark		
GW02	AC111116-04	\checkmark	\checkmark	\checkmark	\checkmark		
GW03	AC111116-05	\checkmark	\checkmark	\checkmark	\checkmark		
BH102	AC111116-06	\checkmark	\checkmark	\checkmark	\checkmark		
	Quality	Control Samples					
DU107	AC111116-02	,	,	,	,		
BH107	Duplicate of 'AC111116-01'	\checkmark	\checkmark	\checkmark	\checkmark		
	Trip Blank		\checkmark^1				
	Trip Spike		√ ²				

Table 5: Summary of the Groundwater Sampling and Analysis Program

Note 1: BTEX and TRH (C6-C9) only

Note 2: BTEX only



7 DATA QUALITY ASSESSMENT

A detailed Quality Assurance (QA) assessment, including the analysis of Quality Control (QC) samples, was carried out by GEE to determine the suitability and reliability of field procedures and analytical results. In accordance with NSW DEC (reference 8), the QA assessment used Data Quality Indicators (DQIs) which included:

- \diamond precision.
- ♦ accuracy (or bias).
- ◊ representativeness.
- ◊ completeness.
- ◊ comparability.

The detailed QA assessment report is provided in **Appendix H**, and concludes that the field procedures and analytical data presented herein are of suitable quality for making conclusions and recommendations regarding the contamination status of the site.



8 ASSESSMENT CRITERIA

1.1 SOIL

For any contamination assessment, it is necessary to evaluate the human health and ecological risks associated with the presence of site contamination. Also, in accordance with Appendix I of DEC, 2006 guidelines (reference 8), residential sites need to address aesthetics such as highly malodorous soils.

1.1.1 Aesthetics

Aesthetics was continually assessed in the field during borehole drilling and logging and no significant and adverse observations were noted.

1.1.2 Ecological Risk

To address potential ecological risks, GEE has compared the soil analytical results against the Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) detailed in NEPM (2013), *Schedule B(1) – Guidelines on Investigation Levels for Soil and Groundwater* (reference 13).

Ecological Investigation Levels (EILs)

EILs were derived for common contaminants in soil (specifically Arsenic, Copper, Chromium (III), DDT, naphthalene, Nickel, Lead and Zinc) and are based on a species sensitivity distribution (SSD) model developed for Australian conditions. They consider the physicochemical properties of soil (e.g. Cation Exchange Capacity, pH and clay content), contaminants and the capacity of the local ecosystem to accommodate increases in contaminant levels (referred to as the 'added contaminant limit' or ACL) above ambient background. Also, EILs consider various land use scenarios and generally only apply to the top 2m of soil which corresponds to the root zone and habitation zone of many species.

Finally, different EILs apply for 'fresh' contamination and 'aged' contamination. 'Fresh' contamination is usually associated with current activity and chemical spills, while a contaminant that has been incorporated into a soil for more than 2 years is considered to be 'aged'. For the purpose of this report 'aged' EILs have been adopted because any contamination present at the site is likely to have been present for more than 2 years.

To assist with determining appropriate EILs to screen the soil analytical results, particularly for Copper, Chromium -III, Nickel and Zinc, the Cation Exchange Capacity (CEC) and pH of the soil was analysed for each of the samples. The CEC values for



each sample ranged from <1.0 to 29.0 meq/100g, while the pH values ranged from 3.5 to 9.6. For the purpose of this report, and to screen the analytical results, GEE has adopted the lowest values for both CEC and pH which was a CEC of 1.0 meq/100g and pH of 3.5. Additionally, a value of 1% clay composition has been adopted when determining the EIL for chromium (III).

When determining the EILs for Copper, Nickel, Chromium and Zinc, ambient background concentrations can be used to increase the final EIL, however, for the purpose of this investigation zero ambient background concentrations have been adopted.

The broad land-use scenarios are areas of ecological significance, urban residential/ public space, and commercial/industrial. Each land-use scenario assumes different exposure scenarios and are generally based on the primary land-use activity of the exposed soils (i.e. any deep soil areas). For the proposed rezoning application the most sensitive land-use scenario is high density residential therefore residential landuse has been adopted.

A summary of the EILs appropriate for the site is provided in **Table 6**.

Ecological Screening Levels (ESLs)

ESLs have been developed for selected petroleum hydrocarbon compounds (specifically TRH⁴, BTEX and Benzo(a)pyrene) and are applicable for assessing risk to terrestrial ecosystems. ESLs broadly apply to coarse- and fine-grained soils and like EILs the ESLs consider various land use scenarios, only apply to the top 2m of soil and differ for 'fresh' contamination and 'aged' contamination. For the purpose of this report, coarse-grained soil and 'aged' ESLs have been adopted. Coarse grained soil was adopted over fine grained soil because it provides the most conservative criteria and if an exceedance occurs then the criteria will be adjusted to suit the actual soil type.

With respect to land-use, residential ESLs have been adopted and like with EILs, these are considered to be suitable for the proposed re-zoning application.

A summary of the ESLs appropriate for the site is provided in **Table 6.** GEE notes that screening levels are the concentrations of a contaminants above which will require further evaluation and consideration.

⁴ ESLs for the various carbon fractions are based on TRH analysis with F1 (C6-C9) being obtained after subtraction of BTEX.



8.1.1 Human Health Risk

To address potential health impacts at the site, GEE has compared the analytical results against Health Investigation Levels (HILs) and Health Screening Levels (HSLs), provided in NEPM (2013), *Schedule B(1) – Guidelines on Investigation Levels for Soil and Groundwater* (reference 13).

Health Investigation Levels (HILs)

The HILs are scientifically based, generic assessment criteria to be used as a first stage (or tier 1) screening of potential risks to human health from chronic exposure to contaminants. They are intentionally conservative and are based on four different and generic land use scenarios (i.e. HIL-A described as residential with accessible soils, HIL-B which includes residential with minimal opportunities for soil access, HIL-C for public space such as parks and HIL-D for commercial/industrial sites). Each land-use scenario assumes different exposure scenarios and when land is used for more than one purpose, the HILs that are relevant to the more sensitive land-use should be adopted. In this regard, the most appropriate land-use scenario is HIL-B.

HILs for soil contaminants are provided in Table 1A(1) of the NEPM guidelines and includes metals, PAHs, Pesticides and PCBs. Petroleum hydrocarbons are not included.

A summary of the HILs appropriate for the site is provided in **Table 6**.

Health Screening Levels (HSLs)

Health Screening Levels (HSLs) were developed for selected petroleum hydrocarbons (specifically TRH $C_6 - C_{10}$ or F1 fraction, TRH $>C_{10} - C_{16}$ or F2 fraction and BTEX) by the Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE) and have been adopted and are referenced in Schedule B(1) of NEPM (2013 – reference 13) and Friebel & Nadebaum (2011 – reference 14).

The assessment of petroleum hydrocarbon contamination is primarily driven by human health concerns relating to volatile components (e.g. TRH $C_6 - C_{10}$, TRH $>C_{10} - C_{16}$ and Benzene) which have the potential to cause health issues via vapour intrusion. HSLs also apply for direct human contact (Table A4 – reference 14) but only where this is likely.

For vapour intrusion and direct contact, different HSLs apply for different land use scenarios, different soil types (i.e. sand, silt and clay) and different depths. For the purpose of this investigation, criteria relevant for shallow (0m to 1m) sandy soils has



been adopted to screen the soil analytical results because they are most conservative. If a sample exceedance occurs at greater depth then the criteria will be adjusted to suit.

With respect to land-use there are four scenarios:

- ◊ HSL-A for low density residential sites
- ♦ HSL-B for high density residential sites
- ♦ HSL-C for recreational/open space areas
- ♦ HSL-D for commercial and industrial sites

The land use setting is based on ground floor occupation because if the vapour exposure is acceptable at ground level then it can be assumed to be acceptable on the floors above. As previously mentioned, it is proposed to rezone the site for high density residential land-use as such HSL-B is considered to be appropriate (which is the same threshold levels as HSL-A).

Where there is a HSL for vapour intrusion as well as direct contact, the lowest criteria has been adopted, which is the vapour intrusion HSLs. Where there are no direct contact or vapour intrusion HSLs available, GEE has adopted management limits (Table 1B(7) – reference 13) which apply for TRH. The management limits are designed to avoid or minimise potential effects of petroleum hydrocarbons including:

- ♦ The formation of observable light non-aqueous phase liquids (LNAPL),
- ♦ Fire and explosive hazards, and
- The effects on buried infrastructure e.g. penetration of, or damage to, in-ground services by hydrocarbons.

Again, there are different management limits for the various land use scenarios and GEE has adopted the management limits appropriate for high density residential sites have been adopted. Finally, where there are HILs or management limits available for a particular contaminant, GEE has adopted HSLs recommended for direct contact on high density residential sites (Table A4 – reference 17). A summary of the petroleum hydrocarbon HSLs adopted for the site is provided in **Table 6**.



Analyte	-	eening Levels (HILs/HSLs) g/kg)	Ecological Investigation/Screening Levels (EILs/ESLs) (mg/kg)			
	HIL-B / HSL-B	Reference	Residential EIL/ESL	Reference		
		Total Metals		I		
Arsenic	500	Table 1A – Reference 13	100	Table 1B(5) – Reference 13		
Cadmium	150	Table 1A – Reference 13				
Chromium (VI)	500	Table 1A – Reference 13				
Chromium (III)			190	Table 1B(3) – Reference 13		
Copper	30,000	Table 1A – Reference 13	35	Table 1B(2) – Reference 13		
Lead	1,200	Table 1A – Reference 13	1,100	Table 1B(4) – Reference 13		
Mercury (inorganic)	120	Table 1A – Reference 13				
Nickel	1,200	Table 1A – Reference 13	6	Table 1B(3) – Reference 13		
Zinc	60,000	Table 1A – Reference 13	95	Table 1B(1) – Reference 1		
	Tota	I Polychlorinated Biphenyls (PCE	3s)			
Total PCBs	1	Table 1A – Reference 13				
	Polyc	yclic Aromatic Hydrocarbons (PA	AHs)			
Naphthalene	3	Table 1A(3) – Reference 13	170	Table 1B(5) – Reference 1		
Benzo(a)pyrene			0.7	Table 1B(6) – Reference 1		
Benzo(a)pyrene TEQ	4	Table 1A – Reference 13				
TOTAL PAHs	400	Table 1A – Reference 13				
	C	Organochlorine Pesticides (OCP)				
Heptachlor	10	Table 1A – Reference 13				
Aldrin + Dieldrin	10	Table 1A – Reference 13				
Endrin	20	Table 1A – Reference 13				
Chlordane	90	Table 1A – Reference 13				
Endosulfan	400	Table 1A – Reference 13				
HCB	15	Table 1A – Reference 13				
Methoxychlor	500	Table 1A – Reference 13				
DDE + DDD + DDT	600	Table 1A – Reference 13				
DDT			180	Table 1B(5) – Reference 1		
		BTEX				
Benzene	0.5	Table 1A(3) – Reference 13	50	Table 1B(6) – Reference 1		
Toluene	160	Table 1A(3) – Reference 13	85	Table 1B(6) – Reference 1		
Ethylbenzene	55	Table 1A(3) – Reference 13	70	Table 1B(6) – Reference 1		
Xylenes	40	Table 1A(3) – Reference 13	45	Table 1B(6) – Reference 1		
·	Tota	I Recoverable Hydrocarbons (TR				
(F1) C6 – C10	45	Table 1A(3) – Reference 13	180	Table 1B(6) – Reference 1		
(F2) >C10 - C16	110	Table 1A(3) – Reference 13	120	Table 1B(6) – Reference 1		
(F3) >C16 – C34	2,500	Table 1B(7) – Reference 13	300	Table 1B(6) – Reference 1		
(F4) >C34 – C40	10,000	Table 1B(7) – Reference 13	2,800	Table 1B(6) – Reference 1		
·		Asbestos				
Surface Soil	No visible Asbestos	Table 7 – Reference 13				
Buried Bonded	0.04%	Table 7 – Reference 13				
	1	Table 7 – Reference 13				

Table 6: Soil Site Assessment Criteria (SAC)

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8.2 WATER SAMPLES

Assessment criteria for groundwater were derived from the NEPM (2013), *Schedule* B(1) – *Guidelines on Investigation Levels for Soil and Groundwater* (reference 13) which are based on the ANZECC/ARMCANZ (2000) *water quality guidelines (reference* 15). However, with respect to specific petroleum hydrocarbons the assessment criteria provided in NEPM (2013) are based on Health Screening Levels (HSLs) developed by the Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE) and published by Friebel & Nadebaum (2011 – reference 14).

Typically the assessment of petroleum hydrocarbon contamination is driven by human health concerns relating to volatile components (e.g. TRH $C_6 - C_{10}$ (F1), TRH > $C_{10} - C_{16}$ (F2), BTEX and Naphthalene) which have the potential to cause health issues or explosive risks via vapour intrusion. The HSL criterion depends on the soil type, the depth to groundwater and land-use scenario where the groundwater exists. The HSLs change depending on the soil type and depth to groundwater and for the purpose of this assessment GEE have adopted the most conservative criteria which relates to sand and a depth of less than 2.0 metres. Also, an exposure scenario of residential land use with limited accessible soil (HSL-B) has been adopted, which is considered conservative for the proposed development.

For other analytes not covered by HSLs, GEE has adopted the Groundwater Investigation Levels (GILs) which are derived from the from ANZECC/ARMCANZ (2000) *water quality guidelines (*reference 15). GILs for fresh water were adopted for this study rather than marine water guidelines, on the basis that the receiving system for groundwater at the site is most likely to be either Wolli Creek or Bardwell Creek. Also the electrical conductivity of the water within the groundwater wells was relatively low. A search of registered groundwater bores in the vicinity of the site did not reveal any drinking water extraction wells and therefore drinking water guidelines levels were not appropriate.

ANZECC/ARMCANZ (2000) specifies four sets of trigger values corresponding with different levels of protection for ecosystem conditions. Trigger values, derived using the statistical distribution method, relate to the protection of 99%, 95%, 90% and 80% of species in an aquatic ecosystem. Three "categories of ecosystem conditions" are developed in the guidelines and the level of protection afforded to a particular ecosystem should be determined following consideration of site conditions in consultation with key stakeholders. Additionally, for each chemical, ANZECC/ARMCANZ (2000) provides three grades of guideline trigger values: high, moderate or low



reliability trigger values. The grade depends on the data available and hence the confidence or reliability of the final figures.

The groundwater investigation levels (GILs) in NEPM (2013) relate to "slightly to moderately disturbed" aquatic ecosystems and adopt trigger values based on a 95% level of protection, however, this is increased to 99% for some chemicals that have the potential to bioaccumulate or where the 95% value may not provide sufficient protection for key species. In the absence of high or moderate reliable fresh water criteria, GEE has adopted the high or moderate reliable criteria for marine water. Then, in the absence of high or moderate trigger values, GEE has applied low reliability trigger levels from ANZECC/ ARMCANZ (2000) as 'first pass' criteria. It should be noted that low reliability trigger values were originally derived from insufficient data sets and should not be used as final guidelines but as indicative interim figures, which if exceeded, suggest the need to obtain further data.

Finally, in all cases where the laboratory limit of reporting exceeds the ANZECC/ARMCANZ (2000) trigger value, the detection limit of that analyte is used as a trigger for further investigation.

A summary of the Groundwater Assessment Criteria (GAC) adopted for this site is provided in **Table 7**.



Analyte	Units	GILs 1	Source
Metals			
Arsenic V	µg/L	13	Table 1C (fresh) - Reference 13
Cadmium	µg/L	0.2	Table 1C (fresh) - Reference 13
Chromium VI	µg/L	1	Table 1C (fresh) - Reference 13
Copper	µg/L	1.4	Table 1C (fresh) - Reference 13
Lead	µg/L	3.4	Table 1C (fresh) - Reference 13
Nickel	µg/L	11	Table 1C (fresh) - Reference 13
Zinc	µg/L	8	Table 1C (fresh) - Reference 13
Mercury (inorganic)	µg/L	0.06	Table 1C (fresh) - Reference 13
Polycyclic Aromatic Hydro	carbons (PAF	ls)	
Naphthalene	µg/L	16	Table 1C (fresh) - Reference 13
Anthracene	µg/L	0.4	Reference 15
Phenanthrene	µg/L	2	Reference 15
Fluoranthene	µg/L	1.4	Reference 15
Benzo(a)pyrene	µg/L	0.2	Reference 15
Phenols			
Phenol	µg/L	320	Table 1C (fresh) - Reference 13
Total Petroleum Hydrocarb	ons (TPH)		
(F1) C6 – C10	µg/L	1,000 ²	Table 1A(4) - Reference 13
(F2) >C10 - C16	µg/L	1,000 ²	Table 1A(4) - Reference 13
(F3) >C16 – C34	µg/L		
(F4) >C34 – C40	µg/L		
BTEX			
Benzene	µg/L	800	Table 1A(4) - Reference 13
Toluene	µg/L	180	Reference 15 (fresh)
Ethylbenzene	µg/L	80	Reference 15 (fresh)
para-Xylene	µg/L	200	Table 1C (fresh) - Reference 13
ortho-Xylene	µg/L	350	Table 1C (fresh) - Reference 13

Table	7: Groundwater	Assessment	Criteria	(GAC)
			•••••••••••••••••••••••••••••••••••••••	()

Notes:

¹ Criteria shown in italics are low reliability trigger values used as a first pass assessment in the absence of more reliable trigger values.

² Criteria depends on the type of soil and depth of sample. Criteria adopted is for sandy soil which is the most conservative and residential land use (HSL-B).

NL – Criteria Not Limiting



9 ANALYTICAL RESULTS

9.1 SOIL SAMPLES

A copy of the laboratory report is provided in **Appendix I**, while a summary of the results compared to the SAC (**Table 8**) is provided in below.

9.1.1 Metals

A total of 41 primary samples were analysed by GEE for the presence of metals, specifically, arsenic, cadmium, chromium, copper, nickel, lead, zinc and mercury. A summary of the results is provided below:

	Number			S	SAC	Excee	edances
Metal	of Samples Analysed	Minimum Value	Maximum Value	Health	Ecological	Health	Ecological
Arsenic	41	<4	20	500	100	0	0
Cadmium	41	<0.4	0.9	150		0	0
Chromium	41	2	95	500	190	0	0
Copper	41	<1	45	30,000	35	0	4
Lead	41	1	590	1,200	1,100	0	0
Mercury	41	<0.1	2	120		0	0
Nickel	41	<1	87	1,200	15	0	7
Zinc	41	2	380	60,000	170	0	9

In summary, there were no samples that contained metal concentrations above the health-based SAC, however, sixteen samples contained concentrations of copper, nickel and/or zinc above the ecological based SAC. As previously mentioned, the ecological-based SAC are dependent on the CEC and/or pH of the individual samples. The SAC provided in **Table 6** are based on the lowest values of CEC and pH for all samples (i.e. 3.5 pH and 1.0 meq/100g) and was done as the 'first pass' assessment of the results. The actual CEC and pH results for these samples are as follows:



Sample ID	Actual pH value	Actual CEC (meq/100g)
SM011116-01	9.6	16
SM011116-02	9.1	16
SM011116-11/12	8.2	22
SM011116-16	8.3	12
SM011116-24	7.7	26
SM011116-32	7.0	11
SM011116-34	3.5	<1.0
SM011116-37	6.2	8.5
JL190717-01	6.6	20
JL190717-03	7.3	6.3
JL190717-06/07	8.6	29
JL190717-15	8.0	22
JL190717-16	5.7	6.2
JL190717-19	6.3	6.1
JL190717-21	6.2	6.1
JL190717-24	6.2	6.1

When using the actual CEC and pH values for each sample, the ecological SAC increases as indicated below:

Sample ID	Sample Concentration (mg/kg)	`First Pass' Ecological SAC (mg/kg)	Actual Ecological SAC
	Copper		
SM011116-11/12	38	20	230
SM011116-16	42	20	210
SM011116-24	42	20	230
JL190717-24	45	20	130
	Nickel		
SM011116-01	48	5	230
SM011116-02	20	5	230
SM011116-11/12	87	5	290
SM011116-24	63	5	320
JL190717-01	14	5	270
JL190717-03	9	5	60



JL190717-06/07	27	5	350
	Zinc		
SM011116-32	380	75	510
SM011116-34	100	75	95
SM011116-37	110	75	430
JL190717-01	250	75	720
JL190717-15	130	75	830
JL190717-16	180	75	320
JL190717-19	220	75	350
JL190717-21	270	75	350
JL190717-24	380	75	350

As shown above, when adopting the individual pH and CEC sample results the sample concentrations were below the ecological SAC except for zinc within sample SM011116-34 and JL190717-24. Based on the analytical results, GEE considers that the elevated zinc concentration at these locations do not pose a significant contamination issue for the proposed development because:

- ◊ The concentrations are only slightly above the SAC,
- ♦ The site is not located within an area of known ecological significance,
- There will be no ecological exposure pathway available when the basement is constructed, and
- ◊ The EIL adopted was for residential land-use which is considered rather conservative considering the ground floor will be commercial land-use and the commercial based criteria would be 100mg/kg and 500mg/kg respectively.

In summary, metals do not pose a significant contamination issue for soils at the site.

9.1.2 TRH and BTEX

A total of 29 primary samples were selected for TRH and BTEX analysis. A summary of the results is provided below:



	Number of	Minimum	Maximum		SAC	Number of Exceedances		
Analyte	Analyte Samples Value Analysed		Value	Health	Ecological	Health	Ecological	
TRH C6-C10 (F1)	29	<25	<25	45	180	0	0	
TRH >C10 – C16 (F2)	29	<50	<50	110	120	0	0	
TRH >C16 – C34 (F3)	29	<100	790	2,500	300	0	1	
TRH >C34 – C40 (F4)	29	<100	480	10,000	2,800	0	0	
Benzene	29	<0.2	<0.2	0.5	50	0	0	
Toluene	29	<0.5	<0.5	160	85	0	0	
Ethylbenzene	29	<1	<1	55	70	0	0	
Xylenes	29	<2	<2	40	45	0	0	

In summary, there were no samples that contained concentrations above the healthbased SAC, however, one sample (JL190717-01 from BH201) contained a concentration of TRH C16-C34 (790mg/kg) which was above the ecological based SAC. GEE considers that the elevated TRH concentration at this location does not pose a significant contamination issue for the proposed development because:

- ♦ The site is not located within an area of known ecological significance,
- There is normally very limited ecological exposure pathway available for high density residential developments, especially if a basement is constructed, and
- ♦ The ESL is a screening threshold level only and therefore conservative.

In summary, TRH/BTEX does not pose a significant contamination issue for soils at the site.

9.1.3 PAHs

A total of 25 primary samples were analysed for PAHs. A summary of the results is provided below:

	Number of	Minimum	Maximum		SAC	Number of
Analyte	Samples Analysed	Value	Value	Health	Ecological	Exceedances
Naphthalene	25	<0.1	<0.1	3	170	0
Benzo(a)pyrene	25	<0.05	0.2		0.7	0
Benzo(a)pyrene TEQ	25	<0.5	<0.5	4		0
Total PAHs	25	NIL(+)VE	2.1	40		0



Based on the soil analytical results, GEE considers that PAHs do not pose a contamination issue for the proposed land-use.

9.1.4 OCPs and PCBs

Eight primary samples were analysed for OCPs and PCBs and a summary of the results is provided below:

	Number of	Minimum	Maximum		SAC	Number of
Analyte	Samples Analysed	Value	Value	Health	Ecological	Exceedances
Heptachlor	10	<0.1	<0.1	10		0
Aldrin + Dieldrin	10	<0.1	<0.1	10		0
Endrin	10	<0.1	<0.1	20		0
Chlordane	10	<0.1	<0.1	90		0
Endosulfan	10	<0.1	<0.1	400		0
HCB	10	<0.1	<0.1	15		0
Methoxychlor	10	<0.1	<0.1	200		0
DDE + DDD + DDT	10	<0.1	0.3	600		0
DDT	10	<0.1	<0.1		180	0
Total PCBs	10	<0.1	<0.1	1		0

On the basis of the soil analytical results, OCPs and PCBs are not considered to be a contamination issue for the development.

9.1.5 Asbestos

Asbestos fibres were not detected in each of the eight near surface soil samples selected for analysis and there were no obvious visible fragments of asbestos containing materials (such as fibro) observed below the surface in the nine boreholes.

Sample ID	•	SM011116-01	SM011116-02	SM011116-04	4 SM011116-05	SM011116-06	SM011116-09	SM011116-10	SM011116-11	SM011116-12	SM011116-13	SM011116-15	SM011116-16	SM011116-17	Site Accept	tance Criteria
	Location	BH101	BH101	BH101	BH101	BH102	BH102	Blind	BH103	Split	BH103	BH104	BH104	BH104		
Analyte	Depth	0.2 - 0.3	0.4 - 0.5	1.3 - 1.5	3.0 - 3.3	0.2 - 0.3	1.8 - 2.0	Replicate	0.1 - 0.25	Duplicate	0.5 - 0.7	0.2 - 0.3	0.5 - 0.65	0.8 - 0.95	Health	Ecologica
-	Туре	FILL	SAND	SAND	SANDSTONE	FILL	FILL	of '09'	FILL	of '11'	FILL	FILL	FILL	FILL		
Asbestos																
Asbestos Detected	-					No						No			0.04%	
Respirable Fibres	-					No						No			0.001%	
Metals																
Arsenic	mg/kg	<4	<4		5	<4	9	12	5	20	12	<4	6	6	500	100
Cadmium	mg/kg	<0.4	<0.4		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	150	
Chromium ¹	mg/kg	59	35		11	5	20	20	95	34	7	4	3	7	500	190
Copper	mg/kg	17	8		4	3	10	14	38	17	6	17	42	14	30,000	35
Lead	mg/kg	11	3		20	6	48	33	20	66	15	17	2	11	1,200	1,100
Mercury	mg/kg	<0.1	<0.1		<0.1	<0.1	<0.1	< 0.1	<0.1	<0.05	<0.1	< 0.1	<0.1	< 0.1	120	
Nickel	mg/kg	48	20		3	1	3	4	87	15	1	6	<1	2	1,200	6
Zinc	mg/kg	33	10		29	15	87	30	62	64	30	24	3	21	60,000	95
BTEX	5, 5															
Benzene	mg/kg	<0.2	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2		<0.2	0.5	50
Toluene	mg/kg	<0.5	<0.5	<0.5		<0.5	<0.5	<0.5	<0.5	>0.1	<0.5	<0.5		<0.5	160	85
Ethylbenzene	mg/kg	<1	<1	<1		<1	<1	<1	<1	<0.1	<1	<1		<1	55	70
Total Xylenes	mg/kg	<2	<2	<2		<2	<2	<2	<2	<0.3	<2	<2		<2	40	45
TRH																
TRH C ₆ - C ₁₀ (F1)	mg/kg	<25	<25	<25		<25	<25	<25	<25	<20	<25	<25		<25	45	180
TRH > $C_{10} - C_{16}$ (F2)	mg/kg	<50	<50	<50		<50	<50	<50	<50	<50	<50	<50		<50	110	120
TRH > C_{16} - C_{34} (F3)	mg/kg	<100	<100	<100		<100	<100	<100	<100	<100	<100	<100		<100	2,500	300
TRH > C_{34} - C_{40} (F4)	mg/kg	<100	<100	<100		<100	<100	<100	<100	<100	<100	<100		<100	10,000	2,800
PAHs	iiig/ikg	(100	100	(100		(100	(100	100	100	100	<100	<100		<100	10,000	2,000
Naphthalene	mg/kg	<0.1				<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1		<0.1	3	170
Benzo(a)pyrene	mg/kg	< 0.05				< 0.05	< 0.05	< 0.05	0.2	<0.5	< 0.05	0.07		< 0.05		0.7
Benzo(a)pyrene TEQ	mg/kg	<0.05				<0.05	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5		< 0.5	4	
Total PAHs	mg/kg	<0.5 NIL(+)VE				<0.5 NIL(+)VE	<0.5 NIL(+)VE	NIL(+)VE	2.1	<0.5 <0.5	NIL(+)VE	<0.5 0.81		NIL(+)VE	400	
OCPs	iliy/ky	NIL(+)VL				NIL(+)VL	NIL(+)VL	NIL(+)VL	2.1	<0.5	NIL(+)VL	0.01		NIL(+)VL	400	
Heptachlor	mg/kg					<0.1						<0.1			10	
Aldrin						<0.1						<0.1			10	
Dieldrin	mg/kg mg/kg					< 0.1						<0.1			10	
Endrin	mg/kg					< 0.1						<0.1 <0.1			20	
gamma-Chlordane	mg/kg					<0.1 <0.1						<0.1 <0.1			20	
alpha-chlordane						<0.1 <0.1									90	
Endosulfan I	mg/kg					<0.1 <0.1						< 0.1				
	mg/kg											< 0.1			400	
Endosulfan II HCB	mg/kg					< 0.1						< 0.1			45	
	mg/kg					<0.1						< 0.1			15	
Methoxychlor	mg/kg					< 0.1						< 0.1			500	
pp-DDE	mg/kg					< 0.1						< 0.1				
pp-DDD	mg/kg					< 0.1						< 0.1			600	
pp-DDT	mg/kg					<0.1						<0.1				180
PCBs																
Total PCBs	mg/kg					<0.1						<0.1			1	

TABLE NOTES:

Analytical results which exceed any of the Health-based Investigation Levels (HILs) are shown as **bold** text.

Analytical results which exceed any of the Ecological-based Investigation Levels (PILs) are shown as boxed text.



Sample ID				SM011116-21										Site Acceptar	nce Criteria
	Location	BH105	BH105	BH105	BH106	BH106	BH106	BH107	BH107	BH108	BH108	BH109	BH109		
Analyte	Depth	0.1 - 0.2	0.9 - 1.0	1.1 - 1.25	0.1 - 0.3	0.7 - 0.9	1.3 - 1.5	0.1 - 0.2	0.4 - 0.5	0.0 - 0.15	0.3 - 0.5	0.0 - 0.15	0.7 - 0.85	Health	Ecologica
	Туре	FILL	FILL	Sandy CLAY	FILL	Sandy CLAY	Sandy CLAY	FILL	FILL	FILL	Sandy CLAY	FILL	Sandy CLAY		
Asbestos															
Asbestos Detected	-	No						No		No				0.04%	
Respirable Fibres	-	No						No		No				0.001%	
Metals															
Arsenic	mg/kg	4	4	<4	4	<4	<4	<4	5	6	6	6	8	500	100
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.7	<0.4	<0.4	<0.4	150	
Chromium ¹	mg/kg	11	12	15	72	12	11	4	9	12	23	13	21	500	190
Copper	mg/kg	12	9	1	42	3	1	1	7	23	2	24	3	30,000	35
Lead	mg/kg	34	32	7	30	6	6	8	74	170	9	420	12	1,200	1,100
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1	< 0.1	< 0.1	0.1	<0.1	120	
Nickel	mg/kg	2	2	2	63	2	1	1	2	4	3	2	2	1,200	6
Zinc	mg/kg	25	28	5	69	4	5	10	74	380	38	100	110	60,000	95
BTEX	5, 5									•			1	· ·	
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2		<0.2		<0.2		0.5	50
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5		<0.5		<0.5		160	85
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1		<1		<1		<1		55	70
Total Xylenes	mg/kg	<2	<2	<2	<2	<2		<2		<2		<2		40	45
TRH															
TRH C ₆ - C ₁₀ (F1)	mg/kg	<25	<25	<25	<25	<25		<25		<25		<25		45	180
TRH > $C_{10} - C_{16}$ (F2)	mg/kg	<50	<50	<50	<50	<50		<50		<50		<50		110	120
TRH > C_{16} - C_{34} (F3)	mg/kg	<100	<100	<100	<100	<100		<100		<100		<100		2,500	300
TRH > C_{34} - C_{40} (F4)	mg/kg	<100	<100	<100	<100	<100		<100		<100		<100		10,000	2,80
PAHs	5, 5														,
Naphthalene	mg/kg	<0.1	<0.1		<0.1			<0.1		<0.1		<0.1		3	170
Benzo(a)pyrene	mg/kg	0.2	0.07		< 0.05			< 0.05		0.08		0.08			0.7
Benzo(a)pyrene TEQ	mg/kg	< 0.5	< 0.5		< 0.5			< 0.5		< 0.5		< 0.5		4	
Total PAHs	mg/kg	1.5	0.37		NIL(+)VE			NIL(+)VE		0.08		0.43		400	
OCPs	iiig, kg	110	0107		1112(1)12					0100		0110			
Heptachlor	mg/kg	<0.1						<0.1		<0.1				10	
Aldrin	mg/kg	<0.1						<0.1		<0.1					
Dieldrin	mg/kg	<0.1						<0.1		<0.1				10	
Endrin	mg/kg	<0.1						<0.1		<0.1				20	
gamma-Chlordane	mg/kg	<0.1						<0.1		<0.1					
alpha-chlordane	mg/kg	< 0.1		_				<0.1		<0.1				90	
Endosulfan I	mg/kg	<0.1						<0.1		<0.1					
Endosulfan II	mg/kg	< 0.1						<0.1		<0.1				400	
HCB	mg/kg	<0.1 <0.1						<0.1 <0.1		<0.1 <0.1				15	
Methoxychlor		<0.1 <0.1						<0.1 <0.1		<0.1 <0.1				500	
pp-DDE	mg/kg	<0.1 <0.1						<0.1 <0.1		<0.1 <0.1				500	
	mg/kg													600	
pp-DDD	mg/kg	<0.1						< 0.1		< 0.1				600	
pp-DDT	mg/kg	<0.1						<0.1		<0.1					180
PCBs								<u></u>		<u> </u>				-	
Total PCBs	mg/kg	<0.1						<0.1		<0.1				1	

TABLE NOTES:

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Analytical results which exceed any of the Ecological-based Investigation Levels (PILs) are shown as boxed text.



Sample ID		JL190717-01	JL190717-03	JL190717-04	JL190717-06	JL190717-07	JL190717-08	JL190717-09	JL190717-10	JL190717-11	JL190717-12	Site Accept	ance Criteria
	Location	BH201	BH201	BH201	BH202	Blind	BH202	BH202	BH202	BH203	BH203		
Analyte	Depth	0.05 – 0.15	0.7 – 0.8	1.0 – 1.1	0.25 – 0.35	Replicate	0.6 - 0.7	1.1 – 1.2	1.4 – 1.5	0.15 – 0.25	0.7 – 0.8	Health	Ecologica
	Туре	FILL	FILL	Clayey SAND	FILL	of '06'	FILL	FILL	Sandy CLAY	FILL	Clayey SAND		
Asbestos													
Asbestos Detected	-									No		0.04%	
Respirable Fibres	-									No		0.001%	
Metals													
Arsenic	mg/kg	8	5	<4	4	7	<4	6	4	14	11	500	100
Cadmium	mg/kg	0.9	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	150	
Chromium ¹	mg/kg	16	12	15	22	16	2	9	9	10	12	500	190
Copper	mg/kg	34	13	1	24	29	<1	9	11	8	2	30,000	35
Lead	mg/kg	590	74	14	9	12	1	43	29	65	13	1,200	1,100
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	< 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	120	_,
Nickel	mg/kg	14	9	2	27	24	<1	2	2	3	2	1,200	6
Zinc	mg/kg	250	75	21	30	39	2	40	11	94	51	60,000	95
BTEX	ing/itg	250	,,,	21	50	59	۷.	UT	11	דע	51	00,000	95
Benzene	mg/kg	<0.2	<0.2		<0.2	<0.2	<0.2		<0.2	<0.2		0.5	50
Toluene	mg/kg	<0.2	<0.2		<0.2	<0.2	<0.2		<0.2	<0.2		160	85
Ethylbenzene	mg/kg	<1	<1		<1	<1	<1		<1	<1		55	70
Total Xylenes	mg/kg	<2	<2		<2	<2	<2		<2	<2		40	45
	//	25			25	25	25			25			100
TRH $C_6 - C_{10}$ (F1)	mg/kg	<25	<25		<25	<25	<25		<25	<25		45	180
$\Gamma RH > C_{10} - C_{16} (F2)$	mg/kg	<50	<50		<50	<50	<50		<50	<50		110	120
TRH > C_{16} - C_{34} (F3)	mg/kg	790	<100		<100	<100	<100		<100	<100		2,500	300
TRH >C ₃₄ -C ₄₀ (F4)	mg/kg	480	<100		<100	<100	<100		<100	<100		10,000	2,800
PAHs													
Naphthalene	mg/kg	<1	<1		<1	<0.1	<1		<1	<1		3	170
Benzo(a)pyrene	mg/kg	<0.05	0.1		<0.05	<0.05	<0.05		0.05	<0.05			0.7
Benzo(a)pyrene TEQ	mg/kg	<0.5	<0.5		<0.5	<0.5	<0.5		<0.5	<0.5		4	
Total PAHs	mg/kg	0.5	1.3		<0.05	<0.05	<0.05		0.06	<0.05		400	
OCPs													
Heptachlor	mg/kg				<0.1	<0.1				<0.1		10	
Aldrin	mg/kg				<0.1	<0.1				<0.1		10	
Dieldrin	mg/kg				<0.1	<0.1				<0.1		10	
Endrin	mg/kg				<0.1	<0.1				<0.1		20	
gamma-Chlordane	mg/kg				<0.1	<0.1				<0.1		90	
alpha-chlordane	mg/kg				<0.1	<0.1				<0.1		50	
Endosulfan I	mg/kg				<0.1	<0.1				<0.1		400	
Endosulfan II	mg/kg				<0.1	<0.1				<0.1		400	
HCB	mg/kg				<0.1	<0.1				<0.1		15	
Methoxychlor	mg/kg				<0.1	<0.1				<0.1		500	
pp-DDE	mg/kg				< 0.1	< 0.1				<0.1			
pp-DDD	mg/kg				< 0.1	<0.1				< 0.1		600	
pp-DDT	mg/kg				<0.1	<0.1				<0.1			180
rr ·					.011	.011				-011			100
PCBs													

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Analytical results which exceed any of the Ecological-based Investigation Levels (PILs) are shown as boxed text.



Sample ID		BH204	BH204	BH205	BH205	BH206	BH206	BH207	BH207	BH208	BH208	Site Accept	ance Criteria
	Location	JL190717-14	JL190717-15	JL190717-16	JL190717-18	JL190717-19	JL190717-20	JL190717-21	JL190717-22	JL190717-24	JL190717-26		
Analyte	Depth	0.2 – 0.3	0.6 - 0.7	0.05 – 0.15	0.6 - 0.7	0.05 – 0.15	0.7 – 0.8	0.05 – 0.15	0.5 – 0.6	0.05 – 0.15	0.5 - 0.6	Health	Ecological
Anaryte	Туре	FILL	FILL	FILL	Sandy CLAY	TOPSOIL / FILL	SAND	TOPSOIL / FILL	Sandy CLAY	TOPSOIL / FILL	Sandy CLAY	ricalui	Leological
Asbestos													
Asbestos Detected	-			No						No		0.04%	
Respirable Fibres	-			No						No		0.001%	
Metals													
Arsenic	mg/kg	5	4	5	<4	5	<4	5	<4	6	<4	500	100
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	0.5	<0.4	<0.4	<0.4	0.7	<0.4	150	
Chromium ¹	mg/kg	12	9	12	3	11	2	11	5	14	8	500	190
Copper	mg/kg	11	8	26	4	19	<1	28	<1	45	3	30,000	35
Lead	mg/kg	42	86	180	3	170	6	280	9	190	8	1,200	1,100
Mercury	mg/kg	<0.1	< 0.1	0.2	< 0.1	< 0.1	<0.1	2	< 0.1	0.1	<0.1	120	
Nickel	mg/kg	2	3	3	<1	3	<1	3	1	6	2	1,200	6
Zinc	mg/kg	36	130	180	18	220	19	270	6	380	25	60,000	95
BTEX	3, 3												
Benzene	mg/kg	<0.2		<0.2	<0.2	<0.2		<0.2		<0.2		0.5	50
Toluene	mg/kg	<0.5		<0.5	<0.5	<0.5		<0.5		<0.5		160	85
Ethylbenzene	mg/kg	<1		<1	<1	<1		<1		<1		55	70
Total Xylenes	mg/kg	<2		<2	<2	<2		<2		<2		40	45
TRH	<u> </u>												-
TRH C ₆ - C ₁₀ (F1)	mg/kg	<25		<25	<25	<25		<25		<25		45	180
TRH > $C_{10} - C_{16}$ (F2)	mg/kg	<50		<50	<50	<50		<50		<50		110	120
TRH > C_{16} - C_{34} (F3)	mg/kg	<100		<100	<100	<100		<100		<100		2,500	300
TRH > C_{34} - C_{40} (F4)	mg/kg	<100		<100	<100	<100		<100		<100		10,000	2,800
PAHs													
Naphthalene	mg/kg	<1		<1	<1	<1		<1		<1		3	170
Benzo(a)pyrene	mg/kg	< 0.05		0.1	< 0.05	0.06		0.1		0.1			0.7
Benzo(a)pyrene TEQ	mg/kg	<0.5		<0.5	< 0.5	<0.5		<0.5		<0.5		4	
Total PAHs	mg/kg	< 0.05		1	< 0.05	0.06		0.76		0.83		400	
OCPs		(0100		-		0100		017 0		0.00			
Heptachlor	mg/kg	<0.1		<0.1						<0.1		10	
Aldrin	mg/kg	<0.1		<0.1						<0.1			
Dieldrin	mg/kg	<0.1		< 0.1						<0.1		10	
Endrin	mg/kg	<0.1		< 0.1						< 0.1		20	
gamma-Chlordane	mg/kg	<0.1		< 0.1						< 0.1			
alpha-chlordane	mg/kg	<0.1		< 0.1						< 0.1		90	
Endosulfan I	mg/kg	<0.1		< 0.1						<0.1			
Endosulfan II	mg/kg	<0.1		< 0.1						< 0.1		400	
HCB	mg/kg	<0.1		< 0.1						<0.1		15	
Methoxychlor	mg/kg	<0.1		< 0.1						<0.1		500	
pp-DDE	mg/kg	< 0.1		< 0.1						< 0.1		500	
pp-DDE pp-DDD	mg/kg	< 0.1		<0.1 <0.1						< 0.1		600	
pp-DDT		<0.1 <0.1		<0.1 <0.1						<0.1 <0.1		000	 180
PCBs	mg/kg	<0.1		<0.1						<0.1			100
Total PCBs	malka	-0.1		-0.1						-0.1			
TUIAL PUBS	mg/kg	<0.1		<0.1						<0.1		1	

TABLE NOTES:

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Analytical results which exceed any of the Ecological-based Investigation Levels (PILs) are shown as boxed text.





9.2 WATER FIELD PARAMETERS

Field parameters (*i.e.* pH, electrical conductivity, dissolved oxygen, redox potential, temperature, odour and other notable observations) were recorded during the sampling of groundwater within the existing and recently installed groundwater wells. A summary of the field parameter information, along with the standing water level readings, is provided in **Table 9**.

Within the monitoring wells, pH was slightly to moderately acidic, while the electrical conductivity was relatively low. The dissolved oxygen results were relatively low, which is common for groundwater.

Sample	e Identifi	cation	AC111116- 01	AC111116- 03	AC111116- 04	AC111116- 05	AC111116- 06
Analyte	Units	LOR	BH107	GW01	GW02	GW03	BH102
Standing Water Level	m BGS	0.01	1.78	2.21	2.13	1.34	1.28
pН	pH units	0.01	4.88	6.18	6.09	6.47	5.86
Electrical Conductivity	µS/cm	0.01	1093	685	620	734	1048
Temperature	°C	0.1	22.5	21.7	22.5	25.0	22.0
Redox Potential	mV	1	-91.0	-107.5	-80.3	-69.8	-55.3
Dissolved Oxygen	mg/L	0.01	2.42	0.67	1.06	2.47	1.60

TABLE 9: Groundwater Field Data Results

9.3 WATER ANALYTICAL RESULTS

Groundwater from the five monitoring wells were analysed for dissolved metals, TRH, BTEX, PAHs and Phenols. The laboratory results are provided in the laboratory reports in **Appendix I**, while the tabulated results are provided in **Table 10** and summarised below.

9.3.1 *Metals*

The concentration of dissolved metals in all samples was below the GAC with the exception of zinc for samples AC111116-01/02, AC111116-04 & AC111116-06. The concentrations of dissolved zinc was 34mg/L, 10mg/L and 25mg/L respectively. It is noted that the GAC for zinc provided in Table 5, and reiterated in Table 8, relates to soft water (approximately 30 mg/L CaCo3 or less) and the GAC increases with increasing water hardness as seen below.



Sample ID	Sample Concentration (µg/L)	`First Pass' GAC (µg/L)	Hardness (mg.CaCO ₃ /L)	Actual GAC (µg/L)	
		Zinc			
AC111116-01	34	8	140	29.6	
AC111116-04	10	8	150	31.4	
AC111116-06	25	8	200	40.1	

When taking into consideration hardness, only one sample (AC111116-01) exceeded the GAC. Based on the analytical results, GEE considers that the elevated zinc concentration at this location (BH107) does not pose a significant contamination issue for the proposed development because:

- ◊ The groundwater from the site was collected from a stratigraphy comprising sandstone and according to Hem (1989 – reference 16), the concentrations of the zinc is commensurate with naturally occurring background concentrations.
- The GAC is the expected water quality at the 'Point of use' or 'discharge' from groundwater into a surface body of water and the nearest water body is Wolli Creek, approximately 350m north of the site. Additionally, the concentrations were only marginally above the GAC and significant dilution is expected upon entering the nearest surface body of water,
- The concentrations of zinc were higher in the up-gradient well compared to the down-gradient well which suggests that the elevated metals are from off-site,
- No significant source of metal contamination was identified in the fill and natural soils across the site, and
- The concentrations detected are commensurate with metal concentrations within the groundwater across the Sydney region.

In summary the metals are not considered to be a groundwater contamination issue at the site.

9.3.2 TRH and BTEX

The concentration of TRH and BTEX in the groundwater was less than the GAC. However, given the concentrations and the hydrocarbon odour noted during sampling, it is likely that groundwater has been slightly impacted by TRH and BTEX, particularly at the north-eastern portion of the site. Nonetheless, given the analytical results, TRH and BTEX are not considered a groundwater contamination issue at the site.



9.3.3 PAHs

The concentration of PAHs in the groundwater was less than the GAC. This suggests that PAHs are not a groundwater contamination issue at the site.

9.3.4 Phenols

Phenols were water sampled from each well were all less than the GAC. These results suggest that Phenols do not pose a contamination issue for groundwater beneath the site.



Sample Da	ate	11/09/2016	11/09/2016	11/09/2016	11/09/2016	11/09/2016	11/09/2016	Groundwater
Sample Identif	fication	AC111116-01	AC111116-02	AC111116-03	AC111116-04	AC111116-05	AC111116-06	Assessment Criteria
Analyte	Units	BH107	Blind Replicate of '01'	GW01	GW02	GW03	BH102	(GAC) ¹
				Dissolved Metals				
Arsenic	µg/L	<1	<1	<1	12	1	5	13
Cadmium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2
Chromium	µg/L	<1	<1	<1	<1	<1	<1	1
Copper	µg/L	<1	<1	<1	<1	<1	<1	1.4
Lead	µg/L	1	1	1	<1	<1	2	3.4
Mercury	µg/L	<0.05	<0.05	< 0.05	<0.05	<0.05	<0.05	0.06
Nickel	µg/L	10	10	2	2	<1	6	11
Zinc	µg/L	32	34	3	10	3	25	8
				PAHs				-
Naphthalene	µg/L	<1	<1	<1	<1	<1	<1	16
Phenanthrene	µg/L	<1	<1	<1	<1	<1	<1	2
Anthracene	µg/L	<1	<1	<1	<1	<1	<1	0.4
Fluoranthene	µg/L	<1	<1	<1	<1	<1	<1	1.4
Benzo(a)pyrene	µg/L	<1	<1	<1	<1	<1	<1	0.2
Benzo(a)pyrene TEQ	µg/L	<5	<5	<5	<5	<5	<1	
Total (+VE) PAHs	µg/L	NIL(+)VE	NIL(+)VE	NIL(+)VE	NIL(+)VE	NIL(+)VE	NIL(+)VE	
		-		BTEX				-
Benzene	µg/L	<1	<1	1	<1	<1	<1	800
Toluene	µg/L	<1	<1	<1	<1	<1	<1	180
Ethylbenzene	µg/L	<1	<1	<1	<1	<1	<1	80
m+p-xylene	µg/L	<2	<2	<2	<2	<2	<2	200
o-xylene	µg/L	<1	<1	<1	<1	<1	<1	350
	•	-		TRH				
vTPH C ₆ - C ₁₀ (F1)	µg/L	<10	<10	130	130	<10	<10	1,000
TRH > C_{10} - C_{16} (F2)	µg/L	<50	<50	290	560	<50	<50	1,000
TRH > C_{16} - C_{34} (F3)	µg/L	<100	<100	<100	<100	<100	<100	
TRH >C ₃₄ -C ₄₀ (F4)	µg/L	<100	<100	<100	<100	<100	<100	
	1			Phenols				1
Total Phenolics	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.32
	1			Other Tests				1
Hardness	mg.CaCO3/L	140	140	160	150	330	200	

TABLE 10 - Summary of Analytical Results (Groundwater)

Notes:

-- No Criteria Established / Not Analysed

LOR = Limit of Reporting

NL = Not Limiting



10 SITE CHARACTERISATION

A summary of the information obtained and results of this assessment is presented below.

10.1 SITE HISTORY AND POTENTIAL FOR CONTAMINATION

The historical information indicates that the site was originally part of a larger parcel of land (likely rural/residential) before being progressively subdivided between 1914 and 1940 while owned by NSW Realty Co Limited. Initially the southern part of the site (88 and 90 New Illawarra Road and 311A Bexley Road) was subdivided and sold as two allotments in 1918 to George and Annie Gibbons and has since been owned by various individuals. The allotments extended between New Illawarra Road to the west and Bexley Road to the east and were further subdivided in the late 1960s to create the residential allotment known as 311A Bexley Road (Lot 5 DP508629). Historical aerial photographs suggest that this part of the site has predominately been used for residential purposes (low density). However, the dwelling at No. 90 New Illawarra Road is also known to have been partly used for commercial purposes, including a Butchers in the 1970s and 1980s.

The central part of the site (94 New Illawarra Road and 311 Bexley Road) was subdivided by NSW Realty Co Limited and sold off in 1919 as two allotments which currently exist. Historical aerial photographs indicate that this part of the site has been occupied by residential dwellings (low density) and associated garages, sheds and pools.

The northern part of the site (including 307 – 309 Bexley Road and 96 New Illawarra Road) was sold by NSW Realty Co Limited in 1940 and subdivided into the existing allotments by 1954. 96 New Illawarra Road (Lot A in DP388204) was developed into a dwelling circa 1954, while the remaining part of the land was developed into a service station (including mechanical repair workshop) soon after (late 1950s).

Of particular significance to this investigation are the activities associated with the service station at the northern end of the site, specifically the storage and use of fuels and mechanical repair of vehicles.

10.2 SOIL ASSESSMENT

Soil conditions across the site were assessed at seventeen borehole locations positioned in accessible areas across the site and targeting areas of potential contamination. The



number of sampling points exceeds the minimum number of sampling points required for adequate site characterisation as defined by the EPA NSW and Australian Standards, and it is the opinion of GEE that the number of sampling points was sufficient to support the planning proposal.

The majority of the boreholes drilled by GEE were dry during drilling and also upon completion. Exceptions included some seepage water encountered below 1.6m in borehole BH102 and slight seepage noted between a depth of 2.0m and 2.8m depth within borehole BH107.

The subsurface conditions, as observed in the boreholes, typically comprised fill material over sandy clay soil which was underlain by sandstone bedrock. The thickness of the topsoil and/or fill unit ranged from 0.3m to 2.7m depth while the depth to the bedrock formation ranged from 0.75m to 2.7m depth.

During the drilling of boreholes, there were no unusual odours (that could be potentially associated with contamination) noted. Additionally, no potentially Asbestos Containing Materials (ACM) was observed below ground during sampling and logging.

GEE submitted a total of 41 primary soil samples from the 17 boreholes to Envirolab for NATA accredited laboratory analysis of metals (arsenic, cadmium, chromium, copper, nickel, lead, mercury and zinc), TRH, BTEX, PAHs, OCPs, PCBs and asbestos. The analytical results were compared against relevant set of ecological and health-based Site Acceptance Criteria (SAC) appropriate for the proposed land-use (high density residential).

In summary, the fill and natural soil was found to be free of significant contamination which would impact on the proposed future high density development of the site.

10.3 GROUNDWATER CONDITIONS

Groundwater conditions were assessed using three pre-existing monitoring wells (GW01 to GW03) and three recently installed monitoring wells (BH102, BH105, BH107).

The stabilised level of groundwater within the wells installed within BH102, BH107, GW01, GW02 and GW03 was measured on the 14th November 2016 (approximately 13 days after installation of the wells) at depths of 1.28m, 1.78m, 2.21m, 2.13m and 1.34m bgs respectively. The well within borehole BH105 was dry to a depth of 2.4m



bgs. Water within the wells was slightly to moderately acidic (4.5<pH<6.5) and low in conductivity.

The water encountered in the wells is considered to be perched water flowing along the soil/bedrock interface and such water is normally significantly influenced by rainfall events and therefore its presence can be intermittent. This is supported by the fact that the well installed within borehole BH105 was dry to a depth of 2.4m.

Taking into account the approximate surface elevation at each of the well locations, it is inferred that the perched water is following the regional topography and flowing in a northerly to north-easterly direction. Although the flow direction is expected to have been significantly altered by the presence of UST tankpit excavations in the northern end of the site.

To assess the presence of contamination within the groundwater, a sample of water was collected and submitted to Envirolab for NATA accredited analysis of dissolved metals (arsenic, cadmium, chromium, copper, nickel, lead, zinc and mercury), TRH, BTEX, PAHs and Phenols. The analytical results were then compared against a set of Groundwater Assessment Criteria (GAC) considered appropriate for the environmental setting of the site. In summary so significant contamination was found.



11 CONCLUSION AND RECOMMENDATIONS

Geo-Environmental Engineering Pty Ltd (GEE) was commissioned by Mr Tony Soueid to undertake a preliminary and detailed Environmental Site Assessment (ESA) at 307 - 311 Bexley Road & 88 - 96 New Illawarra Road, Bexley North, New South Wales.

The ESA was required to support a planning proposal which relates to the proposed rezoning of the site to R4 – High Density Residential. The objective of this assessment was to address the requirements of Council's Contaminated Land Policy (reference 1) and the provisions of the *State Environmental Planning Policy No. 55 – Remediation of Land* (reference 2) by providing a preliminary assessment of contamination and in turn an assessment of the suitability of the site for the proposed land-use and possible constraints on future site development.

The scope of works completed for the ESA comprised a:

- ♦ A review of the previous investigation report,
- Review of the environmental and physical setting in which the site lies, including geology, hydrogeology and topography,
- Review of the history of the site using readily available records and historical aerial photographs,
- Detailed site inspection for potential sources of contamination, and
- ♦ A detailed sampling and analysis program to characterise potential soil and groundwater contamination across the site.

The detailed sampling and analysis program completed by GEE identified no significant soil or groundwater contamination associated with the site which would impact on the proposed future high density development of the site. Notwithstanding this, there is an operational petrol station located at the southern end of the site and it was impossible to investigate immediately adjacent and beneath the Underground Petroleum Storage System (UPSS).

Based on observations made during the field investigations, the sampling and analysis program conducted at the site (including that completed previously by STS), the proposed land-use and with respect to relevant statutory guidelines, GEE conclude that the site can be made suitable for the proposed land-use described in the planning proposal, subject to the excavation, removal and validation of the existing UPSS. In accordance with Council's Contaminated Lands Policy (reference 1) and SEPP 55



(reference 2), a Remedial Action Plan (RAP) should be prepared which details the methodology for the excavation, removal and validation of the existing UPSS.



12 GENERAL LIMITATIONS OF THIS REPORT

This report has been prepared in general accordance with guidelines endorsed by the NSW Office of Environment and Heritage, and the conclusions of this report are based on a limited scope of work described herein, which was considered appropriate based on the same regulatory guidelines.

It is the intention of GEE that the report reflect actual subsurface site conditions, and the contamination status, of the entire site (within the depths investigated). However, regardless of the level of investigation undertaken, there will always be uncertainty when dealing with land contamination. For instance, the sampling points (boreholes and/or testpits) represent a relatively small portion of the site, and ground conditions may vary between sampling locations. The cause of such variation may include, but are not limited to, complex geological settings, the fate and transport characteristics of certain chemicals, the distribution of existing contamination, physical limitations imposed by the location of utilities and other man-made structures, and the limitations of assessment technologies.

Furthermore, the laboratory analytical results contained in this report, upon which conclusions are drawn, relate only to a discrete sample submitted for analysis. Also, not all chemicals have been assessed as part of this investigation. The chemical analytes targeted by this investigation are based on either the site's history, or represent a suite of common soil contaminants.

This report is based on site conditions which existed at the time of the field investigation and subsurface conditions may change over time, either through natural processes, or via ongoing activities on the site. Should additional information become available regarding conditions at the site (such as during construction), including evidence of previously unknown sources of contamination, then additional advice should be sought from GEE.

Finally, this report has been prepared for use by the client who has commissioned the works in accordance with the project brief only. Any reliance assumed by third parties on this report shall be at their own risk. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by GEE.



13 REFERENCES

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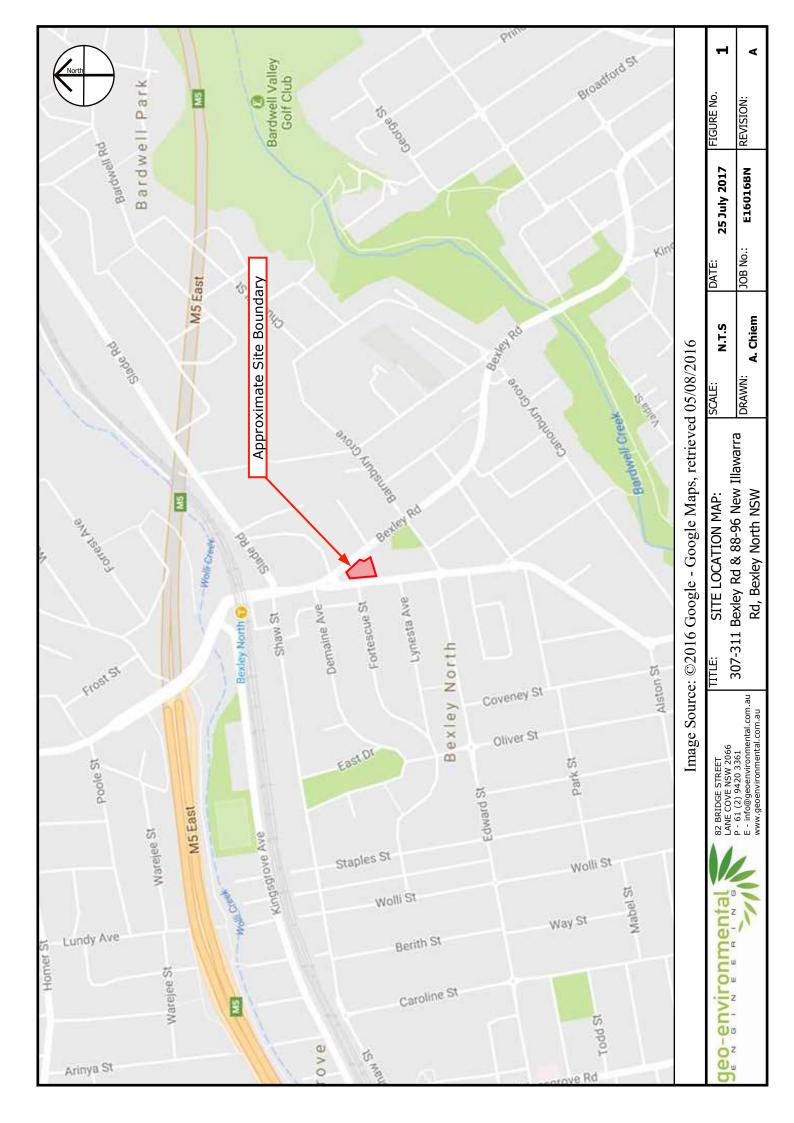
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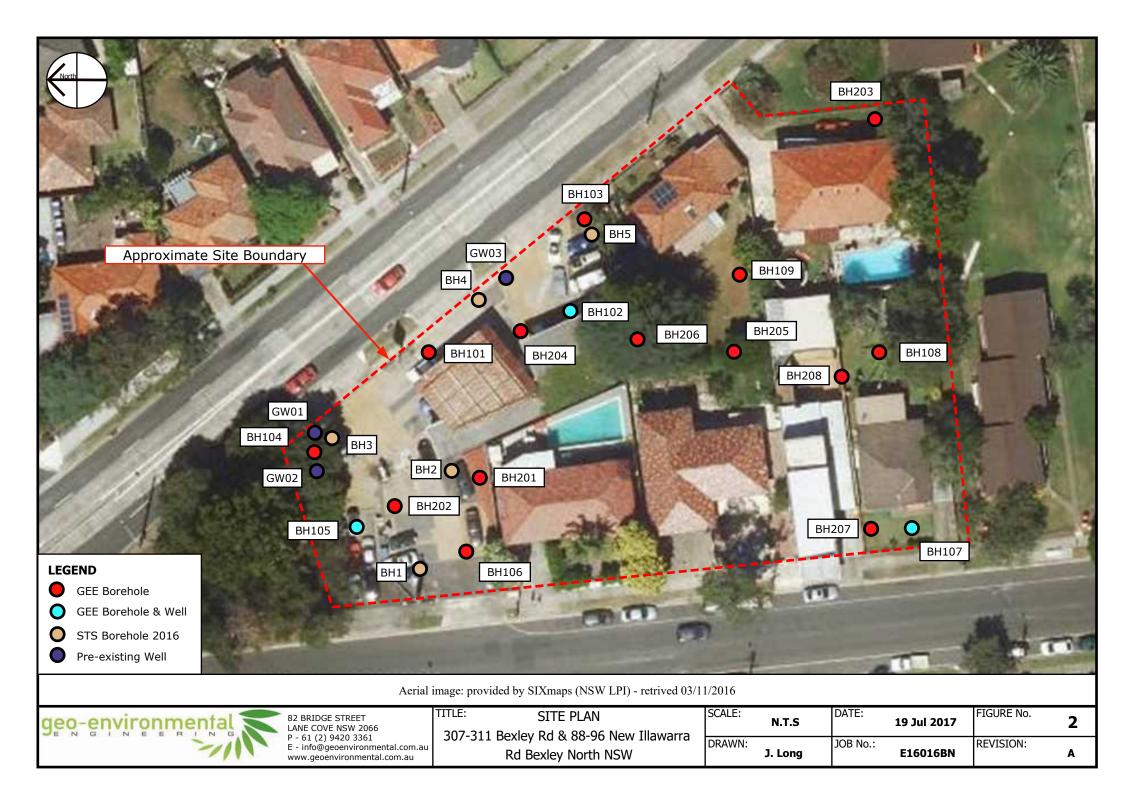
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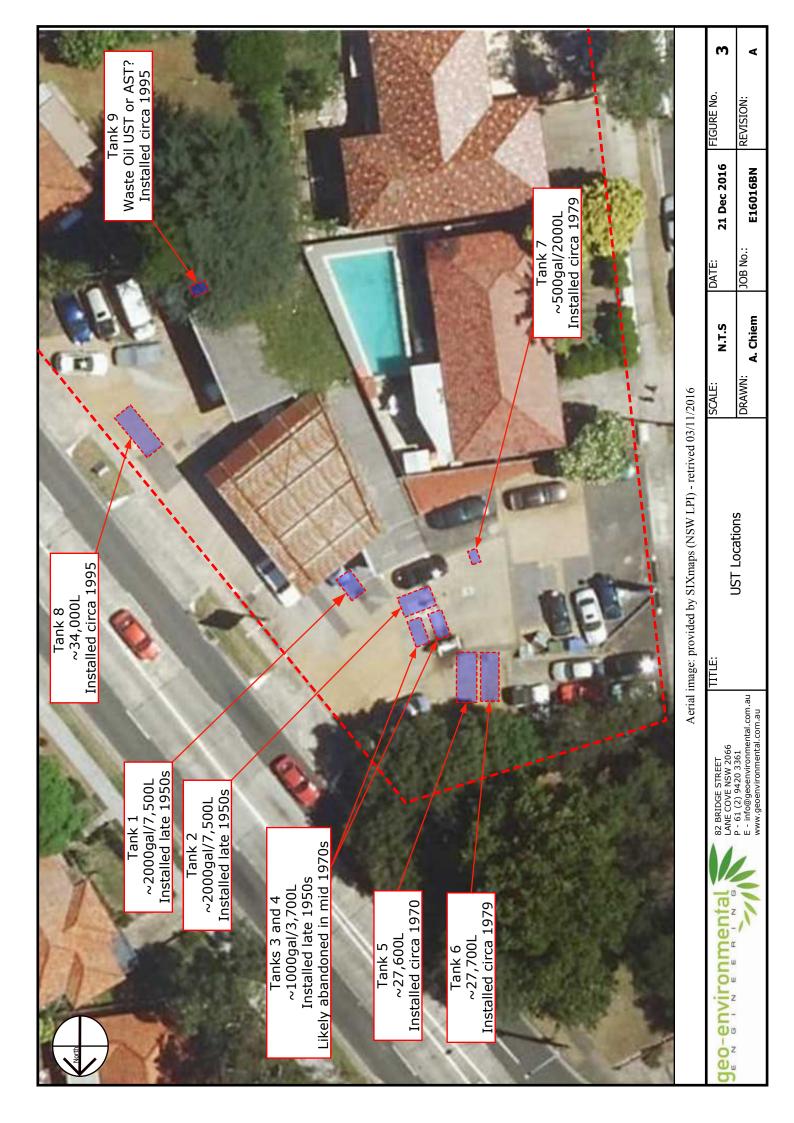


FIGURES

1 – Site Location Map
 2 – Site Plan
 3 – UST Locations





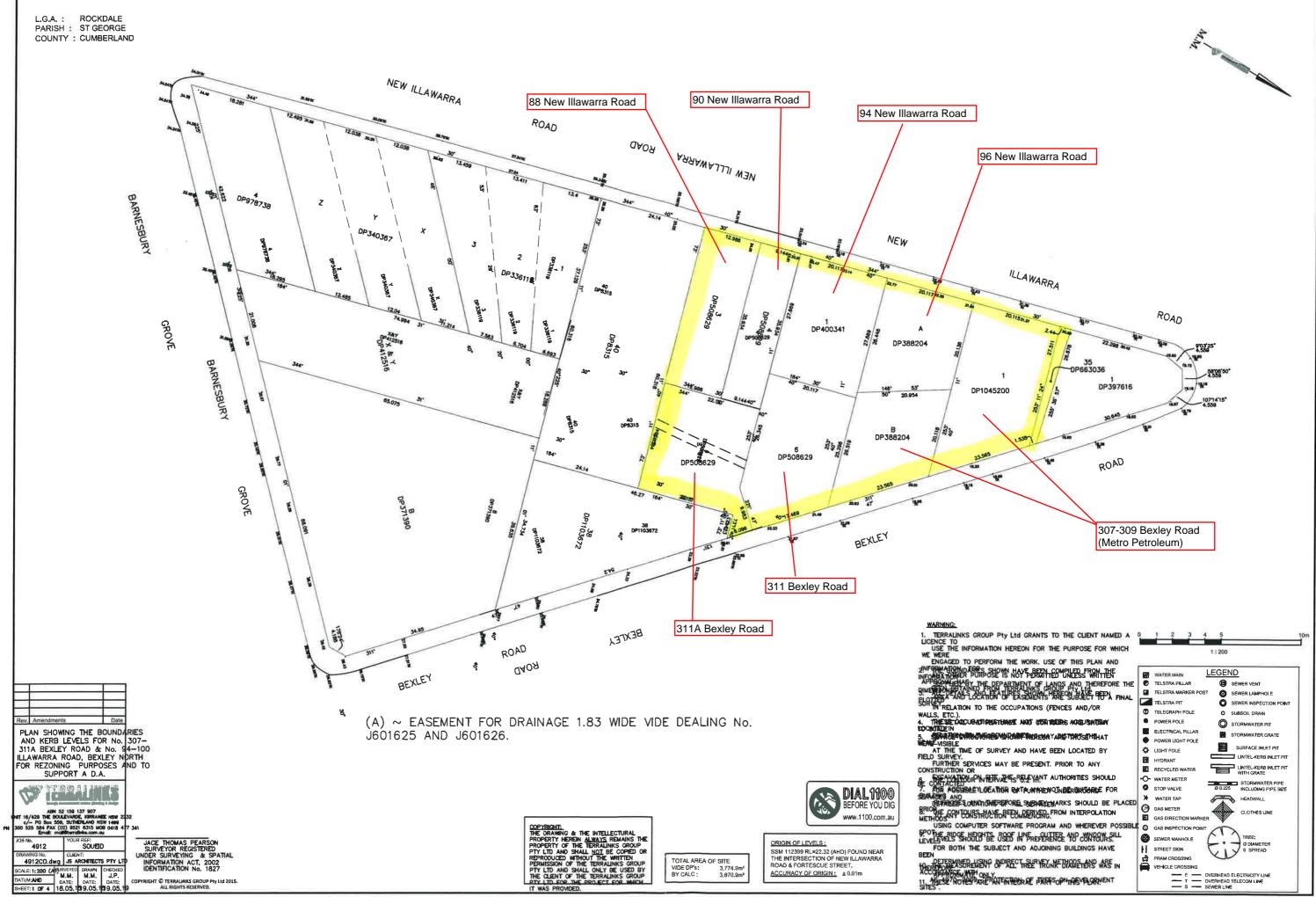




APPENDIX A

SITE SURVEY

E16016BN-R03F (Rev 0.2)



A1



APPENDIX B

LOTSEARCH REPORT

E16016BN-R03F (Rev 0.2)



Environmental Risk and Planning Report

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

Report Buffer: 1000m

Report Date: 13 Oct 2016 13:13:08

Disclaimer:

The purpose of this report is to provide an overview of some of the site history, environmental risk and planning information available, affecting an individual address or geographical area in which the property is located. It is not a substitute for an on-site inspection or review of other available reports and records. It is not intended to be, and should not be taken to be, a rating or assessment of the desirability or market value of the property or its features. You should obtain independent advice before you make any decision based on the information within the report. The detailed terms applicable to use of this report are set out at the end of this report.

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Location Confidences

Where Lotsearch has had to georeference features from supplied addresses, a location confidence has been assigned to the data record. This indicates a confidence to the positional accuracy of the feature. Where applicable, a code is given under the field heading "LC" or "LocConf". These codes lookup to the following location confidences:

LC Code	Location Confidence
1	Georeferenced to the site location / premise or part of site
2	Georeferenced with the confidence of the general/approximate area
3	Georeferenced to the road or rail
4	Georeferenced to the road intersection
5	Feature is a buffered point
6	Land adjacent to Georeferenced Site
7	Georeferenced to a network of features

Dataset Listing

Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	Land and Property Information	13/10/2016	13/10/2016	Daily	-	-	-
Topographic Data	Land and Property Information	10/04/2015	01/04/2015	As required	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	10/10/2016	30/08/2016	Monthly	0	0	0
Contaminated Land: Records of Notice	Environment Protection Authority	10/10/2016	10/10/2016	Monthly	0	0	0
Former Gasworks	Environment Protection Authority	10/10/2016	10/05/2013	Monthly	0	0	0
National Waste Management Site Database	Geoscience Australia	06/07/2016	15/11/2012	Quarterly	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	20/09/2016	20/09/2016	Monthly	0	0	2
Delicensed POEO Activities still Regulated by the EPA	Environment Protection Authority	20/09/2016	20/09/2016	Monthly	0	0	0
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	20/09/2016	20/09/2016	Monthly	0	0	4
UPSS Environmentally Sensitive Zones	Department of Environment, Climate Change and Water (NSW)	14/04/2015	12/01/2010	As required	1	1	1
UBD Business to Business Directory 1991	Hardie Grant			Not required	1	3	3
UBD Business Directory 1991 Motor Garages/Service Stations	Hardie Grant			Not required	0	1	1
UBD Business Directory 1970	Hardie Grant			Not required	2	29	53
UBD Business Directory 1970 Drycleaners & Motor Garages/Service Stations	Hardie Grant			Not required	1	4	9
UBD Business Directory 1950	Hardie Grant			Not required	1	8	10
UBD Business Directory 1950 Drycleaners & Motor Garages/Service Stations	Hardie Grant			Not required	0	1	5
Points of Interest	Land and Property Information	10/04/2015	01/04/2015	Annually	0	1	45
Tanks (Areas)	Land and Property Information	10/04/2015	01/04/2015	Annually	0	0	0
Tanks (Points)	Land and Property Information	10/04/2015	01/04/2015	Annually	0	0	0
Major Easements	Land and Property Information	11/06/2014	11/06/2014	As required	0	0	8
State Forest	Land and Property Information	11/04/2016	23/01/2015	As required	0	0	0
NSW National Parks and Wildlife Service Reserves	NSW Office of Environment and Heritage	11/04/2016	31/12/2015	Annually	0	0	1
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1	1	1
Groundwater Boreholes	NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corporation; Commonwealth of Australia (Bureau of Meteorology) 2015	21/03/2016	01/12/2015	Annually	0	0	21
Geological Units 1:100,000	NSW Department of Industry, Resources & Energy	20/08/2014		None planned	2	-	3
Geological Structures 1:100,000	NSW Department of Industry, Resources & Energy	20/08/2014		None planned	0	-	0
Naturally Occurring Asbestos Potential	NSW Department of Industry, Resources & Energy	04/12/2015	24/09/2015	Unknown	0	0	0
Soil Landscapes	NSW Office of Environment and Heritage	12/08/2014		None planned	1	-	3
Standard Local Environmental Plan Acid Sulfate Soils	NSW Planning and Environment	07/10/2016	07/10/2016	As required	1	-	-
Dryland Salinity Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	0	0	0
Mining Subsidence Districts	Land and Property Information	13/10/2016	13/10/2016	As required	0	0	0
SEPP 14 - Coastal Wetlands	NSW Planning and Environment	17/12/2015	24/10/2008	Annually	0	0	0

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	No. Features Onsite	No. Features within 100m	No. Features within Buffer
SEPP 26 - Littoral Rainforest	NSW Planning and Environment	17/12/2015	05/02/1988	Annually	0	0	0
SEPP 71 - Coastal Protection	NSW Planning and Environment	17/12/2015	01/08/2003	Annually	0	0	0
SEPP Major Developments 2005	NSW Planning and Environment	09/03/2013	25/05/2005	Under Review	0	0	0
SEPP Strategic Land Use Areas	NSW Planning and Environment	06/07/2016	28/01/2014	Annually	0	0	0
Local Environmental Plan - Land Zoning	NSW Planning and Environment	03/10/2016	04/08/2016	Quarterly	1	8	66
Local Environmental Plan - Minimum Subdivision Lot Size	NSW Planning and Environment	03/10/2016	04/08/2016	Quarterly	1	-	-
Local Environmental Plan - Height of Building	NSW Planning and Environment	03/10/2016	04/08/2016	Quarterly	1	-	-
Local Environmental Plan - Floor Space Ratio	NSW Planning and Environment	03/10/2016	04/08/2016	Quarterly	1	-	-
Local Environmental Plan - Land Application	NSW Planning and Environment	03/10/2016	04/08/2016	Quarterly	1	-	-
Local Environmental Plan - Land Reservation Acquisition	NSW Planning and Environment	03/10/2016	04/08/2016	Quarterly	0	-	-
State Heritage Items	NSW Planning and Environment	03/10/2016	12/03/2015	Quarterly	0	0	0
Local Heritage Items	NSW Planning and Environment	03/10/2016	04/08/2016	Quarterly	0	0	10
Bushfire Prone Land	NSW Rural Fire Service	18/08/2016	12/08/2016	Quarterly	0	0	0
Native Vegetation of the Sydney Metropolitan Area	NSW Office of Environment and Heritage	08/10/2014	11/10/2013	As required	1	1	6
RAMSAR Wetlands	Commonwealth of Australia Department of the Environment	08/10/2014	24/06/2011	As required	0	0	0
ATLAS of NSW Wildlife	NSW Office of Environment and Heritage	13/10/2016	13/10/2016	Daily	-	-	-





Contaminated Land & Waste Management Facilities

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

List of NSW contaminated sites notified to EPA

Records from the NSW EPA Contaminated Land list within the report buffer:

Map Id	Site	Address	Suburb	Activity	EPA site management class	Status	Dist	Direction	LC
N/A	No records in buffer								

The values within the EPA site management class in the table above, are given more detailed explanations in the table below:

EPA site management class	Explanation
Contamination being managed via the planning process (EP&A Act)	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. The contamination of this site is managed by the consent authority under the Environmental Planning and Assessment Act 1979 (EP&A Act) planning approval process, with EPA involvement as necessary to ensure significant contamination is adequately addressed. The consent authority is typically a local council or the Department of Planning and Environment.
Contamination currently regulated under CLM Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). Management of the contamination is regulated by the EPA under the CLM Act. Regulatory notices are available on the EPA's Contaminated Land Public Record of Notices.
Contamination currently regulated under POEO Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. Management of the contamination is regulated under the Protection of the Environment Operations Act 1997 (POEO Act). The EPA's regulatory actions under the POEO Act are available on the POEO public register.
Contamination formerly regulated under the CLM Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). The contamination was addressed under the CLM Act.
Contamination formerly regulated under the POEO Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed under the Protection of the Environment Operations Act 1997 (POEO Act).
Contamination was addressed via the planning process (EP&A Act)	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed by the appropriate consent authority via the planning process under the Environmental Planning and Assessment Act 1979 (EP&A Act).
Ongoing maintenance required to manage residual contamination (CLM Act)	The EPA has determined that ongoing maintenance, under the Contaminated Land Management Act 1997 (CLM Act), is required to manage the residual contamination. Regulatory notices under the CLM Act are available on the EPA's Contaminated Land Public Record of Notices.
Regulation being finalised	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997. A regulatory approach is being finalised.
Regulation under the CLM Act not required	The EPA has completed an assessment of the contamination and decided that regulation under the Contaminated Land Management Act 1997 is not required.
Under assessment	The contamination is being assessed by the EPA to determine whether regulation is required. The EPA may require further information to complete the assessment. For example, the completion of management actions regulated under the planning process or Protection of the Environment Operations Act 1997. Alternatively, the EPA may require information via a notice issued under s77 of the Contaminated Land Management Act 1997 or issue a Preliminary Investigation Order.

NSW EPA Contaminated Land List Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

Contaminated Land & Waste Management Facilities

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

Contaminated Land: Records of Notice

Record of Notices within the report buffer:

Map Id	Area No	Name	Address	Suburb	Notices	Distance	Direction	LC
N/A	No records in buffer							

Contaminated Land Records of Notice Data Source: Environment Protection Authority © State of New South Wales through the Environment Protection Authority Terms of use and disclaimer for Contaminated Land: Record of Notices, please visit http://www.epa.nsw.gov.au/clm/clmdisclaimer.htm

Former Gasworks

Former Gasworks within the report buffer:

Map Id	Location	Council	Further Info	Distance	Direction	LC
N/A	No records in buffer					

Former Gasworks Data Source: Environment Protection Authority © State of New South Wales through the Environment Protection Authority

National Waste Management Site Database

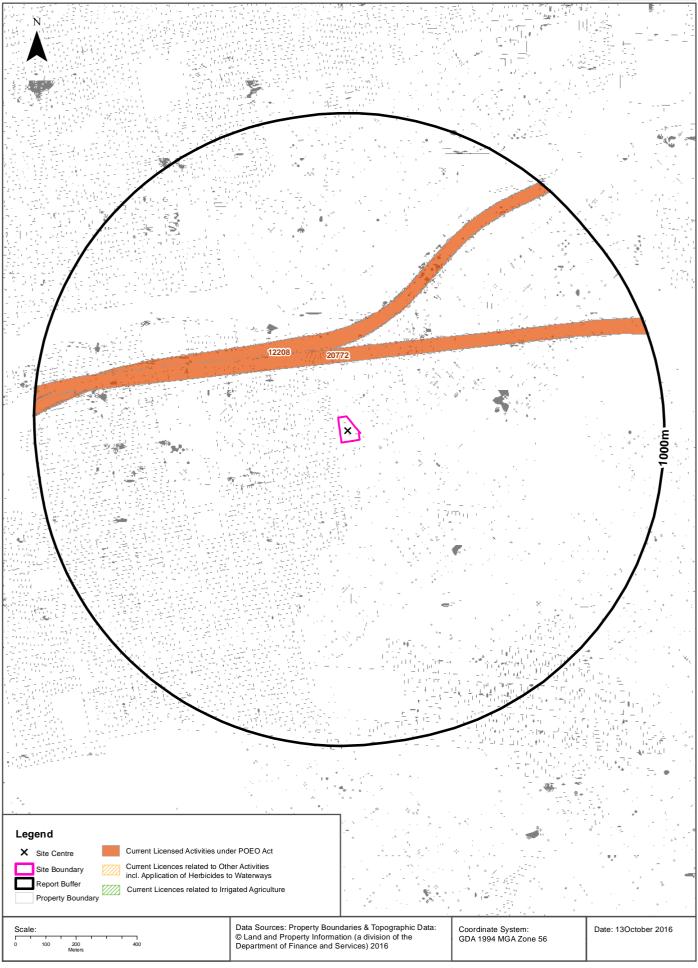
Sites on the National Waste Management Site Database within the report buffer:

Site Id	Owner	Name	Address	Suburb	Postcode	Landfill	Reprocess	Transfer	Distance	Direction	LC
N/A	No records in buffer										

Wate Management Facilities Data Source: Australian Governement Geoscience Australia Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Current EPA Licensed Activities





EPA Activities

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

Licensed Activities under the POEO Act 1997

Licensed activities under the Protection of the Environment Operations Act 1997, within the report buffer:

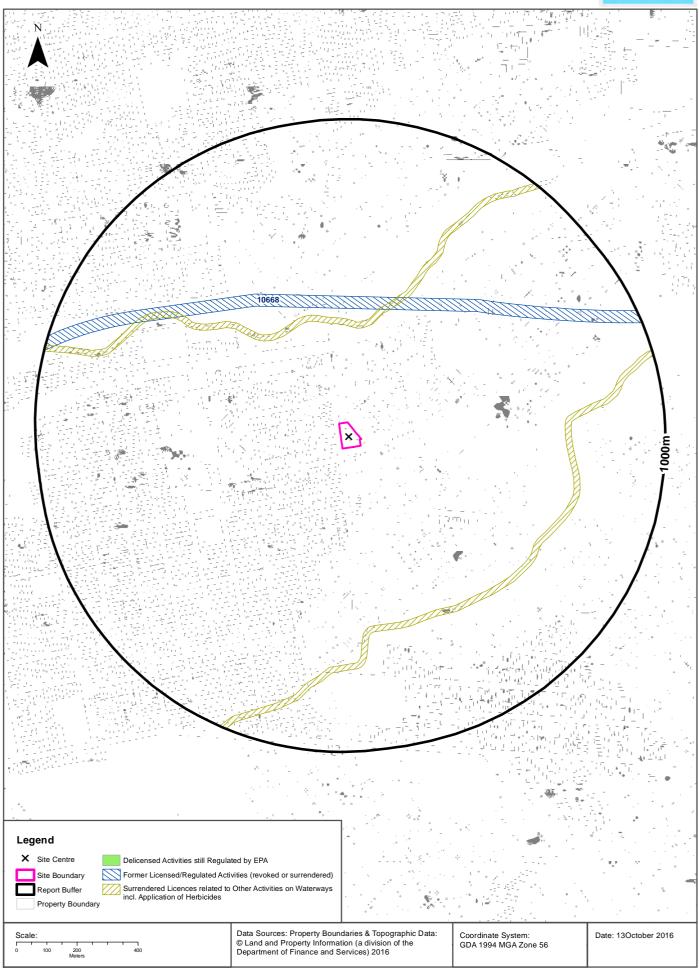
EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
20772	CPB CONTRACTORS PTY LIMITED		Between Beverly Hills and St Peters, BEVERLY HILLS, NSW 2209		Road construction	3	180m	North East
12208	SYDNEY TRAINS		PO BOX K349, HAYMARKET, NSW 1238		Railway systems activities	3	226m	North West

POEO Licence Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

Delicensed & Former Licensed EPA Activities





EPA Activities

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

Delicensed Activities still regulated by the EPA

Delicensed activities still regulated by the EPA, within the report buffer:

Licence No	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
N/A	No records in buffer							

Delicensed Activities Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

Former Licensed Activities under the POEO Act 1997, now revoked or surrendered

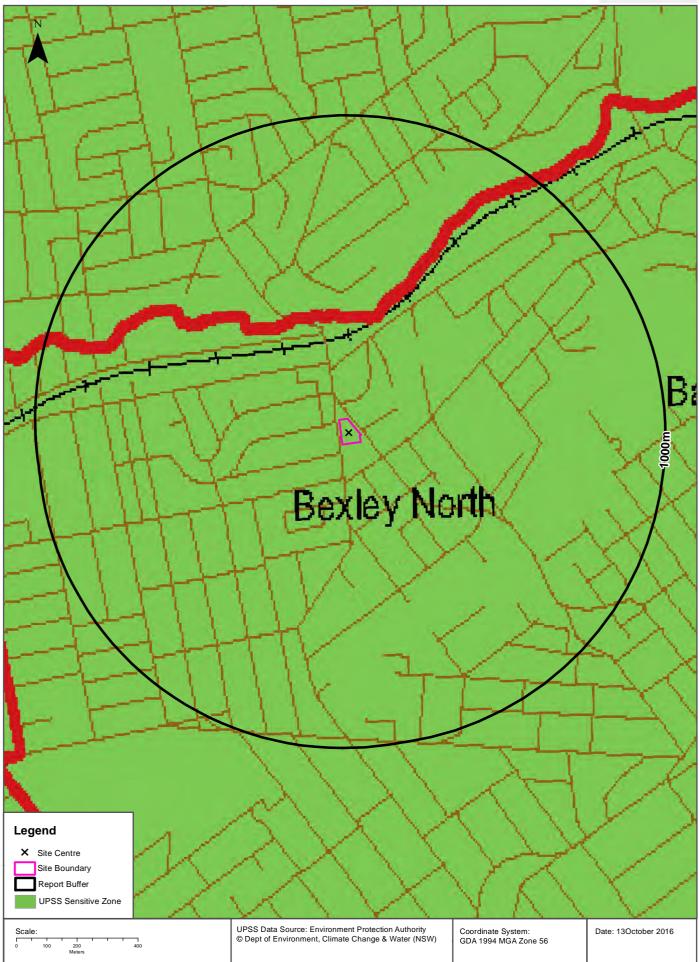
Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the report buffer:

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	7	312m	-
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	7	312m	-
6630	SYDNEY WEED & PEST MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW - PROSPECT, NSW, 2148	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	7	312m	-
10668	BILFINGER BERGER PROJECT INVESTMENTS PTY LTD	M5 EAST BETWEEN KINGS GEORGES RD, BEVERLY HILLS & GENERAL HOLMES DRIVE, KYEEMAGH, EARLWOOD, NSW 2206	Surrendered	05/06/2001	Road construction	3	376m	East

Former Licensed Activities Data Source: Environment Protection Authority © State of New South Wales through the Environment Protection Authority

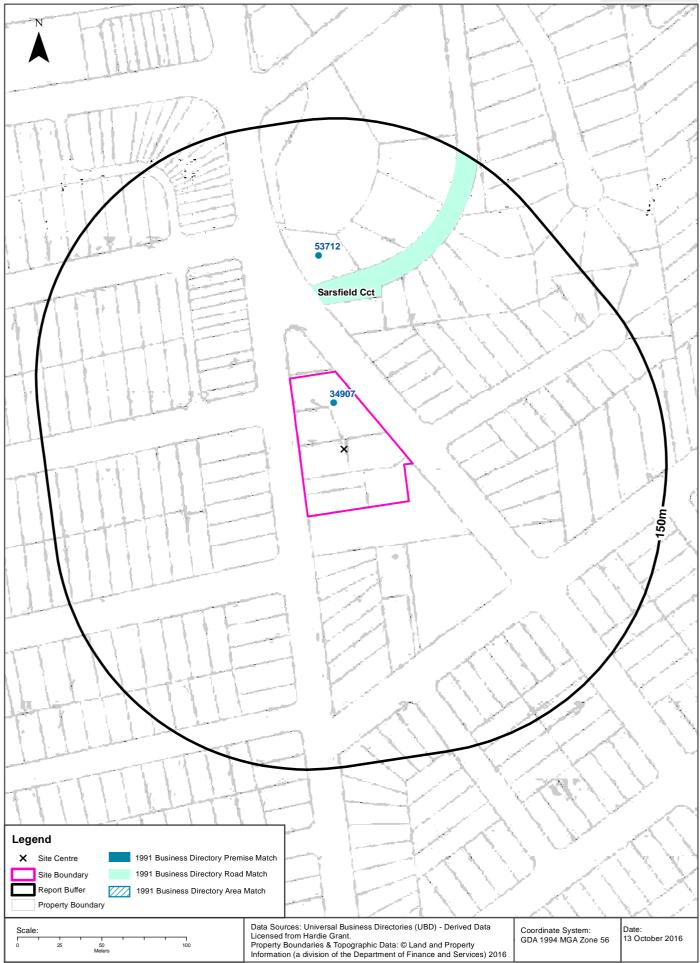
UPSS Sensitive Zones





1991 Historical Business Directory Records Bexley Road & New Illawarra Road, Bexley North, NSW 2207





Historical Business Directories

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

1991 Business to Business Directory Records

Records from the 1991 UBD Business to Business Directory within 150m of the site:

Business Activity	Organisation	Address	Ref No.	Location Confidence	Distance	Direction
Auto Electricians	Caltex Bexley North Service Station	309 Bexley Rd, Bexley North 2207	34907	Premise Match	0m	Onsite
Bakers	Wilson's Cake Shoppe	Sarsfield Cr, Bexley North 2207	35381	Road Match	40m	North
Motor Garages & Service Stations	Esso Bexley North Service Station	320 Bexley Rd, Bexley North 2207	53712	Premise Match	67m	North

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1991 Business Directory Motor Garages & Service Stations

Motor Garages & Service Stations from the 1991 UBD Business Directory within 1km of the site:

Business Activity	Organisation	Address	Ref No.	Location Confidence	Distance	Direction
Motor Garages & Service Stations	Esso Bexley North Service Station	320 Bexley Rd, Bexley North 2207	53712	Premise Match	67m	North

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1970 Historical Business Directory Records





Historical Business Directories

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

1970 Business Directory Records

Records from the 1970 UBD Business Directory within 150m of the site:

Business Activity	Organisation & Premise	Ref No.	Location Confidence	Distance	Direction
BUTCHERS-RETAIL (B860)	Gibbons, J., 90 New iilawarra Rd., Bexley North	273658	Premise Match	0m	Onsite
NOTOR SERVICE STATIONS- PETROL,OIL,Etc. (M716)	Golden Fleece Service Station,309 Bexley Rd.BEXLEY NORTH	341158	Premise Match	0m	Onsite
BUILDERS & CONTRACTORS-(M.M.B.A. B796)	King, H E., 330 Bexley Rd., Bexley North NSW	270694	Premise Match	34m	North
BUTCHERS-RETAIL (B860)	Angus Steaks, Sarsfield Crct(off 336 Bexley Rd.), BexleyNorth	273076	Road Match	40m	North
AIRDRESSERS (GENT.'S) (H070)	Bexley North Gentlemen's Hairdresser, Sarsfield Circuit, off 336 Bexley Rd., Bexley North	313633	Road Match	40m	North
RESTAURANTS (R320)	Coffee Break Restaurant,Sarsfield Circuit (off 336 Bexley Rd.),Bexley North	356827	Road Match	40m	North
BEAUTY SALONS &/OR LADIES' HAIRDRESSERS (B260)	Florida Beauty Salon, Sarsfield Crct., off 336 Bexley Rd.,Bexley North	265897	Road Match	40m	North
NIMAL & BIRD FOOD SUPPLIES (A375)	Pets' Food Fair, Sarsfield Crct, off 336 Bexley Rd, BexleyNorth	261580	Road Match	40m	North
MEDICAL PRACTITIONERS (M216)	Stuart,Kingston,Sarsfield Circuit,off 336 Bexley Rd.,Bexley North	328344	Road Match	40m	North
BEAUTY SALONS &/OR LADIES' HAIRDRESSERS (B260)	Janece Beauty Salon, 91 New Illawarra Rd., Bexley North	266037	Premise Match	48m	North West
URNITURE-HOUSEHOLD-RETAILERS RETAILERS (F740)	Rigby,N.R.,91 New Illawarra Rd.,Bexley North	309570	Premise Match	48m	North West
VALLPAPER MERCHANTS (W035)	McKee, R.J.& Co., 93 New Illawarra Rd., Bexley North	372920	Premise Match	52m	North West
GIFT SHOPS (G180)	McKee,R.J.ft Co.,93 New 11 lawarra Rd.,Bexley North	310918	Premise Match	52m	North West
/USIC-SHEET &/OR RECORDDEALERS M776)	Carter, P., 95 New Illawarra Rd., Bexley North	343144	Premise Match	57m	North West
ADIO &/OR TELEVISION SALES & SERVICEMEN (R090)	Carter, P., 95 New Illawarra Rd.BEXLEY NORTH	354215	Premise Match	57m	North West
RUITERERS/GREENGROCERS (F640)	Spasaro,Sammy,97 New Illawarra Rd.,Bexley North	307965	Premise Match	61m	North West
/OTOR SERVICE STATIONS- PETROL,OIL,Etc. (M716)	Esso Servicenter,320 Bexley Rd.BEXLEY NORTH	341070	Premise Match	67m	North
MOTOR GARAGES & ENGINEERS M6S6)	Shapiro,W. Sc A.,320 Bexley Rd.BEXLEY NORTH	338594	Premise Match	67m	North
GROCERS-RETAIL (G655)	Taylor,H. J.,99 New tllawarra Rd.,Bexley North	313068	Premise Match	67m	North West
DELICATESSENS (D080)	Andrew's Delicatessen,101 New Itlawarra Rd.,Bexley North	287102	Premise Match	72m	North West
PAINT,VARNISH,OILS/COLOUR /IERCHANTS (P074)	Blackwell's Hardware,103 New Hlawarra Rd.,Bexley North	346111	Premise Match	77m	North West
GARDEN SUPPLIES-RETAIL (G060)	Blackwell's Hardware,103 New Illawarra Rd.,Bexley North	310256	Premise Match	77m	North West
IME/CEMENT MERCHANTS (L490)	Blackwell's Hardware,103 New IMawarra Rd.,Bexley North	323366	Premise Match	77m	North West
IARDWARE DEALERS/IRONMONGERS H230)	Blackwell's Hardware,103 New Ulawarra Rd.BEXLEY NORTH	314918	Premise Match	77m	North West
OY DEALERS-RETAIL (T535)	Bexley North Hobby Centre,14 Sarsfield Circuit,BexleyNorth	369979	Premise Match	99m	North
RUITERERS/GREENGROCERS (F640)	Bourke & Dennis,10 Sarsfield Crct.,Bexley North	306705	Premise Match	99m	North
BEAUTY SALONS &/OR LADIES' HAIRDRESSERS (B260)	Florida Keys Beauty Salon, 16 Sarsfield Crct., Bexley North	265898	Premise Match	99m	North
DRY CLEANERS,PRESSERS/DYERS D710)	Kleenit Valet Service,18 Sarsfield Crct.,Bexley North	292364	Premise Match	99m	North
BUTCHERS-RETAIL (B860)	Stroud, G., 8 Sarsfield Circuit, Bexley North	274630	Premise Match	99m	North
MERCERS-MEN'S & BOYS' DUTFITTERS(M232)	Johnston, T., 305 Bexley Rd., Bexley North	328957	Premise Match	101m	North West

Business Activity	Organisation & Premise	Ref No.	Location Confidence	Distance	Direction
BUTCHERS-RETAIL (B860)	Ron's Butchery, 303 Bexley Rd., Bexley North	274460	Premise Match	107m	North West
CLUBS & SPORTING BODIES (C487)	Bexley Bowling & Recreation Club, Edward St., Bexley North	284016	Road Match	108m	South West
BUILDERS & CONTRACTORS-(M.M.B.A.) (B796)	Hargreaves, CW., 13 Fowler Ave., Bexley North NSW	270649	Premise Match	112m	East
MEDICAL PRACTITIONERS (M216)	Boden,Betty,301 Bexley Rd.,Bexley North	326231	Premise Match	112m	North West
DENTISTS (D140)	Cotterell,F.H.,301 Bexley Rd.,Bexley North	288479	Premise Match	112m	North West
MEDICAL PRACTITIONERS (M216)	Mathers, P., 301 Bexley Rd., Bexley North & Branch	327585	Premise Match	112m	North West
MEDICAL PRACTITIONERS (M216)	Stuart,Mary,301 & 446 Bexley Rd.,Bexley North	328345	Premise Match	112m	North West
CHEMISTS-PHARMACEUTICAL (C286)	Bateman's Pharmacy, Neville, 299 Bexley Rd., Bexley North	280038	Premise Match	118m	North West
BUILDERS & CONTRACTORS (B800)	Sadler, B., 24 Bamsberry Gr., Bexley North	270362	Premise Match	122m	South East
DELICATESSENS (D080)	McKenna's Delicacies,297a Bexley Rd.,Bexley North	287684	Premise Match	123m	North West
FRUITERERS/GREENGROCERS (F640)	Barbuto Bros.297 Bexley Rd., Bexley North	306640	Premise Match	127m	North West
DELICATESSENS (D080)	Notaras, P., 297 Bexley Rd., Bexley North	287759	Premise Match	127m	North West
OPTOMETRISTS-REGISTERED (O 280)	Andrews, Brian K., 32 Sarsfield Crct., off 336 Bexley Rd., Bexley North	345293	Premise Match	130m	North
BUILDERS & CONTRACTORS (B800)	Braeside Building Co. Pty. Ltd., 34 Sarsfield Circuit, BexleyNorth	269965	Premise Match	130m	North
BUILDERS & CONTRACTORS (B800)	Braeside Constructions Co. Pty. Ltd., 34 Sarsfield CircuitBexley North	269966	Premise Match	130m	North
HAIRDRESSERS (GENT.'S) (H070)	Meier, P., 22 Sarsfield Circuit, Bexley North	314187	Premise Match	130m	North
MANAGEMENT CONSULTANTS(M077)	Rosser, R. & Associates, 26 Sarsfield Crct., Bexley North	324475	Premise Match	130m	North
VENDING MACHINE MFR.&/OR DISTS. (V115)	Vendo (Aust.) Pty.Ltd.,38 Sarsfield Crct.,Bexley North	372477	Premise Match	130m	North
CAKE SHOPS & PASTRYCOOKS (C045)	Breit, AJ., 295 Bexley Rd., Bexley North	276375	Premise Match	131m	North West
DRAPERS-RETAIL (D540)	Shaw's Drapery & Mercery,293 Bexley Rd.,Bexley North	290601	Premise Match	136m	North West
MERCERS-MEN'S & BOYS' OUTFITTERS(M232)	Shaw's Drapery and Mercery,293 Bexley Rd.,Bexley North	329137	Premise Match	136m	North West
DELICATESSENS (D080)	Stone,L.A.,291 Bexley Rd.,Bexley North	287997	Premise Match	141m	North West
CHEMISTS-PHARMACEUTICAL (C286)	iderson, W., 289 Bexley Rd., Bexley North	280566	Premise Match	147m	North West

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1970 Business Directory Drycleaners & Service Stations

Drycleaners, Motor Garages & Service Stations from the 1970 UBD Business Directory within 1km of the site:

Business Activity	Organisation & Premise	Ref No.	Location Confidence	Distance	Direction
MOTOR SERVICE STATIONS- PETROL,OIL,Etc. (M716)	Golden Fleece Service Station,309 Bexley Rd.BEXLEY NORTH	341158	Building Match	0m	Onsite
MOTOR SERVICE STATIONS- PETROL,OIL,Etc. (M716)	Esso Servicenter,320 Bexley Rd.BEXLEY NORTH	341070	Building Match	67m	North
MOTOR GARAGES & ENGINEERS (M6S6)	Shapiro,W. Sc A.,320 Bexley Rd.BEXLEY NORTH	338594	Building Match	67m	North
DRY CLEANERS, PRESSERS/DYERS (D710)	Kleenit Valet Service,18 Sarsfield Crct.,Bexley North	292364	Building Match	99m	North
MOTOR SERVICE STATIONS- PETROL,OIL,Etc. (M716)	Bexley North Service Station,Stade Rd.BEXLEY NORTH	340843	Road Match	268m	North
MOTOR GARAGES & ENGINEERS (M6S6)	BP Bexley North Service Station, Slade Rd.BEXLEY NORTH	337359	Road Match	268m	North
MOTOR SERVICE STATIONS- PETROL,OIL,Etc. (M716)	Kingsland Auto Port,Bexley Rd.BEXLEY	341255	Road Match	900m	South East
MOTOR GARAGES & ENGINEERS (M6S6)	Ampol Bexley North Service Station,272 Bexley Rd.BEXLEY NORTH	337197	Building Match	918m	South East
MOTOR SERVICE STATIONS- PETROL,OIL,Etc. (M716)	Bexley Park Service Station,91-95 Stoney Creek Rd.,Bexley,2207BEXLEY	340844	Building Match	987m	South

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1950 Historical Business Directory Records Bexley Road & New Illawarra Road, Bexley North, NSW 2207





Historical Business Directories

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

1950 Business Directory Records

Records from the 1950 UBD Business Directory within 150m of the site:

Business Activity	Organisation & Premise	Ref No.	Location Confidence	Distance	Direction
BUTCHERS-RETAIL	Gibbon, J. S., 90 New Illawarra Rd., Bexley North	13538	Premise Match	0m	Onsite
MOTOR SERVICE STATIONS-PETROL, Etc.	Bexley North Filling Station, Bexley Rd., Bexley North	85794	Road Match	0m	East
BEAUTY SALONS &/OR LADIES' HAIRDRESSERS	Race, Mrs. A. I., Bexley Rd., Bexley North	7701	Road Match	0m	East
FRUITERERS & GREENGROCERS	Kavanagh, K. B., 97 New Illawarra Rd., Bexley North	50413	Premise Match	61m	North West
MILK BARS & CONFECTIONERS	Kavanagh, K. B., 97 New Illawarra Rd., Bexley North	76861	Premise Match	61m	North West
GROCERS-RETAIL	Taylor, H. J., 99 New Illawarra Rd., Bexley North	55839	Premise Match	67m	North West
HARDWARE DEALERS &/OR IRONMONGERS	Taylor, H. J., 99 New Illawarra Rd., Bexley North	61431	Premise Match	67m	North West
CARRIERS & CARTAGE CONTRACTORS	Roddan, J., 8 Fortescue St., Bexley	19679	Premise Match	100m	West
BAG & SACK MERCHANTS	Bates, W., 17 Barnesby Rd., Bexley North	4990	Premise Match	109m	East
CARRIERS & CARTAGE CONTRACTORS	Carroll, M. A., 1 Middleton Ave., North Bexley	18554	Premise Match	141m	South East

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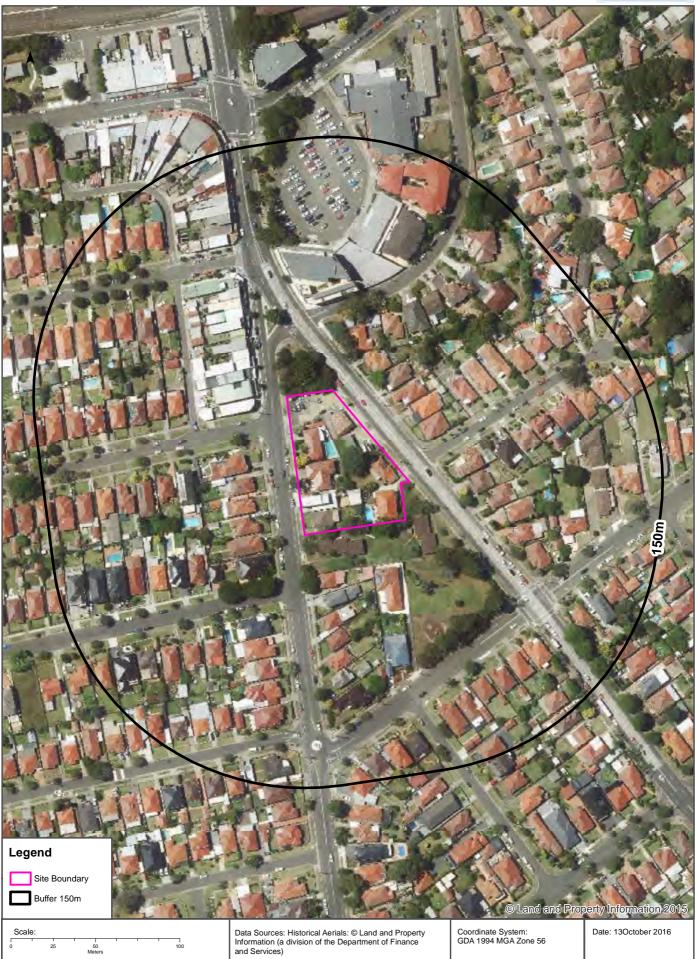
1950 Business Directory Drycleaners & Service Stations

Drycleaners, Motor Garages & Service Stations from the 1950 UBD Business Directory within 1km of the site:

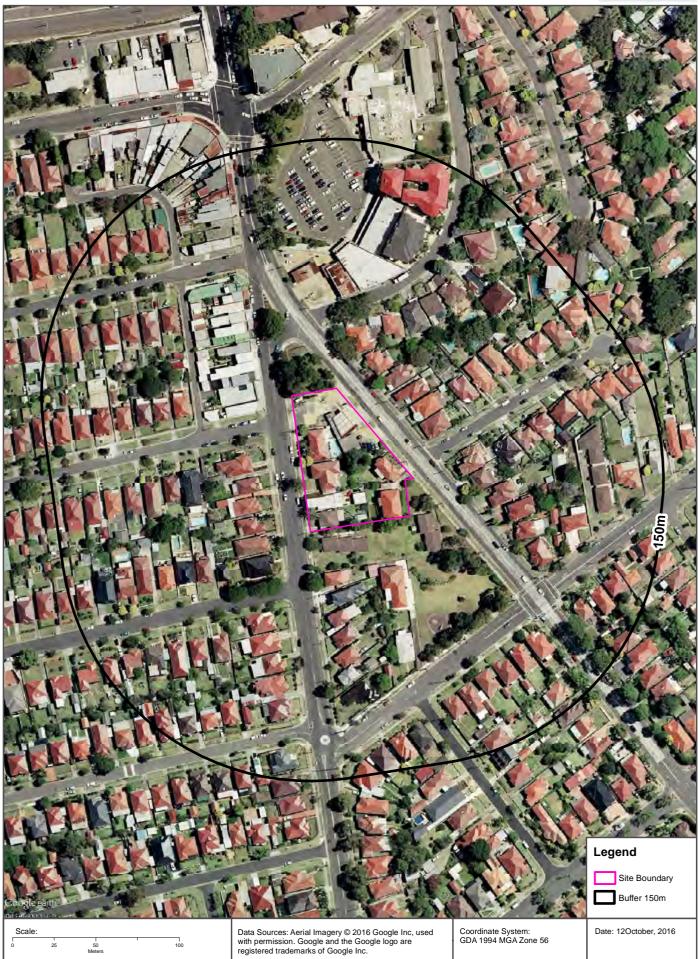
Activity	Organisation & Premise	Ref No.	Location Confidence	Distance	Direction
MOTOR SERVICE STATIONS-PETROL, Etc.	Bexley North Filling Station, Bexley Rd., Bexley North	85794	Road Match	0m	East
DRY CLEANERS, PRESSERS & DYERS	Murray, G. E. (Agent), 538 Homer St., Earlwood	35545	Premise Match	781m	North
DRY CLEANERS, PRESSERS & DYERS	Pigott, A. H. (Agent), 176 Stoney Creek Rd., Bexley	35592	Premise Match	968m	South
MOTOR GARAGES &/OR ENGINEERS	Skyway Motor (B. James), 107 Stoney Creek Rd., Bexley	84375	Premise Match	991m	South
MOTOR GARAGES &/OR ENGINEERS	Skyway Motors, 107 Stoney Creek Rd., Bexley	84376	Premise Match	991m	South

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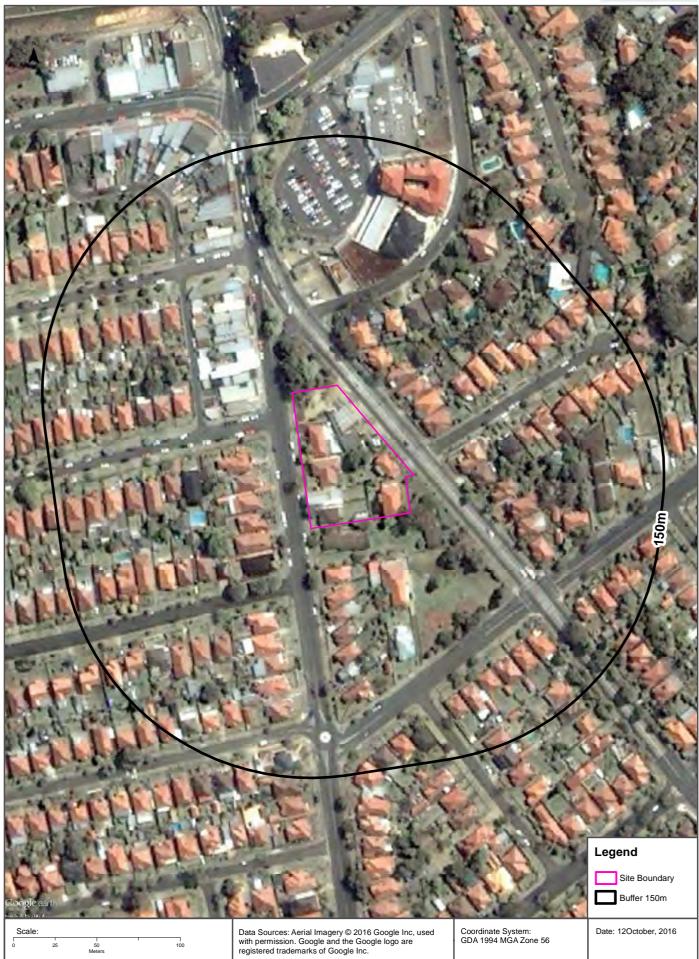




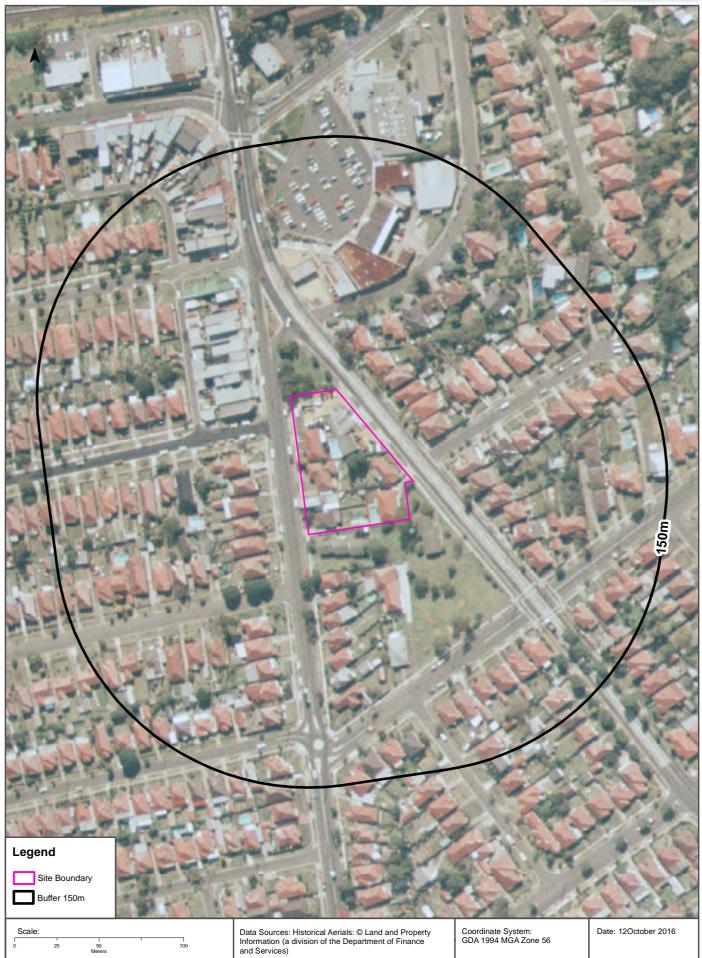




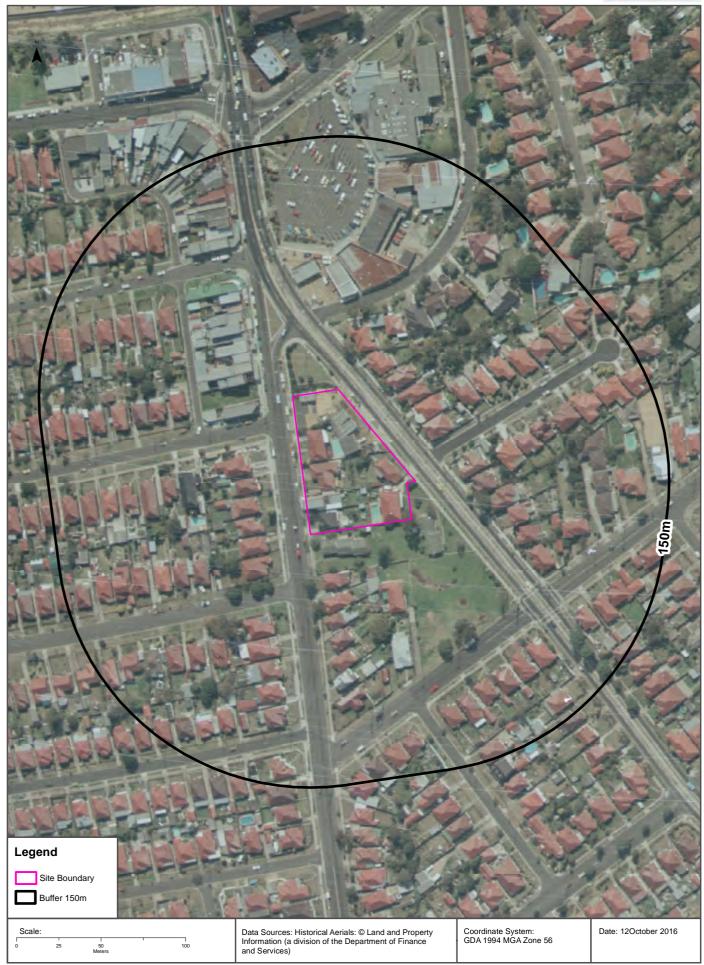
















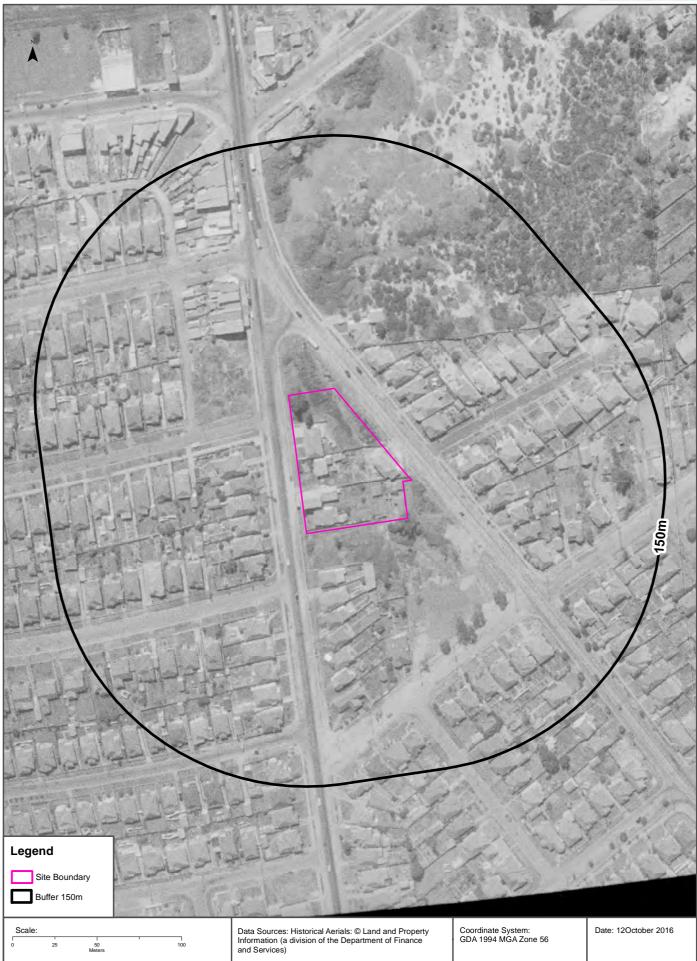










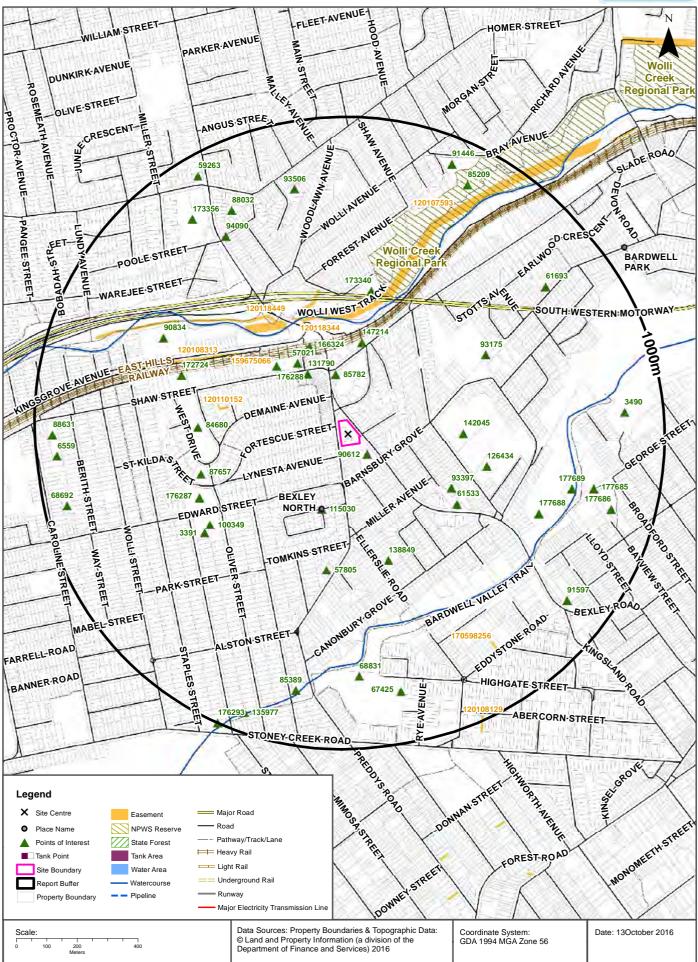






Topographic Features





Topographic Features

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

Points of Interest

What Points of Interest exist within the report buffer?

Map Id	Feature Type	Label	Distance	Direction
90612	Park	WHITBREAD PARK	43m	South East
85782	Park	NAIRN GARDENS	155m	North
131790	Post Office	BEXLEY NORTH POST OFFICE	186m	North West
115030	Suburb	BEXLEY NORTH	217m	South
57021	Library	BEXLEY NORTH LIBRARY	234m	North West
147214	Embassy	CONSULATE-GENERAL OF PANAMA	262m	North
166324	Railway Station	BEXLEY NORTH RAILWAY STATION	265m	North West
176288	Park	SHAW STREET RESERVE	273m	North West
93397	Park	Park	336m	South East
142045	Education Facility	THE SALVATION ARMY BOOTH COLLEGE	339m	East
61533	Place Of Worship	ANGLICAN CHURCH	377m	South East
138849	Retirement Village	BEXLEY GARDENS VILLAGE	396m	South
57805	Place Of Worship	CHURCH OF CHRIST	411m	South
126434	Primary School	BEXLEY NORTH PUBLIC SCHOOL	425m	East
173340	Park	ILLOURA RESERVE	434m	North
84680	Park	GILCHRIST PARK	462m	West
87657	Park	Park	470m	West
93175	Park	STOTTS RESERVE	493m	North East
176287	Park	GILCHRIST PARK	497m	South West
100349	Sports Field	BOWLING GREENS	504m	South West
3391	Club	BEXLEY BOWLING CLUB	533m	South West
172724	Community Facility	KINGSGROVE BEXLEY NORTH COMMUNITY CENTRE	537m	West
177688	Park	BARDWELL VALLEY PARKLANDS	633m	South East
90834	Park	KINGSGROVE AVENUE RESERVE	637m	North West
177689	Park	BARDWELL CREEK RESERVE	713m	East
94090	Park	Park	714m	North West
68831	Swimming Pool	BEXLEY SWIMMING CENTRE	761m	South
88032	Park	Park	780m	North West
93506	Park	Park	780m	North
177685	Lookout	VIEWING AREA	784m	East
61693	Place Of Worship	UNITING CHURCH	785m	North East
85389	Park	OSWALD SCHOLES RESERVE	818m	South
173356	Park	BEAUMONT PARK	822m	North West

Map Id	Feature Type	Label	Distance	Direction
67425	SES Facility	ROCKDALE SES	828m	South
177686	Park	BROADFORD STREET RESERVE	855m	East
91597	Park	BINNAMITTALONG NATIVE GARDENS	856m	South East
85209	Park	Park	872m	North East
3490	Club	BARDWELL VALLEY GOLF CLUB	873m	East
91446	Park	S J HARRISON PARK	913m	North
68692	Sports Centre	KINGSGROVE TENNIS CENTRE	922m	West
6559	Community Facility	SCOUT HALL	931m	West
59263	Place Of Worship	ANGLICAN CHURCH	933m	North West
135977	Retirement Village	JACINTA VILLA	933m	South
88631	Park	KOOKABURRA RESERVE	940m	West
176293	Park	HANNAH LAYCOCK RESERVE	998m	South West

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Topographic Features

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

Tanks (Areas)

What are the Tank Areas located within the report buffer? Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Capture Method	Feature Currency	Distance	Direction
N/A	No records in buffer						

Tanks (Points)

What are the Tank Points located within the report buffer? Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Capture Method	Feature Currency	Distance	Direction
N/A	No records in buffer						

Tanks Data Source: © Land and Property Information (2015)

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Major Easements

What Major Easements exist within the report buffer?

Note. Easements provided by LPI are not at the detail of local governments. They are limited to major easements such as Right of Carriageway, Electrical Lines (66kVa etc.), Easement to drain water & Significant subterranean pipelines (gas, water etc.).

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
120107593	Primary	Undefined		335m	North East
120118344	Primary	Undefined		348m	North
120110152	Primary	Undefined		365m	West
120118449	Primary	Undefined		369m	North West
159675066	Primary	Easement for Access		396m	West
120108313	Primary	Undefined	Variable	396m	West
170598256	Primary	Right of way	3m & Variable	785m	South East
120108129	Primary	Undefined		984m	South East

Easements Data Source: © Land and Property Information (2015)

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Topographic Features

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

State Forest

What State Forest exist within the report buffer?

State Forest Number	State Forest Name	Distance	Direction
N/A	No records in buffer		

State Forest Data Source: $\ensuremath{\mathbb{C}}$ Land and Property Information (2015)

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National Parks and Wildlife Service Reserves

What NPWS Reserves exist within the report buffer?

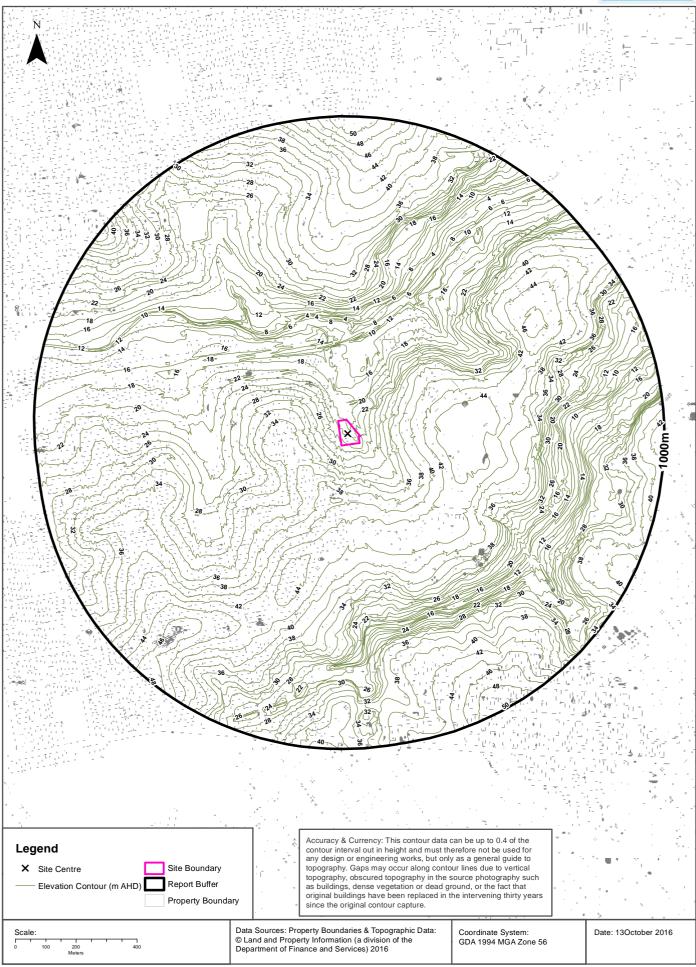
Reserve Number	Reserve Type	Reserve Name	Gazetted Date	Distance	Direction
N0644	REGIONAL PARK	Wolli Creek Regional Park	25/01/2001	420m	North East

NPWS Data Source: © Land and Property Information (2015)

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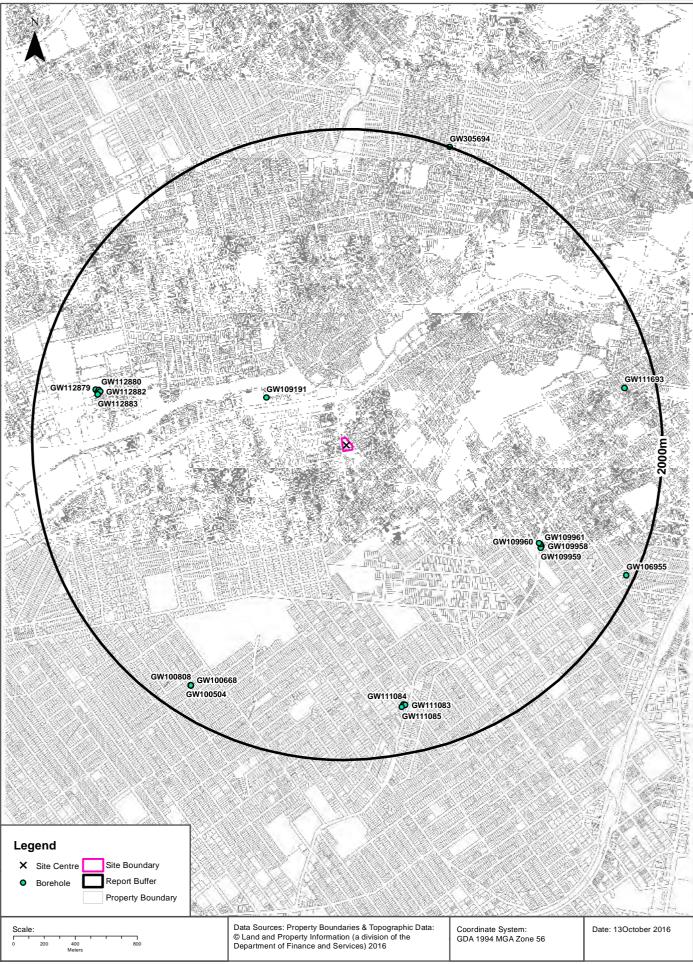
Elevation Contours (m AHD)





Groundwater Boreholes





Hydrogeology & Groundwater

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

Hydrogeology

Description of aquifers on-site:

Description

Porous, extensive aquifers of low to moderate productivity

Description of aquifers within the report buffer:

Description

Porous, extensive aquifers of low to moderate productivity

Hydrogeology Map of Australia : Commonwealth of Australia (Geoscience Australia) Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Groundwater Boreholes

Boreholes within 2km of the site:

GW No.	Licence No	Work Type	Owner Type	Purpose	Contractor	Complete Date	Final Depth	Drilled Depth	Salinity	SWL	Yield	Elev	Dist	Dir
GW109191	10BL601292, 10BL602310, 10WA114753	Bore	Other Govt	Recreation	Intertec Drilling Services	08/08/2008	186.00	186.00	3950	93.0 0	0.050		552m	North West
GW109960	10BL601848	Well	Private	Monitoring	HLA Enviroscienc es	13/04/2007	8.00	8.00					1351m	South East
GW109961	10BL601848	Well	Private	Monitoring	HLA Enviroscienc es	12/04/2007	5.80	5.80					1360m	South East
GW109958	10BL601848	Well	Private	Monitoring	HLA Enviroscienc es	12/04/2007	5.20	5.20					1373m	South East
GW109959	10BL601848	Well	Private	Monitoring	HLA Enviroscienc es	13/04/2007	5.90	5.90					1373m	South East
GW112882	10BL604145	Bore	Other Govt	Monitoring	SOILCHECK PTY LTD	12/07/2010	6.00	6.00					1589m	West
GW112880	10BL604145	Bore	Other Govt	Monitoring	SOILCHECK PTY LTD	12/07/2010	6.00	6.00					1598m	West
GW112883	10BL604145	Bore	Other Govt	Monitoring	SOILCHECK PTY LTD	12/07/2010	6.20	6.20					1601m	West
GW112881	10BL604145	Bore	Other Govt	Monitoring	SOILCHECK PTY LTD	12/07/2010	6.00	6.00					1603m	West
GW112879	10BL604145	Bore	Other Govt	Monitoring	SOILCHECK PTY LTD	12/07/2010	6.20	6.20					1618m	West
GW111084	10BL604064	Bore	Private	Monitoring	Numac Drilling Services Pty Ltd	19/04/2010	9.00	9.00					1685m	South
GW111083	10BL604064	Bore	Private	Monitoring	Numac Drilling Services Pty Ltd	19/04/2010	9.00	9.00					1688m	South
GW111085	10BL604064	Bore	Private	Monitoring	Numac Drilling Services Pty Ltd	19/04/2010	5.00	5.00					1698m	South
GW111693	10BL602861, 10WA109273	Spear	Private	Domestic		20/02/2009	8.85	8.85	good	5.49	1.000		1797m	East
GW100668	10BL157758, 10WA108384	Spear	Private	Domestic		09/10/1996	7.95	7.95	Good	5.45	1.000		1808m	South West

GW No.	Licence No	Work Type	Owner Type	Purpose	Contractor	Complete Date	Final Depth	Drilled Depth	Salinity	SWL	Yield	Elev	Dist	Dir
GW100580	10BL157928, 10WA108399	Spear	Private	Domestic	A Korkadis	11/03/1997	9.15	9.15	Good		1.000		1808m	South West
GW100068	10BL156735, 10WA108351	Spear	Private	Domestic	A Korkadis	20/06/1995	7.30	7.30	Good	4.27	1.000		1808m	South West
GW100504	10BL157928, 10WA108399	Bore			A Korkadis	11/03/1997	9.15						1808m	South West
GW100808	10BL156230, 10WA108335	Spear	Private	Domestic		01/01/1991	3.66	6.10	Other	1.52			1808m	South West
GW106955	10BL164738, 10WA108920	Spear	Private	Domestic		15/04/2005	4.20	4.20			1.000		1949m	South East
GW305694	30BL181476	Spear	Private	Domestic	Self Drilled	20/02/2003	5.00				0.300		1998m	North

Borehole Data Source : NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corporation for all bores prefixed with GW. All other bores © Commonwealth of Australia (Bureau of Meteorology) 2015. Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Hydrogeology & Groundwater

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

Driller's Logs

Drill log data relevant to the boreholes within 2km of the site:

Groundwater No	Drillers Log	Distance	Direction
GW109191	0.00m-1.00m SANDY CLAY 1.00m-4.00m CLAY 4.00m-7.00m SANDSTONE SOFT 7.00m-9.00m SANDSTONE L/BROWN 9.00m-9.50m SANDSTONE AND FINE QUARTZ 9.50m-31.00m SANDSTONE GREY 31.00m-40.00m SANDSTONE AND SHALE BEDDING 40.00m-41.00m SANDSTONE AND FINE QUARTZ 41.00m-131.00m SANDSTONE GREY 131.00m-135.50m SANDSTONE AND FINE QUARTZ 135.50m-148.00m SANDSTONE GREY 148.00m-159.00m SANDSTONE AND SHALE BEDDING 159.00m-186.00m SANDSTONE GREY	552m	North West
GW109960	0.00m-0.20m CONCRETE 0.20m-0.50m CONCRETE AND CLAYEY GRAVEL,SAND LOOSE,DARK BROWN 0.50m-1.00m CLAY,SOFT SIGHTLY MOIST,HIGH PLASTICITY,ORANGE BROWN 1.00m-2.50m CLAYEY SHALE,WEATHERED,STIFF,DRY,M/L/PLASTICITY,BROWN GREY 2.50m-4.00m SHALE,STIFF,WEATHERED,DRY,M/L/PLASTICITY,BROWN GREY 4.00m-6.00m CLAYEY SHALE,STIFF,WEATHERED,SOME IRONSTONE AND GRAVEL 6.00m-7.80m SANDY SHALE,VERY LOOSE,MOIST,M/L/ PLASTICITY,GREY 7.80m-8.00m CLAYEY SHALE VERY SOFT CLAY,SOME SHALE,DARK GREY BROWN	1351m	South East
GW109961	0.00m-0.20m CONCRETE 0.20m-0.40m GRAVELLY SAND,LOOSE,LOW PLASTICIY,DARK GREY 0.40m-1.70m CLAY.,EDOI, STOFF.SJA;E.DRU.M/L/PLASTICITY,ORANGE,BROWN,GREY 1.70m-2.50m CLAYEY SHALE,VERY STIFF,DRY,M/L/PLASTICITY,BROWN GREY 2.50m-4.00m SHALE, MEDIUM STIFF,WEATHERED,DRY, BROWN GREY 4.00m-5.60m CLAY,VERY SOFT,WEATHERED SHALE,DRY,GREY BROWN 5.60m-5.80m SHALE HARD DRY LOW PLASTICITY,GREY	1360m	South East
GW109958	0.00m-0.20m CONCRETE 0.20m-0.50m CLAYEY GRAVEL (FILL),MOIST, L/PLASTICITY,D/GREY, CLAY 0.50m-0.70m CLAYEY GRAVEL,STIFF,LOOSE SAND,MOIST,L/PLASTICITY 0.70m-1.50m CLAY,MEDIUM STIFF,LOOSE SAND,MOIST,HIGH PLASTICITY,ORANGE BROWN 1.50m-2.50m CLAYEY SHALE. WEATHERED,STIFF,MEDIUM LOW PLASTICITY,BROWN GREY 2.50m-4.00m SHALE.WEATHERED.STIFF,DRY,MEDIUM LOW PLASTICITY,BROWN GREY 4.00m-4.50m CLAY,SOFT,DRY,LOW PLASTICITY,BROWN,GREY 4.50m-5.20m CLAY,MEDIUM STIFF,SHALE MOIST,M/L/PLASTICITY,RED BROWN	1373m	South East
GW109959	0.00m-0.30m CONCRETE 0.30m-0.50m CONCRETE, GRAVEL,LOOSE SAND MOIST,L/PLASTICITY,DARK BROWN 0.50m-1.00m CLAYEY GRAVEL,LOOSE SAND,MOIST L/PLASTICITY,DARK BROWN 1.00m-3.00m CLAYEY SHALE,STIFF,WEATHERED SHALE,DRY,M/L/PLASTICITY 3.00m-3.50m SHALE,SOFT,WEATHERED SHALE,DRY,MEDIUM LOW PLASTICITY 3.50m-5.80m CLAYEY SHALE,STIFF,SOFT,WEATHERED,DRY,CLAY BECOMES SOFT 5.80m-5.90m CLAY VERY SOFT,SATURATED,MEDIUM LOW PLASTICITY,BROWN	1373m	South East
GW111084	0.00m-1.50m FILL 1.50m-6.00m CLAY L/BROWN STIFF 6.00m-8.00m SHALE L/GREY WEATHERED 8.00m-9.00m SHALE GREY WEATHERED,CLAY LENSES	1685m	South
GW111083	0.00m-1.50m FILL 1.50m-6.00m CLAY L/BROWN STIFF 6.00m-8.00m SHALE L/GREY WEATHERED 8.00m-9.00m CLAY LENSES	1688m	South
GW111085	0.00m-0.50m FILL 0.50m-3.00m CLAY L/BROWN STIFF 3.00m-4.00m SHALE GREY WEATHERED 4.00m-5.00m SHALE GREY WEATHERED WITH CLAY LENSES	1698m	South
GW111693	0.00m-8.85m UNCONSOLIDATED ALL SANDS	1797m	East
GW100068	0.00m-7.30m ALL SAND UNCONSOLIDATED SAND WITH SMALL SEASHELLS	1808m	South West
GW100580	0.00m-9.15m UNCONSOLIDATED ALL SAND WITH SMALL SEA SHELLS	1808m	South West
GW100668	0.00m-7.95m Unconsolidated all Sand with Small Seashells	1808m	South West

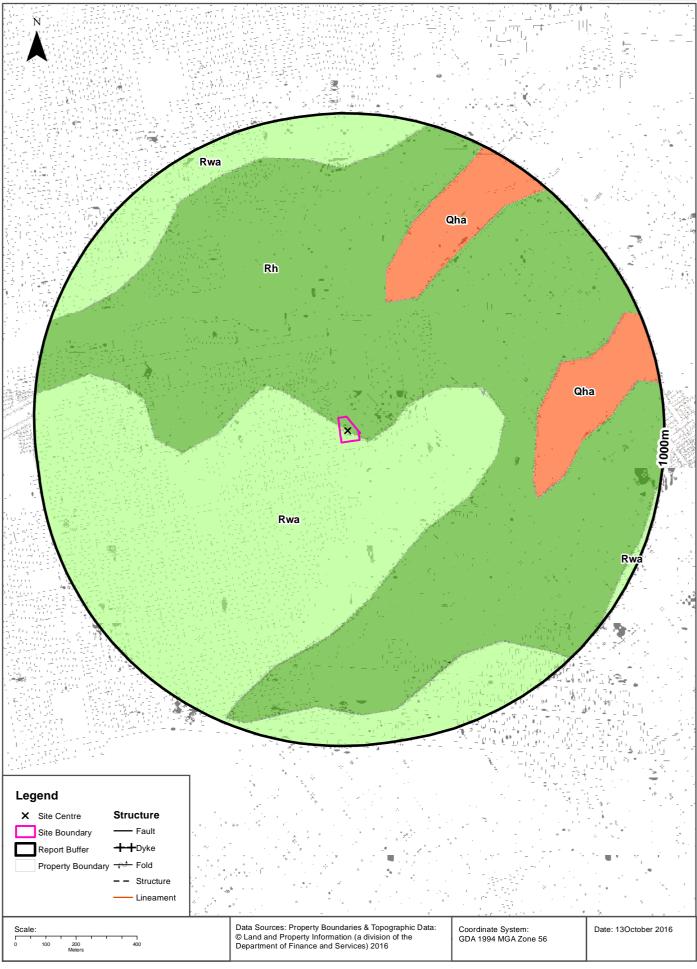
Groundwater No	Drillers Log	Distance	Direction
GW100808	0.00m-1.52m CLEAN YELLOW SAND 1.52m-1.72m SEA SHELL 1.72m-6.10m CLEAN YELLOW SAND, THEN GREYISH SMELLY MUD AT 6.10 metres	1808m	South West
GW106955	0.00m-2.60m Clay 2.60m-4.20m Sandy Clay	1949m	South East

Drill Log Data Source: NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corp Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Geology 1:100,000

Bexley Road & New Illawarra Road, Bexley North, NSW 2207





Geology

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

Geological Units

What are the Geological Units onsite?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Rh	Medium to coarse grained quartz sandstone, very minor shale and laminate lenses				Triassic		Sydney	1:100,000
Rwa	Black to dark grey shale and laminate	Ashfield Shale	Wianamatta Group		Triassic		Sydney	1:100,000

What are the Geological Units within the report buffer?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Qha	Silty to peaty quartz sand, silt, and clay. Ferruginous and humic cementation in places. Common shell layers				Quaternary		Sydney	1:100,000
Rh	Medium to coarse grained quartz sandstone, very minor shale and laminate lenses				Triassic		Sydney	1:100,000
Rwa	Black to dark grey shale and laminate	Ashfield Shale	Wianamatta Group		Triassic		Sydney	1:100,000

Geological Structures

What are the Geological Structures onsite?

Feature	Name	Description	Map Sheet	Dataset
No features				1:100,000

What are the Geological Structures within the report buffer?

Feature	Name	Description	Map Sheet	Dataset
No features				1:100,000

Geological Data Source : NSW Department of Industry, Resources & Energy

 $\ensuremath{\mathbb{C}}$ State of New South Wales through the NSW Department of Industry, Resources & Energy

Naturally Occurring Asbestos Potential

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

Naturally Occurring Asbestos Potential

Naturally Occurring Asbestos Potential within the report buffer?

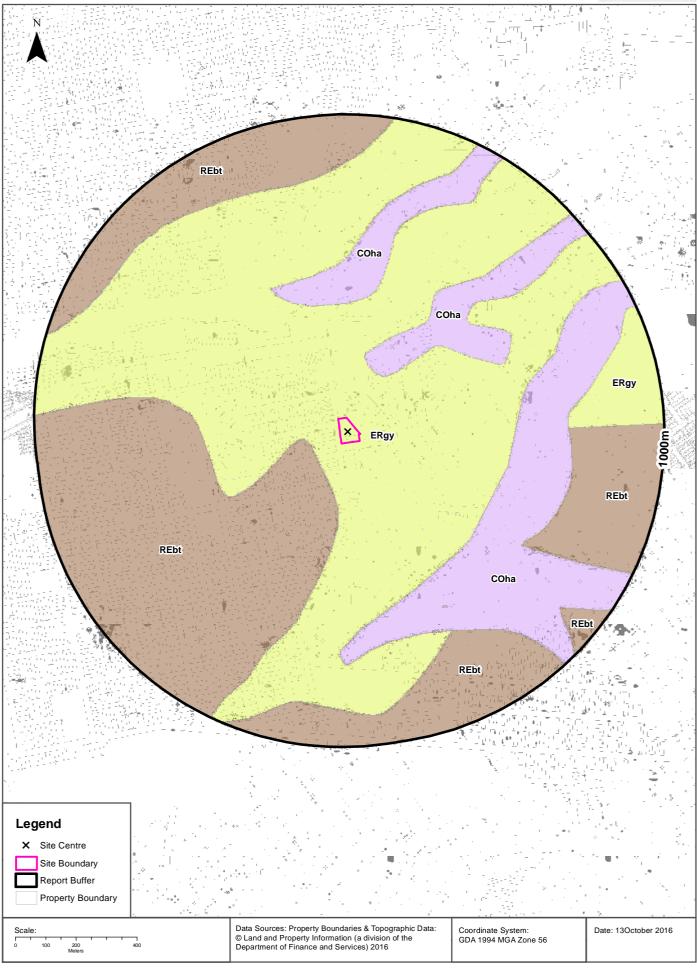
Potential	Sym	Strat Name	Group	Formation	Scale	Min Age	Max Age	Rock Type	Dom Lith	Description	Dist	Dir
No records in buffer												

Mining Subsidence District Data Source: © State of New South Wales through NSW Department of Industry, Resources & Energy

Soil Landscapes

Bexley Road & New Illawarra Road, Bexley North, NSW 2207





Soils

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

Soil Landscapes

What are the onsite Soil Landscapes?

Soil Code	Name	Group	Process	Map Sheet	Scale
ERgy	GYMEA		EROSIONAL	Sydney	1:100,000

What are the Soil Landscapes within the report buffer?

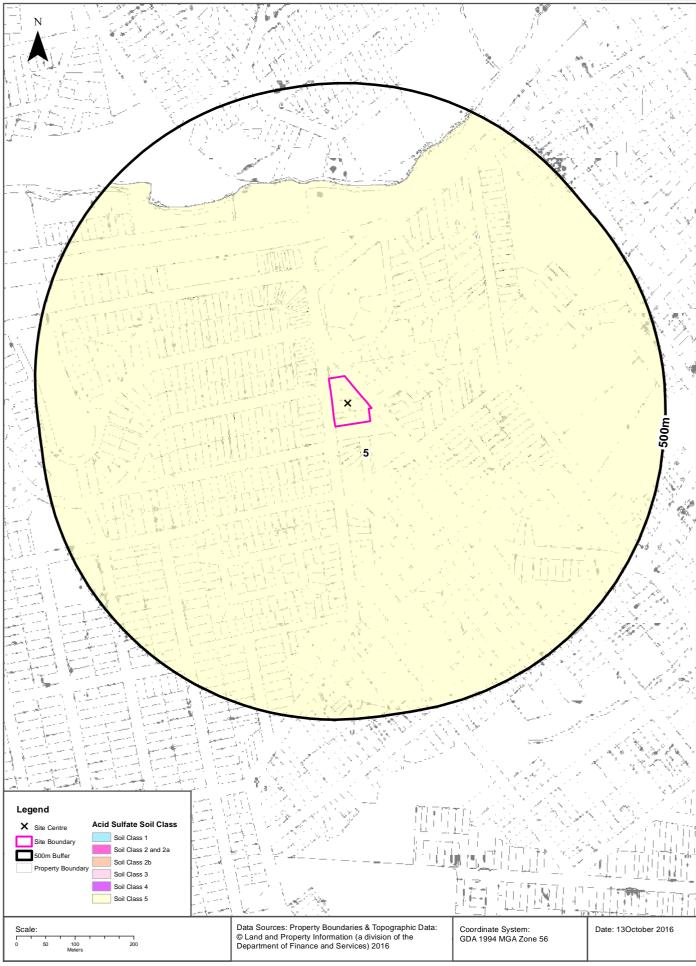
Soil Code	Name	Group	Process	Map Sheet	Scale
COha	HAWKESBURY		COLLUVIAL	Sydney	1:100,000
ERgy	GYMEA		EROSIONAL	Sydney	1:100,000
REbt	BLACKTOWN		RESIDUAL	Sydney	1:100,000

Soils Landscapes Data Source : NSW Office of Environment and Heritage Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Acid Sulfate Soils

Bexley Road & New Illawarra Road, Bexley North, NSW 2207





Standard Local Environmental Plan Acid Sulfate Soils

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

Standard Local Environmental Plan Acid Sulfate Soils

What is the on-site Acid Sulfate Soil Plan Class that presents the largest environmental risk?

Soil Class	Description	LEP
5	Works within 500 metres of adjacent Class 1, 2, 3, or 4 land that is below 5 metres AHD and by which the watertable is likely to be lowered below 1 metre AHD on adjacent Class 1, 2, 3 or 4 land, present an environmental risk	Rockdale Local Environmental Plan 2011

If the on-site Soil Class is 5, what other soil classes exist within 500m?

Soil Class	Description	LEP	Distance	Direction
None				

Acid Sulfate Data Source Accessed 07/10/2016: NSW Crown Copyright - Planning and Environment Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Dryland Salinity

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

Dryland Salinity

Is there Dryland Salinity data onsite?

No

Is there Dryland Salinity data within the report buffer?

No

What Dryland Salinity assessments are given?

Assessment 2000	Assessment 2020	Assessment 2050	Distance	Direction
N/A	N/A	N/A	N/A	N/A

Dryland Salinity Data Source : National Land and Water Resources Audit

The Commonwealth and all suppliers of source data used to derive the maps of "Australia, Forecast Areas Containing Land of High Hazard or Risk of Dryland Salinity from 2000 to 2050" do not warrant the accuracy or completeness of information in this product. Any person using or relying upon such information does so on the basis that the Commonwealth and data suppliers shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information. Any persons using this information do so at their own risk.

In many cases where a high risk is indicated, less than 100% of the area will have a high hazard or risk.

Mining Subsidence Districts

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

Mining Subsidence Districts

Mining Subsidence Districts within the report buffer?

District	Distance	Direction
There are no Mining Subsidence Districts within the report buffer		

Mining Subsidence District Data Source: © Land and Property Information (2016) Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Environmental Zoning

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

State Environmental Planning Policy Protected Areas

Are there any State Environmental Planning Policy Protected Areas onsite or within the report buffer?

Dataset	Onsite	Within Site Buffer	Distance
SEPP14 - Coastal Wetlands	No	No	N/A
SEPP26 - Littoral Rainforests	No	No	N/A
SEPP71 - Coastal Protection Zone	No	No	N/A

SEPP Protected Areas Data Source: NSW Department of Planning & Environment Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

State Environmental Planning Policy Major Developments (2005)

State Environmental Planning Policy Major Developments within the report buffer?

Map Id	Feature	Effective Date	Distance	Direction
N/A	No records within buffer			

SEPP Major Development Data Source: NSW Department of Planning & Environment Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

State Environmental Planning Policy Strategic Land Use Areas

State Environmental Planning Policy Strategic Land Use Areas onsite or within the report buffer?

Strategic Land Use	SEPPNo	Effective Date	Amendment	Amendment Year	Distance	Direction
No records within buffer						

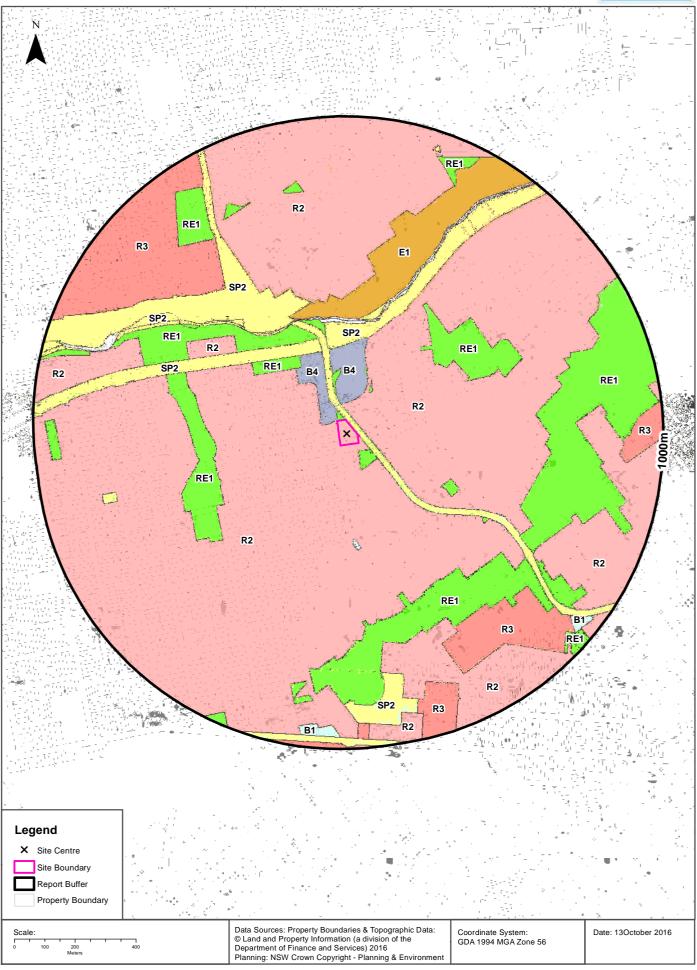
SEPP Strategic Land Use Data Source: NSW Department of Planning & Environment

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LEP Planning Zones

Bexley Road & New Illawarra Road, Bexley North, NSW 2207





Local Environmental Plan

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

Land Zoning

What Local Environmental Plan Land Zones exist within the report buffer?

Zone	Description	Purpose	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
R2	Low Density Residential		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		0m	Onsite
SP2	Infrastructure	Classified Road	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		0m	East
RE1	Public Recreation		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		1m	North West
B4	Mixed Use		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		2m	North West
R2	Low Density Residential		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		20m	North East
RE1	Public Recreation		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		24m	South East
B4	Mixed Use		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		52m	North
RE1	Public Recreation		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		91m	North
RE1	Public Recreation		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		119m	North East
RE1	Public Recreation		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		214m	North West
SP2	Infrastructure	Railway	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		234m	West
SP2	Infrastructure	Railway	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		237m	North East
RE1	Public Recreation		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		279m	North
RE1	Public Recreation		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		305m	South East
B1	Neighbourhood Centre		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		309m	South
UL	Unzoned Land		Rockdale Local Environmental Plan 2011	11/07/2014	11/07/2014	15/04/2016	Amendment No 1	313m	North
UL	Unzoned Land		Canterbury Local Environmental Plan 2012	01/01/2013	01/01/2013	11/12/2015		325m	North
SP2	Infrastructure	Railways	Canterbury Local Environmental Plan 2012	01/01/2013	01/01/2013	11/12/2015		329m	North
E1	National Parks and Nature Reserves		Canterbury Local Environmental Plan 2012	01/01/2013	01/01/2013	11/12/2015		332m	North East
E1	National Parks and Nature Reserves		Canterbury Local Environmental Plan 2012	01/01/2013	01/01/2013	11/12/2015		335m	North
RE1	Public Recreation		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		336m	North East
SP2	Infrastructure	Drainage	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		348m	North West
SP2	Infrastructure	Classified Road	Canterbury Local Environmental Plan 2012	01/01/2013	01/01/2013	11/12/2015		353m	West
SP2	Infrastructure	Classified Road	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		356m	North West
UL	Unzoned Land		Rockdale Local Environmental Plan 2011	11/07/2014	11/07/2014	15/04/2016	Amendment No 1	368m	North East
R2	Low Density Residential		Canterbury Local Environmental Plan 2012	01/01/2013	01/01/2013	11/12/2015		394m	North East
R2	Low Density Residential		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		399m	North West
RE1	Public Recreation		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		405m	West
UL	Unzoned Land		Canterbury Local Environmental Plan 2012	01/01/2013	01/01/2013	11/12/2015		406m	North East
SP2	Infrastructure	Classified Road	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		434m	North West

Zone	Description	Purpose	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
RE1	Public Recreation		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		477m	South East
RE1	Public Recreation		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		511m	South
SP2	Infrastructure	Drainage	Canterbury Local Environmental Plan 2012	01/01/2013	01/01/2013	11/12/2015		543m	North West
RE1	Public Recreation		Canterbury Local Environmental Plan 2012	01/01/2013	01/01/2013	11/12/2015		549m	North West
RE1	Public Recreation		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		569m	East
R3	Medium Density Residential		Canterbury Local Environmental Plan 2012	01/01/2013	01/01/2013	11/12/2015		571m	North West
SP2	Infrastructure	Drainage	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		600m	West
SP2	Infrastructure	Classified Road	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		612m	North West
R2	Low Density Residential		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		641m	South East
R2	Low Density Residential		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		660m	West
R3	Medium Density Residential		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		674m	South East
R2	Low Density Residential		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		678m	East
RE1	Public Recreation		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		680m	South East
RE1	Public Recreation		Canterbury Local Environmental Plan 2012	01/01/2013	01/01/2013	11/12/2015		722m	North West
SP2	Infrastructure	Telecommunic ations	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		755m	West
SP2	Infrastructure	Depot	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		759m	South
RE1	Public Recreation		Canterbury Local Environmental Plan 2012	01/01/2013	01/01/2013	11/12/2015		761m	North West
RE1	Public Recreation		Canterbury Local Environmental Plan 2012	01/01/2013	01/01/2013	11/12/2015		763m	North
UL	Unzoned Land		Canterbury Local Environmental Plan 2012	01/01/2013	01/01/2013	11/12/2015		769m	West
RE1	Public Recreation		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		784m	South
R3	Medium Density Residential		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		816m	South
RE1	Public Recreation		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		827m	South
RE1	Public Recreation		Canterbury Local Environmental Plan 2012	01/01/2013	01/01/2013	11/12/2015		849m	North
R3	Medium Density Residential		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		856m	East
B1	Neighbourhood Centre		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		897m	South East
R2	Low Density Residential		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		899m	South
RE1	Public Recreation		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		913m	West
R3	Medium Density Residential		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		915m	South
B1	Neighbourhood Centre		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		918m	South
RE1	Public Recreation		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		920m	South East
SP2	Infrastructure	Drainage	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		931m	West
SP2	Infrastructure	Water Supply System	Canterbury Local Environmental Plan 2012	01/01/2013	01/01/2013	11/12/2015		934m	North
RE1	Public Recreation		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		957m	South West
SP2	Infrastructure	Classified Road	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		959m	South
R3	Medium Density Residential		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		979m	South
R2	Low Density Residential		Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		986m	South

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Local Environmental Plan

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

Minimum Subdivision Lot Size

What are the onsite Local Environmental Plan Minimum Subdivision Lot Sizes?

Symbol	Minimum Lot Size	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
G	450 m2	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	15/04/2016		100

Maximum Height of Building

What are the onsite Local Environmental Plan Maximum Height of Buildings?

Symbol	Maximum Height of Building	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
1	8.50 m	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	10/06/2016		100

Floor Space Ratio

What are the onsite Local Environmental Plan Floor Space Ratios?

Symbol	Floor Space Ratio	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
D	0.50	LEP	05/12/2011	05/12/2011	15/04/2016		100

Land Application

What are the onsite Local Environmental Plan Land Applications?

Application Type	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
Included	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	05/12/2011		100

Land Reservation Acquisition

What are the onsite Local Environmental Plan Land Reservation Acquisitions?

Reservation	LEP	Published Date	Commenced Date	Currency Date	Amendment	Comments	Percentage of Site Area
No Data							

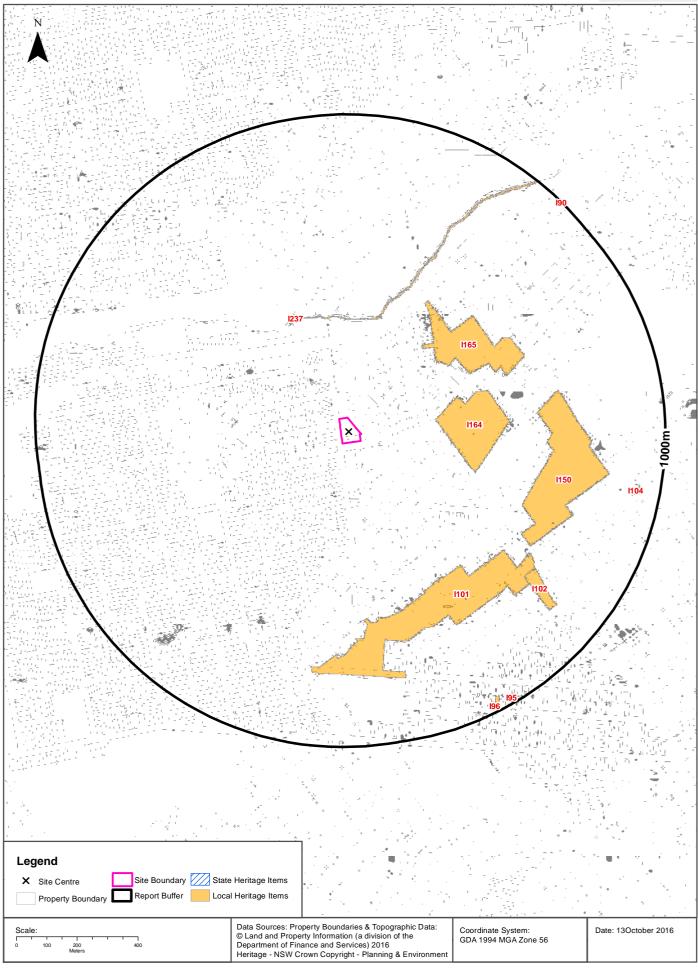
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Heritage Items

Bexley Road & New Illawarra Road, Bexley North, NSW 2207





Heritage

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

State Heritage Items

What are the State Heritage Items located within the report buffer?

Map Id	Name	Address	LGA	Listing Date	Listing No	Plan No	Distance	Direction
N/A	No records in buffer							

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Local Heritage Items

What are the Local Heritage Items located within the report buffer?

Map Id	Name	Classification	Significance	LEP or Act	Published Date	Commenced Date	Currency Date	Distance	Direction
1164	Glendalough McIlveen Museum and Research Centre	Item - General	Local	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	05/12/2011	248m	East
1237	Wolli Creek Valley	Item - General	Local	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	05/12/2011	323m	North East
1165	Stotts Reserve	Item - General	Local	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	05/12/2011	336m	North East
1101	Bardwell Creek Flora Reserve (south of Bexley Road)	Item - General	Local	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	05/12/2011	520m	South East
1150	Bardwell Creek Flora Reserve (north of Bexley Road)	Item - General	Local	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	05/12/2011	569m	East
1102	Former quarry	Item - General	Local	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	05/12/2011	697m	South East
1104	Montrose (main house only)	Item - General	Local	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	05/12/2011	902m	East
196	Federation house	Item - General	Local	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	05/12/2011	949m	South East
195	Federation house	Item - General	Local	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	05/12/2011	978m	South East
190	Hillsdon's Nursery Cottage	Item - General	Local	Rockdale Local Environmental Plan 2011	05/12/2011	05/12/2011	05/12/2011	997m	North East

Heritage Data Source: NSW Crown Copyright - Planning & Environment

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Natural Hazards

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

Bushfire Prone Land

What are the nearest Bushfire Prone Land Categories that exist within the report buffer?

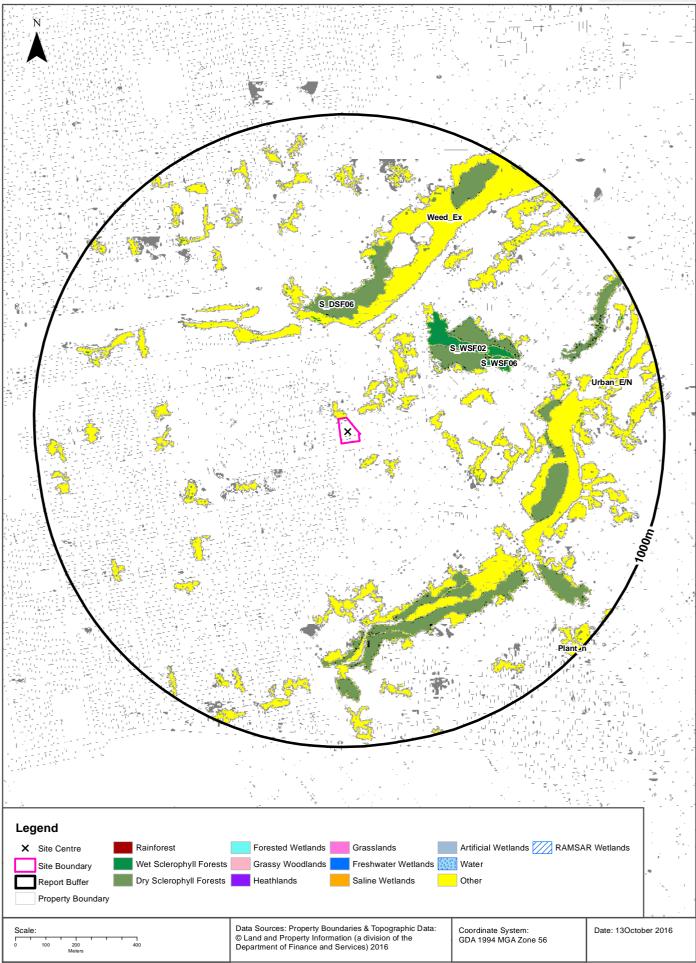
Bushfire Prone Land Category	Distance	Direction
No records within buffer		

Bushfire Prone Land Data Reference - NSW RFS GIS Data Set

Ecological Constraints - Native Vegetation & RAMSAR Wetlands

Bexley Road & New Illawarra Road, Bexley North, NSW 2207





Ecological Constraints

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

Native Vegetation

What native vegetation exists within the report buffer?

Map ID	Map Unit Name	Threatened Ecological Community NSW	Threatened Ecological Community EPBC Act	Understorey	Disturbance	Disturbance Index	Dominant Species	Dist	Direction
Urban_E/N	Urban_E/N: Urban Exotic/Native			00: Not assessed	00: Not assessed	0: Not assessed	Urban Exotic/ Native	0m	Onsite
Weed_Ex	Weed_Ex: Weeds and Exotics			00: Not assessed	00: Not assessed	0: Not assessed	Exotic Species >90%cover	296m	North
S_DSF06	S_DSF06: Coastal Sandstone Foreshores Forest			17: Pittosporum dominant	13: Weeds	3: High	A.costata/ E.piperita/ +/ - C.gummifera/ S.glomulifera/ E.resinifera	322m	North
S_WSF02	S_WSF02: Coastal Enriched Sandstone Moist Forest			10: Mesic/rainfore st	20: Previously cleared 1943	3: High	E.saligna/ S.glomulifera	361m	North East
S_WSF06	S_WSF06: Coastal Shale- Sandstone Forest			11: Semi sheltered dry/mesic	13: Weeds	2: Moderate	E.resinifera/ S.glomulifera/ C.gummifera	457m	North East
Plant_n	Plant_n: Plantation (native and/or exotic)			00: Not assessed	00: Not assessed	0: Not assessed	Native or Exotic Plantations	636m	South East

Native Vegetation of the Sydney Metropolitan Area : NSW Office of Environment and Heritage Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

RAMSAR Wetlands

What RAMSAR Wetland areas exist within the report buffer?

Map Id	RAMSAR Name	Wetland Name	Designation Date	Source	Distance	Direction
N/A	No records in buffer					

RAMSAR Wetlands Data Source: © Commonwealth of Australia - Department of Environment

Ecological Constraints

Bexley Road & New Illawarra Road, Bexley North, NSW 2207

ATLAS of NSW Wildlife

Endangered &Vulnerable Species on the ATLAS of NSW Wildlife database, within 10km of the site?

Class	Family	Scientific	Common	Exotic	NSW Status	Commonwealth Status
Amphibia	Hylidae	Litoria aurea	Green and Golden Bell Frog	No	Endangered, Protected	Vulnerable
Amphibia	Myobatrachidae	Crinia tinnula	Wallum Froglet	No	Vulnerable, Protected	
Amphibia	Myobatrachidae	Pseudophryne australis	Red-crowned Toadlet	No	Vulnerable, Protected	
Aves	Acanthizidae	Calamanthus fuliginosus	Striated Fieldwren	No	Endangered, Protected	
Aves	Accipitridae	Hieraaetus morphnoides	Little Eagle	No	Vulnerable, Protected	
Aves	Accipitridae	Lophoictinia isura	Square-tailed Kite	No	Vulnerable, Protected, Category 3 Sensitive Species	
Aves	Accipitridae	Pandion cristatus	Eastern Osprey	No	Vulnerable, Protected, Category 3 Sensitive Species	
Aves	Anatidae	Stictonetta naevosa	Freckled Duck	No	Vulnerable, Protected	
Aves	Ardeidae	Botaurus poiciloptilus	Australasian Bittern	No	Endangered, Protected	Endangered
Aves	Artamidae	Artamus cyanopterus cyanopterus	Dusky Woodswallow	No	Vulnerable, Protected	
Aves	Burhinidae	Burhinus grallarius	Bush Stone-curlew	No	Endangered, Protected	
Aves	Burhinidae	Esacus magnirostris	Beach Stone-curlew	No	Critically Endangered Species, Protected	
Aves	Cacatuidae	Callocephalon fimbriatum	Gang-gang Cockatoo	No	Vulnerable, Protected, Category 3 Sensitive Species	
Aves	Cacatuidae	Calyptorhynchus lathami	Glossy Black-Cockatoo	No	Vulnerable, Protected, Category 2 Sensitive Species	
Aves	Cacatuidae	Lophochroa leadbeateri	Major Mitchell's Cockatoo	No	Vulnerable, Protected, Category 2 Sensitive Species	
Aves	Charadriidae	Charadrius leschenaultii	Greater Sand-plover	No	Vulnerable, Protected	V,C,J,K
Aves	Charadriidae	Charadrius mongolus	Lesser Sand-plover	No	Vulnerable, Protected	E,C,J,K
Aves	Ciconiidae	Ephippiorhynchus asiaticus	Black-necked Stork	No	Endangered, Protected	
Aves	Columbidae	Ptilinopus superbus	Superb Fruit-Dove	No	Vulnerable, Protected	
Aves	Diomedeidae	Diomedea exulans	Wandering Albatross	No	Endangered, Protected	E,J
Aves	Estrildidae	Stagonopleura guttata	Diamond Firetail	No	Vulnerable, Protected	
Aves	Falconidae	Falco subniger	Black Falcon	No	Vulnerable, Protected	
Aves	Haematopodidae	Haematopus fuliginosus	Sooty Oystercatcher	No	Vulnerable, Protected	
Aves	Haematopodidae	Haematopus longirostris	Pied Oystercatcher	No	Endangered, Protected	
Aves	Laridae	Onychoprion fuscata	Sooty Tern	No	Vulnerable, Protected	
Aves	Laridae	Sternula albifrons	Little Tern	No	Endangered, Protected	CAMBA, JAMBA, ROKAMBA
Aves	Meliphagidae	Anthochaera phrygia	Regent Honeyeater	No	Critically Endangered Species, Protected	Critically Endangered
Aves	Meliphagidae	Epthianura albifrons	White-fronted Chat	No	Vulnerable, Protected	
Aves	Meliphagidae	Epthianura albifrons	White-fronted Chat population in the Sydney Metropolitan Catchment Management Area	No	Endangered Population, Vulnerable, Protected	

Class	Family	Scientific	Common	Exotic	NSW Status	Commonwealth Status
Aves	Petroicidae	Petroica boodang	Scarlet Robin	No	Vulnerable, Protected	
Aves	Petroicidae	Petroica phoenicea	Flame Robin	No	Vulnerable, Protected	
Aves	Psittacidae	Glossopsitta pusilla	Little Lorikeet	No	Vulnerable, Protected	
Aves	Psittacidae	Lathamus discolor	Swift Parrot	No	Endangered, Protected, Category 3 Sensitive Species	Critically Endangered
Aves	Psittacidae	Neophema pulchella	Turquoise Parrot	No	Vulnerable, Protected, Category 3 Sensitive Species	
Aves	Rostratulidae	Rostratula australis	Australian Painted Snipe	No	Endangered, Protected	Endangered
Aves	Scolopacidae	Calidris alba	Sanderling	No	Vulnerable, Protected	CAMBA, JAMBA, ROKAMBA
Aves	Scolopacidae	Calidris ferruginea	Curlew Sandpiper	No	Endangered, Protected	
Aves	Scolopacidae	Calidris tenuirostris	Great Knot	No	Vulnerable, Protected	CE,C,J,K
Aves	Scolopacidae	Limicola falcinellus	Broad-billed Sandpiper	No	Vulnerable, Protected	CAMBA, JAMBA, ROKAMBA
Aves	Scolopacidae	Limosa limosa	Black-tailed Godwit	No	Vulnerable, Protected	CAMBA, JAMBA, ROKAMBA
Aves	Scolopacidae	Xenus cinereus	Terek Sandpiper	No	Vulnerable, Protected	CAMBA, JAMBA, ROKAMBA
Aves	Strigidae	Ninox strenua	Powerful Owl	No	Vulnerable, Protected, Category 3 Sensitive Species	
Aves	Tytonidae	Tyto novaehollandiae	Masked Owl	No	Vulnerable, Protected, Category 3 Sensitive Species	
Mammalia	Balaenidae	Eubalaena australis	Southern Right Whale	No	Endangered, Protected	Endangered
Mammalia	Dasyuridae	Dasyurus viverrinus	Eastern Quoll	No	Endangered, Protected	Critically Endangered
Mammalia	Dugongidae	Dugong dugon	Dugong	No	Endangered, Protected	
Mammalia	Molossidae	Mormopterus norfolkensis	Eastern Freetail-bat	No	Vulnerable, Protected	
Mammalia	Otariidae	Arctocephalus pusillus doriferus	Australian Fur-seal	No	Vulnerable, Protected	
Mammalia	Peramelidae	Perameles nasuta	Long-nosed Bandicoot population in inner western Sydney	No	Endangered Population, Protected	
Mammalia	Phascolarctidae	Phascolarctos cinereus	Koala	No	Vulnerable, Protected	Vulnerable
Mammalia	Pteropodidae	Pteropus poliocephalus	Grey-headed Flying-fox	No	Vulnerable, Protected	Vulnerable
Mammalia	Vespertilionidae	Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	No	Vulnerable, Protected	
Mammalia	Vespertilionidae	Myotis macropus	Southern Myotis	No	Vulnerable, Protected	
Mammalia	Vespertilionidae	Scoteanax rueppellii	Greater Broad-nosed Bat	No	Vulnerable, Protected	
Reptilia	Cheloniidae	Chelonia mydas	Green Turtle	No	Vulnerable, Protected	Vulnerable
Flora	Asteraceae	Senecio spathulatus	Coast Groundsel	No	Endangered, Protected	
Flora	Campanulaceae	Wahlenbergia multicaulis	Tadgell's Bluebell in the local government areas of Auburn, Bankstown, Baulkham Hills, Canterbury, Hornsby, Parramatta and Strathfield	No	Endangered Population	
Flora	Casuarinaceae	Allocasuarina diminuta subsp. mimica	Allocasuarina diminuta subsp. mimica L.A.S.Johnson population in the Sutherland and Liverpool local government areas	No	Endangered Population	
Flora	Convolvulaceae	Wilsonia backhousei	Narrow-leafed Wilsonia	No	Vulnerable, Protected	
Flora	Dilleniaceae	Hibbertia stricta subsp. furcatula		No	Endangered, Protected	
Flora	Elaeocarpaceae	Tetratheca juncea	Black-eyed Susan	No	Vulnerable, Protected	Vulnerable
Flora	Ericaceae	Epacris purpurascens var. purpurascens		No	Vulnerable, Protected	
Flora	Ericaceae	Leucopogon exolasius	Woronora Beard-heath	No	Vulnerable, Protected	Vulnerable

Class	Family	Scientific	Common	Exotic	NSW Status	Commonwealth Status
Flora	Fabaceae (Faboideae)	Pultenaea pedunculata	Matted Bush-pea	No	Endangered, Protected	
Flora	Fabaceae (Mimosoideae)	Acacia bynoeana	Bynoe's Wattle	No	Endangered, Protected	Vulnerable
Flora	Fabaceae (Mimosoideae)	Acacia prominens	Gosford Wattle, Hurstville and Kogarah Local Government Areas	No	Endangered Population	
Flora	Fabaceae (Mimosoideae)	Acacia pubescens	Downy Wattle	No	Vulnerable, Protected	Vulnerable
Flora	Fabaceae (Mimosoideae)	Acacia terminalis subsp. terminalis	Sunshine Wattle	No	Endangered, Protected	Endangered
Flora	Juncaginaceae	Maundia triglochinoides		No	Vulnerable, Protected	
Flora	Lobeliaceae	Hypsela sessiliflora		No	Endangered, Protected, Category 3 Sensitive Species	Extinct
Flora	Myrtaceae	Callistemon linearifolius	Netted Bottle Brush	No	Vulnerable, Protected, Category 3 Sensitive Species	
Flora	Myrtaceae	Eucalyptus nicholii	Narrow-leaved Black Peppermint	No	Vulnerable, Protected	Vulnerable
Flora	Myrtaceae	Eucalyptus scoparia	Wallangarra White Gum	No	Endangered, Protected	Vulnerable
Flora	Myrtaceae	Melaleuca deanei	Deane's Paperbark	No	Vulnerable, Protected	Vulnerable
Flora	Myrtaceae	Syzygium paniculatum	Magenta Lilly Pilly	No	Endangered, Protected	Vulnerable
Flora	Orchidaceae	Caladenia tessellata	Thick Lip Spider Orchid	No	Endangered, Protected, Category 2 Sensitive Species	Vulnerable
Flora	Poaceae	Deyeuxia appressa		No	Endangered, Protected	Endangered
Flora	Proteaceae	Grevillea beadleana	Beadle's Grevillea	No	Endangered, Protected, Category 3 Sensitive Species	Endangered
Flora	Proteaceae	Persoonia hirsuta	Hairy Geebung	No	Endangered, Protected, Category 3 Sensitive Species	Endangered
Flora	Proteaceae	Persoonia nutans	Nodding Geebung	No	Endangered, Protected	Endangered
Flora	Rhamnaceae	Pomaderris prunifolia	P. prunifolia in the Parramatta, Auburn, Strathfield and Bankstown Local Government Areas	No	Endangered Population	
Flora	Thymelaeaceae	Pimelea curviflora var. curviflora		No	Vulnerable, Protected	Vulnerable

Data does not include records not defined as either endangered or vulnerable, and category 1 sensitive species are also excluded. NSW Office of Environment and Heritage's Atlas of NSW Wildlife, which holds data from a number of custodians. Data obtained 13/10/2016

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APPENDIX C

HISTORICAL TITLE SEARCH RESULTS

E16016BN-R03F (Rev 0.2)

Address: - 88, 90, 94, 96 New Illawarra Road & 311 Bexley Road, Bexley North

Description: - Lot A D.P. 388204, Lot 1 D.P. 400341 & Lots 3, 4, 6 D.P. 508629

As regards Lot A D.P. 388204

Date of Acquisition and Term held	Registered Proprietor(s) & occupations where available	Reference to title at acquisition and sale
11.5.1910 (1910 to 1913)	Edgar Lucas (Solicitor)	Vol 2055 Fol 231
20.2.1913 (1913 to 1914)	Heinrich George Menkens (Commercial Broker)	Vol 2055 Fol 231
31.1.1914 (1914 to 1940)	N.S.W. Realty Co Limited	Vol 2055 Fol 231
5.3.1940 (1940 to 1948)	Francis Baines (Married Woman)	Vol 2055 Fol 231 Now Vol 5248 Fol 180
19.8.1948 (1948 to 1953)	Thomas Baines (Carpenter) (Application by Transmission not investigated)	Vol 5248 Fol 180
15.12.1953 (1953 to 1954)	Ann Josh (Married Woman) (Application by Transmission not investigated)	Vol 5248 Fol 180 Now Vol 6755 Fol 208
12.1.1954 (1954 to 1954)	Victor Charles Hood (Building Contractor) Fred Ward (Building Contractor)	Vol 6755 Fol 208
8.12.1954 (1954 to 1960)	John Lionel Lavender (Motor Mechanic) Greta Eileen Lavender (Married Woman)	Vol 6755 Fol 208 Now Vol 6935 Fol 113
23.9.1960 (1960 to 1984)	Edward Lewis Andrew Anderson (Civil Engineer)	Vol 6935 Fol 113
10.9.1984 (1984 to 1986)	John Joseph Quinn Gloria Muriel Quinn	Vol 6935 Fol 113
22.8.1986 (1986 to Date)	 # Samih Ali Ghoniem # Mariam Mahmoud Ghoniem Now # Samih Ali Ghunaim # Mariam Mahmoud Ghunaim 	Vol 6935 Fol 113 Now A/388204

Denotes current registered proprietor

Easement & Leases: -NIL

As regards Lot 1 D.P. 400341

Date of Acquisition and Term held	Registered Proprietor(s) & occupations where available	Reference to title at acquisition and sale
11.5.1910 (1910 to 1913)	Edgar Lucas (Solicitor)	Vol 2055 Fol 231
20.2.1913 (1913 to 1914)	Heinrich George Menkens (Commercial Broker)	Vol 2055 Fol 231
31.1.1914 (1914 to 1919)	N.S.W. Realty Co Limited	Vol 2055 Fol 231
3.9.1919 (1919 to 1953)	Thomas Baines (Poultry Farmer)	Vol 2055 Fol 231 Now Vol 5248 Fol 201
15.12.1953 (1953 to 1954)	Ella Moon (Married Woman) (Application by Transmission not investigated)	Vol 5248 Fol 201 Now Vol 6755 Fol 206
12.2.1954 (1954 to 1956)	Frank Hennah (Taxi Proprietor) Mary Ann Hennah (Married Woman)	Vol 6755 Fol 206
1.5.1956 (1956 to 1993)	John Albert Monahan (Builder) Ida Laura Monahan (Married Woman)	Vol 6755 Fol 206 Now 1/400341
30.3.1993 (1993 to 2008)	Ida Laura Monahan (Widow)	1/400341
13.5.2008 (2008 to 2013)	Ali Fadel Ibrahim Mustapha Fadel	1/400341
28.10.2013 (2013 to Date)	# Abdellatif Ibrahim Mahmoud Meqdadi	1/400341

<u># Denotes current registered proprietor</u>

Easement & Leases: -NIL

Search Lot 3 D.P. 508629

Date of Acquisition and Term held	Registered Proprietor(s) & occupations where available	Reference to title at acquisition and sale
11.5.1910 (1910 to 1913)	Edgar Lucas (Solicitor)	Vol 2055 Fol 231
20.2.1913 (1913 to 1914)	Heinrich George Menkens (Commercial Broker)	Vol 2055 Fol 231
31.1.1914 (1914 to 1918)	N.S.W. Realty Co Limited	Vol 2055 Fol 231
12.4.1918 (1918 to 1977)	George Gibbons (Sugar Boiler) Annie Elizabeth Gibbons (Married Woman)	Vol 2055 Fol 231 Now Vol 9792 Fol 73
12.7.1977 (1977 to 1977)	Annie Elizabeth Gibbons (Widow)	Vol 9792 Fol 73
29.9.1977 (1977 to 1990)	John Angelo Popovich (Railway Employee) Anica Popovich	Vol 9792 Fol 73 Now 3/508629
24.12.1990 (1990 to 1998)	Yuet Kwong	3/508629
1.7.1998 (1998 to 2004)	Joseph Awada Nariman Awada	3/508629
3.3.2004 (2004 to Date)	# Nariman Awada	3/508629

<u># Denotes current registered proprietor</u>

Easement & Leases: -NIL

Search Lot 4 D.P. 508629

Date of Acquisition and Term held	Registered Proprietor(s) & occupations where available	Reference to title at acquisition and sale
11.5.1910 (1910 to 1913)	Edgar Lucas (Solicitor)	Vol 2055 Fol 231
20.2.1913 (1913 to 1914)	Heinrich George Menkens (Commercial Broker)	Vol 2055 Fol 231
31.1.1914 (1914 to 1918)	N.S.W. Realty Co Limited	Vol 2055 Fol 231
12.4.1918 (1918 to 1938)	George Gibbons (Sugar Boiler) Annie Elizabeth Gibbons (Married Woman)	Vol 2055 Fol 231 Now Vol 2847 Fol 78
5.10.1938 (1938 to 1981)	John Spencer Gibbons (Butcher)	Vol 2847 Fol 78 Now Vol 9792 Fol 74
10.3.1981 (1981 to 1987)	Michael Paul Sergis (Butcher)	Vol 9792 Fol 74
4.6.1987 (1987 to 1998)	Chris Stavropoulos Maria Stavropoulos	Vol 9792 Fol 74 Now 4/508629
25.2.1998 (1998 to Date)	# Emmanuel Zoumas # Patty Zoumas	4/508629

<u># Denotes current registered proprietor</u>

Easement: -NIL

Leases:

• 25.9.1991 Z945041 - expired or surrendered not investigated

Search Lot 6 D.P. 508629

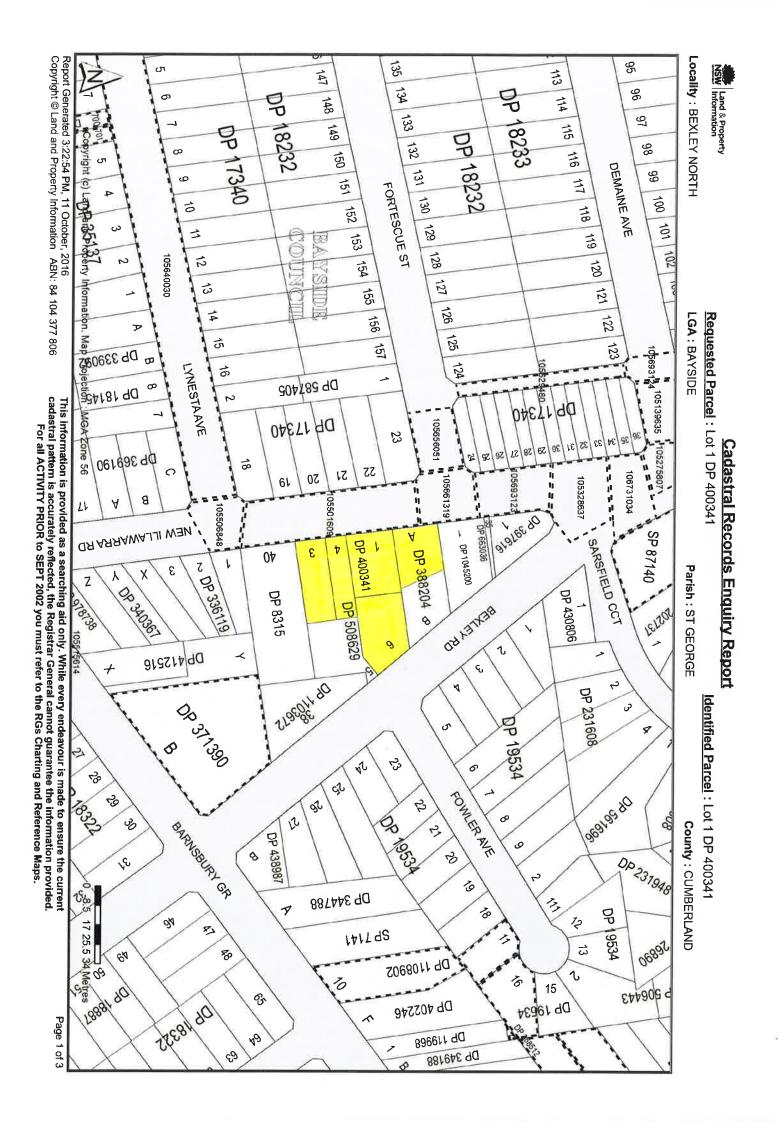
Date of Acquisition and Term held	Registered Proprietor(s) & occupations where available	Reference to title at acquisition and sale
11.5.1910 (1910 to 1913)	Edgar Lucas (Solicitor)	Vol 2055 Fol 231
20.2.1913 (1913 to 1914)	Heinrich George Menkens (Commercial Broker)	Vol 2055 Fol 231
31.1.1914 (1914 to 1919)	N.S.W. Realty Co Limited	Vol 2055 Fol 231
3.9.1919 (1919 to 1953)	Thomas Baines (Poultry Farmer)	Vol 2055 Fol 231 Now Vol 5248 Fol 201
15.12.1953 (1953 to 1954)	Ella Moon (Married Woman) (Application by Transmission not investigated)	Vol 5248 Fol 201 Now Vol 6755 Fol 206
12.2.1954 (1954 to 1957)	Frank Hennah (Taxi Proprietor) Mary Ann Hennah (Married Woman)	Vol 6755 Fol 206 Now Vol 7339 Fol 235
12.9.1957 (1957 to 1962)	John Inman Bale (Pilot) Joy Elaine Bale (Married Woman)	Vol 7339 Fol 235
16.10.1962 (1962 to 1964)	Peter William Davis (Service Station Manager)	Vol 7339 Fol 235 Now Vol 9792 Fol 76
20.8.1964 (1964 to 1967)	Robert Raymond Giddins (Printer) Patricia June Giddins (Married Woman)	Vol 9792 Fol 76
9.5.1967 (1967 to 1970)	Geoffrey Evans Mulcahy (Clerk) Helen Margaret Mulcahy (Married Woman)	Vol 9792 Fol 76
5.8.1970 (1970 to 1985)	Ivan Pavlakovic (Butcher) Wanda Dragan (Married Woman)	Vol 9792 Fol 76
15.3.1985 (1985 to 2007)	Enrique Cavanna Guadalupe Cavanna	Vol 9792 Fol 76 Now 6/508629
8.2.2007 (2007 to Date)	# Andrew Marshall Hunter # Allyn Hector George Marshall	6/5086259

Denotes current registered proprietor

Easement & Leases: -NIL

Jours Sincerely James McDonnell 12 October 2016

×.



SEARCH DATE 12/10/2016 8:05AM

FOLIO: A/388204 · ·

First Title(s): SEE PRIOR TITLE(S) Prior Title(s): VOL 6935 FOL 113

Recorded	Number	Type of Instrument	C.T. Issue
2/9/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
12/12/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED

*** END OF SEARCH ***

PSH-GROLLY-Bexley North

PRINTED ON 12/10/2016

Any entries preceded by an asterix do not appear on the current edition of the certificate of title.

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: A/388204

SEARCH DATE	TIME	EDITION NO	DATE
12/10/2016	8:17 AM	-	

VOL 6935 FOL 113 IS THE CURRENT CERTIFICATE OF TITLE

LAND

LOT A IN DEPOSITED PLAN 388204 LOCAL GOVERNMENT AREA ROCKDALE PARISH OF ST GEORGE COUNTY OF CUMBERLAND TITLE DIAGRAM DP388204

FIRST SCHEDULE

SAMIH ALI GHUNAIM MARIAM MAHMOUD GHUNAIM AS JOINT TENANTS

(CN Y414549)

SECOND SCHEDULE (1 NOTIFICATION)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

PRINTED ON 12/10/2016

PSH-GROLLY-Bexley North

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> Level 4, 122 Castlereagh Street, Sydney 2000 - DX 1078 SYDNEY PHONE: (02) 9261 5211 FAX: (02) 9264 7752 www.hazlett.com.au



LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

12/10/2016 8:08AM

FOLIO: 1/400341

First Title(s): SEE PRIOR TITLE(S) Prior Title(s): VOL 7339 FOL 219

Recorded	Number	Type of Instrument	C.T. Issue
26/11/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
19/4/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
30/3/1993	I223060	REQUEST	
30/3/1993	I223061	NOTICE OF DEATH	EDITION 1
13/5/2008	AD949119	TRANSFER	
13/5/2008	AD949119 AD949120	MORTGAGE	EDITION 2
13/3/2000	ADJ4J120	HONIGAGE	
27/8/2013	AH974939	CAVEAT	
28/10/2013	AI116829	WITHDRAWAL OF CAVEAT	
28/10/2013	AI116830	DISCHARGE OF MORTGAGE	
28/10/2013	AI116831	TRANSFER	
28/10/2013	AI116832	MORTGAGE	EDITION 3

*** END OF SEARCH ***

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			13-May-2008 /Sts:NO.OK	/Pgs:ALL /Prt:12-Oct-20) 16 09:44 /Seq:1 of 1 1810 11 11 11 11 11 11 11 11 11 11 11 11 1	
	ROLLY-Bexley_ Form: 01T			ANSFER		
	Release: 3.3 www.lands.nsw.	gov.au		w South Wales Property Act 1900		
	PRIVACY NOTE:	Section 31B of	the Real Property Act 1900 (F	PAct) authoriaes the Ri	AD94911	
	by this form fo the Register is m	r the establisi ade available to	nment and maintenance of any person for search upor	the Real Property Act Repaired a payment of a fee, if any,		
	STAMP DUTY		te Revenue use only		Office of State Revenue NSW Treasury	
	\bigcirc				Client No: 92046394 Duty: Trans No:	1529
	()				Asst details:	
(A)	FOLIO OF THE	1/400341	Western States			
	REGISTER	1/400341				
(B)	LODGED BY	Document	Name, Address or DX, Tele	whone, and LLPN if any		CODES
		Collection Box	,,,		N:123835G	T
		232 .			CSB	Tw
		q.~ .	Reference:	6	21781406	(Sheriff)
(C)	TRANSFEROR	Ida Laura	MONAHAN			
				-		
(D)	CONSIDERATION	The transferor	acknowledges receipt of the	consideration of \$ 600,00	0.00	and as regards
(E)	ESTATE	the above folio	o of the Register transfers to	the transferce an estat	e in fee simple	
(F)	SHARE TRANSFERRED					
(G)		Encumbrances	(if applicable):			
(H)	TRANSFEREE		and Ibrahim Mustar	204		
(1)		1 1	oint Tenants			
	DATE	24 4				
(l) I	certify that the pe	rson(s) signing	opposite, with whom	Certified correct f	or the purposes of the Real	
I	am personally acc	quainted or as t	o whose identity I am strument in my presence.		0 by the transferor,	
		AZ	Sumer in my presence.			
S	Signature of witnes	ss: CPL	siana	Signature of trans		
_		YJOHN	Allan		Mona	
r A	Name of witness: Address of witness		ABASH AVE ER. NSW 2099	g L "	ona	1 -
		* CROM	ER NSW 2099	72		nan
2						
					he purposes of the Real Prop on whose signature appears b	
					0	8
				Signature:		+
					a blow	12
				Signator to your	Names Making	
				Signatory's name: Signatory's capacity:	Nancy Wahlquist transferce's licensed cor	iveyancer

ALL HANDWRITING MUST BE IN BLOCK CAPITALS. 0706

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DEPARTMENT.OF LANDS Page 1 of 1 LAND AND PROPERTY INFORMATION DIVISION

1,9

FOLIO: 1/400341

SEARCH DATE	TIME	EDITION NO	DATE
12/10/2016	8:17 AM	3	28/10/2013

LAND

LOT 1 IN DEPOSITED PLAN 400341 LOCAL GOVERNMENT AREA ROCKDALE PARISH OF ST GEORGE COUNTY OF CUMBERLAND TITLE DIAGRAM DP400341

FIRST SCHEDULE

ABDELLATIF IBRAHIM MAHMOUD MEQDADI

(T AI116831)

SECOND SCHEDULE (2 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)

2 AI116832 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

PSH-GROLLY-Bexley North

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Req:R560818 /Doc:CT 09792-073 CT /Rev:08-Feb-2011 /Sts:OK.SC /Pgs:ALL /Prt:12-Oct-2016 08:22 /Seq:1 of 2 Ref:PSH-GROLLY-Bexley_North /Src:H IFICATE OF TITLE NEW SOUTH WALES ERTY ACT, 1900, as amended. Application No. 3427 Prior Title Volume 2847 Folio 78 9792 Fol. 73Vol. ID 1st Edition issued 28-8-1964 P Fol I certify that the person described in the First Schedule is the registered proprietor of the estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown 3 P RBLatta C Witness Regieration WARNING: THIS DOCUMENT MUST NOT BE PLAN SHOWING LOCATION OF LAND Vol. (l'age 1) Provide the state in Fee Simple in Lot 3 in Deposited Flam 506629 at Boxley North in the Mandapality Periah of States and conditions, if any, contained in the Grow Grant (a second contrast) REMOVED FROM THE LAND TITLES OFFICE. Estate in Fee Simple in Lot 3 in Deposited Plan 508629 at Bexley North in the Municipality of Rockdale Parish of St.George and County of Cumberland being part of Portion 142 granted to James Chandler on wife, as Joint Tenants PERSONS tol Registrar General NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

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					Mortgage	NATURE I NUMBER I DATE		(1) A set of the se				veriatrys.	zabeth Cluons of gelo Popovich of Be		
		(1) A second se second second sec		a matrix is a second se Second second sec	to N.S.W. Permanent Building Society Limited.	PARTICULARS	SECOND SCHEDULE (continued)		SEE AUTO FULIU			,	Textey North, Midow	REGISTERED PROPRIETOR	
	and a second second		in the second second	and an and a second	29-9-1977.	ENTERED	ed)				i i	Transfer		NATURE	
					£	Signature of Rogistrar General					1	er 0,361858	Notice of Death Q274551	INSTRUMENT	
	and the second second second			A REAL PROPERTY AND					*		*			I DATE	
						CANCELLATION				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		29-9-1977.	-12=7=1977	ENTERED	
	 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 -										1 1 1 1 1	2		Signature of Registrar General	

LAND A	AND PROPERTY	INFORMATION	N NEW SOUTH	I WALES - HI	ISTORICA	L SEARCH
				SEARCH DATH	 C	
				12/10/2016		
FOLIO: 3/50	08629					
Firs		SEE PRIOR T VOL 9792 FC				
Recorded	Number	Type of Ins	strument		C.T. Is	sue
28/3/1988		TITLE AUTOM	MATION PROJ	ECT	LOT REC FOLIO N	ORDED OT CREATED
22/6/1988		CONVERTED T	TO COMPUTER	FOLIO	FOLIO CI CT NOT I	
20/9/1988	X787012	MORTGAGE			EDITION	1
3/2/1989	Y140914	DISCHARGE C	F MORTGAGE		EDITION	2
24/12/1990 24/12/1990	Z416227 Z416228	DISCHARGE C)F MORTG AGE		EDITION	3
	5095443	TRANSFER				0
1/7/1998		MORTGAGE			EDITION	4
18/9/2001 18/9/2001	7949894 7949895	DISCHARGE O MORTGAGE	F MORTGAGE		EDITION	5
	9757197 9757198	DISCHARGE O MORTGAGE	F MORTGAGE		EDITION	6
3/3/2004	AA465966	TRANSFER			EDITION	7
	AA908893 AA908894	DISCHARGE O MORTGAGE	F MORTGAGE		EDITION	8
26/8/2005 26/8/2005	AB723682 AB723683	DISCHARGE O MORTGAGE	F MORTGAGE		EDITION	9
6/6/2014 6/6/2014	AI640087 AI640088	DISCHARGE O MORTGAGE	F MORTGAGE		EDITION	10

*** END OF SEARCH ***

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-	562124 /Doc:DL 5095443 /Re SH-GROLLY-Bexley_North /Sr Licence: AUS/0634/96		ANSFE ew South Wales Property Act 19(016 10:01 /Seq:1 of 1	aly
(A)	LAND TRANSFERRED If appropriate, specify the share or part transferred.	FOLIO IDE	NTIFIER 3/508629		
(B)	LODGED BY	2.5	ddress or DX and Telep e (15 character maximur	n): AWADA SR	66.
(C)	TRANSFEROR	YUET KWO	NG	/ [m	
(D)	acknowledges receipt of the co and as regards the land specifie	onsideration of \$215,000 , above transfers to the transference of the tra	DO	nple.	······································
(E)	Encumbrances (if applicable):				••••••
(F) (G)	TRANSFEREE T (\$713 LGA) TW (Sheriff)	JOSEPH AWADA and TENANCY: IOINT TEN		204 04 002269C337	
(H)	We certify this dealing correct	for the purposes of the Real	Property Act 1900. D	ATE 25/6/93 👷	••••••
	Signed in my presence by the t	200	·B-1	HER ATTSRNEY K	ITTY YELEN INT TO
ł	Joannis The Name of Witness (BL	andrandia	for	VER DE ATTORNEY	вож 4060 ND. 423
,	3729 Farent Rel Address of V	Barlay 2207		Horany Signature of Transferor	
S	ligned in my presence by the s	transferee who is personally	known to me.		
	Signature of V	Witness		all -	
¥9	Name of Witness (BLC	OCK LETTERS)		Signature of Transferee	
•	Address of W		conveyancer, J	he transferee's behalf by a solici show the signatory's full name i oseph Alphonse, Solicitor fo r '	n block letters.
		Page 1 o	f	Checked by (LTO use)	

FOLIO: 3/508629

SEARCH DATE	TIME	EDITION NO	DATE		
<u> 19 – 19 – 19 – 19 – 19 – 19 – 19 – 19 </u>					
12/10/2016	8:18 AM	10	6/6/2014		

LAND

LOT 3 IN DEPOSITED PLAN 508629 AT BEXLEY NORTH LOCAL GOVERNMENT AREA ROCKDALE PARISH OF ST GEORGE COUNTY OF CUMBERLAND TITLE DIAGRAM DP508629

FIRST SCHEDULE

NARIMAN AWADA

(T AA465966)

SECOND SCHEDULE (3 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)

- 2 A375153 COVENANT
- 3 AI640088 MORTGAGE TO ARAB BANK AUSTRALIA LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

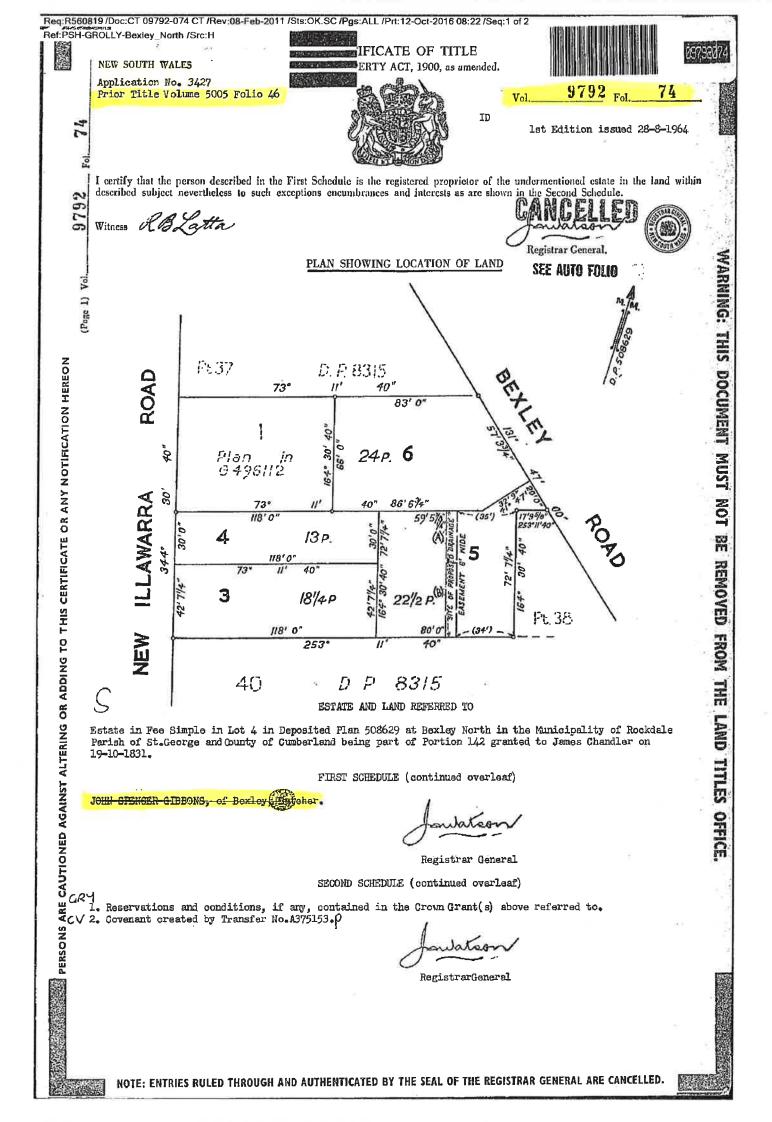
*** END OF SEARCH ***

PSH-GROLLY-Bexley North

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 (Page 2 of 2	pages)		4 91			MV	- T 7		Vo	1.	979	2 Fol	7	4	18.5
			An and the second s			W907584 Mortgage to St. George Build X499338 Mortgage to Westmar Savings P	NATUAE I NUMBER I GATE	INCED INCLU			 If a loss was lighter manual many register () Internet in the second second manual manual manual second secon		Michael Paul Serging Perramatta, Butches		
					anninversi (1954-2000 cu (2923-1900).	ank limited Decistered 20 A 1000	PARTICULARS	SECOND SCHEDULE (cor	SEE AUTO FULLO		CANCELED	an Joyne Activities by Highlef Mp4/2003	as inint tenante hy Teamefer LIONTEDO	REGISTERED PROPRIETOR	
					and the second s	and the second	ENTERED	(continued)				Kegistered 4-6-1987.		- NATURE	inued)
						0	Signature of Rogistrar General		and an and an and an and an and an and an				sfer \$332659	I NUMBER	
				and states and states	and the second second	Discharged							9	DATE	
						X499337	CANCELLATION				<u></u> 		10-3-1981	ENTERED	
		-		· · · · · · ·	- 344 - 444	<u></u>			-				A	Signature of Registrar Goneral	

SEARCH DATE

12/10/2016 8:11AM

FOLIO: 4/508629

First Title(s): SEE PRIOR TITLE(S) Prior Title(s): VOL 9792 FOL 74

Recorded	1102100 012	Type of Instrument	C.T. Issue
28/3/198		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
22/6/198	8	CONVERTED TO COMPUTER FOLI	O FOLIO CREATED CT NOT ISSUED
25/9/199	1 Z945041	LEASE	EDITION 1
18/12/199	5 07767 <mark>2</mark> 0	DISCHARGE OF MORTGAGE	EDITION 2
4/2/199	8 3772590	REQUEST	EDITION 3
25/2/199	8 3819466	TRANSFER	
25/2/199	8 3819467	MORTGAGE	EDITION 4
2/2/200 2/2/200		DISCHARGE OF MORTGAGE MORTGAGE	EDITION 5

*** END OF SEARCH ***

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FOLIO: 4/508629

SEARCH DATE	TIME	EDITION NO	DATE
12/10/2016	8:19 AM	5	2/2/2005

LAND

LOT 4 IN DEPOSITED PLAN 508629 AT BEXLEY NORTH LOCAL GOVERNMENT AREA ROCKDALE PARISH OF ST GEORGE COUNTY OF CUMBERLAND TITLE DIAGRAM DP508629

FIRST SCHEDULE

EMMANUEL ZOUMAS PATTY ZOUMAS AS JOINT TENANTS

(T 3819466)

SECOND SCHEDULE (3 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)

2 A375153 COVENANT

3 AB260654 MORTGAGE TO BANK OF CYPRUS AUSTRALIA PTY LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

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Req:R560828 /Doc:CT 09792-076 CT /Rev:08-Feb-2011 /Sts:OK.SC /Pgs:ALL /Prt:12-Oct-2016 08:23 /Seq:1 of 2 Ref:PSH-GROLLY-Bexley_North /Src:H IFICATE OF TITLE ũ9792**0**76 NEW SOUTH WALES FERTY ACT, 1900, as amended. Application No. 3427 9792 Fol 76 Prior Title Volume 7339 Folio 235 Vol. 1st Edition issued 28-8-1964 D 2 I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedul G. CA 26 Witness RBLatta Registrar General, WARNING: THIS DOCUMENT MUST PLAN SHOWING LOCATION OF LAND SEE AUTO FOLIO Vol (Page 1) ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON PE37 D. P. 8315 ROAD 11 40" 73° 83' 0" S \$ 30 Plan 24 р. in 99 6496112 164° AWARRA 30 TON 86' 674' 40" 73* 11' 17'95/8" 253"11'40 3 (35') 118'0 59 ċ m Д, 13 P. 30 344 1/2 110'0' **REMOVED FROM THE LAND TITLES OFFICE** 73 40 11 9 121 11 3 18'14 P \$2' Pt. 38 118' .0' (34'. ZEW 253 40 11 40 P8315 Ð ESTATE AND LAND REFERRED TO Estate in Fee Simple in Lot 6 in Deposited Plan 508629 at BexLey North in the Municipality of Rockdale Parish of St.George and County of Cumberland being part of Portion 142 granted to James Chaandler on 19-10-1831. CAUTIONED AGAINST FIRST SCHEDULE (continued overleaf) FETER WILLIAM DAVIS, of Berley vice Station Manuzer. Registrar General SECOND SCHEDULE (continued overleaf) GRY1. Reservations and conditions, if any, contained in the Crown Grant(s) above referred to. AP 2. Conditions created by Transfer No.4489100. 3. Mertgage No. 118/262 to St Conversion (Conversion) Mertgage No. 1124262 to St.George & Dronulla Permanent Co-operative-Building and Investment Society Lightan Entered 8-11-1962. Discharg PERSONS Discharged J749114 aico Registrar General NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED. 的过去

1.5 	(Page 2 of 2 pages)	Ř	et met	Vol. 9792 Fol 76
		Montgage 3749116 17.0.1964 to Bank of New South 1 Montgage 1650071 9 5 1961 5 WS 11 for target 6 Most 1 for the source of the bod Dominician Crif V605644 Mortgage to Commonwealth Savings Bank of Australia.	INSTRUMENT NATURE I NUMBER I DATE	FIRST SCHEDULE (continue REGISTERED PROPRIETOR Rebert Baymond Giddino of Beal of North, Printer and Patr (File) June Addines his rife as joint Seching brind build ender of box by North, Printer and Patr (File) June Addines his rife as joint for hardenie, Bieden and June box by the box by the second of the second the sec
nen ander ander en		of New Bowth Wale Wale Hings Bouk Limited Brannes & Brieker, Society Limited Domining Carlow (Australia) Limited (2) k of Australia. Registered 15-3-1985	SECOND SCHEDULE (continued) PARTICULARS	FIRST SCHEDULE (continued) REGISTERED PROPRIETOR the Printer and Petrolike June Giadine his rife as joint as in the first and helder her gar fulled as joint tenants by Transfer V605643. Registered 15-3-19 SEE ANTO FOLIO
		28-9-1964 1-15-5-1467 1/-18-1770	ENTERED	1
		A. C.	Signature ci- Registrar General	RE INSTRUMENT
		Processon Justice Discharged		11 1 2 2 2 2 2 2 2 2 2 2 2 2 2
		K 650072.	CANCELLATION	
				Signature d Registrar General
	*			H-GROLLY-BOXIEV NORTH /SICH

FOLIO: 6/508629

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 9792 FOL 76

	Recorded	Number	Type of In	strument	C.T. Issue
					and with the side and the side and the side
	28/3/1988		TITLE AUTO	MATION PROJECT	LOT RECORDED FOLIO NOT CREATED
	22/6/1988		CONVERTED !	TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
	15/2/2001	7414145	DISCHARGE (OF MORTGAGE	
	15/2/2001	7414146	MORTGAGE		EDITION 1
	10, 2, 2001	,			
	23/8/2002	8893262	DISCHARGE (OF MORTGAGE	
	23/8/2002	8893263	MORTGAGE		EDITION 2
	8/2/2007	AC923918	DISCHARGE (OF MORTGAGE	
	8/2/2007	AC923919	TRANSFER		
	8/2/2007	AC923920	MORTGAGE		EDITION 3
2	9/10/2012	AH327660	DEPARTMENTA	AL DEALING	

*** END OF SEARCH ***

PSH-GROLLY-Bexley North

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FOLIO: 6/508629

-	_	-	_	 _		

SEARCH DATE	TIME	EDITION NO	DATE
12/10/2016	8:20 AM	3	8/2/2007

LAND

LOT 6 IN DEPOSITED PLAN 508629 AT BEXLEY NORTH LOCAL GOVERNMENT AREA ROCKDALE PARISH OF ST GEORGE COUNTY OF CUMBERLAND TITLE DIAGRAM DP508629

FIRST SCHEDULE

ANDREW MARSHALL HUNTER ALLYN HECTOR GEORGE MARSHALL AS JOINT TENANTS

(T AC923919)

SECOND SCHEDULE (3 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)

* 2 CONDITION(S) CREATED BY A489100

3 AC923920 MORTGAGE TO WESTPAC BANKING CORPORATION

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

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Sydney

Address: - 307-309 Bexley Road, Bexley North

Description: - Lot B D.P. 388204. Lot 1 D.P. 1045200 & Lot 35 D.P. 663036

As regards Lot B D.P. 388204

Date of Acquisition and Term held	Registered Proprietor(s) & occupations where available	Reference to title at acquisition and sale
11.5.1910 (1910 to 1913)	Edgar Lucas (Solicitor)	Vol 2055 Fol 231
20.2.1913 (1913 to 1914)	Heinrich George Menkens (Commercial Broker)	Vol 2055 Fol 231
31.1.1914 (1914 to 1940)	N.S.W. Realty Co Limited	Vol 2055 Fol 231
5.3.1940 (1940 to 1948)	Francis Baines (Married Woman)	Vol 2055 Fol 231 Now Vol 5248 Fol 181
19.8.1948 (1948 to 1953)	Thomas Baines (Carpenter) (Application by Transmission not investigated)	Vol 5248 Fol 181
15.12.1953 (1953 to 1954)	Ann Josh (Married Woman) (Application by Transmission not investigated)	Vol 5248 Fol 181 Now Vol 6755 Fol 208
12.1.1954 (1954 to 1954)	Victor Charles Hood (Building Contractor) Fred Ward (Building Contractor)	Vol 6755 Fol 208
12.5.1954 (1954 to 1995)	H.C. Sleigh Limited	Vol 6755 Fol 208 Now B/388204
25.8.1995 (1995 to 1995)	Caltex Oil (Australia) Pty Limited	B/388204
15.12.1995 (1995 to 1996)	Daniel Anthony Ishkhanian	B/388204
18.3.1996 (1996 to 2002)	Michael Lambrou Gina Lambrou	B/388204
6.3.2002 (2002 to 2007)	Oriental Pacific Holdings Pty Limited	B/388204
13.2.2007 (2007 to Date)	# Mtanios Soueid # Nazah Soueid	B/388204

Denotes current registered proprietor

Easement: -NIL

Leases: -

• 24.10.2002 8909096 - Michael Hanna & Raed Hanna - expired not investigated

As regards Lot 1 D.P. 1045200

Date of Acquisition and Term held	Registered Proprietor(s) & occupations where available	Reference to title at acquisition and sale
11.5.1910 (1910 to 1913)	Edgar Lucas (Solicitor)	Vol 2055 Fol 231
20.2.1913 (1913 to 1914)	Heinrich George Menkens (Commercial Broker)	Vol 2055 Fol 231
31.1.1914 (1914 to 1940)	N.S.W. Realty Co Limited	Vol 2055 Fol 231
5.3.1940 (1940 to 1948)	Francis Baines (Married Woman)	Vol 2055 Fol 231 Now Vol 5248 Fol 181
19.8.1948 (1948 to 1953)	Thomas Baines (Carpenter) (Application by Transmission not investigated)	Vol 5248 Fol 181
15.12.1953 (1953 to 1955)	Thomas Richard Baines	Vol 5248 Fol 181 Now Vol 6755 Fol 207
7.4.1955 (1955 to 1995)	H.C. Sleigh Limited	Vol 6755 Fol 207
25.8.1995 (1995 to 1995)	Caltex Oil (Australia) Pty Limited	Vol 6755 Fol 207
15.12.1995 (1995 to 1996)	Daniel Anthony Ishkhanian	Vol 6755 Fol 207
18.3.1996 (1996 to 2002)	Michael Lambrou Gina Lambrou	Vol 6755 Fol 207
6.3.2002 (2002 to 2007)	Oriental Pacific Holdings Pty Limited	Vol 6755 Fol 207 Now 1/1045200
13.2.2007 (2007 to Date)	# Mtanios Soueid # Nazah Soueid	1/1045200

Denotes current registered proprietor

Easement: -NIL

Leases: -

• 24.10.2002 8909096 - Michael Hanna & Raed Hanna - expired not investigated

As regards Lot 35 D.P. 663036

Date of Acquisition and Term held	Registered Proprietor(s) & occupations where available	Reference to title at acquisition and sale
11.5.1910 (1910 to 1913)	Edgar Lucas (Solicitor)	Vol 2055 Fol 231
20.2.1913 (1913 to 1914)	Heinrich George Menkens (Commercial Broker)	Vol 2055 Fol 231
31.1.1914 (1914 to 1919)	N.S.W. Realty Co Limited	Vol 2055 Fol 231
3.9.1919 (1919 to 1953)	Thomas Baines (Poultry Farmer)	Vol 2055 Fol 231 Now Vol 5214 Fol 43
24.9.1953 (1953 to 1955)	Thomas Richard Baines (Application by Transmission not investigated)	Vol 5214 Fol 43
7.4.1955 (1955 to 1995)	H.C. Sleigh Limited	Vol 5214 Fol 43 Now Vol 7516 Fol 93
25.8.1995 (1995 to 1995)	Caltex Oil (Australia) Pty Limited	Vol 7516 Fol 93
15.12.1995 (1995 to 1996)	Daniel Anthony Ishkhanian	Vol 7516 Fol 93 Now 35/663036
18.3.1996 (1996 to 2002)	Michael Lambrou Gina Lambrou	35/663036
6.3.2002 (2002 to 2007)	Oriental Pacific Holdings Pty Limited	35/663036
13.2.2007 (2007 to Date)	# Mtanios Soueid # Nazah Soueid	35/663036

Denotes current registered proprietor

Easement: -NIL

Leases: -

24.10.2002 8909096 - Michael Hanna & Raed Hanna - expired not investigated •

Jours Sincerely

James McDonnell 12 October 2016



FOLIO: B/388204

		: SEE PRIOR TITLE (S)	
Pri	or Title(s)	: VOL 6883 FOL 200	
Recorded	Number	Type of Instrument	C.T. Issue
2/9/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
11/12/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
25/8/1995	0303685	TRANSFER	EDITION 1
15/12/1995	0759266	TRANSFER	
15/12/1995			EDITION 2
	2002531	DISCHARGE OF MORTGAGE	
18/3/1996	2002532	TRANSFER	EDITION 3
11/8/1999	60 <mark>784</mark> 76	MORTGAGE	EDITION 4
6/3/2002	8371897	DISCHARGE OF MORTGAGE	
6/3/2002	8371898	TRANSFER	EDITION 5
24/10/2002	8909096	LEASE	EDITION 6
22/8/2003	9686994	SURRENDER OF LEASE	EDITION 7
	9686995	CAVEAT	
13/2/2007	AC931082	WITHDRAWAL OF CAVEAT	
13/2/2007		TRANSFER	
13/2/2007	AC931084	MORTGAGE	EDITION 8
28/1/2011	AG26267	WRIT	
3/2/2011	AG39059	CAVEAT	
4/2/2011	AG36189	WRIT	
5/8/2011	AG411526	APPLICATION TO CANCEL	
5/8/2011	AG411531	RECORDING OF WRIT APPLICATION TO CANCEL RECORDING OF WRIT	
10/8/2011	AG423258	WITHDRAWAL OF CAVEAT	

PSH-GROLLY-Bexley North

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SEARCH DATE

12/10/2016 8:06AM

FOLIO:	B/388204

PAGE 2

Recorded	Number	Type of Instrument	C.T. Issue
13/6/2012	AG840133	REJECTED - LEASE	
14/9/2015	AJ810379	DISCHARGE OF MORTGAGE	EDITION 9
14/9/2015	AJ810380	MORTGAGE	

*** END OF SEARCH ***

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FOLIO: B/388204

SEARCH DATE	TIME	EDITION NO	DATE
12/10/2016	8:17 AM	9	14/9/2015

LAND

LOT B IN DEPOSITED PLAN 388204 LOCAL GOVERNMENT AREA ROCKDALE PARISH OF ST GEORGE COUNTY OF CUMBERLAND TITLE DIAGRAM DP388204

FIRST SCHEDULE

MTANIOS SOUEID NAZAH SOUEID AS JOINT TENANTS

(T AC931083)

SECOND SCHEDULE (2 NOTIFICATIONS)

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 AJ810380 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

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SEARCH DATE ------12/10/2016 8:04AM

FOLIO: 1/1045200

First Title(s): OLD SYSTEM Prior Title(s): VOL 6755 FOL 207

Recorded	Number	Type of Instrument	C.T. Issue
	DP1045200	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
24/10/2002	9068724	DEPARTMENTAL DEALING	FOLIO CREATED EDITION 1
22/8/2003 22/8/2003	9686994 9686995	SURRENDER OF LEASE CAVEAT	EDITION 2
13/2/2007		WITHDRAWAL OF CAVEAT	
13/2/2007		TRANSFER	
13/2/2007	AC931084	MORTGAGE	EDITION 3
28/1/2011	AG26267	WRIT	
3/2/2011	AG39059	CAVEAT	
4/2/2011	AG36189	WRIT	
5/8/2011	AG411526	APPLICATION TO CANCEL RECORDING OF WRIT	
5/8/2011	AG411531	APPLICATION TO CANCEL RECORDING OF WRIT	
10/8/2011	AG423258	WITHDRAWAL OF CAVEAT	
13/6/2012	AG840133	REJECTED - LEASE	
14/9/2015	AJ810379	DISCHARGE OF MORTGAGE	
14/9/2015	AJ810380	MORTGAGE	EDITION 4
	***	END OF SEARCH ***	

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FOLIO: 1/1045200

SEARCH DATE	TIME	EDITION NO	DATE
12/10/2016	8:16 AM	4	14/9/2015

LAND

LOT 1 IN DEPOSITED PLAN 1045200 AT BEXLEY NORTH LOCAL GOVERNMENT AREA ROCKDALE PARISH OF ST GEORGE COUNTY OF CUMBERLAND TITLE DIAGRAM DP1045200

FIRST SCHEDULE

MTANIOS SOUEID NAZAH SOUEID AS JOINT TENANTS

(T AC931083)

SECOND SCHEDULE (2 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)

2 AJ810380 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

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FOLIO: 35/	663036	L	.2/10/2016	8:02AM
		OLD SYSTEM VOL 7516 FOL 93		
		Type of Instrument		C.T. Issue
Recorded		Type of finstrument		c.i. issue
15/3/1996		CONVERTED TO COMPUTER	FOLIO	FOLIO CREATED CT NOT ISSUED
18/3/1996	2002531	DISCHARGE OF MORTGAGE		
18/3/1996		TRANSFER		EDITION 1
11/8/1999	<mark>6078476</mark>	MORTGAGE		EDITION 2
6/3/2002	8371897	DISCHARGE OF MORTGAGE		
6/3/2002	8371898	TRANSFER		EDITION 3
24/10/2002	2000006	LENCE		
24/10/2002	0909090	LEASE		EDITION 4
22/8/2003	9686994	SURRENDER OF LEASE		EDITION 5
	9686995			HDIIION 5
13/2/2007	AC931082	WITHDRAWAL OF CAVEAT		
13/2/2007	AC931083	TRANSFER		
13/2/2007	AC931084	MORTGAGE		EDITION 6
28/1/2011	AG26267	WRIT		
3/2/2011	AG39059	CAVEAT		
4/2/2011	AG36189	WRIT		
5/8/2011	AG411526	APPLICATION TO CANCEL		
5 10 10 0 0 1		RECORDING OF WRIT		
5/8/2011	AG411531	APPLICATION TO CANCEL		
		RECORDING OF WRIT		
10/8/2011	DC423258	WITHDRAWAL OF CAVEAT		
- 0, 0, 2011	10120200	WITHDRAWAL OF CAVEAL		
13/6/2012	AG840133	REJECTED - LEASE		
· · ·				
14/9/2015	AJ810379	DISCHARGE OF MORTGAGE		
14/9/2015	AJ810380	MORTGAGE		EDITION 7

*** END OF SEARCH ***

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FOLIO: 35/663036

SEARCH DATE	TIME	EDITION NO	DATE
12/10/2016	8:16 AM	7	14/9/2015

LAND

LOT 35 IN DEPOSITED PLAN 663036 LOCAL GOVERNMENT AREA ROCKDALE PARISH OF ST GEORGE COUNTY OF CUMBERLAND TITLE DIAGRAM DP663036

FIRST SCHEDULE

MTANIOS SOUEID NAZAH SOUEID AS JOINT TENANTS

(T AC931083)

SECOND SCHEDULE (3 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)

2 A489100 COVENANT

3 AJ810380 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

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Summary of Owners Report

Sydney

Address: - 311A Bexley Road, Bexley North

Description: - Lot 5 D.P. 508629

As regards the part tinted yellow on attached cadastral

Date of Acquisition and Term held	Registered Proprietor(s) & occupations where available	Reference to title at acquisition and sale
11.5.1910 (1910 to 1913)	Edgar Lucas (Solicitor)	Vol 2055 Fol 231
20.2.1913 (1913 to 1914)	Heinrich George Menkens (Commercial Broker)	Vol 2055 Fol 231
31.1.1914 (1914 to 1919)	N.S.W. Realty Co Limited	Vol 2055 Fol 231
3.9.1919 (1919 to 1953)	Thomas Baines (Poultry Farmer)	Vol 2055 Fol 231 Now Vol 5248 Fol 201
15.12.1953 (1953 to 1954)	Ella Moon (Married Woman) (Application by Transmission not investigated)	Vol 5248 Fol 201 Now Vol 6755 Fol 206
12.2.1954 (1954 to 1956)	Frank Hennah (Taxi Proprietor) Mary Ann Hennah (Married Woman)	Vol 6755 Fol 206 Now Vol 7339 Fol 235
12.9.1957 (1957 to 1962)	John Inman Bale (Pilot) Joy Elaine Bale (Married Woman)	Vol 7339 Fol 235
16.10.1962 (1962 to 1963)	Peter William Davis (Service Station Manager)	Vol 7339 Fol 235
22.5.1963 (1963 to 1981)	James George Gibbons (Master Butcher) Lurline Jeanette Gibbons (Married Woman)	Vol 7339 Fol 235 Now Vol 9792 Fol 75

As regards the part tinted pink on attached cadastral

Date of Acquisition and Term held	Registered Proprietor(s) & occupations where available	Reference to title at acquisition and sale
11.5.1910 (1910 to 1913)	Edgar Lucas (Solicitor)	Vol 2055 Fol 231
20.2.1913 (1913 to 1914)	Heinrich George Menkens (Commercial Broker)	Vol 2055 Fol 231
31.1.1914 (1914 to 1918)	N.S.W. Realty Co Limited	Vol 2055 Fol 231
12.4.1918 (1918 to 1938)	George Gibbons (Sugar Boiler) Annie Elizabeth Gibbons (Married Woman)	Vol 2055 Fol 231 Now Vol 2847 Fol 78
5.10.1938 (1938 to 1963)	John Spencer Gibbons (Butcher)	Vol 2847 Fol 78
17.10.1963 (1963 to 1981)	James George Gibbons (Master Butcher) Lurline Jeanette Gibbons (Married Woman)	Vol 2847 Fol 78 Now Vol 9792 Fol 75

As regards the part tinted purple on attached cadastral

Date of Acquisition and Term held	Registered Proprietor(s) & occupations where available	Reference to title at acquisition and sale
11.5.1910 (1910 to 1913)	Edgar Lucas (Solicitor)	Vol 2055 Fol 231
20.2.1913 (1913 to 1914)	Heinrich George Menkens (Commercial Broker)	Vol 2055 Fol 231
31.1.1914 (1914 to 1918)	N.S.W. Realty Co Limited	Vol 2055 Fol 231
12.4.1918 (1918 to 1963)	George Gibbons (Sugar Boiler) Annie Elizabeth Gibbons (Married Woman)	Vol 2055 Fol 231 Now Vol 2847 Fol 78
17.10.1963 (1963 to 1981)	James George Gibbons (Master Butcher) Lurline Jeanette Gibbons (Married Woman)	Vol 2847 Fol 78 Now Vol 9792 Fol 75

Search continued as regards the whole of the subject land

Date of Acquisition and Term held	Registered Proprietor(s) & occupations where available	Reference to title at acquisition and sale
15.7.1981 (1981 to 1986)	Frank Xavior Camilleri Eleonora Camilleri	Vol 9792 Fol 75
13.8.1986 (1986 to 2002)	Fat Tsang Yuet Kwong Tsang	Vol 9792 Fol 75 Now 5/508629
1.10.2002 (2002 to 20.10)	Wo Tsang Yuet Kwong Tsang	5/508629
21.4.2010 (2010 to 2012)	Yuet Kwong Tsang	5/508629
28.8.2012 (2012 to Date)	# Harrijanto Rusli # Sui Jun Han	5/508629

Denotes current registered proprietor

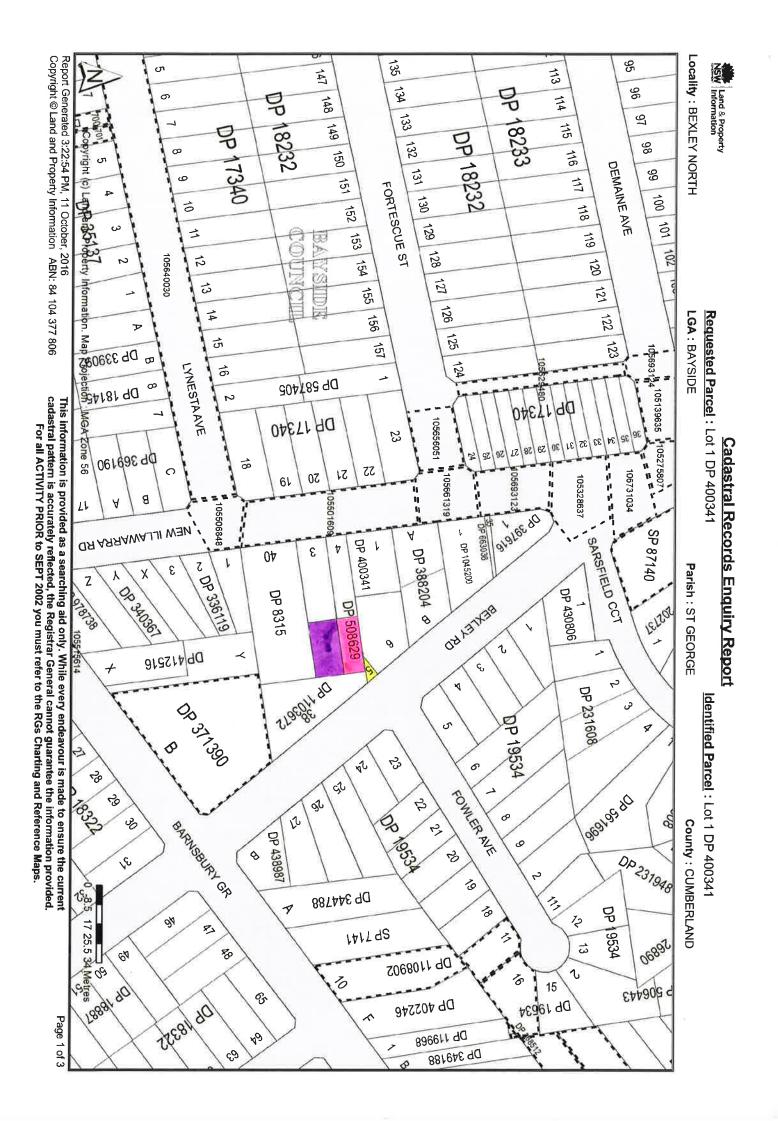
Easement:

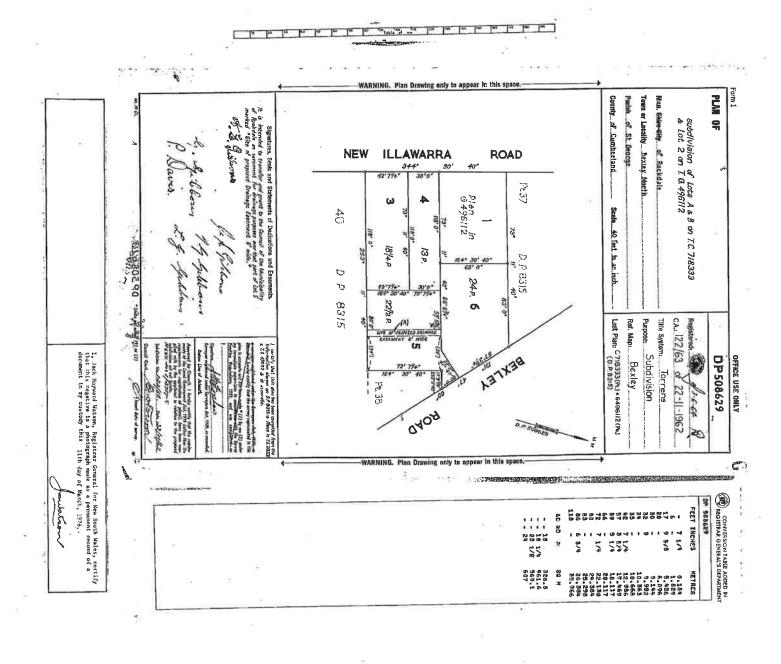
- 16.7.1963 J601625 Easement for Drainage
- 27.5.19363 J601626 Easement for Drainage

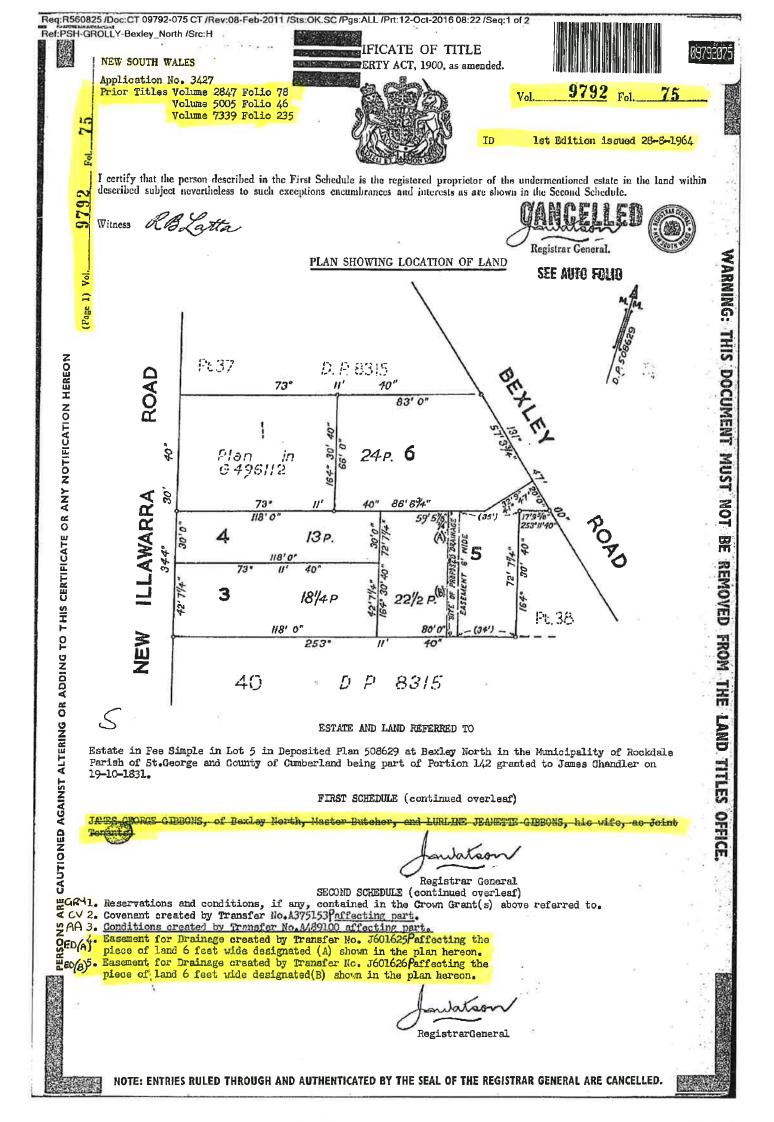
Leases: -NIL

TM Domell

Yours Sincerely James McDonnell 12 October 2016







(Page 2 of 2 pages)		Vol. 9792	Fol 7.5	
	NATURE INSTRUMENT DATE NATURE INSTRUMENT DATE Nortgage SJ04594 -Mortgage SJ04594 -Mortgage SJ04594 -S573913 Mortgage to Bark of New Sou 1216683 Mortgage to Westpac Banking V152957 Mortgage to Westpac Banking V152957 Mortgage to Westpac Banking V152957 Mortgage to Westpac Banking		Frank Xavior Camilleri and Eleonor Fat Tsang and Yuet Kwong Tsang as	
	SECOND SCHEDULE (continued) INSTRUMENT DATE PARTICULARS Theory of all 2011 (rfd) User (continued) Mortgage S304591 Date Destruction Mortgage S304591 Date Destruction Destruction Mortgage S304591 Date Destruction Destruction	GANCELLED SEE AUTO FOLIO	Frank Xavior Camilleri and Eleonora Camilleri as joint tenants by Transfer 8573912. Registered Fat Isang and Yuet Kwong Tsang as joint tenants by Transfer W451774. Registered 13-8-1986	FIRST SCHEDULE (continued) REGISTERED PROPRIETOR
	ENTERED			NATURE
	Significant General			INSTRUMENT
	Discharged Discharged Discharged Discharged Discharged Discharged Discharged Mithdrawn			
	CANCELLATION .S218622 .S218622 .S573911 T216682 .V451773 .V451771 .V451771 .V451771 .V451771			ENTERED
			Ø	EVIGO V. C N. mastr, doveniment printin ENTERED Signature of Registerer Gomen
анан алан алан алан алан алан алан алан	C)P95:ALL /P1:12-06-2016 08:22 /Seq:2 012	5 2/266234 S 384 53 S 384 53 Z 2/266234 Z 2/266234 Z 2/266234 Z 2/266234	er fint.	<u> </u>

SEARCH DATE

12/10/2016 8:12AM

FOLIO: 5/508629

First Title(s): SEE PRIOR TITLE(S) Prior Title(s): VOL 9792 FOL 75

Recorded	Number	Type of Instrument	C.T. Issue
28/3/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
22/6/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
1/10/2002	8816233	TRANSFER	EDITION 1
21/4/2010	AF445124	NOTICE OF DEATH	EDITION 2
28/8/2012 28/8/2012	AH201497 AH201498	TRANSFER MORTGAGE	EDITION 3
<mark>29/10/2012</mark>	AH327660	DEPARTMENTAL DEALING	
31/10/2012 31/10/2012	AH332938 AH332939	DISCHARGE OF MORTGAGE MORTGAGE	EDITION 4

*** END OF SEARCH ***

PRINTED ON 12/10/2016

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Req:R563435 /Doc:DL 8816233 /Rev:03-Oct-2002 /Sts:NO.OK /Pgs:ALL /Prt:12-Oct-2016 11:18 /Seq Ref:PSH-GROLLY-Bexley North /Src:H TRANSFER Licence: 98M111 **New South Wales** Edition: 0011 RELODGEPRIVACY NOTE: this information is legally required and will be 8816233Y NEW SOUTH WALES DU Office of State Revenue use only 29-07-2002 0001060373-002 2 3 SEP 2002 SECTION 18(2) DUTY \$ ************** TIME: DD (A) If appropriate, specify the part transferred One-undivided-half-share in 5/508629 **(B)** Delivery Name, Address or DX and Telephone CODES Box WILLIAM CHAN & CO Suite 207, 661 George Street, Sydney Reference (optional): Sheriff (C) TRANSFEROR YVET KWONG TSANG FAT TSANG (D) CONSIDERATION The transferor acknowledges receipt of the consideration of \$...1:00 and as regards ESTATE (E) the land specified above transfers to the transferee an estate in fee simple. (F) SHARE TRANSFERRED (G) Encumbrances (if applicable): 2. 3. (H) TRANSFEREE YUET KWONG TSANG WO TSANC JOINT TENANTS TENANCY: DATE dd mm VVVV **(J)** I certify that the transferor, with whom I am personally acquainted or as to Certified correct for the purposes of the Real whose identity I am otherwise satisfied, signed this transfer in my presence. Property Act 1900 by the transferor. Signature of witness: Signature of transferor: Name of witness: JENNY LIU FUNG YING TSANG Address of witness: 10 A. EDWARD STREET, WILLOUGHBY $N \cdot S \cdot W \cdot 2068$ I certify that the transferee, with whom I am personally acquainted or as to Certified correct for the purposes of the Real inse identity I am otherwise satisfied, signed this transfer in my presence. Property Act 1900 by the transferee. Signature of witness: Signature of transferée: LIÙ FUNG YING TSANG Nardelog ERtrass: JEA Wo Kong X Address of witness: OA, EDWARD STREET, WILLOUGHBY If signed on the transferee's behalf by a solicitor, TIME: 12.30 licensed conveyancer or barrister, insert the N.S.W. 2068 signatory's full name and capacity below: NoSladge C Page 1 of number additional A set of notes on this form (01T-2) is available ALL HANDWRITING MUST BE IN BLOCK CAPITALS. from Land and Property Information NSW. pages sequentially

Req:R563435 /Doc:DL 8816233 /Rev:03-Oct-2002 /Sts:NO.OK /Pgs:ALL /Prt:12-Oct-2016 11:18 /Seq:2 of 6 Ref:PSH-GROLLY-Bexley_North /Src:H

Film(1)~11 0816233

Our Ref: 8816233





Land and Property Information

YUET KWONG TSANG 10 EDWARD STREET WILLOUGHBY 2068 www.lpi.nsw.gov.au 1 Prince Albert Road Queens Square SYDNEY NSW 2000 GPO Box 15 SYDNEY NSW 2001 DX 17 SYDNEY T (61 2) 9228 6666 F (61 2) 9233 4357 1 1 SEP 2002

NOTICE OF SEVERANCE OF JOINT TENANCY

Section 12A and Section 97 (5) Real Property Act, 1900

I am writing to you concerning your land at BEXLEY NORTH Register Folio 5/508629 which you own with FAT TSANG as joint tenants.

Dealing No. 8816233 (copy enclosed) has been lodged in this Office and will be registered in thirty (30) days from the date of this letter.

The effect of registration of this dealing will be that the joint tenancy will be severed and you will then own the land as tenant in common with WO TSANG

The register folio for your land will then show that you hold a half share and WO TSANG holds a half share in the land as tenants in common.

What the change means:

The difference between owning the land as joint tenants instead of tenants in common is what happens to one of the owner's share in the land after he or she dies. When land is held as joint tenants and an owner dies, that person's interest in the land automatically passes to the other owner(s). When land is held by tenants in common, and an owner dies, his or her share in the land passes to the people named in his or her will as beneficiaries or, if there is no will, it goes to their next of kin.

You will need to think about what will happen to your share in the land after you die. You will need to make a will so that you can say who will get your share. If you already have a will, you will need to check that it says who will get your share in the land.

over.....

Land and Property Information New South Wales is part of the New South Wales Department of Information Technology and Management Req:R563435 /Doc:DL 8816233 /Rev:03-Oct-2002 /Sts:NO.OK /Pgs:ALL /Prt:12-Oct-2016 11:18 /Seq:3 of 6 Ref:PSH-GROLLY-Bexley_North /Src:H

Right to change ownership from joint tenants to tenants in common.

Under the law in New South Wales, a joint tenant can register a document at the Land Titles Office which changes the ownership from joint tenants to tenants in common. In most cases a joint tenant can make this change with or without the agreement of the other joint tenant(s). In other cases, a joint tenant cannot make this change without agreement of the other joint tenant(s). Instances where a joint tenant cannot make this change are where he or she:

- * is a trustee: or
- * has made an agreement not to change the tenancy

Should you consult a Solicitor?0

If any of the following circumstances apply, you should see a Solicitor:

- * You and the other owner(s) own the land as trustees: or
- * You and the other owner(s) had an agreement not to change the ownership from joint tenants to tenants in common, or you had an agreement that said that it would be changed in a different way to how it was done; or
- * You contributed a bigger share to the purchase of the land or its improvements than the other owner(s); or
- * You have any doubts about what is in this notice.

If you have not lodged a court order stopping me from registering the dealing severing the joint tenancy within 30 days from the date of this letter, I will register it and the joint tenancy will then be severed as set out in this letter.

If you have any general questions about this notice, please telephone the Client Services at the Land and Property Information New South Wales on (02) 9228-6713.

Yours faithfully,

WARWICK WATKINS Registrar General. Per: _____ Req:R563435 /Doc:DL 8816233 /Rev:03-Oct-2002 /Sts:NO.OK /Pgs:ALL /Prt:12-Oct-2016 11:18 /Seq:4 of 6

DAMMHOLZ & CO. (HAYMARKET OFFICE)

SOLICITORS

Your Ref: 8816230-33

HA

÷46.

Our Ref:

1

ABN 70 200 622 953

HUGO AHWEE

2nd FLOOR 661 GEORGE STREET SYDNEY NSW 2000 AUSTRALIA

TEL: (02) 9211 2032 FAX: (02) 92110750

5 September 2002

. e

New South Wales Land Title Office Queens Square Sydney

Dear Sirs

Re: Transfer severing tenancy Your ref: 8816230-33 $F_{1}($

We refer to your enclosed requisition.

We submit the following replies:

a. The address of Yuet Kwong Tsang Fat Tsang is 10 Edward Street, Willoughby.

b. Statement of n legal imediment to transfer.

Yours faithfully DAMMHOLZ & CO

LIABILITY LIMITED BY THE SOLICITORS SCHEME, APPROVED UNDER THE PROFESSIONAL STANDARDS ACT 1994

- I, Fat Tsang of 10 Edward Street Willoughby
- DO SOLEMNLY AND SINCERELY DECLARE AS FOLLOWS:
- 1. That I am living at the above address.
- 2. That I did transfer my one half share in 10 Edward Street, Willoughby to Kevin Tim Yung Tsang.
- 3. That I did transfer my one half share in 311A Bexley Road, Bexley to Wo Tsang.
- 4. That the folio identifier in 2 above is 102/857628.
- 5. That the folio identifier in 3 above is 5/508629.
- 6. That I am of sound mind and I have no legal impediment to the above transfers.

AND I MAKE THIS SOLEMN DECLARATION conscientiously believing the contents to be true and by virtue of the Oaths Act 1900.

MADE AND SUBSCRIBED BY Fat Tsang, the said Declarant at Sydney this \sum^{nd} day of September 2002.

封度

Film

8816233

Before me:

Milliken J.P. MCHASL JOSEPH WARM

a Justice of the Peace

Req:R563435 /Doc:DL 8816233 /Rev:03-Oct-2002 /Sts:NO.OK /Pgs:ALL /Prt:12-Oct-2016 11:18 /Seq:6 of 6 Ref:PSH-GROLLY-Bexley_North /Src:H

DAMMHOLZ & CO. (HAYMARKET OFFICE)

ABN 70 200 622 953

Film 9816233

PREVIOUSLY WILLIAM CHAN + CO Your Ref:

Our Ref:

HUGO AHWEE

2nd FLOOR 661 GEORGE STREET SYDNEY NSW 2000 AUSTRALIA

TEL: (02) 9211 2032 FAX: (02) 9211 0750

Land Title Office Sydney

17 September 2002

Dear Sirs

SOLICITORS

Re: Your File Ref No 8816230-33 (A) 102/857628 Fat TSang transfer of ½share to Kevin Tsang

(B) 5/508629

Fat Tsang transfer of ½ share to Wo Tsang

We have been instructed by both transferors and transferees that they do not wish to sever the Joint Tenancy.

We would be pleased if we could uplift both Transfers for amendment and to be marked by the Office of State Revenue.

Yours faithfully DAMMHOLZ & CO per:

LIABILITY LIMITED BY THE SOLICITORS SCHEME, APPROVED UNDER THE PROFESSIONAL STANDARDS ACT 1994

Req:R563442 /Doc:DL AF445124 /Rev:27-Apr-2010 /Sts:NO.OK /	
Ref:PSH-GROLLY-Bexley North /Src:H	

Form: 02ND Release: 4.0 www.lands.nsw.gov.au

NOTICE OF DEATH

New South Wales Section 101 Real Property Act 1900



PRIVACY NOTE: Section 31B of the Real Property Act 1900 (RP Act) authorises the Registrar General to collect the information required by this form for the establishment and maintenance of the Real Property Act Register. Section 96B RP Act requires that the Register is made available to any person for search upon payment of a fee, if any.

(A)	TORRENS TITLE	5/508629
(B)	REGISTERED DEALING	Number Torrens Title
(C)	LODGED BY	Document Collection Box Name, Address or DX, Telephone, and Customer Account Number if any CODE Wast_Kwong TSANG MELISJA TSAN G N136 Image: Imag
(D)	DECEASED JOINT TENANT	See Instructions for Completion: Instruction (D) regarding discrepancies in the name Wo TSANG
(E)	SURVIVING JOINT TENANT	Yuet Kwong TSANG

(F) I, the abovementioned surviving joint tenant, apply to be registered as proprietor of the interest of the deceased joint tenant (who died on 18 January 2007 as stated in the copy of death certificate No. 104340/2007 accompanying this application) in the above land.

DATE 21 April 2010

(G) I certify that the person(s) signing opposite, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this instrument in my presence.

Signature of witness:

Mitony

Name of witness: Address of witness:

1003

Melissa TSANG

311a Bexley Road Bexley North NSW 2207 Certified correct for the purposes of the Real Property Act 1900 by the surviving joint tenant.

Signature of surviving joint tenant:



(H) This section is to be completed where a notice of sale is required and the relevant data has been forwarded to LPI through eNOS. The applicant certifies that the eNOS data relevant to this dealing has been submitted and stored under

eNOS ID No. Full name:

Signature:

ALL HANDWRITING MUSTBE IN BLOCK CAPITALS. LAND AND PROPERTY MANAGEMENT AUTHORITY Office use only— Evidence sighted and returned: LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 5/508629

SEARCH DATE	TIME	EDITION NO	DATE
12/10/2016	8:19 AM	4	31/10/2012

LAND

LOT 5 IN DEPOSITED PLAN 508629 AT BEXLEY NORTH LOCAL GOVERNMENT AREA ROCKDALE PARISH OF ST GEORGE COUNTY OF CUMBERLAND TITLE DIAGRAM DP508629

FIRST SCHEDULE

HARRIJANTO RUSLI SUI JUN HAN AS JOINT TENANTS

(T AH201497)

SECOND SCHEDULE (6 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)

2 A375153 COVENANT AFFECTING PART

3 CONDITION(S) CREATED BY A489100

4 J601625 EASEMENT FOR DRAINAGE AFFECTING THE SITE DESIGNATED
 (A) IN THE TITLE DIAGRAM
 5 J601626 EASEMENT FOR DRAINAGE AFFECTING THE SITE DESIGNATED

- (B) IN THE TITLE DIAGRAM
- 6 AH332939 MORTGAGE TO WESTPAC BANKING CORPORATION

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

PSH-GROLLY-Bexley North

PRINTED ON 12/10/2016

Any entries preceded by an asterix do not appear on the current edition of the certificate of title. Warning: the information appearing under notations has not been formally recorded on the Register. Hazlett Information Services hereby certifies that the information contained in this document has been provided electronically by the Registrar-General in accordance with Section 96B(2) of the Real Property Act 1900.

> Level 4, 122 Castlereagh Street, Sydney 2000 - DX 1078 SYDNEY PHONE: (02) 9261 5211 FAX: (02) 9264 7752 www.hazlett.com.au





APPENDIX D

WORKCOVER NSW INFORMATION

E16016BN-R03F (Rev 0.2)

NOTIFICATION OF DANGEROUS GOODS ON PREMISES FORM

Ð

CONTACT FOR NOTIFICATION INQUIRIES
Title (M) Miss / Ms / Mrs / Other (please specify) Family name AHMED
Given name Other names
Business phone (02) 91500 8 92 Business fax number (02) 91500 892
Business email address Sanbib @. cotus not . Com all
Previous Licence Number or Acknowledgement Number (if known)
35/007066 18/12/07
Previous Occupier (if known)
NA
Site on which dangerous goods are to be kept
Number Street
· · · · · · · · · · · · · · · · · · ·
Suburb/Town/Locality Postcode
BEXLEY NORTH 2207
Nearest cross Street
NEW ILLWARA ROAD
Lot and DP if no street number
Is the site staffed? If yes state number of employees
Site staffing: Hours per day 15 Days per week 7
Site Emergency Contact
Phone number Name
(04)02 408 623 FUAD AHMED
Nature of site (eg petrol station, warehouse etc)
PETROL STATION
Nature of primary business activity
ABN Number (if any)
77856421234
What is the ANSZIC code most applicable to your business? (see guide for list of codes and further information)
Code Description
5321 AUTOMOTIVE FUEL RETAILING
Attach a site sketch(s) of the premises. Refer to the Guide GDG01 for information on the requirements for the site sketch.

50G01

Attach a legible photocopy page from a local Street Directory or other map showing the locality of the premises. Mark the location of the premises with an X.

3

List the dangerous goods that will be stored and/or processed on these premises (refer to Guide GDG01). Copy this page and attach additional sheets if there is insufficient space.

Depot No	Type of storage locatio	-	_	lass Maximum Stor	rage Capacity	/ (L, kg)		
1	Underground	_ - a n	K		Joh			
UN Number	Proper Shipping Name	Class	PG (1, 11, 111)	Product or Common Name	HazChem Code	Typical Qty	Unit eg L, kg	
1203	PETROL	3	II	UNLEADED	37E	8000	L	
								\neg
								7

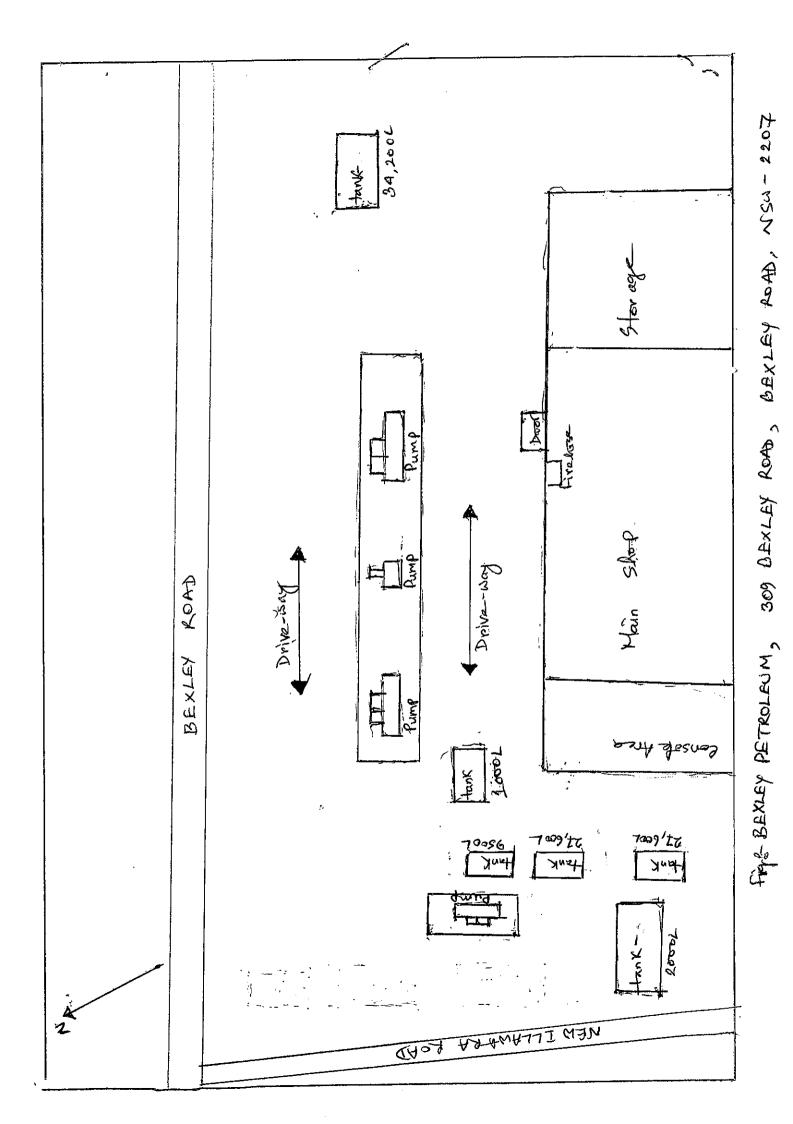
Depot No	Type of storage location	or proce	ess C	lass 💡	Maximum Stora	ge Capacity	(L, kg)		
_ 2	Under ground	tan	ĸ	1	95004				
UN Number	Proper Shipping Name		PG (I, II, III)	Product or	Common Name	HazChem Code	Typical Qty	Unit eg L, kg	
00 C 1	Combustible Lipsid	. 1	<u> </u>	Dies	1		6000	i.	
;				· · · · · · · · · · · · · · · · · · ·				<u> </u>	-
	}								

Depot No	Type of storage location	on or pro	cess C	lass	Maximum Stora	ige Capacity	(L, kg)		
_ 3	Underground	Fank		3		104			
UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or	Common Name	HazChem Code	Typical Qty	Unit eg L, kg	-
1203	Petps	3	Ш	1 NU	EADED	SYE	18,000		
								<u> </u>	$- \vee$
	<u> </u>	1		<u> </u>	· ·	·			-

Depot No	Type of storage locatio	n or pro	ocess C	lass	Maximum Stora	ge Capacity	(L, kg)	
4	Underground	tan	K	3	27,600			
UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or	Common Name	HazChem Code	Typical Qty	Unit eg L, kg
1203	Petrof	3	Ĩ	UNAE	ADED	3YE	18,000	

Depot No	Type of storage locatio	n or proce	ess C	lass .	Maximum Stora	age Capacit	y (L, kg)		
5	Underground	L-tank	<	3	10,00				7
UN Number		Class	PG (I, II, III)	Product or	Common Name	HazChem Code	Typical Qty	Unit eg L, kg	/
\$ 203	Petrof	3	ш	UNLE	ADED	3.45	0.00		
	· · ··		« Cla		Maximum Storag	e Capacity	(L, kg)		١
lo	Type of storage location	•		3	2000 L				j
	Under ground-	tank					Typical	Unit	
			G 5	Product or (Common Name	HazChem Code	Qty	eg L, kg	-
imber	Proper Shipping Name		<u>1, 1, 110</u>		ADED	3YE	2000	L	1
		ላ ነ	TLL 1	() <i>M</i> () F E	- <u>4-60</u> -11			1.	1

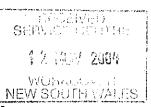
FDG01





168 - SI7-B

Licence No. 35/007066



APPLICATION FOR RENEWAL

OF LICENCE TO KEEP DANGEROUS GOODS

ISSUED UNDER AND SUBJECT TO THE PROVISIONS OF THE DANGEROUS GOODS ACT, 1975 AND REGULATION THEREUNDER

DECLARATION: Please renew licence number 35/007066 to 18/12/2005. I confirm that all the licence details shown below are correct (amend if necessary).

(Signature) for: AHMED F & RAHMAN M

Please print name)

(Date signed)

THIS SIGNED DECLARATION SHOULD BE RETURNED TO:

WorkCover New South Wales Dangerous Goods Licensing Section LOCKED BAG 2906 LISAROW NSW 2252 Enquiries:ph (02) 43215500 fax (02) 92875500

Details of licence on 5 November 2004

Licence Number 35/007066

Expiry Date 18/12/2004

Licensee AHMED F & RAHMAN M BEXLEY PETROLEUM

Postal Address: BEXLEY PETROLEUM 307-309 BEXLEY RD BEXLEY NORTH NSW 2207

Licensee Contact FUAD AHMED Ph. 02 9150 0892 Fax. 02 9150 0892

Premises Licensed to Keep Dangerous Goods AHMED F & RAHMAN M BEXLEY PETROLEUM 307-309 BEXLEY RD BEXLEY NORTH 2207

Nature of Site AUTOMOTIVE FUEL RETAILING

Major Supplier of Dangerous Goods AUSTRALIAN (CALTEX)

Emergency Contact for this Site FUAD AHMED Ph. 040 408623

Site staffing 16HRS 7DAYS

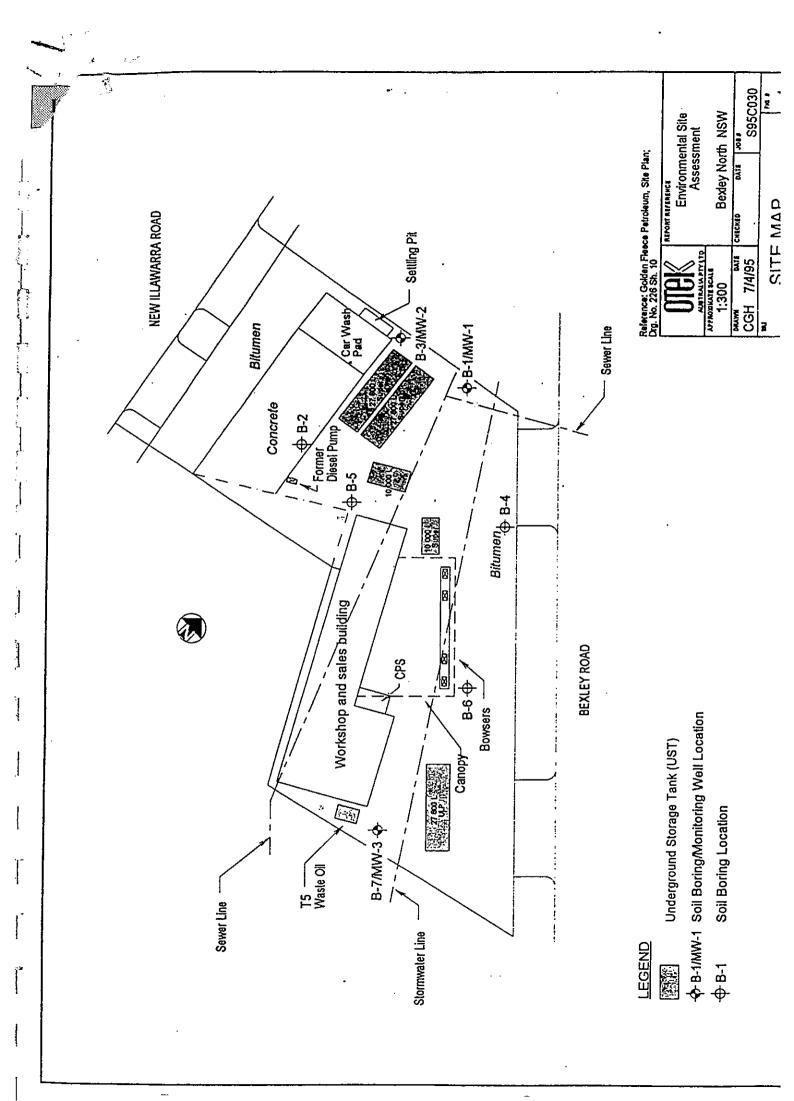
Details of Depots

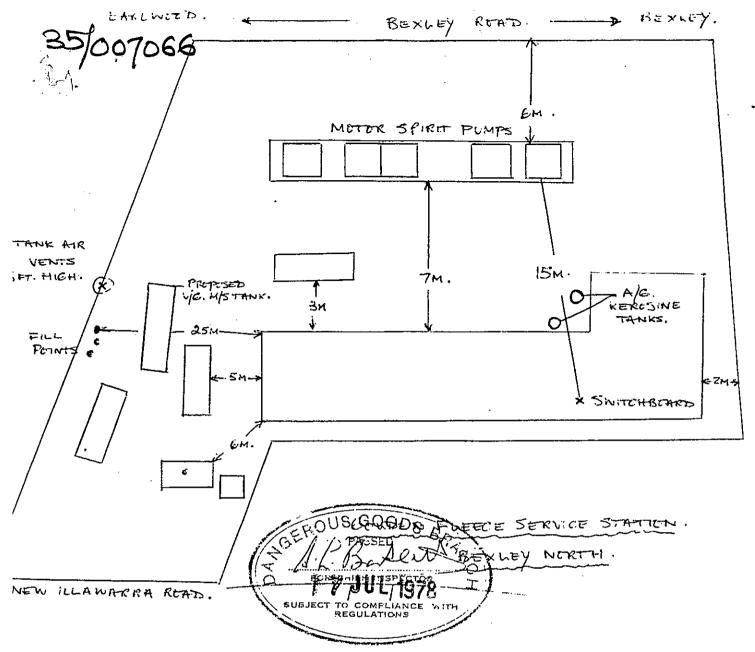
Depot No. Depot Type

Goods Stored in Depot

UNDERGROUND TANK Class 3 34200 L 1 30000 L UN 1203 PETROL 2 UNDERGROUND TANK Class 3 9500 L **UN 1203 PETROL** 9000 L Class 3 27600 L UNDERGROUND TANK 3 25000 L UN 1203 PETROL 10000 L Class 3 UNDERGROUND TANK 4 UN 1203 PETROL 9000 L Class 3 26600 L 5 UNDERGROUND TANK UN 1203 PETROL 25000 L EXEMPT - U/G TANK Class C1 2000 L 6 2000 L UN 00C1 DIESEL LPG1 CYLINDER STORE Class 2.1 180 KG UN 1075 PETROLEUM GASES, LIQUEFIED 180 KG 420 KG LPG2 DECANTING CYLINDER(S) Class 2.1 UN 1075 PETROLEUM GASES, LIQUEFIED 420 KG

Qty



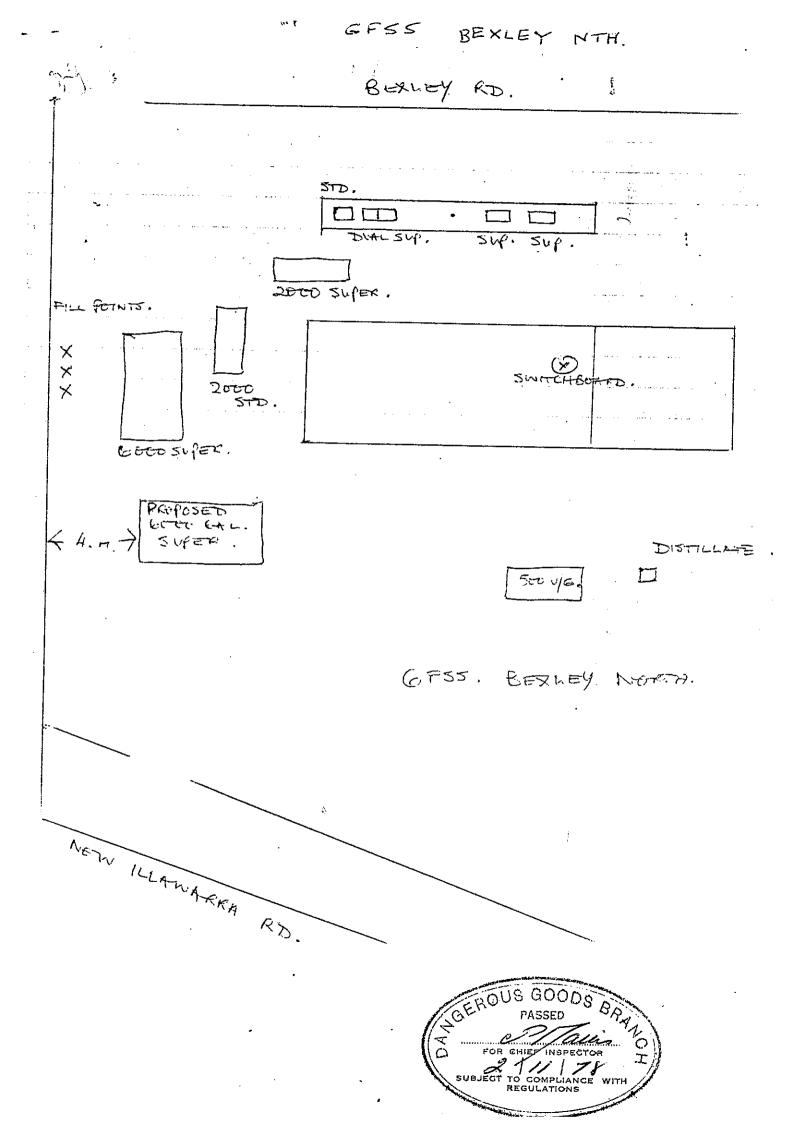


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5. .

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--- a



TUK THE KEEPING OF DANGEROUS GOODS

Application is hereby made fordescribed below.

(*delete whichever is not required)

*a licence (or amendment of the licence) for the keeping of dangerous goods in or/on the premises FEE: \$10.00 per Depot for new licence. \$10.00 for amendment or transfer.

Name of Applicant in full (see over)	NE NOMENI PIL
Trading name or occupier's name (if any)	Golden Fleece Service Station
Postal address	Postcode
Address of the premises including street number (if any)	ern. 309 Beyley + New Illewarra Rds BEXLEY NORTH Postcode 2207
Nature of premises (see over)	SERVICE STATION
Telephone number of applicant	STD Code Number 502.2223

Particulars of type of depots and maximum quantities of dangerous goods to be kept at any one time.

······································				
Depot	Type of depot	Channen	Dangerous goods	
number	(see over)	Storage capacity	Product being stored	C & C Office use only
		LITRES		2006 120 E
1	Undergr. Tank	27800	Petrol 3.1	202034
2	V V	27800	al 3.1	202034
3	<u> </u>	19000	2 3.1	202093
4	V V	29000	1 3.5	202093
5	1 1	2500	Kera 3.2	20202
6	cylinder store	420	LPgas 2.1	7 (00 42
7)		
8	/			
9				
10				
11				
12				
Has site plan b	peen approved? Yes , No	If no, please at		
Have premises	previously been licensed? Yes 2	• •	me of previous occupier. 2A Juwestment P/L	
Name of com	pany supplying flammable liquid (if		liten Fleece	
·				
-		e of applicant .		Date
	xplosives magazine(s), please fill in s	ide 2.	RIC FLAMMIA	
FOR OFFICE	USE ONLY	CERTIFICATE OF IN	SPECTION	
I, do hereby cer Dangerous Go the quantity sp	ous Regulation with legald to their	ove do comply with a situation and constru	being an Inspector under the Dan the requirements of the Dangerous C ction for the keeping of dangerous go	gerous Goods Act, 1975, Goods Act, 1975, and the bods of the nature and in
Signature of Ir	nspector		Date	2
Licence No.	35067066.2 (3)			

premises descri	bed below. (*delete w	hichever is not required)	والمتعادية والمتحافظ والمحافظ والمنافعة والمعتقد ومنافع والمعالم والمعالم والمعالم والمعالم والمعالم	
· ,		120	•8659 6/0	3/79 03B
FEE: \$10.00 p		14 m		
ж. 1. 1. у. т. т. т.	A PEB	1976		and the second
Name of Appl (see over)	icant in full	HARSY	Given Names LESLIS TH	lomas.
Trading name name (if any	or occupier's	Phaoy's P	ERFORMANUE CE	NT 97BE
Postal address	300 B	vley or places Iller	and Roy Barley North	de 2207
Telephone nun	nber of applicant STD Cod		Number 30665	9
	premises in or on pot or depots are ncluding street ny) <u>300</u>	Sexler or Now Illa	ware Role Box/Postco	den 2207
Nature of prer	nises (see over)	Convice Fo	TION	
		PEEASE ATLAGHEST	EPEAN CONTRACTOR	
Particulars of	type of depots and maximum	n quantities of dangerous g	oods to be kept at any one time.	
			Dangerous good	<u> </u>
Depot number	Type of depot (see over)	Storage capacity	Product being stored	C & C Office use only
1	Underground	27850 -	3.1 (Pres)	2 0x
2	LL COLOR OF CL	27850	3.1 PETROL	22020
3	Li Li	10,000	3.1 PETROL	2020
4	4	10,000	3.1 PIEIROL.	4202
5		2,000	32 KVEROSEN	1E . 2.02
6	Cylindor		2.1 (B. P.C.)	7.100
7				<u></u>
8				
9		<u> </u>		<u>u an ing an A</u> r
10				<u> </u>
11		<u> </u>		<u> </u>
12		<u> </u>	and the second second second	
Name of com	pany supplying flammable 1	quid (if any) 1. C.		9 1900 F (9901 - K)
Have premise	s previously been licensed?	Yrs		
If known, stat	e name of previous occupie		Licence No.	070/1
		-,		21-1-0
For external e	s xplosives magazine(s), pleas	Signature of applicant \mathcal{A} e fill in side 2.	D	ate ~1/2/74
······································		FOR OFFICE USE	ONLY	•
-	\sim	CERTIFICATE OF INS	PECTION	y an tuan trans ang kalèn
1, creon	ge-L. SROOK		being an Inspector under the Dan	gerous Goods Act,
1975, do here 1975, and the	by certify that the premises Dangerous Goods Regulat	ion with regard to their sit	with the requirements of the Dan uation and construction for the ke	eping of dangerous
goods of the r	nature and in the quantity s	pecified.	Sel 11	

Application is hereby made for- premises described below.	*a-licence (or amendment of the licence) for the keeping of dangerous goods in or on the *the transfer of the licence (*delete whichever is not required)
Name of Applicant in full (see over)	Surname SLOANE Given Names BARTT COLIN
Trading name or occupier's name (if any)	BLACK Storme Golden Unce Service Station
Postal address	309 Berley Rd., Berley Nonth Postcode 2207
Telephone number of applicant	STD Code 502 2223 Number 506659
Address of the premises in or or which the depot or depots are situated (including street number, if any) 1/30	

Mation

Particulars of type of depots and maximum quantities of dangerous goods to be kept at any one time.

une

PLEASE ATTACH SITE PLAN

Ser

Nature of premises (see over)//

- 31

				the second s
Denot	Type of depot	Storage	Dangerous goods	30 00 \$ 120 C
Depot number	(see over)	capacity	Product being stored	C & C Office use only
1	undergracend tanks	27.800	bilan . 3.1	2020 34
2		27 800	V V	2020 34
3		10.000		2 020 14
4	· · · ·	10 000	<u> </u>	202014
5	~ ~		V	12 020 33
6	~ ~	2500	laten. 3.2. Kenol	
Ø	Liglinda Stare	200 1 1	Clan Bit hot go	S<u>an an an a</u>n an an
8				
, 9				
10		· ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
11				a <u>posta a zere</u>
12		1		
Name of con	npany supplying flammable liquid (i	fany) 4.C.S	· · · · · · · · · · · · · · · · · · ·	en <u>t</u> er de la constante de la c
Have premise	es previously been licensed?	, -	· · · · · · · · · · · · · · · · · · ·	<u>.</u>
If known, sta		T. H.ardy_	Licence No.	SS 35007066
			× Cr	1.0.00
		e of applicant	D. Oloan Da	t e / s s s
For external o	explosives magazine(s), please fill in	side 2.	<u>\</u>	
		OR OFFICE USE		
0	- 0	TIFICATE OF INS		
1975, and the	NOC L KROOK eby certify that the premises describ e Dangerous Goods Regulation wit nature and in the quantity specified	h regard to their sit	being an Inspector under the Dang y with the requirements of the Dang uation and construction for the kee mature of Inspector	ping of dangerous

Name of Occupier NoclBARAK (Surname)	Percr (First Names)
Trading Name (if any) 20/000 Flores	Perdice Fatton
Postal Address	Postcode
Address of the premises in which the depot or depots are situated	Warco Ros Postcode 2205
Occupation Cercoles Potion Ro	2
Nature of Premises	
Particulars of construction of depots and maximum quantities at any one time.	of inflammable liquid and/or dangerous goods to be key
at any one time.	

		PLEA	SE SKETC	H SITE O	N BACK	OR AT	TACH	PLAN					
Depot	Cons	struction of depot	s *	Inflamma	ble Liquid	Dangerous Goods							
Depo: No.	Walls	Roof	Floor	Mineral spirit litres	Mineral oil litres	Class 1 litres	Class 2 litres	Class 3 kg	Class 4 m ³	Class 5A# litres	Class 5B# litres	Class 9 litres	
1	RINDON	Bround	TONK	30000	2								
2				10000)								
3	1		/	10000									
4													
5											<u> </u>		
6											<u> </u>		
7													
8					<u></u>								
9											<u> </u>		
<u> </u>												Alc-	
		TOTAL						PUBL	IC R	EVE	NUE	<u></u>	
* Ii	f kept in tank	s describe de	oots as unde	rground o	r abovegr	ound ta	anks.	cle	pri	18-2	5.00		
# L	nsert water ca	pacity of tan	ks or cylind	ers.	0 G	\geq	/	(Date)	30 3	.76	-/		
Name of	Company sup	oplying inflan	ımable liqui	d_ <u>//</u>	<u>C. J.</u>	<u> e/q</u>	<u>, </u>	Receipt	No.		5674		
Name of Company supplying inflammable liquid <u>A.C. Sterge</u> <u>Receipt No.</u>													
-	, state name o		/	Logo	NOR	Ň	γ_{L}		<u></u>		_		

I teale dwald brook

Signature of applicant_

I, \mathcal{A} being an Inspector under the formula of the formula of

Marileos

DU 241 3 Signature of Inspector-Date.

Date

SEE PAGE 4 FOR DETAILS OF FEES PAYABLE AND DISTANCES FROM PROTECTED WORKS

DIRECTIONS

1+e->

Governy

- Applications must be forwarded to the Chief Inspector of Inflammable Liquid, Explosives Department, Box R.216, Royal Exchange Sydney, N.S.W. 2000 and must be accompanied by the prescribed fee.
 Registration of Premises For quantities not exceeding 300 gallons of mineral oil and 100 gallons of mineral spirit, if kept together; or 800 gallons of mineral oil and 100 gallons of mineral spirit, if kept in separate depots; or 500 gallons of mineral spirit, if kept in an underground tank depot; or 800 gallons of mineral oil and 500 gallons of mineral spirit, if mineral spirit is kept in an underground tank depot.
 In addition to, or in lieu of the above, similar quantities of Dangerous Goods of Classes 1 and 2 may be kept under the like conditions; reading Dangerous Goods of Class 1 for the words Mineral Spirit and Dangerous Goods of Class 2 for the words Mineral Oil
 - words Mineral Oil
 - Store Licence, Div. A For quantities in excess of those stated above, but not exceeding 4,000 gallons mineral oil and/or
 - Store Licence, Div. A For quantities in excess of those stated above, but not exceeding 4,000 gallons mineral off dad/or mineral spirit, and/or Dangerous Goods of Classes 1, 2 and 9.
 Store Licence, Div. B (Fee, See Regulation 7) For quantities exceeding 4,000 gallons of mineral spirit, and/or Dangerous Goods of Classes 1, 2 and 9.
 Goods of Classes 1 and 2, and/or Dangerous Goods of Class 3.
 For the keeping of Dangerous Goods of Classes 3 and/or 4.

1.	Name of occupier including full christian names. R/u 9939	GAVIANIAS PETROS
2.	Trading Name (if any) Ctw cry f.	Golden Fleece Rimen Dation
3.	Locality of the premises in which the depot or depots are situated 2	No. or Name Street Borlag a Men fllaman Rd
,).	Town Noch Barley as alm Postcode 2027
5.	Postal address Occupation	speciel star
. F	Nature of premises (dwelling, garage etc.) Particulars of construction of depots and maximum one time.	quantities of inflammable liquid and/or Dangerous Goods to be kept at any
		ATTACH PLAN OF PREMISES

			FLEASE /	T	LANO				<u> </u>				
	Constru	ction of depot	s*	Inflommat	ole liquid	Dangerous goods							
Depot No.	Walls	Roof	Floor	Mineral spirit gallons	Mineral oil gallons	1	Class 2 gallons	Class 3 Ib	Class 4 cuft	5 A	Class 5B watergal	Class 9 gallons	
1	Undi	المستعر	-tech	6000							、 ·		
2		0		200	<u>م</u>					 	<u> </u>		
3				2001	x		L			ļ			
4	2×1000	Rays	206			<u> </u>		ļ			40		
5		1	• • • •						<u> </u>				
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8									lig 1	<u><u></u></u>	<u></u>		
9	···							te)	8	$\frac{1}{2}$	25		
10	·····						· ·	eipt N	q				

*If product is kept in tanks describe depots as undergrou

Signature of applicant.

Date of application___

CERTIFICATE OF INSPECTION

GALVIN P _being an Inspector under the Inflammable Liquid Act, 1915 (as amended), do hereby certify that the premises or store herein referred to and described is suitable with regard to its situation and construction for the safe keeping of inflammable liquid and/or dangerous goods in quantity and nature specified.

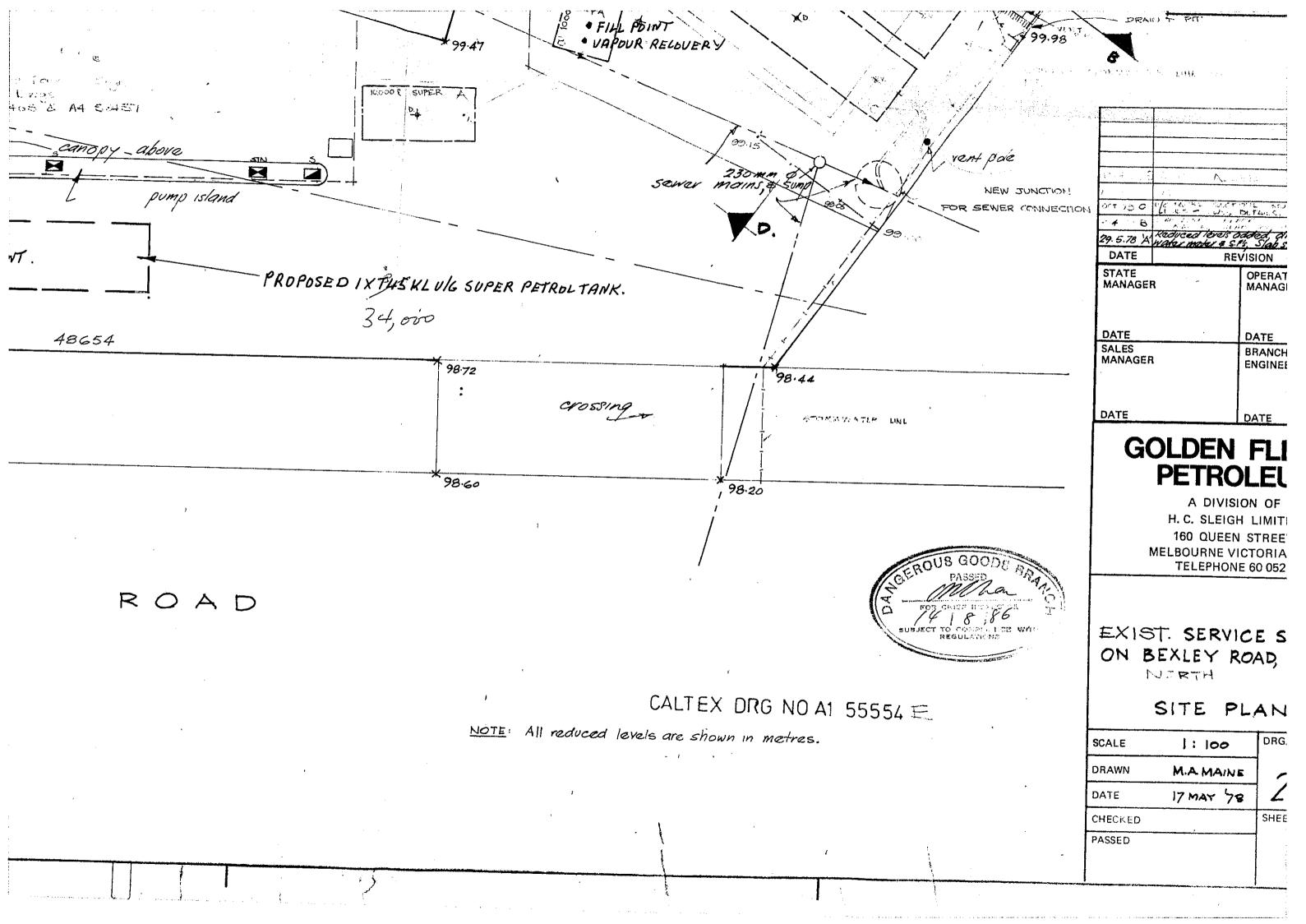
and ⊃lace

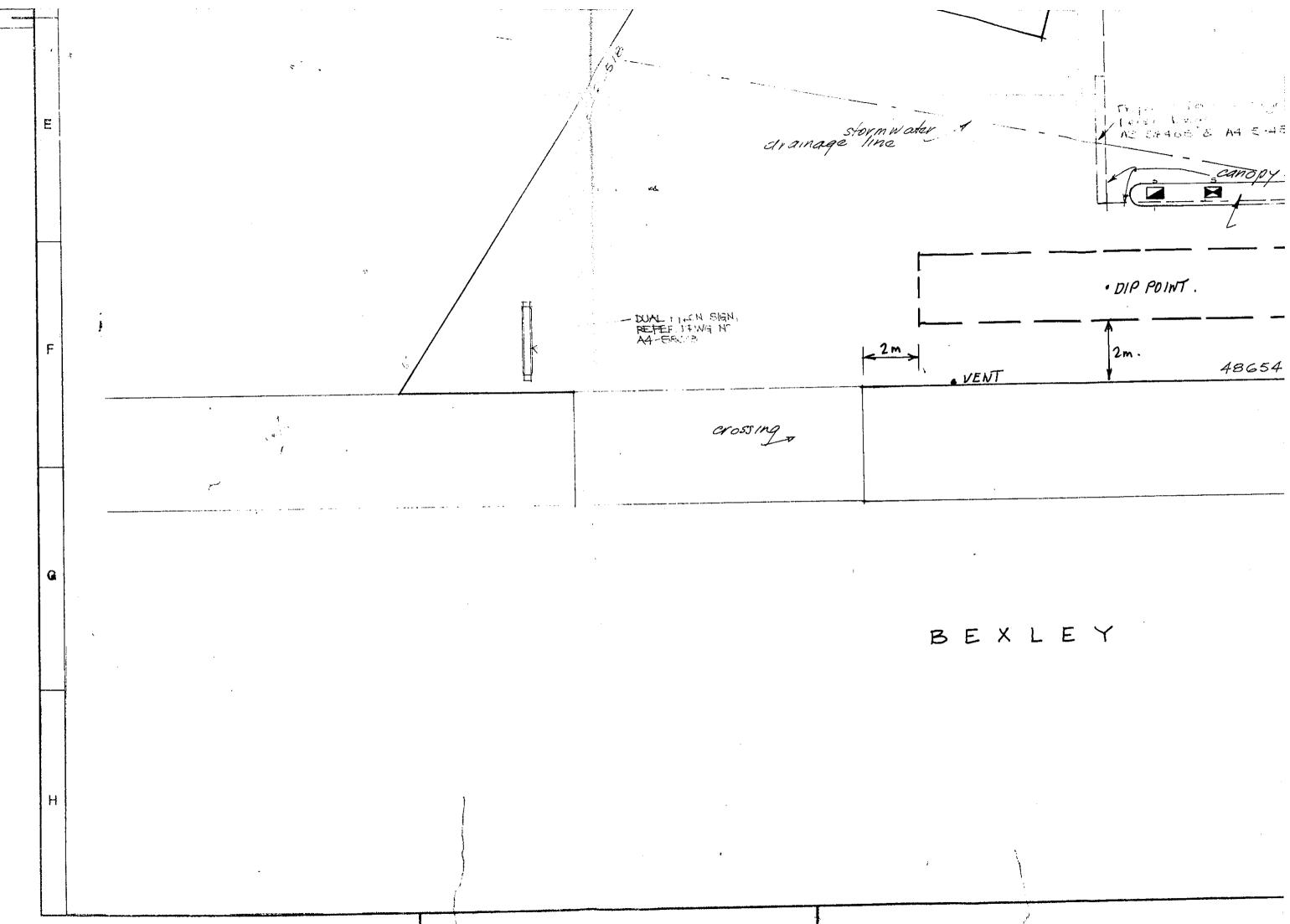
Signature of Inspector_tack

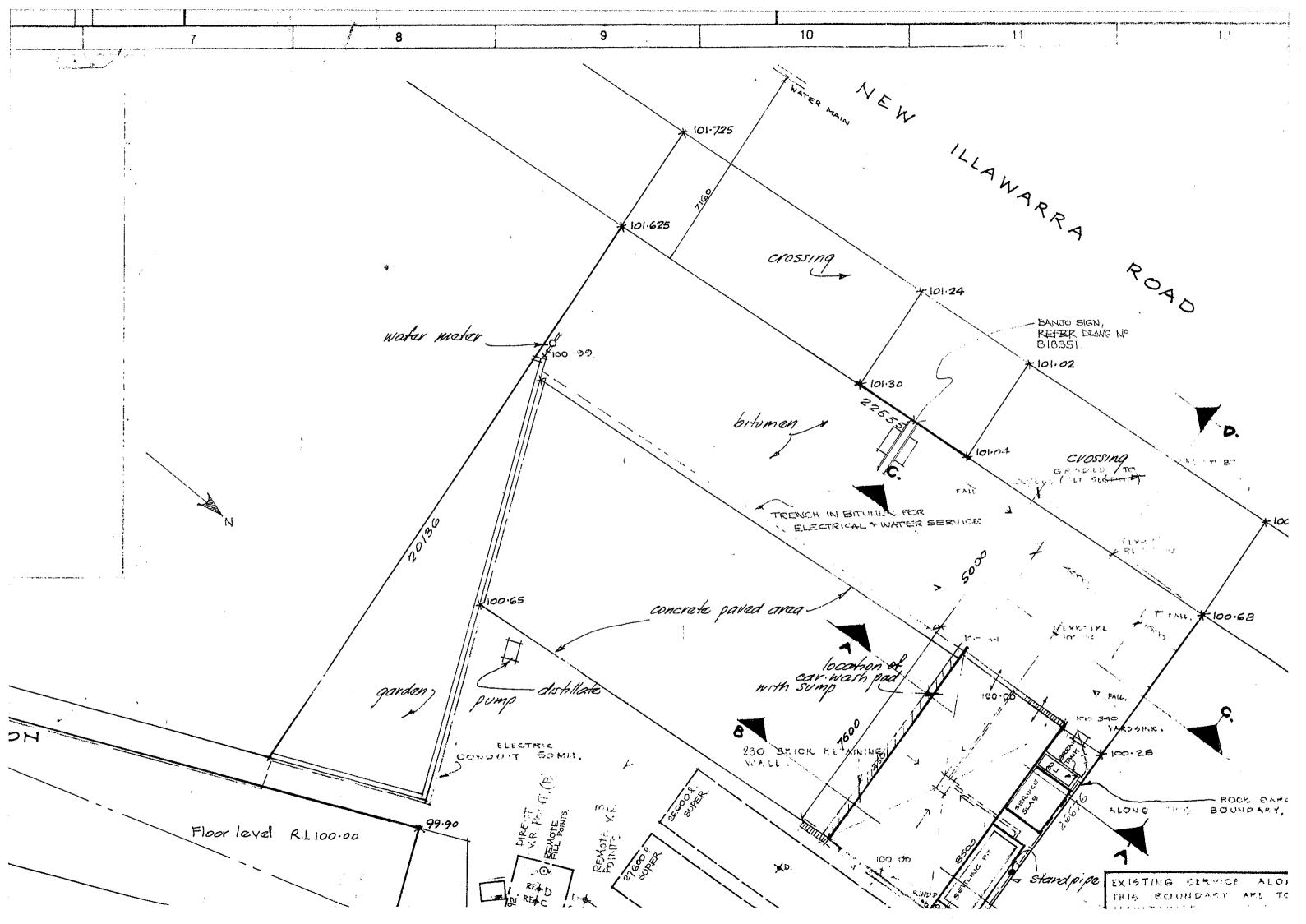
premises descri	ibed below.	(*delete whichever	r is not required)	-	n na segun a superior de la companya de la companya Internet de la companya de la company Internet de la companya de la company		an inn e i san ai lite att i mag
,			, j		1590-		838
FEE: \$10.00 p	-			•	1592	3/07/79	038
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Name of Appl (see over)	icant in full	Surname	HARDY		LESL Names	1E ⁻	
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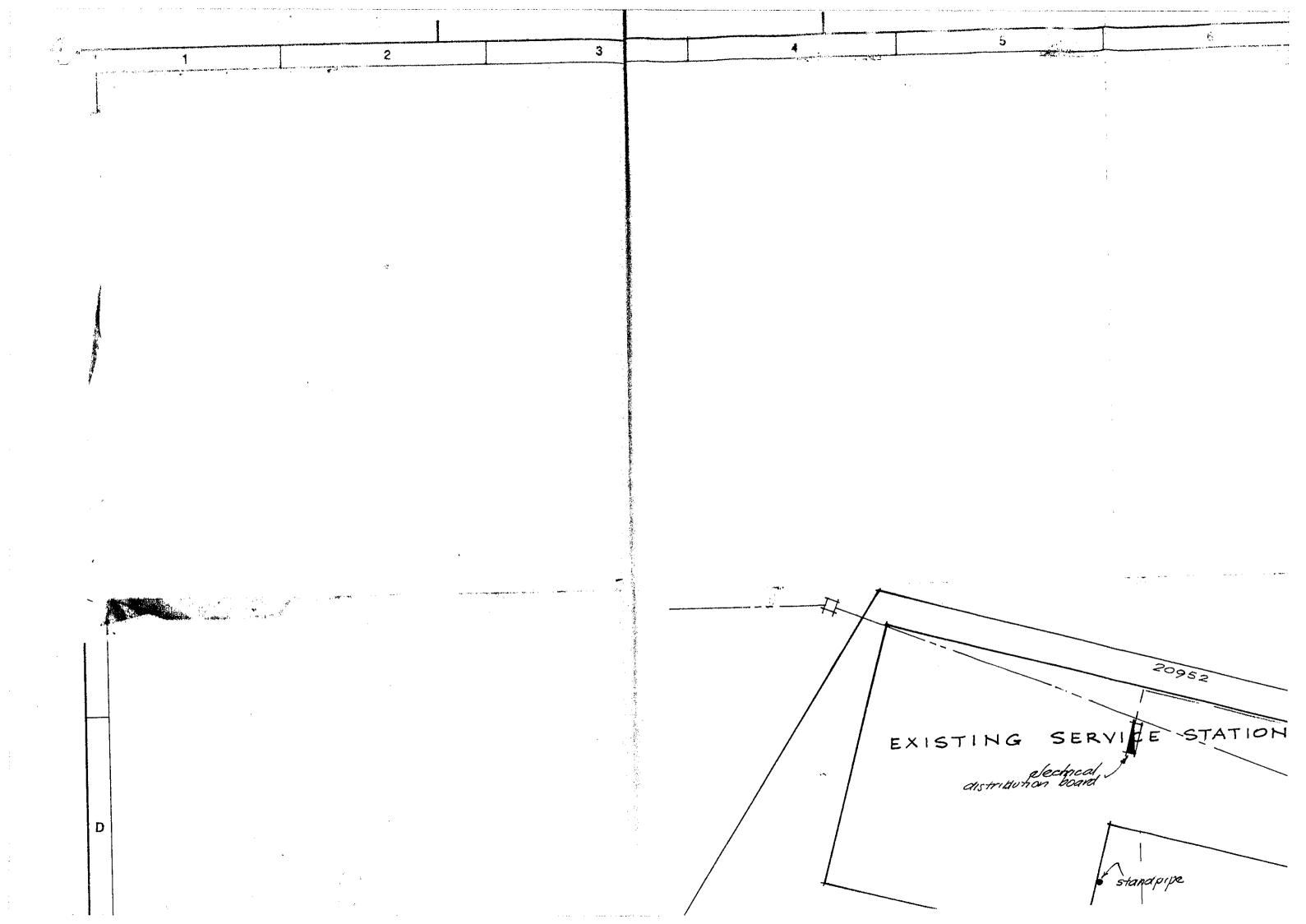
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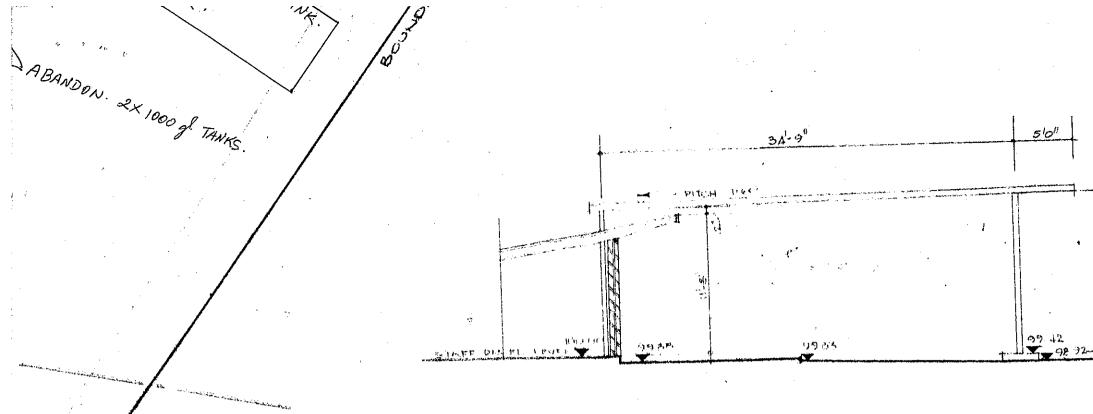
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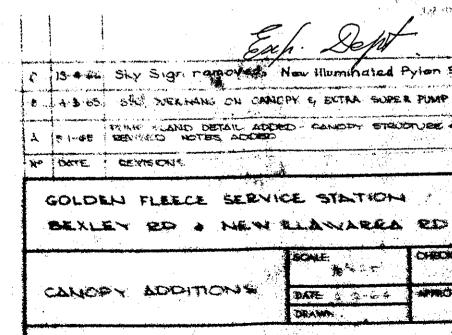




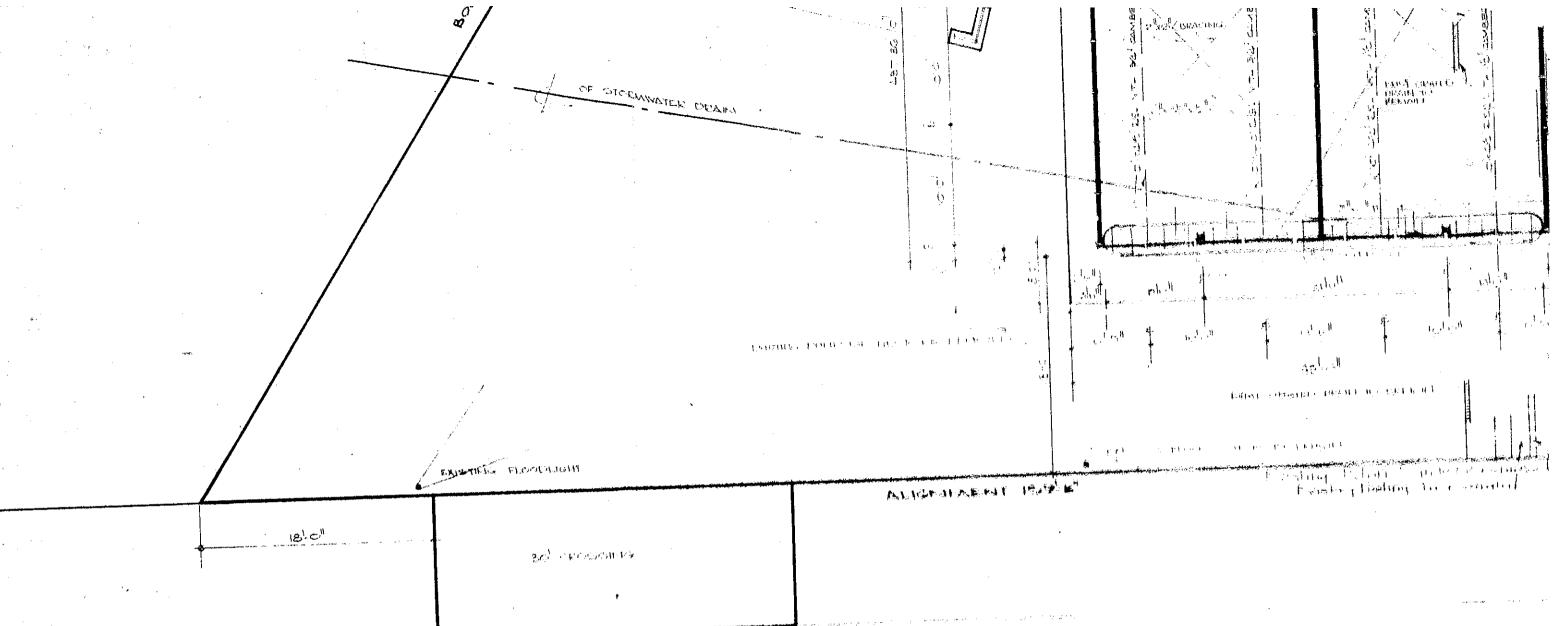
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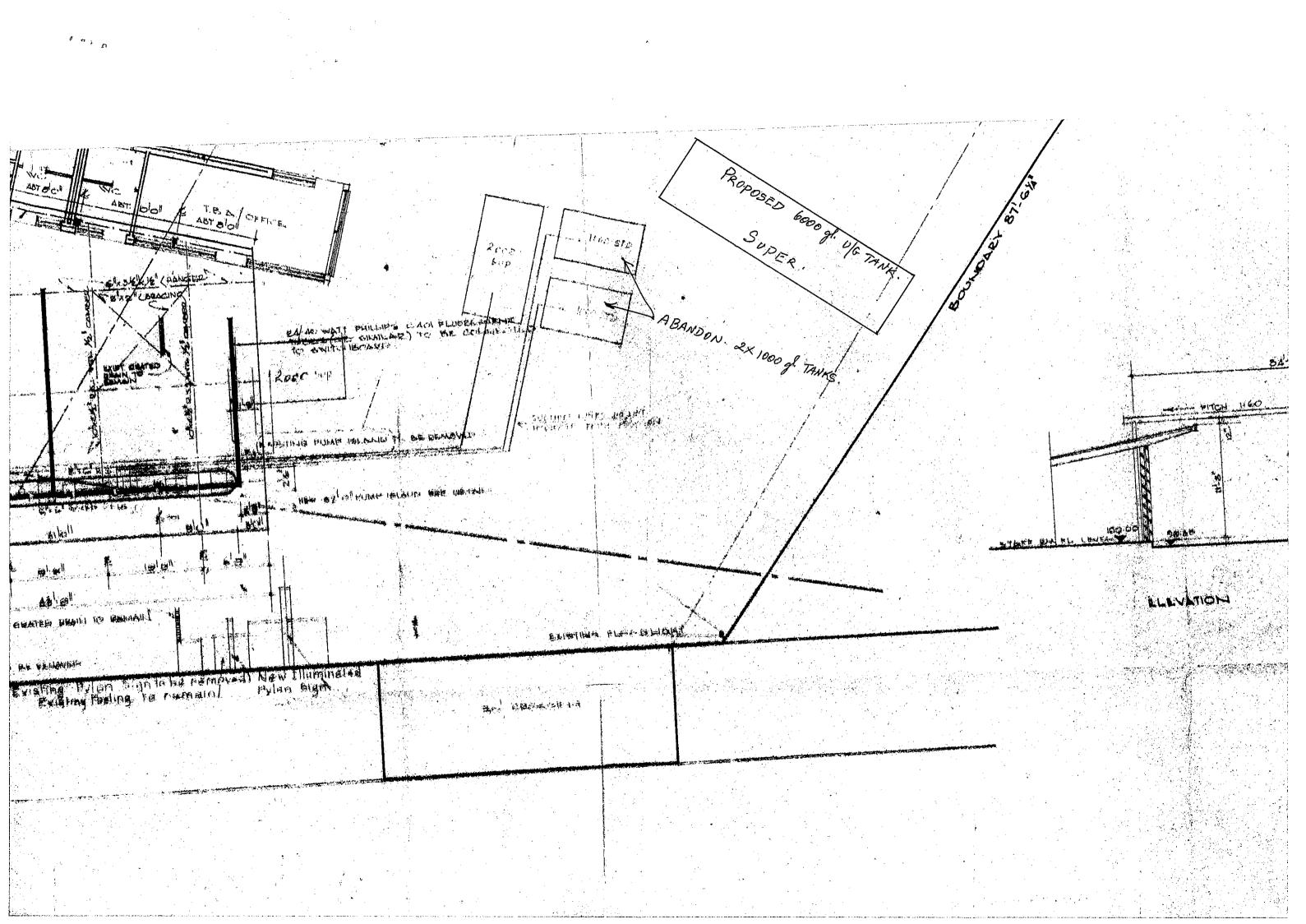
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APPENDIX E

DATA QUALITY OBJECTIVES

E16016BN-R03F (Rev 0.2)



INTRODUCTION

The Data Quality Objectives (DQOs) process was used to define the type, quantity and quality of the data needed to support decisions relating to the environmental condition of a site (reference D1). The process consists of seven steps, with the output from each step influencing the choices that will be made later in the process.

According to USEPA (reference D2), DQOs are qualitative and quantitative statements, derived from the first six steps of the process, that:

- Clarify the study objective;
- Define the most appropriate type of data to collect;
- Determine the most appropriate conditions from which to collect the data; and
- Specify tolerable limits on decision errors which will be used as the basis for establishing the quantity and quality of data needed to support the decision.

The DQOs are then used to develop a scientific and resource-effective data collection design.

STEP 1 - STATE THE PROBLEM

The problem is the potential for the site to be impacted by contamination caused by past activities undertaken on or adjacent to the site, at levels in excess of those permissible for the proposed residential land-use with minimal access to soil, and which could impact upon anticipated receiving environments and the intended development.

STEP 2 - IDENTIFY THE DECISION STATEMENT

The following decision were required to be made:

Obes the concentrations of soil (fill and natural soil) and groundwater exceed acceptable levels for the proposed land-use?



Are there any aesthetic issues relating to the fill, natural soils and groundwater at the site?

STEP 3 - IDENTIFY INPUTS TO THE DECISION

The following information inputs are required to resolve the decision statement:

- Collection of environmental soil and groundwater samples using appropriate methods;
- ♦ Analysis of selected samples for the contaminants of concern;
- Comparison of the results with relevant Site Assessment Criteria (SAC) as defined in the main body of the report; and
- Accurate measurements of sample locations to allow for accurate mapping and contouring of contamination (if identified).

STEP 4 - DEFINE THE BOUNDARIES OF THE STUDY

The site covers a combined area of 4,200m² and the following legal allotments:

- ♦ Lots 3, 4, 5 and 6 in Deposited Plan (DP) 508629,
- ♦ Lots A and B in DP 388204,
- ♦ Lot 1 in DP 1045200,
- ♦ Lot 1 in DP 400341, and
- ♦ Lot 38 in DP 663036.

The lateral extent of the study is the boundaries of the site (as depicted on **Figure 2**). The vertical extent of the study is approximately 1m below ground surface (bgs), 0.5m into natural soils or drilling / excavation method refusal or 0.5m below adjoining tankpits (where present).

STEP 5 - DEVELOP A DECISION RULE

The purpose of this step is to define the parameter of interest, specify the action level, and integrate previous DQO outputs into a single "if...then..." statement that describes a logical basis for choosing among alternative actions.



The parameters of interest (or contaminants of concern) are a broad group of common contaminant compounds known to occur within the Sydney area.

The action level or Site Assessment Criteria (SAC) will be used to decide if the parameter represents an unacceptable risk for residential land-use and/or the receiving environment. If the measured concentration of a parameter or compound exceeds the action levels (SAC) in soils, then this is deemed to present an unacceptable risk if the site is developed for residential land-use or to environmental receptors.

If the concentrations of a parameter or compound, whichever is representative for of the site, are above the nominated action levels, then further sampling may be proposed to determine the extent of contamination.

STEP 6 - SPECIFY ACCEPTABLE LIMITS ON DECISION ERRORS

There are two types of errors:

- 1) Deciding that the site is acceptable for residential land-use and that there is a low risk to receiving environments when it actually is not. The consequence of this error may be unacceptable health risk for current and future users of the sites.
- 2) Deciding that the site is unacceptable for residential land-use and that there is a risk to receiving environments when it is acceptable. The consequence of this error is that the client will pay for further investigation / remediation that are not necessary.

The more severe consequences are with decision error (1) since the risk of jeopardising human health outweighs the consequences of paying more for remediation. It will not be possible to conduct statistical hypothesis tests as the proposed sampling programme consists of the collection of one round of samples only.



STEP 7 - OPTIMISING THE DESIGN FOR OBTAINING DATA

The purpose of this step is to identify a resource-effective data collection design for generating data that are expected to satisfy the DQOs.

The resource effective data collection design that is expected to satisfy the DQOs is described in detail in Section 7 of the report. To ensure the design satisfies the DQOs a comprehensive Quality Assurance and Quality Control Plan will be implemented.

References

- D1. NSW DEC (2006) Contaminated Sites: Guidelines for NSW Site Auditor Scheme, 2nd Edition.
- D2. USEPA, 2000: *Guidance for Data Quality Objectives Process*. EPA QA/G-4.
- D3. NEPC, 2013: National Environment Protection Council (1999). National Environment Protection (Assessment of Site Contamination) Measure. *Schedule B(1) Guideline on the Investigation Levels for Soil and Groundwater.*
- D4. Friebel & Nadebaum (2011): *Technical Report No. 10 Health screening levels for petroleum hydrocarbons in soil and groundwater Part 1: Technical development document.* CRC for Contamination Assessment and Remediation of the Environment.
- D5. ANZECC/ARMCANZ, 2000: Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, 2000: *Guidelines for Fresh and Marine Water Quality, National Water Quality Management Strategy*. October 2000.



APPENDIX F

BOREHOLE LOGS

E16016BN-R03F (Rev 0.2)

										Borehole Log Report
8: La	eo Env 2 Bridg ane Co 02 94	je St ove N	treet NSW 2		-	eering Pty Ltd geo-environme	ental			le ID. BH10 Depth: 3.80 et: 1 of
Ρ	roject l	Nam	ie:		Ge	otechnical and Contamination Assessment	Pro	oject Nu	mber: E1	6016BN
L	ocatior	n / Si	ite:		30	7-311 Bexley Rd & 88-96 New Illawarra Rd	Clie	ent:	То	ny Soueid
D	rilling (rill Met quipme	thod			СС	······································	ate Started: ate Complete		11/2016 11/2016	Ground Level: Easting: Northing:
Method	Water Level Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samples / Tests ID No.	Observations / Comments
0			A. 5			CONCRETE SLAB.				
CC	0.2					FILL- Gravelly Sand / Sandy Gravel, brown, fine to	loose		SMC011116-1	
	0.4		\bigotimes			coarse grained sand, fine to coarse gravel. SAND- grey brown, fine to coarse grained sand.	loose	moist	0.2-0.3m SMC011116-2	Possible Fill.
	0.6 0.8 1.0 1.2								\0.4-0.5m/ SMC011116-3 \0.9-1.0m/	
Solid Flight Auger	- 1.4 - 1.6 - - - - - - - - - - - - - - - - - - -				Fill			very moist	SMC011116-4 1.3-1.5m	
Solid	- 2.2 - 2.4 - 2.6 - 2.8					Weathered SANDSTONE- orange brown & pale				
	3.0					grey, medium to coarse.				
	3.2		· · · · · · · · · · · · · · · · · · ·		미				SMC011116-5 3.0-3.3m	
	3.4				Natural				0.0-0.011	
	3.6									
	3.8									
	4.0					Hole Terminated at 3.80m Target depth.				Bore dry upon completion.
N	loisture	e				Additional Comments				
D Di Si M Vi W Sc	M Slig Mo M Ve We	mp ghtly N iist ry Moi	ist			No adverse odour or staining and no obvious ACM.				
	Lo	gge	d By:	;	Ste	ohen McCormack Date: 1/11/2016	Checke	ed By:	Stephen Me	cCormack Date: 10/12/2016

										Ν	Ionitoring Well Log	g Report
1	82 I Lan	Bridg	je St ove N	reet ISW		-	Beering Pty Ltd Generation Structure Field S				le ID. 9 Depth: et:	BH102 2.40 m 1 of 1
	-	ject I ation					eotechnical and Contamination Assessment 7-311 Bexley Rd & 88-96 New Illawarra Rd		oject Nur ent:		6016BN ny Soueid	
	Drill	ling (I Met lipme	hod	pany:		СС	5	ate Started: ate Complete		11/2016 11/2016	Ground Level: Easting: Northing:	
Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samples / Tests ID No.	Observations / Comments	Well Details Well Construction
cc		0.2					CONCRETE SLAB. FILL- Silty Clay, dark grey to black, low to medium	soft to firm	moist			Gatic L
Solid Flight Auger	•	0.4 0.6 0.8 1.0 1.2 1.4 1.4 1.6 1.8 - 2.0				E	plasticity, pockets of sand and gravel (shale and slag).			SMC011116-6 0.2-0.3m SMC011116-7 0.6-0.7m SMC011116-8 0.9-1.0m SMC011116-8 9/10 1.8-2.0m		80 88 88 88 88 88 88 88 88 88 88 88 88 8
16 1:50:30 PM		_ 2.4				Natural	Hole Terminated at 2.40m				2	.20
		2.6 - 2.8 - 3.0					Practical refusal.					
	Moi	sture	, 	•			Additional Comments	•	•			
S BH LOG	D Dp SM M VM W Sd	Dry Da Slig Mo Ver We Sat	/ mp ghtly N ist ry Moi et turate	st d			No adverse odour or staining and no obvious ACM.					
Ц Ц С)		Lo	gge	d By:	;	Ste	phen McCormack Date: 1/11/2016	Check	ed By:	Stephen M	cCormack Date: 10/12/	2016

											Borehole Log Report
	82 E Lan	Bridg	e St ve N	reet ISW							le ID. BH103 Depth: 1.40 m et: 1 of 1
	-	ect N					eotechnical and Contamination Assessment		oject Nu		6016BN
	Loca	ation	/ Si	te:		30	7-311 Bexley Rd & 88-96 New Illawarra Rd	Clie	ent:	То	ny Soueid
	Drill	ing (Met ipme	hod	pany:		SF		ate Started: ate Completed		11/2016 11/2016	Ground Level: Easting: Northing:
Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samples / Tests ID No.	Observations / Comments
2	>		Ľ.			2			2		
		0.2 - 0.4					ASPHALT. FILL- Gravelly Clayey Sand, dark grey and brown.	loose	moist	SMC011116- 11/12 0.1-0.25m	
Solid Flight Auger		 				E	FILL- Silty Sand, dark brown / dark grey, fine to coarse grained sand, trace clay.	loose	moist	SMC011116- 13/14 0.5-0.7m	
		1.0 1.2 1.4				Natural	SANDSTONE- grey & orange brown, medium to coarse.			-	Insufficient quality sandstone for sampling.
NOKIH.GPJ GEE.GUI ZU1Z/16 1:50:30 PM		1.6 2.0 2.2 					Hole Terminated at 1.40m Practical refusal.				Bore dry upon completion.
		2.8 - 3.0									
	Mois D Dp SM M VM W Sd	Mo Ver We	mp htly M ist y Moi	st			Additional Comments No adverse odour or staining and no obvious ACM.				
ц С С С		Lo	ggeo	d By:	;	Ste	phen McCormack Date: 1/11/2016	Checke	ed By:	Stephen Me	cCormack Date: 10/12/2016

Borehole	Log	Re

											Borehole Log Repor
a I	32 E Lane	Bridg	e St ve N	reet ISW		-	Beering Pty Ltd geo-environme				e ID. BH104 Depth: 1.20 r et: 1 of
	-	ect I					eotechnical and Contamination Assessment 7-311 Bexley Rd & 88-96 New Illawarra Rd	t Pro Clie	oject Nur ent:		6016BN ny Soueid
I	Drilling Company:Total DrillingDate Started:1/11/2016Drill Method:CC to 0.15m, SFA (TC-Bit) to EOHDate Completed:1/11/2016Equipment:Hanjin D&B								Ground Level: Easting: Northing:		
Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samples / Tests ID No.	Observations / Comments
cc		-					CONCRETE SLAB.				
		0.2 - 0.4					FILL- Sandy Gravel, dark grey / black, fine to coarse grained sand, fine to coarse gravel.	loose	moist	SMC011116-15 0.2-0.3m	Coal-like fragments.
Solid Flight Auger		- 0.6 - 0.8				Ē	FILL- Sand, yellow brown, fine to coarse grained sand.	loose	moist	SMC011116-16 0.5-0.65m	
S		- <u>1</u> .0					FILL- Sand, dark brown, fine to coarse grained sand, trace gravel.	loose	moist	SMC011116-17 0.8-0.95m	
		1.2 - 1.4					Hole Terminated at 1.20m Refusal on concrete.				Bore dry upon completion.
		1.6 - 1.8									
_		_ _2.0 _									
		2.2 - 2.4									
		_ _2.6 _									
		2.8 - 3.0									
	Mois Dp SM M /M M Sd	Mo Ver We	mp htly M ist y Moi	st			Additional Comments No adverse odour or staining and no obvious ACM.				
L L		Lo	ggeo	d By:	:	Ste	phen McCormack Date: 1/11/2016	Checke	ed By:	Stephen Mo	cCormack Date: 10/12/2016

									Ν	Ionitoring Well Lo	g Rep	ort
8 L	Geo En 2 Bridg ane Co 02 94	ge St ove N	treet NSW		-	Beering Pty Ltd geo-environme				e ID. Depth: et:		0 m
	Project					eotechnical and Contamination Assessment		oject Nui ent:		6016BN		
	Drilling Drill Me	Com thod	ipany:		То СС	5	ate Started: ate Complete	1/	11/2016 11/2016	ny Soueid Ground Level: Easting: Northing:		
Method	Water Level Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samples / Tests ID No.	Observations / Comments	Well Details	Well Construction
cc			A 4			CONCRETE SLAB.						
	0.2 				Fill	FILL- Gravelly Clay, dark brown, fine to coarse gravel, some sand.	firm		SMC011116-18 0.1-0.2m SMC011116-19 0.5-0.6m		0.50	Gatic
	0.8 1.0					FILL- Sandy Clay, dark brown & brown, trace sand.	firm to stiff		SMC011116-20		1.00	Bentonite
rwi Solid Flight Auger	- 1.2 - 1.4 - 1.6 - 1.8 - 2.0 - 2.2				Natural	Sandy CLAY- orange brown, fine to medium gravel. Becoming red brown & orange brown from 1.6m, medium to coarse grained sand.	stiff to very stiff	moist	SMC011116- 21/22 1.1-1.25m SMC011116-23 1.8-2.0m			50mm Ø Screen
20.00.1	2.4					SANDSTONE- grey & orange brown, medium to coarse.			-		2.35	20
	 					Hole Terminated at 2.40m Practical refusal.				Bore dry upon completion.		
	3.0					Additional Company						
	p Da M Slių I Mo M Ve / We	y imp ghtly N bist ry Moi	ist			Additional Comments No adverse odour or staining and no obvious ACM.						
<u>ر</u> د در	Lc	ogge	d By:	;	Ste	phen McCormack Date: 1/11/2016	Check	ed By:	Stephen M	cCormack Date: 10/12	/2016	

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	82 E Lan	Bridg	le St ive N	reet ISW							e ID. Depth: et:	BH106 2.20 m 1 of 1
	-	iect N ation					eotechnical and Contamination Assessment		oject Nu		6016BN	
	Drill Drill		Com	pany:	:	To SF	5	ate Started:		11/2016 11/2016	ny Soueid Ground Level: Easting: Northing:	
Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samples / Tests ID No.	Observations	/ Comments
		0.2				Eil	ASPHALT. FILL- Clayey Sandy Gravel, dark grey & brown, fine to coarse grained sand, fine to coarse gravel.	firm to stiff	moist	- SMC011116-24 0.1-0.3m		
Solid Flight Auger	•	0.6 0.8 - 1.0 - 1.2 - 1.4 - 1.6 - 1.8				Natural	Sandy CLAY- orange brown, fine to medium grained sand.	stiff	moist	SMC011116- 25/26 0.7-0.9m SMC011116-27 1.3-1.5m		
		 2.2					SANDSTONE- grey & orange brown, medium to coarse.			-	Bore dry upon comple	etion.
		2.4 2.6 2.8 3.0					Practical refusal.					
	Me		<u> </u>		ı	1	Additional Commonts	1	1	1		
	D Dp SM M VM W Sd	Mo Ver We	, mp jhtly № ist ∵y Moi	st			Additional Comments No adverse odour or staining and no obvious ACM.					
ים ש ט		Lo	ggeo	d By:		Ste	phen McCormack Date: 1/11/2016	Check	ed By:	Stephen Mo	Stephen McCormack Date: 10/12/2016	

										Ν	Ionitoring Well Lo	og Report
	82 E Lan	Bridg	e St ve N	reet ISW :		-	eering Pty Ltd geo-environme			_	l e ID. ₂ Depth: et:	BH107 2.80 m 1 of 1
	-	ject N ation					otechnical and Contamination Assessment 7-311 Bexley Rd & 88-96 New Illawarra Rd		oject Nur ent:		6016BN ny Soueid	
	Drill	ling (I Met iipme	hod:	pany:		SF		te Started: te Complete		11/2016 11/2016	Ground Level: Easting: Northing:	
Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samples / Tests ID No.	Observations / Comments	Well Details Well Construction
		0.2 - 0.4 - 0.6				Fill	Surface: Grass TOPSOIL / FILL- Sandy Silt, dark brown, fine to medium gravel, becoming pale brown with depth.	loose to medium dense		SMC011116-29)	Gate A
aht Auger		0.8 - 1.0 - 1.2 - 1.4				-	Silty CLAY- red brown & orange brown, some fine to medium grained sand. Sandy CLAY- red brown & orange brown, medium to coarse grained sand, medium to coarse gravel.	firm to stiff	moist	\$MC011116-28		001 Bentionite
0:34 PM Solid Flight A		1.6 1.8 2.0 2.2				Natural	SANDSTONE- grey & orange brown, medium to coarse. SANDSTONE- pale grey, medium to coarse, weak zone, increased moisture.			8MC011116-31	Likely water bearing zone between 2.0 and 2.8m.	24.1 200 200
.GPJ GEE.GDT 20/12/16 1:50:34 PM		2.4 - 2.6 - 2.8					Hole Terminated at 2.80m			SMC011116-35 2.5-2.8m	;	Somm & Screen
	Moi D Dp SM M VM W Sd	Moi Ver We	np htly M ist y Moi	st			Practical refusal. Additional Comments No adverse odour or staining and no obvious ACM.	<u> </u>				
				d By:	;	Ste	phen McCormack Date: 1/11/2016	Check	ed By:	Stephen M	cCormack Date: 10/1;	2/2016

											Borehol	e Log Report
	82 Lar	Bridg	je St ove N	treet NSW		-					e ID. Depth: et:	BH108 0.75 m 1 of 1
	Pro	ject l	Nam	ie:		Ge	eotechnical and Contamination Assessment	Pro	oject Nu	mber: E16	6016BN	
	Loc	ation	n / Si	ite:		30	7-311 Bexley Rd & 88-96 New Illawarra Rd	Cli	ent:	Тог	ny Soueid	
	Dril	lling (Il Met uipme	hod	ipany: :				ate Started: ate Complete		11/2016 11/2016	Ground Level: Easting: Northing:	
þ	Water Level	(m) ((Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	ure	Samples / Tests	Observations	/ Comments
Method	Water	Depth (m)	RL (m)	Graph	nscs	Mater		Consi Densi	Moisture	ID No.		
							Surface: Grass					
		_ 0.2				Fill	TOPSOIL / FILL - Sandy Gravelly Silt, dark grey, fine to medium grained sand, fine to coarse gravel.	loose to medium dense	slightly moist	SMC011116-32 0.0-0.15m		
Hand Auger	505	_ 0.4				ä	Sandy CLAY / Clayey SAND- red brown & orange brown, medium to coarse grained sand, with sandstone gravel.	stiff	moist	SMC011116-33 0.3-0.5m		
		0.6				Natural						
		0.8 - 1.0 - 1.2 - 1.4 - 1.6 - 2.0 - 2.2 - 2.4 - 2.6 - 3.0					Hole Terminated at 0.75m Practical refusal on weathered sandstone.				Bore dry upon compl	etion.
		isture		1			Additional Comments		•			
	D Dp SM M VM W Sd	Mo Ver We	mp ghtly M ist ry Moi	ist			No adverse odour or staining and no obvious ACM.					
בים פיבור פיבור		Lo	ggeo	d By:	;	Ste	phen McCormack Date: 1/11/2016	Check	ed By:	Stephen Mo	Cormack Date:	10/12/2016

											Borehole Log Report
	82 I Lan	Bridg	le St ive N	reet ISW			eering Pty Ltd geo-environme				le ID. BH109 Depth: 1.35 m et: 1 of 1
		ject I ation					otechnical and Contamination Assessment 7-311 Bexley Rd & 88-96 New Illawarra Rd		oject Nu ent:		6016BN ny Soueid
	Dril	ling (I Met uipme	hod	pany:		GE Ha	E Da	ate Started: ate Complete	1/	11/2016 11/2016	Ground Level: Easting: Northing:
Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samples / Tests ID No.	Observations / Comments
Hand Auger						Fill	TOPSOIL/FILL - Clayey Silt, dark brown, trace fine to coarse sandstone and coal gravel, roots.	firm		SMC011116-34 0.0-0.15m SMC011116-36 0.5-0.6m	
Hand		- 0.8 - 1.0 - 1.2 -				Natural	Sandy CLAY- orange brown & red brown.	firm to stiff	moist	SMC011116-37 0.7-0.85m	
		1.4 - 1.6 - 2.0 - 2.2 - 2.2 - 2.4 - - 2.6 - - 2.8					Hole Terminated at 1.35m Practical refusal on weathered sandstone.				Bore dry upon completion.
	D Dp SM M VM	Mo Ver	, mp jhtly № ist ∵y Moi				Additional Comments No adverse odour or staining and no obvious ACM.	<u> </u>			
SEE DAVIES	W Sd		urate	d By:		Ste	phen McCormack Date: 1/11/2016	Checke	ed By:	Stephen M	cCormack Date: 10/12/2016

	82 E Lan	Bridg	je St ove N	reet ISW		-	eering Pty Ltd				e ID. Depth: et:	BH201 1.60 m 1 of 1
		iect N ation					ntamination Assessment 7-311 Bexley Rd & 88-96 New Illawarra Rd		oject Nur ent:		6016BN ny Soueid	
	Drill	ing (Met	hod	pany:				Date Started: Date Complete)-JUL-17)-JUL-17	Ground Level: Easting: Northing:	
Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samples / Tests ID No.	Observations / Comr	nents
Hand Aurer		-			SP	Fill	Surface: bark mulch FILL- Gravelly Sand, brown, fine to coarse grained, with fine to coarse gravel present. FILL- Clayey Sand, brown, fine to coarse grained, with fine to coarse gravel (including fragments of metal).	loose	moist	JL190717-01 0.05-0.15m JL190717-02 0.40-0.50m JL190717-03 0.70-0.80m		
7 8:11:04 AM I		<u>1</u> .0			SC	Natural	Clayey SAND- orange-brown, fine to coarse grained. Sandy CLAY- grey, low plasticity, fine to coarse grained. becoming yellow-brown from 1.4m. Hole Terminated at 1.60m Target Depth Reached	loose to medium dense firm to stiff	moist moist very moist	JL190717-04 1.00-1.10m JL190717-05 1.40-1.50m	Borehole dry upon complet	ion
GEE DAVIES BH LOG BEXLEY NORTH STAGE 2 EXTRA.GPJ GEE.GDT 28-7-17 8:11:04 AM	Moi	 					Additional Comments					
DAVIES BH LOG BEXL	D Dp SM M VM W Sd	Dry Dai Slig Mo Ver We	/ mp ghtly M ist ry Moi	st			No adverse odour or staining and no obvious ACM.					
GEE C		Lo	ggeo	d By:		Jos	hua Long Date: 19-Jul-17	Check	ed By:	Stephen Mo	cCormack Date: 19-J	UL-17

8 L	32 E _ane	Bridg	e St ve N	treet NSW		-	eering Pty Ltd				e ID. Depth: et:	BH20 1.80 r 1 of
	-	ect I					ntamination Assessment		oject Nu		6016BN	
		ation					7-311 Bexley Rd & 88-96 New Illawarra Rd		ient:		ny Soueid	
[Drill	ing (Met ipme	hod	pany:				Date Started: Date Complete		9-JUL-17 9-JUL-17	Ground Level: Easting: Northing:	
Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samples / Tests ID No.	Observations / Co	mments
cc				6 4 5			Surface: concrete FILL- Concrete, 150mm.					
0		-			SP		FILL- Gravelly Sand, brown, fine to coarse grained, with fine to coarse gravel (including concrete fragments and plastic).	loose	moist	JL190717-06 / 07 \ 0.25-0.35m /		
Hand Auger		-			SP	Fill	FILL- Sand, pale brown, fine to coarse grained, with clumps of brown silty clay present.	loose	moist	JL190717-08 0.60-0.70m		
Hand		_ <u>1</u> .0			CL		FILL- Silty Clay, dark brown, low to medium plasticity, with fine to coarse sand and fine to coarse gravel.	e firm to stiff	moist	JL190717-09 1.10-1.20m		
		-			CL	Natural	Sandy CLAY- dark grey, low plasticity, fine to coarse grained. becoming pale brown from 1.5m.	firm to stiff	moist	JL190717-10 1.40-1.50m		
		2.0					Hole Terminated at 1.80m Target Depth Reached				Borehole dry upon comp	letion
		_										
		Mo Vei We	mp htly M ist y Moi	ist			Additional Comments No adverse odour or staining and no obvious ACM					
				d By:		Jos	hua Long Date: 19-Jul-17	Check	ed By:	Stephen Mo	cCormack Date: 19	-JUL-17

Geo Environmental Engineering Pty Ltd **BH203** Hole ID. 82 Bridge Street Hole Depth: 1.20 m Lane Cove NSW 2066 T 02 9420 3361 1 of 1 Sheet: Project Number: E16016BN Project Name: **Contamination Assessment** Location / Site: 307-311 Bexley Rd & 88-96 New Illawarra Rd Client: **Tony Soueid** Drilling Company: GEE Date Started: 19-JUL-17 Ground Level: Drill Method: Hand Auger 19-JUL-17 Date Completed: Easting: Northing: Equipment: Manual Samples / Tests **USCS Symbol** Material Type Consistency / Density Water Level Graphic Log £ Material Description Observations / Comments Moisture Method Depth (£ ID No. Ę Surface: concrete FILL- Concrete, 90mm. g FILL- Silty Sand, dark brown, fine to medium loose moist grained. JL190717-11 0.15-0.25m Ē SM Hand Auger Clayey SAND- brown / yellow-brown, fine to moist loose to coarse grained. medium JL190717-12 dense 0.70-0.80m Natural sc 1.0 JL190717-13 1.10-1.20m Hole Terminated at 1.20m Borehole dry upon completion Target Depth Reached NORTH STAGE 2 EXTRA.GPJ GEE.GDT 28-7-17 8:11:06 AM 2.0 DAVIES BH LOG BEXLEY Moisture Additional Comments D Dry No adverse odour or staining and no obvious ACM. Dp SM Damp Slightly Moist M VM Moist Very Moist w Wet Sd Saturated GEEI Date: 19-Jul-17 Logged By: Joshua Long Checked By: Stephen McCormack Date: 19-JUL-17

Geo Environmental Engineering Pty Ltd **BH204** Hole ID. 82 Bridge Street Hole Depth: 0.70 m Lane Cove NSW 2066 T 02 9420 3361 1 of 1 Sheet: Project Number: E16016BN Project Name: **Contamination Assessment** Location / Site: 307-311 Bexley Rd & 88-96 New Illawarra Rd Client: **Tony Soueid** Drilling Company: GEE Date Started: 19-JUL-17 Ground Level: Drill Method: 19-JUL-17 Hand Auger Date Completed: Easting: Equipment: Northing: Manual Samples / Tests **USCS Symbol** Material Type Consistency / Density Log Water Level Ē Material Description Observations / Comments Graphic L Moisture Method Ê Depth (ID No. Ę Surface: concrete FILL- Concrete, 150mm. ö FILL- Silty Clay, dark grey / dark brown, low plasticity, with fine to coarse sand and fine to coarse firm to stiff moist JL190717-14 gravel (including large concrete and brick 0.20-0.30m Solid Flight Auger fragments). 1 CL JL190717-15 0.60-0.70m Practical Hand Auger Refusal at 0.70m Caused by large large obstructions within fill layer Borehole dry upon completion. 1.0 2.0 Moisture Additional Comments D Dry No adverse odour or staining and no obvious ACM. Dp SM Damp Slightly Moist M VM Moist Very Moist w Wet Sd Saturated Logged By: Joshua Long Date: 19-Jul-17 Checked By: Stephen McCormack Date: 19-JUL-17

NORTH STAGE 2 EXTRA.GPJ GEE.GDT 28-7-17 8:11:07 AM

DAVIES BH LOG BEXLEY

GEEI

										N	Ionitoring We	II Log Repor
٤ ۲	32 E _an	Bridg	e St ve N	reet ISW		-	Geo-environn				e ID. Depth: et:	BH205 1.00 m 1 of 1
F	Proj	ect N	lam	e:		Co	ntamination Assessment	Pr	oject Nu	mber: E1	6016BN	
L	_0Ca	ation	/ Si	te:		30	7-311 Bexley Rd & 88-96 New Illawarra Rd	CI	ient:	То	ny Soueid	
[Drill	ing (Met ipme	hod:	pany:				Date Started: Date Complete)-JUL-17)-JUL-17	Ground Level: - Easting: - Northing: -	
Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samples / Tests ID No.	Observations	/ Comments
) [] [- - - - - - - - - - - - - - - - - - -			SM	Natural Fil	Surface: grass TOPSOIL/FILL- Silty Sand, dark brown, fine to coarse grained, with fine to coarse gravel (including crushed sandstone). Sandy CLAY- light grey, low plasticity, fine to coarse grained. becoming orange-brown from 0.8m. Hole Terminated at 1.00m Target Depth Reached Additional Comments No adverse odour or staining and no obvious ACM	g loose g loos	moist	JL190717-16 /17 \0.05-0.15m / JL190717-18 0.60-0.70m	Borehole dry upon co	mpletion.
	SM // /M	Slig Moi Ver We	htly M ist y Moi:	st								
				l By:		Jos	hua Long Date: 19-Jul-17	Check	ed By:	Stephen Me	cCormack Date:	19-JUL-17

Geo Environmental Engineering Pty Ltd **BH206** Hole ID. 82 Bridge Street Hole Depth: 1.10 m Lane Cove NSW 2066 T 02 9420 3361 1 of 1 Sheet: Project Number: E16016BN Project Name: **Contamination Assessment** Location / Site: 307-311 Bexley Rd & 88-96 New Illawarra Rd Client: **Tony Soueid** Drilling Company: GEE Date Started: 19-JUL-17 Ground Level: Drill Method: Hand Auger 19-JUL-17 Date Completed: Easting: Northing: Equipment: Manual Samples / Tests **USCS Symbol** Material Type Consistency / Density Water Level Graphic Log Ξ Material Description Observations / Comments Moisture Method Depth (£ ID No. Ę Surface: grass TOPSOIL/FILL- Silty Sand, dark brown, fine to loose moist JL190717-19 0.05-0.15m coarse grained, with fine to coarse gravel. SM Ē Hand Auger SAND- pale grey, fine to coarse grained, with clay. loose to moist medium JL190717-20 dense SP 0.70-0.80m Natural Sandy CLAY- pale orange-brown, fine to coarse firm to stiff moist 1.0 grained. CL Hole Terminated at 1.10m Borehole dry upon completion. Target Depth Reached NORTH STAGE 2 EXTRA.GPJ GEE.GDT 28-7-17 8:11:09 AM 2.0 DAVIES BH LOG BEXLEY Moisture Additional Comments D Dry No adverse odour or staining and no obvious ACM. Dp SM Damp Slightly Moist M VM Moist Very Moist w Wet Sd Saturated GEEI Logged By: Joshua Long Date: 19-Jul-17 Checked By: Stephen McCormack Date: 19-JUL-17

										Ν	Ionitoring Well Log Repo
i	82 E Lane	Bridg	e St ve N	reet ISW		-	geo-environm				le ID. BH20 Depth: 1.00 et: 1 of
	Proj	ect N	lam	e:		Co	ontamination Assessment	Pr	oject Nu	mber: E1	6016BN
	Loca	ation	/ Si	te:		30	7-311 Bexley Rd & 88-96 New Illawarra Rd	Cli	ient:	То	ny Soueid
	Drill	ing (Met ipme	hod:	pany:				ate Started: ate Complete)-JUL-17)-JUL-17	Ground Level: Easting: Northing:
Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samples / Tests ID No.	Observations / Comments
Mei	Wa	Der	R	Gra	SU	Mai		DC	W		
							Surface: grass				
		-			ML	Fil	TOPSOIL- Clayey Silt, dark brown, low plasticity, with fine to medium grained sand and a trace of fine to coarse gravel.	firm	moist	JL190717-21 0.05-0.15m	
Hand Auger		-				ral	Sandy CLAY- pale grey-brown, low plasticity, fine to coarse grained.	firm to stiff	moist	JL190717-22 0.50-0.60m	
		-			CL	Natural	becoming pale orange-brown from 0.7m.			11 400747 00	
┝		1.0					becoming pale grey / orange-brown / red-brown with fine to coarse ironstone gravel from 0.9m. Hole Terminated at 1.00m			JL190717-23 0.90-1.00m	Borehole dry upon completion
		- - - - - - 2.0					Target Depth Reached				
		sture		•	•		Additional Comments	1	•		
	D Dp SM V V V M Sd	Mo Ver We	np htly M st y Moi:	st			No adverse odour or staining and no obvious ACM.				
		Lo	ggeo	d By:	,	Jos	hua Long Date: 19-Jul-17	Check	ed By:	Stephen M	cCormack Date: 19-JUL-17

Borehole Log Report Geo Environmental Engineering Pty Ltd **BH208** Hole ID. geo-environmen Hole Depth: 1.00 m Lane Cove NSW 2066 1 of 1 Sheet: E16016BN **Contamination Assessment** Project Number: 307-311 Bexley Rd & 88-96 New Illawarra Rd **Tony Soueid** Client: GEE Date Started: 19-JUL-17 Ground Level: _____ Hand Auger Date Completed: 19-JUL-17 Easting: --Manual Northing: ____ ----Samples / Tests USCS Symbol Material Type Consistency / Density Material Description Observations / Comments Moisture ID No. Surface: grass **TOPSOIL**- Clayey Silt, dark brown, low plasticity, with fine to medium grained sand and a trace of fine firm moist JL190717-24 / 25 to coarse gravel.

82 Bridge Street

T 02 9420 3361

Project Name:

Location / Site:

Drill Method:

Equipment:

Water Level Depth (m)

Method

Drilling Company:

Graphic Log

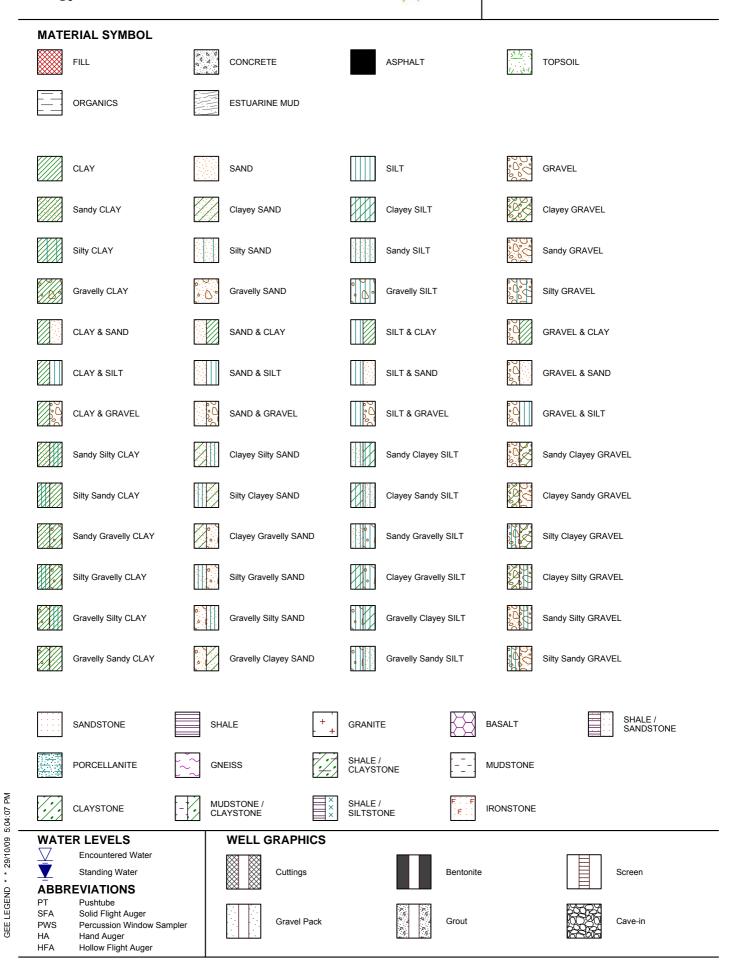
RL (m)

Aliger	5.65	-			ML	Fill	J			\ <u>0.05-0.15m</u> /	
Hand Auron		-			CL	Natural	Sandy CLAY- brown / orange-brown, low plasticity, fine to coarse grained.	firm to stiff	moist	JL190717-26 0.50-0.60m	
		-					to coarse ironstone gravel from 1.0m.				
GEE DAVIES BH LOG BEXLEY NORTH STAGE 2 EXTRA.GPJ GEE.GDT 28-7-17 8:11:10 AM							Hole Terminated at 1.00m Target Depth Reached				Borehole dry upon completion
□ □	Moi	sture					Additional Comments				
AVIES BH LOG BEX.	D Dp SM M VM W Sd	Dry Dan Sligi Moi: Very Wet	np htly Mo st y Mois	st			No adverse odour or staining and no obvious ACM.				
		Lo	gged	By:	,	Jos	hua Long Date: 19-Jul-17	Checke	ed By:	Stephen Me	cCormack Date: 19-JUL-17

Geo Environmental Engineering 82 Bridge Street Lane Cove NSW 2066 E info@geoenvironmental.com.au



Log Report Legend





APPENDIX G

FIELD DATA SHEETS

teo-environmentel								The second
2000 CONTRACTOR - 21/11/1	1 N	ā .	-	2	0	6	N 1	100
								112

Stage 2 ESA

North

Detro

YES NO

YES NO

2.21

2.69

PURGE

RATE

Perder

Damage:

Well ID Visible:

Yes or No

Bladder Pump

PROJECT NAME:

LOCATION / SITE:

CONDITION

(Comments Below):

FREE PRODUCT:

WELL DIAMETER (mm): 50

STATIC WATER LEVEL (SWL):

TOTAL DEPTH OF WELL (TD):

11 11 16

CUMUL.

VOLUME PURGED

(Litres)

51

Equilibrium Requirements

METHOD

MAX. DRAWDOWN (m)

DATE

TIME

10:10

GROUNDWATER SAMPLING FIELD DATA

GWO

WELL ID:

PROJECT INFORMATION

PROJECT NUMBER: FIGOI6BN CLIENT: Meno WELL DETAILS CASING STICK UP (+) / DOWN (-) m: WELL SCREEN INTERVAL (m): YES NOS Well Locked TYES NO Water Around Well YES I NO Cap on PVC YES NO Water Between PVC and Gatic/ Monument. WELL MEASUREMENTS m BTOC or m BOB or m BTOM Thickness (m): or mBGL or mBTOM m BTOC PURGING DETAILS / OBSERVATIONS Coot Valve Bailer Other. High Volume Pump Peristaltic mBTOC / mBGL / mBTOM WATER LEVEL AFTER PURGE DR mBTOC / mBGL / mBTOM INTAKE DEPTH E.C. DO pH TEMP. TURB. Redox mS/cm or µS/cm (standard (mg/L) (mV) (°C) (NTUs) units) ±0.2 ± 10 % ±3% ±0.05 ±10 **RECHARGE OBSERVATIONS** Fast (80% recharge < 2 Hours) Slow (80% recharge > 2 Hours) SAMPLING DETAILS

METHOD	Bladder Pump	Peristaltic High Volu	ime Pump Coot	Valve Bailer	Other	
DATE & TIME:	11/11/14	15:15	WATER LEVEL	(m) 229	mBTQC	/ mBGL / mBTOM
	ACMIN	02	Blind Replicate I	D:		
SAMPLE ID	ACONING	1-03	Split Duplicate II	D		-
FINAL WATER QUALITY	DO (ma/L)	E.C. mS/cm or uS/cm	pH (standard units)	Redox (mV)	TEMP. (°C)	TURB, (NTUs)
READINGS	0,67	685	6.18	-107.5	21.7	
DESCRIPTION	colour netb	Turbidity:	high	Odour hunt	ocabu Other	
NOTES: m BTOC = metres	One Well V Three Well Below Top of Casing	Vater Column (m) = TD (m) - Yolumes (L) = Length of Water Volumes (L) = / m BGS = metres Below Gr	r Column x 2 (50mm Dia ound Surface / m BTO	a.) or 7.8 (100mm Dia M = metres Below To	op of Monument	}
GEE PERSONNEL S. Maco	A CLWP	en		SIGNATUR	RE L	

geo-envi	onmenia	1		SA			
				WELL	. ID:	que	2
		PROJECT IN	FORMATION	1			
PROJECT NAME:	Stage 2 ESA	PF	ROJECT NUMBER	E16	0/63	N	
	exter North	Metro ci	JENT:				
0	Petrol		ETAILS				
WELL DIAMETER (mm)	50 WE	LL SCREEN INTERVAL	(m):	CASING S	TICK UP	(+) / DOWN (-) m:
CONDITION	Damage: YES (N Well ID Visible: YES (N	$\langle \rangle$	ES NO	Water Around V Water Between		Gatic/ Monumen	YES NO
		WELL MEAS	SUREMENTS				
STATIC WATER LEVEL	(SWL): 2.13		п	BTOC OF	AT BGL	or m BTOM	
FREE PRODUCT:	Yes or No	5	Thickness (m):				
TOTAL DEPTH OF WELL (TD): 294 m BTOC or m BTOM							
	PL	IRGING DETAILS	OBSERVA	TIONS			
METHOD:	Bladder Pump	Peristaltic High Volum	e Pump Foot	Valve Bailer	C)ther:	
DATE:		WATER LEVEL AFTER	PURGE:	DRY			nBGL / mBTOM
MAX. DRAWDOWN (m)		INTAKE D				mBTOC / n	nBGL / mBTOM
TIME CUMUL. VOLUME PURGED (Litres)		DO (mg/L) ± 10 %	E.C. mS/cm <u>or</u> μS/cm ± 3 %	pH (standard units) ± 0.05	Redox (mV) ± 10	TEMP. (°C) ± 0.2	TURB. (NTUs)
2020 26							
		RECHARGE O	BSERVATIO				
Slow	(80% recharge > 2 Ho			Fast (80% re	echarge <	< 2 Hours)	
			G DETAILS				
METHOD	1.1.	Peristaltic High Volur	WATER LEVEL		ailer	Other	BGL / mBTOM
DATE & TIME:	11/11/16	15:30	Blind Replicate	5	12	marcoart	LOCE THE TOWN
SAMPLE ID	AGIIII16	-04	Split Duplicate	ID.			
FINAL WATER QUALITY READINGS:	00 (mg/L) 1,06	e.c. mS/cm or uS/cm 620	(standard units)	Redox (mV)	10	TEMP. (°C) 22.5	TURB. (NTUs)
DESCRIPTION:	Colourgreen-g	Turbidity	noolerate	Odour hy	Ancas	by Other	
PURGE VOLUME CALCUI	One Well Volu Three Well Vo	ter Column (m) = TD (m) – S Imes (L) = Length of Water Illumes (L) = m BGS = metres Below Gro	Column x 2 (50mm D			F) Nonument	
GEE PERSONNEL S. McC				SIGNA			

the

GROUNDWATER SAMPLING FIELD DATA

WELL ID:

BH102

YES (N isible YES N s or No 2.2 PL	WELL SCREEN INTER Well Locked: Cap on PVC WELL ME	Thickness (r	CAS Water An Water Be NTS m BTOC n): m BTOC	or m BGL	(+) / DOWN (-	YES NO
VE VES VES VES VES VES VES VES VES VES V	WEL Well Locked: Cap on PVC WELL ME WELL ME WELL ME WELL ME WELL ME	L DETAILS VAL (m): VAL (m): VBS NO EASUREMEN Thickness (r NILS / OBSER	Water An Water Be MTS m BTOC m): m BTOC RVATIONS	ound Well tween PVC and i or m BGL	Gatic/ Monument	YES NO
VE YES (N isible YES (N s or No 2.5 PL	Vell Locked: Cap on PVC WELL ME WELL ME	VAL (m): VES NO EASUREMEN Thickness (r NLS / OBSER rolume Pump	Water An Water Be MTS m BTOC m): m BTOC RVATIONS	ound Well tween PVC and i or m BGL	Gatic/ Monument	YES NO
YES (N isible YES N s or No 2.2 PL	Well Locked: Cap on PVC WELL ME	Thickness (r	Water An Water Be MTS m BTOC m): m BTOC RVATIONS	ound Well tween PVC and i or m BGL	Gatic/ Monument	YES NO
s or No 2.5 PL	Cap on PVC WELL ME	Thickness (r	Water Be MTS m BTOC m): m BTOC RVATIONS	tween PVC and o	pr m BTOM	
s or No 2.2 PL	8 20 JRGING DETA Peristaltic High V	Thickness (r NLS / OBSEF	m BTOC n): m BTOC RVATIONS	or m BGL		
s or No 2.2 PL	DIRGING DETA	ILS / OBSEF	m): m BTOC RVATIONS	or m BGL		
s or No 2.2 PL	DIRGING DETA	ILS / OBSEF	m BTOC		or m BTOM	
PL	Peristaltic High V	'olume Pump	RVATIONS		or m BTOM	
	Peristaltic High V	'olume Pump	1			
lder Pump			Foot Valve	Dellas a		
	WATER LEVEL AF			Bailer O	ther	
		ER PURGE	DRy		mBTOC / m	BGL / mBTOM
	INTA	KE DEPTH:	0.1		mBTOC / m	BGL / mBTOM
PURGE RATE	DO (mg/L)	E.C. mS/cm <u>or</u> µS/cm	pH (standard units)	Redox (mV)	TEMP. (°C)	TURB, (NTUs)
nents	± 10 %	±3%	± 0.05	± 10	± 0.2	-
	RECHARGE	OBSERVA	TIONS			1
charge > 2 Ho	urs)		Fast (8	0% recharge <	2 Hours)	
	SAMPL	ING DETAIL	S			
lder Pump F	Peristaltic High	Volume Pump	Foot Valve	Bailer	Other	-
11/16	15:50	WATER L	EVEL (m)	1.29	mBTOC m	BGL MBTOM
2111116	-06		Blind Replicate ID:			_
DO (mg/L)			nits) (n	nV)	TEMP: (°C)	TURB, (NTUs)
					Other	
Length of Wat One Well Volu Three Well Vo	er Column (m) = TD (n mes (L) = Length of W lumes (L) =	n) – SWL (m) = ater Column x 2 (50r	nm Dia.) or 7 8 (1	100mm Dia.) =	onument	
	RATE nents charge > 2 Hou ider Pump F (1 / 1/b C 1111 1 6 DO (mg/L) (GO pur Generation of Wat One Well Volu Three Well Volu Three Well Volu	RATE nents $\pm 10\%$ nents $\pm 10\%$ RECHARGE charge > 2 Hours) Ider Pump Peristaltic Hder Pump Peristaltic Hder Pump Peristaltic High 15.50 CIIIIII6-06 D0 E.C. mS/cm or μ S/cm IO0 E.C. mS/cm or μ S/cm Turbidit Length of Water Column (m) = TD (m One Well Volumes (L) = Length of W Three Well Volumes (L) = Length of Water Column (m) = TD (m	RATE µS/cm nents ± 10 % ± 10 % ± 3 % RECHARGE OBSERVAT charge > 2 Hours) SAMPLING DETAIL Ider Pump Peristaltic High Volume Pump (1 / 16 15 · 50) WATER L Ider Pump Peristaltic High Volume Pump (1 / 16 15 · 50) WATER L Blind Rep Split Dupli Split Dupli D0 E.C. (mg/L) mS/cm or µS/cm (mg/L) Turbidity W M Length of Water Column (m) = TD (m) – SWL (m) = One Well Volumes (L) = Length of Water Column x 2 (50r Three Well Volumes (L) = Length of Water Column x 2 (50r Three Well Volumes (L) = metres Below Ground Surface / m	RATE μS/cm units) nents ± 10 % ± 3 % ± 0.05 nents ± 10 % ± 3 % ± 0.05 ments ± 10 % ± 3 % ± 0.05 RECHARGE OBSERVATIONS RECHARGE OBSERVATIONS Icharge > 2 Hours) Fast (8 SAMPLING DETAILS Fast (8 Ider Pump Peristaltic High Volume Pump Foot Valve (1/16) 15 . SO WATER LEVEL (m) Blind Replicate ID Split Duplicate ID: Split Duplicate ID: Split Duplicate ID: Split Duplicate ID: DO E.C. pH Replicate ID: Split Duplicate ID: DO E.C. pH Split Duplicate ID: Split Duplicate ID: DO E.C. pH Split Duplicate ID: Split Duplicate ID: Split Duplicate ID: DO MS/cm or µS/cm (standard units) (m Split Duplicate ID: Split Duplicate ID: DO DO Turbidity W W OW Odour (m Split Duplicate ID: Split Duplicate ID: Split Duplica	RATE µS/cm units) (IIIV) nents ± 10 % ± 3 % ± 0.05 ± 10 nents ± 10 % ± 3 % ± 0.05 ± 10 RECHARGE OBSERVATIONS RECHARGE OBSERVATIONS Charge > 2 Hours) Fast (80% recharge SAMPLING DETAILS Matter Pump Foot Valve Bailer (1/16 15 SO WATER LEVEL (m) 129 Blind Replicate ID Sitt Duplicate ID Sum Group (standard units) (mV) Oddour (more) Oddour	Porkse (mg/L) ms/cm gr µ.S/cm (standard units) (mV) (°C) nents ± 10 % ± 3 % ± 0.05 ± 10 ± 0.2 nents ± 10 % ± 3 % ± 0.05 ± 10 ± 0.2 nents ± 10 % ± 3 % ± 0.05 ± 10 ± 0.2 RECHARGE OBSERVATIONS Charge > 2 Hours) Fast (80% recharge < 2 Hours) SAMPLING DETAILS Matter Pump Foot Valve Bailer Other: (1 //b< //b< //b> 15 - 50 WATER LEVEL (m) 129 mBTOC mBTOC (1 //b< //b

SIGNATURE Te

GROUNDWATER SAMPLING FIELD DATA

WELL ID:

BH 105

			PROJECT IN	FORMATI	ON			
ROJECT N	AME:	Stage 2 ESA	PF	ROJECT NUME	BER:	616016	BN	
OCATION /	SITE:	Bexley North	CL	IENT:				
	a		end WELL D	ETAILS				
VELL DIAM	ETER (mm):	50 WE	LL SCREEN INTERVAL	(m):	CA	SING STICK	UP (+) / DOWN	l (-) m:
CONDITION (Comments E	N	amage: YES /	-	-		Around Well: Between PVC a	nd Gatic/ Monum	YES NO
			WELL MEAS	UREMEN	TS			
TATIC WA	TER LEVEL (SWL):	an		m BTOC	or m BG	L <u>or</u> m BTON	1
REE PROD	UCT:	Yes or No	> /	Thickness (m)):	_		
OTAL DEP	TH OF WELL	(TD): 22	١		m BTOC	or m BG	L of m BTON	1
		PL	IRGING DETAILS	OBSER	VATION	S		
MET	HOD	Bladder Pump	Peristaltic High Volum	e Pump Fr	oot Valve	Bailer	Other	
DATE:			WATER LEVEL AFTER F	PURGE:			mBTOC	/ mBGL / mBTOM
MAX DRAV	VDOWN (m)		INTAKE DI	EPTH:			MBIQE	mBGL / mBTOM
TIME	CUMUL VOLUME PURGED	PURGE	DO (mg/L)	E.C. mS/cm <u>or</u> µS/cm	pH (standard units)	Redox (mV)	TEMP (°C)	TURB, (NTUs)
-	(Litres) Equilibrium R	equirements	± 10 %	13%	± 0.05	± 10	±0.2	-
						-		
/								
			RECHARGE O	BSERVAT	IONS			
	Slow (80% recharge > 2 Ho	urs)		Fast	(80% recharg	ge < 2 Hours)	
	Cion (oo is roomsige - 2 rie	SAMPLIN	G DETAILS				
MET	HOD:	Bladder Pump	Peristaltic High Volun		Foot Valve	Bailer	Other	
DATE & TIME				WATER LE	EVEL (m)		mBTOC	mBGL / mBTOM
		+		Blind Replin	cate ID			
SAMPLE ID:				Split Duplica				
		DO	E.C.	pН		Redox	TEMP_	TURB,
FINAL WATE	RQUALITY	(mg/L)	mS/cm_or_µS/cm	(standard uni	ts)	(mV)	(^o C)	(NTUs)
DESCRIPTIO	N	Colour	Turbidity:		Odou	it;	Other	
	UME CALCULA	TOR: Length of Wa One Well Vol Three Well Vol	ter Column (m) = TD (m) – S umes (L) = Length of Water olumes (L) =	WL (m) = Column x 2 (50m	m Dia.) or 7.8	3 (100mm Dia)	=	_
NOTES: mB	TOC = metres I		m BGS = metres Below Gro	und Surface / m	BTOM = met	res Below Top	of Monument	
						SIGNATURE	1	-
EE PERSON	INEL S. McCor	A-Chiem	4			JUNATURE	The	



GROUNDWATER SAMPLING FIELD DATA

WELL ID:

BH107

			PR		IFORMATI				
PROJECT N	AME: S	Stage 2 ESA		Р	ROJECT NUM	BER: C	160167	SN	
LOCATION /	SITE: BO	sley Nor	the	C	LIENT:	_			
	Metro	Petrol		WELL D	DETAILS				_
WELL DIAM	ETER (mm):		WELL SCRE	EN INTERVAL	. (m):	CA	SING STICK	UP (+) / DOWN (-)	m:
CONDITION	N Da	amage: YES	s CNO V	Vell Locked YI	ES NO	it inter	Around Well:		YES
(Comments B	Below): We	ell ID Visible: YES	NO C	ap on PVC	ES NO	Water	Between PVC a	nd Gatic/ Monument	YES NO
			W	ELL MEAS	SUREMEN	TS			_
STATIC WAT	TER LEVEL (S	SWL):	1.78			m BTOC	or m BGL	or m BTOM	
FREE PROD	DUCT:	Yes or	NO		Thickness (m):			
TOTAL DEP	TH OF WELL	(TD):	2.78			m BTOC	or m BGI	m BTOM	
		1	PURGIN	G DETAILS	S / OBSER	VATION	IS		
MET	нор	Bladder Pump	Penstaltic	High Volum		oot Valve	Bailer	Other:	
DATE	11/11	/16	WATER	LEVEL AFTER	PURGE:	DRI	1	mBTOC / mi	BGL / mBTOM
MAX DRAV	VDOWN (m)			INTAKE D	EPTH			mBTOC / ml	BGL / mBTOM
TIME	CUMUL VOLUME PURGED (Litres)	PURG		DO (mg/L)	E.C. mS/cm <u>or</u> µS/cm	pH (standard units)	i Redox (mV)	TEMP (°C)	TURB, (NTUs)
	Equilibrium R	equirements		± 10 %	±3%	± 0.05	± 10	± 0.2	-
10:00	3L								
	Claur /	30% recharge >		HARGE O	BSERVAT		(80% recharg	a < 2 Hours)	
	Sitw (c	ou no recinarge -	2 110013)	CAMPI IN	G DETAILS		(contractional)		
		Tana	-				Deller	Others	
1.0	HOD:	Bladder Pump	Peristaltic		WATER LEVEL (m)				GL / mBTOM
DATE & TIME		11/11/16	5 15-	06	Blind Replin		1.15	AC/11/16-	02
SAMPLE ID		ACIIII	6-01		Split Duplic		ACOL 9	ICIIII 0-	00
FINAL WATER	QUALITY	DO (mg/L)	mS/c	E.C. m.or. µS/cm	pH (standard uni	ts)	Redox (mV)	TEMP (^O C)	TURB, (NTUs)
READINGS:		2.42.	10	9.3	4.88	-(71.0	22.5	1.1
				Turbidity:			ur: m.	Other	

NOTES: m BTOC = metres Below Top of Casing / m BGS = metres Below Ground Surface / m BTOM = metres Below Top of Monument

GEE PERSONNEL & MICCOMMACK A Chiem

SIGNATURE



APPENDIX H

QUALITY ASSURANCE ASSESSMENT REPORT

E16016BN-R03F (Rev 0.2)



H1. INTRODUCTION

A detailed Quality Assurance (QA) assessment, including the analysis of Quality Control (QC) samples, was carried out by GEE to determine the reliability of field procedures and analytical results.

H2. QUALITY ASSURANCE

Quality Assurance (QA) involves all of the actions, procedures, checks and decisions undertaken to ensure the representativeness and integrity of samples and accuracy and reliability of analysis results (reference 1).

In accordance with AS4482.1 (reference 2) and AS5667.1 (reference 3), a series of QA procedures were integrated within the sampling and analysis plan and included:

- The collection of Quality Control (QC) samples.
- The use of standardised field sampling forms developed by GEE.
- Documentation of calibration and use of field instruments.

To ensure QA in the field, samples were collected by experienced and trained personnel using appropriate methods detailed herein, including appropriate sample handling, containment and transport, and calibrated equipment. Additionally QC samples were collected and analysed as discussed in Section H3.

To ensure QA in the laboratory, GEE used laboratories that are NATA accredited for the analytical tests carried out, therefore it is reasonable for GEE to rely on the laboratories to be proficient in all tests conducted. This encompasses all actions, procedures, checks and decisions undertaken, to ensure the accuracy and reliability of the analysis results. As part of the laboratory QA, QC samples were analysed with each batch of samples as part of this investigation as required by NATA. A discussion of the laboratory QC samples analysed as part of this investigation is provided in Section H3.3.2.



H3. QUALITY CONTROL

QC involves those parts of QA which serve to monitor and measure the effectiveness of QA procedures. QC samples assess sample integrity, accuracy and precision and can be separated into field and laboratory QC.

H3.1 DEFINITIONS

Table H1 provides a description and objective of each of the field and laboratory QC samples used during this investigation.



Туре	Description	Purpose	Recommended Frequency
	FIELD QC SAMPLES	•	
Blind	A sample collected at the same time and from the same sampling point as the corresponding primary sample ¹ ,	Used to evaluate total sampling	In accordance with AS4482.1
Replicate	and analysed at the same laboratory. Blind replicates are collected, preserved, stored, transported and	and analysis precision and, in the	(reference 2) and NEPM
	analysed in the same manner as the primary sample, with the laboratory having no knowledge of the source	case of soil samples, sample	(reference 4) it is recommended
	of the replicate sample. The assessment of blind replicates samples is undertaken by calculating the Relative	variability.	that 1 blind replicate sample is
	Percent Difference (RPD) which is defined as:		collected for every 20 primary
			samples.
	<u>Result No. 1 – Result No. 2</u>		
	RPD (%) = 100 x Mean Result		
Split	A sample collected at the same time and from the same sampling point as the corresponding primary sample,	Used to provide a check on the	In accordance with AS4482.1
Duplicate	and analysed at a separate laboratory. Split duplicates are collected, preserved, stored, transported and	analytical proficiency of the	(reference 2) and NEPM
	analysed in the same manner as the primary sample, with the laboratories having no knowledge of the	laboratories and hence precision	(reference 4) it is recommended
	purpose of the sample. The assessment of split duplicates samples is undertaken by calculating the Relative	and comparability.	that 1 split duplicate sample is
	Percent Difference (RPD) which is defined as:		collected for every 20 primary
			samples.
	Result No. 1 – Result No. 2		
	RPD (%) = 100 x Mean Result		
Trip Blank	Trip blanks are laboratory supplied test samples of analyte-free media (either washed sand or de-ionised	Used to measure cross-	Industry standard is 1 trip blank
	water) which remain in the sample storage eskies during sampling activities and returned to the laboratory	contamination during sampling,	per batch of primary samples.
	unopened. For soil sampling programmes, the trip blank consists of acid-washed quartz sand that has been	transport, sample preparation and	
	heated to 400°C. For water sampling programs trip blanks comprise pre-washed glass vials containing	analysis.	
	distilled or de-ionised water with appropriate preservatives.		
	The USEPA has shown that cross-contamination only occurs with volatile organics (reference 5), therefore, trip		
	blanks are only analysed for volatile organics.		

Table H1: QC Sample Types, Descriptions and Recommended Frequency of Analysis

¹ Primary samples are the original representative samples of soil or groundwater collected for analysis to determine aspects of their chemical composition. Primary samples are the original sample taken from a particular location and other samples from the same location are duplicates, replicates or splits.



Trip Spike	Trip spikes, like trip blanks, are supplied by the primary laboratory using analyte-free media (either washed	Used to monitor VOC losses during	Industry standard is 1 trip spike
	sand or de-ionised water) and remain in the sample storage eskies during sampling activities and returned to	transit.	per batch of primary samples
	the laboratory unopened. The sample media, however, is spiked with BTEX.		where volatile concentrations
	For water sampling programmes the BTEX concentration is known and standardised by each laboratory, while for soil sampling programmes the exact spike concentration is not known, rather two identical jars of sand are spiked the same concentration with one sample becoming the trip-spike and the other becoming a control sample, which remains in a refrigerator at the laboratory.		are being measured.
	The trip spike is analysed after returning from the field and the % recovery of the known spike (for water sampling programs), or of the control sample (for soil sampling programs), is calculated.		

Table H1 Continued

Туре	Description	Purpose	Recommended Frequency					
	LABORATORY QC SAMPLES							
Laboratory	Laboratory duplicates are field samples which are prepared and analysed in the same manner twice.	Determines analytical precision for	NATA specifies 1 per 10 samples					
Duplicate		a sample batch	for trace element and inorganic					
	The assessment of laboratory duplicates is undertaken by calculating the (RPD) which is defined as:		analysis					
	Result No. 1 – Result No. 2							
	RPD (%) = 100 x Mean Result							
Laboratory	Laboratory Control Samples (LCS) are analyte-free matrices (de-ionised water or clean sand) spiked with a	Determines analytical accuracy	NATA specifies 1 per batch of up					
Control	known concentration of target analytes and carried through the entire preparation and analysis.	and precision for a batch of	to 20 samples					
Sample		samples						
(LCS)	Assessment of LCS is undertaken by calculating the percent recovery (%R) of the spike which is defined as:							
	Spikes Sample Result (SSR) – Sample Result (SR)							
	Percent Recovery (%R) = 100 x Concentration of Spike Added (SA)							
Surrogates	Surrogates are organic compounds added to field samples and laboratory QC samples prior to preparation.	Used to demonstrate that the	Added to every blank, field and					
	They are similar in chemical behaviour to the target analytes and are not expected to be present in samples	surrogate does not interfere with	laboratory QC sample					
	(reference 6). They form part of the laboratory QC for organic analyses, and are used to indicate the presence	the target analytes, therefore						
	of sample specific interferences. The surrogate is added at the extraction stage then analysed with the batch	determines analytical accuracy for						
	of samples. Like LCSs, surrogates are assessed by calculating the percent recovery (%R), although the	each sample						
	definition is slightly different as shown below:							
	Spiked Sample Result (SSR)							
	Percent Recovery (%R) = 100 x Concentration of Spike Added (SA)							



Matrix Spikes	Field samples spiked with a known concentration of a target analytes and carried through the entire	Determine the effects of matrix	Performed at least 1 per batch
	preparation and analysis.	interferences on analytical	of up to 20 samples.
		accuracy of a sample.	
	Matrix spike samples are assessed by calculating the percent recovery (%R) of the spike which is defined as:		
	Spikes Sample Result (SSR) – Sample Result (SR)		
	Percent Recovery (%R) = 100 x Concentration of Spike Added (SA)		
Method	Method blanks are an analyte-free matrices (reagent water or clean sand) that is carried through the entire	Establishes that laboratory	Prepared with every batch of up
Blank	preparation and analysis.	contamination does not cause	to 20 samples for all organic and
		false positives.	inorganic analyses.



H3.2 CRITERIA / ACCEPTABLE RANGE

The QC Acceptance Criteria adopted for this investigation is provided in Table H2 and is in general accordance with the Table 4 of AS4482.1 (reference 2) and NEPM (reference 4).

Table	H2: Q0	Sample	Acceptance	Criteria
-------	--------	--------	------------	----------

QC Sample	Criteria / Acceptable Range
FIELD QC SAMPLES	
Blind Replicate & Split Duplicate	RPD < 50 % When average concentration is > 10 x LOR/PQL ² RPD < 75 % When average concentration is 5 to 10 x LOR/PQL RPD < 100 % When average concentration is< 5 x LOR/PQL
Trip Blank	Analytical Result < LOR/PQL
Trip Spike	± 30%
LABORATORY QC SAMPLES	
Laboratory Duplicates	RPD < 30 % When average concentration is > 10 x LOR/PQL RPD < 50 % When average concentration is 4 to 10 x LOR/PQL RPD < 100 % When average concentration is< 4 x LOR/PQL
Laboratory Control Samples	%R of 70 – 130% (General analytes) %R of 50 – 130% (Phenols) %R of 60 – 130% (OCP/OPPs) %R of 62 – 130% (Chromium)
Surrogates	%R of 70 – 130% (General analytes) %R of 50 – 130% (Phenols) %R of 60 – 130% (OCP/OPPs)
Matrix Spikes	%R of 70 – 130% (General analytes) %R of 50 – 130% (Phenols) %R of 60 – 130% (OCP/OPPs) %R of 62 – 130% (Chromium)
Method Blanks	Analytical Results < LOR/PQL

If data do not meet the QC Acceptance Criteria then a judgement is made as to whether the exceedance is critical in relation to the suitability of the data set. Otherwise the following steps will be taken:

- ◊ Request that the laboratory re-check or even re-analyse the sample.
- ◊ Inspect the sample for anomalies which may be causing the failure.
- If necessary, undertake additional sampling and analyses.

 $^{^2}$ Both the LOR and PQL are interchangeable terms used by laboratories and is defined as the lowest concentration that can be reliably achieved within specific limits of precision and accuracy during routine laboratory operating conditions (reference 6).



H3.3 RESULTS

H3.3.1 Field QC Samples

Field QC samples collected and analysed as part of this investigation comprised:

Soil Sampling

- ♦ Two blind replicates (SM011116-10 and JL190717-07)
- One split duplicate (SM011116-12)
- One trip blank (labelled 'trip blank')
- ◊ One trip spike (labelled 'trip spike')

Water Sampling

- ♦ One duplicate (AC111116-02)
- One trip blank (labelled 'trip blank')
- ◊ One trip spike (labelled 'trip spike')

A split duplicate sample was not collected during the groundwater sampling event due to the small number of samples analysed.

Tabulated results are presented at the conclusion of this Appendix. Table H3 and H4 provides a summary of the frequency of QC samples and lists results which do not meet the criteria established in Table H2.

Туре	Frequency Conducted	Results Not Meeting the Criteria
Blind	Metals - 1 per 22 primary samples (4.5%)	Zinc (SM011116-10)
Replicates	TRH/BTEX - 1 per 17 primary samples (6.7%)	
	PAHs - 1 per 13 primary samples (7.7%)	
	OCPs / PCBs – 1 per 10 primary samples (10%)	
Split Duplicate	Metals - 1 per 21 primary samples (4.5%)	Arsenic, Chromium, Copper, Lead, Nickel
	TRH/BTEX - 1 per 17 primary samples (6.67%)	
	PAHs - 1 per 16 primary samples (6.2%)	
Trip Blank	1 per sample batch	
Trip Spike	1 per sample batch	

Table H3: QC Sample Acceptance Criteria - Soil





Туре	Frequency Conducted	Results Not Meeting the Criteria
Blind replicate	Metals - 1 per 5 primary samples (20%)	
	TRH/BTEX - 1 per 5 primary samples (20%)	
	PAHs - 1 per 5 primary samples (20%)	
	Phenols - 1 per 5 primary samples (20%)	
	Hardness - 1 per 5 primary samples (20%)	
Trip Blank	1 per sample batch	
Trip Spike	1 per sample batch	

Table	H4: 0	C Sample	e Acceptance	Criteria -	Water
IUNIC	•••• V	C Sumpr		Cincenta	vvucci

The quality control results all conformed to the sample acceptance criteria except for some metals in the blind replicate and split duplicates. The elevated RPD for these metals is attributed to the heterogeneous fill at this location and is not considered to be a reflection of laboratory inaccuracy. Notwithstanding this, GEE has adopted the highest least concentration when making decisions about the suitability of the site.

H3.3.2 Laboratory QC

Laboratory QC results are provided in the laboratory reports while a summary of the results which exceeded the acceptance criteria is provided in Table H5.

Туре	Results Exceeding Criteria					
Laboratory Duplicates						
Laboratory Control Samples						
Surrogates						
Matrix Spikes						
Method Blanks						

Table H5: QC Sample Acceptance Criteria

The laboratory RPD acceptance criteria were considered acceptable.

H4. DATA QUALITY ASSESSMENT

In accordance with reference 7, Data Quality Indicators (DQIs), specifically, precision, accuracy, representativeness, completeness and comparability, were used to assess the reliability of field procedures and analytical results.



H4.1 PRECISION

This is the measure of the variability (or reproducibility) of the data. In the field precision is achieved by using standard operating procedures which were adopted by GEE during this investigation. For laboratory analysis precision is assessed using blind replicates and trip spikes. The measured RPDs for the blind replicate samples and split samples were considered acceptable as were the analytical results for the trip spike.

H4.2 ACCURACY

Accuracy is a measure of the closeness of a measurement to the true parameter value. In the field, accuracy is achieved by using standard operating procedures which were adopted by GEE. For laboratory analysis, accuracy is assessed using tip blanks, rinsate blanks, method blanks, matrix spikes, surrogates and laboratory control samples. Considering that these QC samples were of an acceptable standard, GEE considers the laboratory data set to be accurate.

H4.3 REPRESENTATIVENESS

This is the confidence (expressed qualitatively) that the data are representative of each media present on the site. This is achieved in the field and laboratory by using an adequate number of sampling points to characterise the site and ensuring that the samples collected were representative of the media from which they were collected. Additionally, samples should be analysed within necessary holding times depending on the analyte.

Environmental soil samples were collected from each borehole in general accordance with techniques described in Australian Standards AS4482.1 (reference 2), AS4482.2 (reference 8) and NEPM (reference 1), to maintain the representativeness and integrity of the samples. The number of sampling points exceeded the minimum required sampling density as defined by NSW EPA (reference 9), however, were considered sufficient for the purpose of this investigation.

The groundwater samples were collected in a manner consistent with the collection, handling and preservation principles enunciated in AS/NZS 5667.1:1998 (reference 3) and more specifically the procedures outlined AS/NZS 5667.11:1998 (reference 10) and USEPA's (1991) *Handbook: Groundwater – Volume II: Methodology* (reference 11), to maintain the representativeness and integrity of the samples.



Finally all samples were analysed within holding times.

H4.4 COMPLETENESS

This is a measure of whether all the data necessary to meet the project objectives, were collected. In the field and laboratory, this is achieved by sampling all critical locations and depths using acceptable methods and ensuring samples are analysed for appropriate chemicals.

GEE selected sufficient a sufficient number of sample points for the purpose of the investigation as defined by the NSW EPA (reference 9) and collected groundwater samples from all available monitoring wells on the site. Additionally, samples were analysed for chemicals of concern based on appropriate field screening measures and logging of unusual aesthetics which may indicate contamination. Combined with the fact that standard operating procedures were adopted by GEE, the investigation is assessed as being complete.

H4.5 COMPARABILITY

This is a measure of confidence that data may be considered to be equivalent for each sampling and analysis event. Soil samples were collected by experienced GEE personnel using standard operating procedures and analysed in accordance with NATA accredited laboratory methods. The comparability of the data should be consistent as sampling protocols were employed throughout the duration of the fieldwork and analysis was undertaken by NATA registered laboratories using accredited analytical methods.

H5. CONCLUSION

A review of the DQIs indicates that the field procedures and analytical results adopted for this investigation are able to be relied upon for making conclusions and recommendations regarding the contamination status of the site.



References

- 1. NEPC, 1999: National Environment Protection Council (1999). National Environment Protection (Assessment of Site Contamination) Measure. Schedule B(2) Data Collection, Sample Design and Reporting.
- 2. Australian Standard AS4482.1 2005: Guide to the sampling and investigation of potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds.
- Australian / New Zealand Standard AS/NZS5667.1 1998: Water Quality

 Sampling. Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples
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- 5. *Keith, 1991: Environmental sampling and Analysis, A practical guide. Lewis Publishers.*
- 6. Popek (2003). Sampling and Analysis of Environmental Chemical Pollutants. Academic Press.
- NSW DEC (2006) Contaminated Sites: Guidelines for NSW Site Auditor Scheme, 2nd Edition.
- 8. Australian Standard AS4482.2 1999: Guide to the sampling and investigation of potentially contaminated soil Part 2: Volatile substances.
- 9. NSW EPA, 1995: Environment Protection Authority NSW, 1995: Contaminated Sites: Sampling Design Guidelines, EPA NSW.
- 10. Australian / New Zealand Standard AS/NZS5667.11 1998: Water Quality – Sampling. Part 1: Guidance on sampling of groundwaters.
- 11. US Environmental Protection Agency (USEPA), 1991: Handbook Groundwater Volume II: Groundwater.

SOIL - Blind Replicate Results

Sample Date		01-11-16 01-11-16			19-07-17 19-07-17		
Sample Ider	ntification	CM01111C 00 0001111C 10		RPD	JL190717-06	JL190717-17	RPD
Analyte	Units	SM011116-09	SM011116-10		JL190/1/-06	JL190/1/-1/	
Total Metals							
Arsenic	mg/kg	9	12	29%	4	7	55%
Cadmium	mg/kg	<0.4	<0.4		<0.4	<0.4	
Chromium	mg/kg	20	20	0%	22	16	32%
Copper	mg/kg	10	14	33%	24	29	19%
Lead	mg/kg	48	33	37%	9	12	29%
Mercury	mg/kg	<0.1	<0.1		<0.1	<0.1	
Nickel	mg/kg	3	4	29%	27	24	12%
Zinc	mg/kg	87	30	97%	30	39	26%
PCBs	iiig/kg	07	50	5770	50	55	
Total PCBs	mg/kg				<0.1	<0.1	
Organochlorine Pesticides					<0.1	<0.1	
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					<0.1	<0.1 <0.1	
	mg/kg				<0.1	<0.1	
Aldrin	mg/kg						
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	
Polycyclic Aromatic Hydroc	arbons						
Naphthalene	mg/kg	< 0.1	<0.1		<0.1	<0.1	
Acenaphthylene	mg/kg	< 0.1	< 0.1		<0.1	<0.1	
Acenaphthene	mg/kg	< 0.1	<0.1		<0.1	<0.1	
Fluorene	mg/kg	< 0.1	<0.1		<0.1	<0.1	
Phenanthrene	mg/kg	<0.1	<0.1		<0.1	<0.1	
Anthracene	mg/kg	< 0.1	<0.1		<0.1	< 0.1	
Fluoranthene	mg/kg	< 0.1	<0.1		<0.1	<0.1	
Pyrene	mg/kg	< 0.1	<0.1		<0.1	<0.1	
Benz(a)anthracene	mg/kg	<0.1	<0.1		<0.1	<0.1	
Chrysene	mg/kg	<0.1	<0.1		<0.1	<0.1	
Benzo(b&k)fluoranthene	mg/kg	<0.2	<0.2		<0.2	<0.2	
Benzo(a)pyrene	mg/kg	< 0.05	< 0.05		< 0.05	< 0.05	
Indeno(1.2.3.cd)pyrene	mg/kg	<0.05	<0.05		<0.05	<0.05	
Dibenz(a.h)anthracene	mg/kg	<0.1	<0.1		<0.1	<0.1	
Benzo(g.h.i)perylene	mg/kg	<0.1	<0.1		<0.1	<0.1	
TOTAL PAHs	mg/kg	NIL(+)VE	NIL(+)VE		NIL(+)VE	NIL(+)VE	
BTEX	ing/kg						
Benzene	mg/kg	<0.2	<0.2		<0.2	<0.2	
Toluene		<0.2	<0.2		<0.2	<0.2	
	mg/kg	<0.5 <1	<0.5 <1		<0.5	<0.5 <1	
Ethylbenzene	mg/kg	<1 <2	<1 <2		<1 <2	<1 <2	
meta- & para-Xylene	mg/kg						
ortho-Xylene	mg/kg	<1	<1		<1	<1	
Total Petroleum Hydrocarb		-25	- 25		-25	-25	
F1 (C6-C10)	mg/kg	<25	<25		<25	<25	
F2 (>C10-C16)	mg/kg	<50	<50		<50	<50	
F3 (>C16-C34)	mg/kg	<100	<100		<100	<100	
F4 (>C34-C40)	mg/kg	<100	<100		<100	<100	

Values in Bold Indicate:RPD > 50 % When average concentration is > 10 x LOR
RPD > 75 % When average concentration is 5 to 10 x LOR
RPD > 100 % When average concentration is< 5 x LOR</th>

SOIL - Split Replicate Results

Sa	ample Date	01-11-16	01-11-16	
Sample Identification		SM011116-11	SM011116-12	RPD
Analyte	Units	Envirolab Services	Eurofins MGT	
Total Metals				
Arsenic	mg/kg	5	20	120%
Cadmium	mg/kg	<0.4	<0.4	
Chromium	mg/kg	95	34	95%
Copper	mg/kg	38	17	76%
Lead	mg/kg	20	66	107%
Mercury	mg/kg	<0.1	<0.05	
Nickel	mg/kg	87	15	141%
Zinc	mg/kg	62	64	3%
Polycyclic Aromatic Hydroc	arbons			
Naphthalene	mg/kg	<0.1	<0.5	
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	0.3	<0.5	
Pyrene	mg/kg	0.3	<0.5	
Benz(a)anthracene	mg/kg	0.2	<0.5	
Chrysene	mg/kg	0.2	<0.5	
Benzo(b&k)fluoranthene	mg/kg	0.4	<0.5	
Benzo(a)pyrene	mg/kg	0.2	<0.5	
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	0.2	<0.5	
TOTAL PAHs	mg/kg	2.1	<0.5	
BTEX				
Benzene	mg/kg	<0.2	<0.1	
Toluene	mg/kg	<0.5	<0.1	
Ethylbenzene	mg/kg	<1	<0.1	
meta- & para-Xylene	mg/kg	<2	<0.2	
ortho-Xylene	mg/kg	<1	<0.1	
Total Petroleum Hydrocarbons				
F1 (C6-C10)	mg/kg	<25	<20	
F2 (>C10-C16)	mg/kg	<50	<50	
F3 (>C16-C34)	mg/kg	<100	<100	
F4 (>C34-C40)	mg/kg	<100	<100	

Values in Bold Indicate: RPD > 50 % When average concentration is > 10 x LOR RPD > 75 % When average concentration is 5 to 10 x LOR RPD > 100 % When average concentration is< 5 x LOR

SOIL - Trip Blank Results

Laboratory:		Envirolab	Envirolab	
Laboratory Report Nu	umber:	156541	171789	
Sample ID		Trip Blank	Trip Blank	
Analyte	Units			
BTEX				
Benzene	mg/kg	<0.2	<0.2	
Toluene	mg/kg	<0.5	<0.5	
Ethylbenzene	mg/kg	<1	<1	
meta- & para-Xylene	mg/kg	<2	<2	
ortho-Xylene	mg/kg	<1	<1	
Total Petroleum Hydrocarbo	าร			
C6 - C9 Fraction	mg/kg	<25	<25	
C10 - C14 Fraction	mg/kg	<50	<50	
C15 - C28 Fraction	mg/kg	<100	<100	
C29 - C36 Fraction	mg/kg	<100	<100	

Notes:

--- Not Analysed

SOIL - Trip Spike Results

Laboratory	/:	Envirolab	Envirolab
Laboratory Report	Number:	156541	171789
Sample I	D	Trin Sniko	Trin Sniko
Analyte	Units	Trip Spike	Trip Spike
BTEX			
Benzene	mg/kg	95%	103%
Toluene	mg/kg	96%	95%
Ethylbenzene	mg/kg	97%	118%
meta- & para-Xylene	mg/kg	97%	96%
ortho-Xylene	mg/kg	93%	106%

Notes:

--- Not Analysed

Sample Date		11-09-16	11-09-16	
Sample Identification	l	AC111116-01	AC111116-02	RPD
Analyte	Units	BH107	BH107	
	Dissolved I	Metals		
Arsenic	µg/L	<1	<1	
Cadmium	µg/L	<0.1	<0.1	
Chromium	µg/L	<1	<1	
Copper	µg/L	<1	<1	
Lead	µg/L	1	1	0%
Mercury	µg/L	<0.05	<0.05	
Nickel	µg/L	10	11	10%
Zinc	µg/L	32	34	6%
	PAHs	5		
Naphthalene	µg/L	<1	<1	
Acenaphythlene		<1	<1	
Phenanthrene	µg/L	<1	<1	
Anthracene	µg/L	<1	<1	
Fluoranthene	µg/L	<1	<1	
Benzo(a)pyrene	µg/L	<1	<1	
Benzo(a)pyrene TEQ	µg/L	<5	<5	
Total (+VE) PAHs	µg/L	NIL(+)VE	NIL(+)VE	
	BTEX			
Benzene	µg/L	<1	<1	
Toluene	µg/L	<1	<1	
Ethylbenzene	µg/L	<1	<1	
m+p-xylene	µg/L	<2	<2	
o-xylene	µg/L	<1	<1	
	TRH			
vTPH C ₆ - C ₁₀ (F1)	µg/L	<10	<10	
TRH > C_{10} - C_{16} (F2)	µg/L	<50	<50	
TRH > C_{16} - C_{34} (F3)	µg/L	<100	<100	
TRH >C ₃₄ -C ₄₀ (F4)	µg/L	<100	<100	
	Pheno	ls		
Total Phenolics	mg/L	<0.05	<0.05	
Hardness	mg/L	140	140	0.00%

Values in Bold Indicate:

 $\begin{array}{l} RPD > 50 \ \% \ \text{When average concentration is} > 10 \ x \ \text{LOR} \\ RPD > 75 \ \% \ \text{When average concentration is} 5 \ \text{to} \ 10 \ x \ \text{LOR} \end{array}$

RPD > 100 % When average concentration is $< 5 \times LOR$

WATER - Trip Blank Results

Laboratory:	Envirolab		
Laboratory Report Nu	Laboratory Report Number:		
Sample ID		Trip Blank	
Analyte	Units	пр ылк	
ВТЕХ			
Benzene	µg/L	<1	
Toluene	µg/L	<1	
Ethylbenzene	µg/L	<1	
meta- & para-Xylene	µg/L	<2	
ortho-Xylene	µg/L	<1	
Total Petroleum Hydrocarbo			
C6 - C9 Fraction	µg/L	<10	

Notes:

--- Not Analysed

WATER - Trip Spike Result

Laboratory	Envirolab					
Laboratory Report	: Number:	157226				
Sample I	D	Trin Cailco				
Analyte	Units	Trip Spike				
BTEX						
Benzene	µg/L	119%				
Toluene	µg/L	120%				
Ethylbenzene	µg/L	115%				
meta- & para-Xylene	µg/L	119%				
ortho-Xylene	µg/L	121%				

Notes:

--- Not Analysed



APPENDIX I

LABORATORY REPORTS AND CERTIFICATES



email: sydney@envirolab.com.au envirolab.com.au

Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS

156541

Client: Geo-Environmental Engineering 82 Bridge St

Lane Cove NSW 2066

Attention: Stephen McCormack

Sample log in details:

Your Reference:E16016BNNo. of samples:38 SoilsDate samples received / completed instructions received02/11/16 / 02/11/16This report replaces the R00 due to changes in project's ID as client's request.

This report replaces the R01 due to changes in samples ID.

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:
 9/11/16
 / 29/11/16

 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 - Testing

 Tests not covered by NATA are denoted with *.

Results Approved By:

David Springer General Manager



Client Reference: E16016BN

		-				
vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	156541-1	156541-2	156541-4	156541-6	156541-9
Your Reference		SM011116-01	SM011116-02	SM011116-04	SM011116-06	SM011116-09
	-					
Date Sampled		1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
Date analysed	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
TRHC6 - C9	mg/kg	<25	<25	<25	<25	<25
TRHC6 - C10	mg/kg	<25	<25	<25	<25	<25
vTPHC6 - C10 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	%	106	95	89	101	93
-	70	106	95	09	101	93
vTRH(C6-C10)/BTEXN in Soil	1	1		1	1	1

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	156541-10	156541-11	156541-12	156541-14	156541-16
Your Reference		SM011116-10	SM011116-11	SM011116-13	SM011116-15	SM011116-17
	-					
Date Sampled		1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
Date analysed	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
TRHC6 - C9	mg/kg	<25	<25	<25	<25	<25
TRHC6 - C10	mg/kg	<25	<25	<25	<25	<25
vTPHC6 - C10 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	%	92	92	92	85	103

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	156541-17	156541-19	156541-20	156541-23	156541-24
Your Reference		SM011116-18	SM011116-20	SM011116-21	SM011116-24	SM011116-25
	-					
Date Sampled		1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
Date analysed	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
TRHC6 - C9	mg/kg	<25	<25	<25	<25	<25
TRHC6 - C10	mg/kg	<25	<25	<25	<25	<25
vTPHC6 - C10 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	%	95	103	104	106	101
vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	156541-28	156541-32	156541-34	156541-37	156541-38
Your Reference		SM011116-29	SM011116-32	SM011116-34	Trip Blank	Trip spike
Date Sampled	-	1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	_	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
Date analysed	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
	-					
TRHC6 - C9	mg/kg	<25	<25	<25	<25	[NA]
TRHC6 - C10	mg/kg	<25	<25	<25	<25	[NA]
vTPHC6 - C10 less BTEX (F1)	mg/kg	<25	<25	<25	<25	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	95%
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	96%
Ethylbenzene	mg/kg	<1	<1	<1	<1	97%
m+p-xylene	mg/kg	<2	<2	<2	<2	97%
o-Xylene	mg/kg	<1	<1	<1	<1	93%
naphthalene	mg/kg	<1	<1	<1	<1	[NA]
Surrogate aaa-Trifluorotoluene	%	101	101	95	110	97

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	156541-1	156541-2	156541-4	156541-6	156541-9
Your Reference		SM011116-01	SM011116-02	SM011116-04	SM011116-06	SM011116-0
	-					
Date Sampled		1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
Date analysed	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
TRHC 10 - C14	mg/kg	<50	<50	<50	<50	<50
TRHC 15 - C28	mg/kg	<100	<100	<100	<100	<100
TRHC 29 - C 36	mg/kg	<100	<100	<100	<100	<100
TRH>C10-C16	mg/kg	<50	<50	<50	<50	<50
TRH>C10 - C16 less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C16-C34	mg/kg	<100	<100	<100	<100	<100
TRH>C34-C40	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	82	77	79	80	80

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	156541-10	156541-11	156541-12	156541-14	156541-16
Your Reference		SM011116-10	SM011116-11	SM011116-13	SM011116-15	SM011116-17
	-					
Date Sampled		1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
Date analysed	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	04/11/2016
TRHC 10 - C 14	mg/kg	<50	<50	<50	<50	<50
TRHC 15 - C28	mg/kg	<100	<100	<100	<100	<100
TRHC29 - C36	mg/kg	<100	<100	<100	<100	<100
TRH>C10-C16	mg/kg	<50	<50	<50	<50	<50
TRH>C10 - C16 less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C16-C34	mg/kg	<100	<100	<100	<100	<100
TRH>C34-C40	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	81	80	79	88	80

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	156541-17	156541-19	156541-20	156541-23	156541-24
Your Reference		SM011116-18	SM011116-20	SM011116-21	SM011116-24	SM011116-25
Date Sampled Type of sample		1/11/2016 Soil	1/11/2016 Soil	1/11/2016 Soil	1/11/2016 Soil	1/11/2016 Soil
Date extracted	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
Date analysed	-	04/11/2016	04/11/2016	04/11/2016	04/11/2016	04/11/2016
TRHC 10 - C 14	mg/kg	<50	<50	<50	<50	<50
TRHC 15 - C28	mg/kg	<100	<100	<100	<100	<100
TRHC29 - C36	mg/kg	<100	<100	<100	<100	<100
TRH>C10-C16	mg/kg	<50	<50	<50	<50	<50
TRH>C10 - C16 less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C16-C34	mg/kg	<100	<100	<100	<100	<100
TRH>C34-C40	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	80	77	77	78	80

svTRH (C10-C40) in Soil				
Our Reference:	UNITS	156541-28	156541-32	156541-34
Your Reference		SM011116-29	SM011116-32	SM011116-34
	-			
Date Sampled		1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil
Date extracted	-	03/11/2016	03/11/2016	03/11/2016
Date analysed	-	04/11/2016	04/11/2016	04/11/2016
TRHC 10 - C 14	mg/kg	<50	<50	<50
TRHC 15 - C28	mg/kg	<100	<100	<100
TRHC29 - C36	mg/kg	<100	<100	<100
TRH>C10-C16	mg/kg	<50	<50	<50
TRH>C10 - C16 less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH>C16-C34	mg/kg	<100	<100	<100
TRH>C34-C40	mg/kg	<100	<100	<100
Surrogate o-Terphenyl	%	80	80	81

PAHs in Soil						
Our Reference:	UNITS	156541-1	156541-6	156541-9	156541-10	156541-11
Your Reference		SM011116-01	SM011116-06	SM011116-09	SM011116-10	SM011116-11
Date Sampled	-	1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
Date analysed	-	04/11/2016	04/11/2016	04/11/2016	04/11/2016	04/11/2016
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	<0.1	<0.1	<0.1	0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	0.4
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	0.2
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<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	<0.1	<0.1	<0.1	<0.1	0.2
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL(+)VE	NIL(+)VE	NIL(+)VE	NIL(+)VE	2.1
Surrogate p-Terphenyl-d14	%	124	87	81	91	88

PAHs in Soil						
Our Reference:	UNITS	156541-12	156541-14	156541-16	156541-17	156541-19
Your Reference		SM011116-13	SM011116-15	SM011116-17	SM011116-18	SM011116-20
Date Sampled	-	1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
Date analysed	-	04/11/2016	04/11/2016	04/11/2016	04/11/2016	04/11/2016
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	0.4	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	0.2	0.1
Pyrene	mg/kg	<0.1	0.1	<0.1	0.3	0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Chrysene	mg/kg	<0.1	0.2	<0.1	0.2	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	0.3	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.07	<0.05	0.2	0.07
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	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	<0.1	<0.1	<0.1	0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL(+)VE	0.81	NIL(+)VE	1.5	0.37
Surrogate p-Terphenyl-d14	%	89	87	86	85	88

PAHs in Soil					
Our Reference:	UNITS	156541-23	156541-28	156541-32	156541-34
Your Reference		SM011116-24	SM011116-29	SM011116-32	SM011116-34
Date Sampled	-	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016
Date analysed	-	04/11/2016	04/11/2016	04/11/2016	04/11/2016
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	0.2
Pyrene	mg/kg	<0.1	<0.1	<0.1	0.2
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.08	0.08
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL(+)VE	NIL(+)VE	0.080	0.43
Surrogate p-Terphenyl-d14	%	85	90	86	88

Acid Extractable metals in soil						
Our Reference:	UNITS	156541-1	156541-2	156541-5	156541-6	156541-9
Your Reference		SM011116-01	SM011116-02	SM011116-05	SM011116-06	SM011116-09
	-					
Date Sampled		1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
Date analysed	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
Arsenic	mg/kg	<4	<4	5	<4	9
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	59	35	11	5	20
Copper	mg/kg	17	8	4	3	10
Lead	mg/kg	11	3	20	6	48
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	48	20	3	1	3
Zinc	mg/kg	33	10	29	15	87

Acid Extractable metals in soil						
Our Reference:	UNITS	156541-10	156541-11	156541-12	156541-14	156541-15
Your Reference		SM011116-10	SM011116-11	SM011116-13	SM011116-15	SM011116-16
Date Sampled		1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
Date analysed	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
Arsenic	mg/kg	12	5	12	<4	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	20	95	7	4	3
Copper	mg/kg	14	38	6	17	42
Lead	mg/kg	33	20	15	17	2
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	87	1	6	<1
Zinc	mg/kg	30	62	30	24	3

Acid Extractable metals in soil						
Our Reference:	UNITS	156541-16	156541-17	156541-19	156541-20	156541-23
Your Reference		SM011116-17	SM011116-18	SM011116-20	SM011116-21	SM011116-24
Date Sampled Type of sample		1/11/2016 Soil	1/11/2016 Soil	1/11/2016 Soil	1/11/2016 Soil	1/11/2016 Soil
Date prepared	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
Date analysed	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
Arsenic	mg/kg	6	4	4	<4	4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	7	11	12	15	72
Copper	mg/kg	14	12	9	1	42
Lead	mg/kg	11	34	32	7	30
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	2	2	2	63
Zinc	mg/kg	21	25	28	5	69

Acid Extractable metals in soil						
Our Reference:	UNITS	156541-24	156541-26	156541-28	156541-29	156541-32
Your Reference		SM011116-25	SM011116-27	SM011116-29	SM011116-30	SM011116-32
Date Sampled		1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
Date analysed	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
Arsenic	mg/kg	<4	<4	<4	5	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	0.7
Chromium	mg/kg	12	11	4	9	12
Copper	mg/kg	3	1	1	7	23
Lead	mg/kg	6	6	8	74	170
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	1	1	2	4
Zinc	mg/kg	4	5	10	74	380

Acid Extractable metals in soil				
Our Reference:	UNITS	156541-33	156541-34	156541-36
	UNITS			
Your Reference		SM011116-33	SM011116-34	SM011116-37
	-			
Date Sampled		1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil
Date prepared	-	03/11/2016	03/11/2016	03/11/2016
Date analysed	-	03/11/2016	03/11/2016	03/11/2016
Arsenic	mg/kg	6	6	8
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	23	13	21
Copper	mg/kg	2	24	3
Lead	mg/kg	9	420	12
Mercury	mg/kg	<0.1	0.1	<0.1
Nickel	mg/kg	3	2	2
Zinc	mg/kg	38	100	110

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Moisture						
Our Reference:	UNITS	156541-1	156541-2	156541-4	156541-5	156541-6
Your Reference		SM011116-01	SM011116-02	SM011116-04	SM011116-05	SM011116-06
Date Sampled	-	1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Type of sample		301	3011	301	301	3011
Date prepared	-	3/11/2016	3/11/2016	3/11/2016	3/11/2016	3/11/2016
Date analysed	-	4/11/2016	4/11/2016	4/11/2016	4/11/2016	4/11/2016
Moisture	%	6.4	17	19	20	15
Moisture						
Our Reference:	UNITS	156541-9	156541-10	156541-11	156541-12	156541-14
Your Reference		SM011116-09	SM011116-10	SM011116-11	SM011116-13	SM011116-15
	-					
DateSampled		1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	3/11/2016	3/11/2016	3/11/2016	3/11/2016	3/11/2016
Date analysed	-	4/11/2016	4/11/2016	4/11/2016	4/11/2016	4/11/2016
Moisture	%	20	24	17	11	26
		_				_
Moisture						
Our Reference:	UNITS	156541-15	156541-16	156541-17	156541-19	156541-20
Your Reference		SM011116-16	SM011116-17	SM011116-18	SM011116-20	SM011116-21
	-					
Date Sampled		1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	_	3/11/2016	3/11/2016	3/11/2016	3/11/2016	3/11/2016
Date analysed	_	4/11/2016	4/11/2016	4/11/2016	4/11/2016	4/11/2016
Moisture	%	7.5	7.3	16	11	16
WOISIULE	70	1.5	1.5	10		10
Moisture						
Our Reference:	UNITS	156541-23	156541-24	156541-26	156541-28	156541-29
Your Reference		SM011116-24	SM011116-25	SM011116-27	SM011116-29	SM011116-30
	-					
Date Sampled		1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	_	3/11/2016	3/11/2016	3/11/2016	3/11/2016	3/11/2016
Date analysed		4/11/2016	4/11/2016	4/11/2016	4/11/2016	4/11/2016
-	-					
Moisture	%	11	10	14	9.5	11
Moisture						
Our Reference:	UNITS	156541-32	156541-33	156541-34	156541-36	
Your Reference	GINIO	SM011116-32	SM011116-33	SM011116-34	SM011116-37	
	-	GINOTITIO-32	0001110-00	0001110-34	0001110-37	
Date Sampled		1/11/2016	1/11/2016	1/11/2016	1/11/2016	
		Soil	Soil	Soil	Soil	
Type of sample				1		
			2/11/0010	2/11/0010	2/11/0010	-
Date prepared	-	3/11/2016	3/11/2016	3/11/2016	3/11/2016	
	%		3/11/2016 4/11/2016 17	3/11/2016 4/11/2016 17	3/11/2016 4/11/2016 21	

Organochlorine Pesticides in soil						
Our Reference:	UNITS	156541-6	156541-14	156541-17	156541-28	156541-32
Your Reference		SM011116-06	SM011116-15	SM011116-18	SM011116-29	SM011116-32
Date Sampled	-	1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	_	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
Date analysed	-	04/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
	-					
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	%	82	99	84	86	88

PCBs in Soil						
Our Reference:	UNITS	156541-6	156541-14	156541-17	156541-28	156541-32
Your Reference		SM011116-06	SM011116-15	SM011116-18	SM011116-29	SM011116-32
	-					
Date Sampled		1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/11/2016	03/11/2016	03/11/2016	03/11/2016	03/11/2016
Date analysed	-	04/11/2016	04/11/2016	04/11/2016	04/11/2016	04/11/2016
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	82	99	84	86	88

Asbestos ID - soils						
Our Reference:	UNITS	156541-6	156541-14	156541-17	156541-28	156541-32
Your Reference		SM011116-06	SM011116-15	SM011116-18	SM011116-29	SM011116-32
Date Sampled Type of sample		1/11/2016 Soil	1/11/2016 Soil	1/11/2016 Soil	1/11/2016 Soil	1/11/2016 Soil
Date analysed	-	8/11/2016	8/11/2016	8/11/2016	8/11/2016	8/11/2016
Sample mass tested	g	Approx. 35g	Approx. 30g	Approx. 35g	Approx. 35g	Approx. 35g
Sample Description	-	Tan sandy soil	Grey coarse- grained soil & rocks			
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected				
Trace Analysis	-	No asbestos detected				

Misc Inorg - Soil						
Our Reference:	UNITS	156541-1	156541-2	156541-5	156541-9	156541-11
Your Reference		SM011116-01	SM011116-02	SM011116-05	SM011116-09	SM011116-11
Data Commissi	-	4/44/2040	4/44/0040	4/44/0040	4/44/0040	4/44/2040
Date Sampled		1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	07/11/2016	07/11/2016	07/11/2016	07/11/2016	07/11/2016
Date analysed	-	07/11/2016	07/11/2016	07/11/2016	07/11/2016	07/11/2016
pH 1:5 soil:water	pH Units	9.6	9.1	8.2	7.7	8.2
		l	1			
Misc Inorg - Soil						
Our Reference:	UNITS	156541-12	156541-14	156541-15	156541-16	156541-17
Your Reference		SM011116-13	SM011116-15	SM011116-16	SM011116-17	SM011116-18
Date Sampled	-	1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	07/11/2016	07/11/2016	07/11/2016	07/11/2016	07/11/2016
Date analysed	-	07/11/2016	07/11/2016	07/11/2016	07/11/2016	07/11/2016
pH 1:5 soil:water	pH Units	7.1	6.9	8.7	8.3	7.8
-		[
Misc Inorg - Soil						
Our Reference:	UNITS	156541-19	156541-20	156541-23	156541-24	156541-26
Your Reference		SM011116-20	SM011116-21	SM011116-24	SM011116-25	SM011116-27
Date Sampled	-	1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	07/11/2016	07/11/2016	07/11/2016	07/11/2016	07/11/2016
Date analysed	-	07/11/2016	07/11/2016	07/11/2016	07/11/2016	07/11/2016
pH 1:5 soil:water	pHUnits	5.8	5.5	7.7	6.9	5.6
			1			
Misc Inorg - Soil						
Our Reference:	UNITS	156541-28	156541-29	156541-32	156541-33	156541-34
Your Reference		SM011116-29	SM011116-30	SM011116-32	SM011116-33	SM011116-34
Date Sampled	-	1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	07/11/2016	07/11/2016	07/11/2016	07/11/2016	07/11/2016
Date analysed	-	07/11/2016	07/11/2016	07/11/2016	07/11/2016	07/11/2016
pH 1:5 soil:water	pH Units	5.9	6.0	7.0	6.3	3.5
		[-			
Misc Inorg - Soil						
Our Reference:	UNITS	156541-36	1			

Misc Inorg - Soil		
Our Reference:	UNITS	156541-36
Your Reference		SM011116-37
	-	
Date Sampled		1/11/2016
Type of sample		Soil
Date prepared	-	07/11/2016
Bateproparea		01/11/2010
Date analysed	-	07/11/2016
pH 1:5 soil:water	pHUnits	6.2

CEC						
Our Reference:	UNITS	156541-1	156541-2	156541-5	156541-9	156541-11
Your Reference		SM011116-01	SM011116-02	SM011116-05	SM011116-09	SM011116-11
	-					
Date Sampled		1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/11/2016	04/11/2016	04/11/2016	04/11/2016	04/11/2016
Date analysed	-	04/11/2016	04/11/2016	04/11/2016	04/11/2016	04/11/2016
Exchangeable Ca	meq/100g	12	15	6.3	27	20
Exchangeable K	meq/100g	0.2	<0.1	<0.1	0.6	0.2
ExchangeableMg	meq/100g	2.5	1.0	0.21	1.4	2.7
ExchangeableNa	meq/100g	0.70	0.40	<0.1	0.13	<0.1
Cation Exchange Capacity	meq/100g	16	16	6.6	29	22

CEC						
Our Reference:	UNITS	156541-12	156541-14	156541-15	156541-16	156541-17
Your Reference		SM011116-13	SM011116-15	SM011116-16	SM011116-17	SM011116-18
Date Sampled	-	1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/11/2016	04/11/2016	04/11/2016	04/11/2016	04/11/2016
Date analysed	-	04/11/2016	04/11/2016	04/11/2016	04/11/2016	04/11/2016
Exchangeable Ca	meq/100g	4.1	10	12	14	11
Exchangeable K	meq/100g	<0.1	<0.1	<0.1	<0.1	0.4
Exchangeable Mg	meq/100g	0.49	0.36	0.76	0.81	1.7
ExchangeableNa	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
Cation Exchange Capacity	meq/100g	4.7	10	12	15	13

CEC						
Our Reference:	UNITS	156541-19	156541-20	156541-23	156541-24	156541-26
Your Reference		SM011116-20	SM011116-21	SM011116-24	SM011116-25	SM011116-27
Date Sampled	-	1/11/2016	1/11/2016	1/11/2016	1/11/2016	1/11/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	04/11/2016	04/11/2016	04/11/2016	04/11/2016	04/11/2016
Date analysed	-	04/11/2016	04/11/2016	04/11/2016	04/11/2016	04/11/2016
Exchangeable Ca	meq/100g	5.1	1.6	22	1.1	0.5
ExchangeableK	meq/100g	0.2	0.1	0.3	0.1	0.2
Exchangeable Mg	meq/100g	1.3	1.2	3.8	0.72	2.6
ExchangeableNa	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
Cation Exchange Capacity	meq/100g	6.6	2.9	26	1.9	3.3

CEC						
Our Reference:	UNITS	156541-28	156541-29	156541-32	156541-33	156541-34
Your Reference		SM011116-29	SM011116-30	SM011116-32	SM011116-33	SM011116-34
Date Sampled Type of sample		1/11/2016 Soil	1/11/2016 Soil	1/11/2016 Soil	1/11/2016 Soil	1/11/2016 Soil
Date prepared	-	04/11/2016	04/11/2016	04/11/2016	04/11/2016	04/11/2016
Date analysed	-	04/11/2016	04/11/2016	04/11/2016	04/11/2016	04/11/2016
Exchangeable Ca	meq/100g	2.0	2.2	9.8	3.0	0.5
Exchangeable K	meq/100g	0.2	0.1	0.2	<0.1	0.2
ExchangeableMg	meq/100g	0.59	0.50	0.88	2.1	<0.1
ExchangeableNa	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
Cation Exchange Capacity	meq/100g	2.7	2.9	11	5.2	<1.0

CEC		
Our Reference:	UNITS	156541-36
Your Reference		SM011116-37
	-	
Date Sampled		1/11/2016
Type of sample		Soil
Date prepared	-	04/11/2016
Date analysed	-	04/11/2016
Exchangeable Ca	meq/100g	7.3
ExchangeableK	meq/100g	0.2
ExchangeableMg	meq/100g	1.0
ExchangeableNa	meq/100g	<0.1
Cation Exchange Capacity	meq/100g	8.5

Client Reference: E16016BN

MethodID	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	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. For soil results:-
	 TEQ PQL' values are assuming all contributing PAHs reported as <pql actually="" are="" at="" is="" pql.="" the="" the<br="" this="">most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present.</pql>
	2. 'TEQ zero' values are assuming all contributing PAHs reported as <pql and="" approach="" are="" below="" but="" calculation="" conservative="" contribute="" false="" is="" least="" more="" negative="" pahs="" pql.<="" present="" susceptible="" td="" teq="" teqs="" that="" the="" this="" to="" when="" zero.=""></pql>
	3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <pql are="" half="" pql.<br="" stipulated="" the="">Hence a mid-point between the most and least conservative approaches above.</pql>
	Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PAHs" is simply a sum of the positive individual PAHs.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	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.
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.
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.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.

		Clie	ent Referenc	e: E	16016BN			
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXNin Soil						Base II Duplicate II % RPD		
Date extracted	-			03/11/2	156541-6	03/11/2016 03/11/2016	LCS-4	03/11/2016
Date analysed	-			03/11/2 016	156541-6	03/11/2016 03/11/2016	LCS-4	03/11/2016
TRHC6 - C9	mg/kg	25	Org-016	<25	156541-6	<25 <25	LCS-4	103%
TRHC6 - C10	mg/kg	25	Org-016	<25	156541-6	<25 <25	LCS-4	103%
Benzene	mg/kg	0.2	Org-016	<0.2	156541-6	<0.2 <0.2	LCS-4	98%
Toluene	mg/kg	0.5	Org-016	<0.5	156541-6	<0.5 <0.5	LCS-4	97%
Ethylbenzene	mg/kg	1	Org-016	<1	156541-6	<1 <1	LCS-4	103%
m+p-xylene	mg/kg	2	Org-016	~2	156541-6	<2 <2	LCS-4	109%
o-Xylene	mg/kg	1	Org-016	<1	156541-6	<1 <1	LCS-4	116%
naphthalene	mg/kg	1	Org-014	<1	156541-6	<1 <1	[NR]	[NR]
Surrogate aaa- Trifluorotoluene	%		Org-016	94	156541-6	101 90 RPD:12	LCS-4	102%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate	Duplicate results	Spike Sm#	Spike %
					Sm#			Recovery
svTRH (C10-C40) in Soil						Base II Duplicate II % RPD		
Date extracted	-			04/11/2 016	156541-6	03/11/2016 03/11/2016	LCS-4	03/11/2016
Date analysed	-			06/11/2 016	156541-6	03/11/2016 03/11/2016	LCS-4	03/11/2016
TRHC 10 - C14	mg/kg	50	Org-003	<50	156541-6	<50 <50	LCS-4	100%
TRHC 15 - C28	mg/kg	100	Org-003	<100	156541-6	<100 <100	LCS-4	94%
TRHC 29 - C 36	mg/kg	100	Org-003	<100	156541-6	<100 <100	LCS-4	96%
TRH>C10-C16	mg/kg	50	Org-003	<50	156541-6	<50 <50	LCS-4	100%
TRH>C16-C34	mg/kg	100	Org-003	<100	156541-6	<100 <100	LCS-4	94%
TRH>C34-C40	mg/kg	100	Org-003	<100	156541-6	<100 <100	LCS-4	96%
Surrogate o-Terphenyl	%		Org-003	90	156541-6	80 79 RPD:1	LCS-4	94%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate	Duplicate results	Spike Sm#	Spike %
PAHs in Soil					Sm#	Base II Duplicate II % RPD		Recovery
Date extracted	-			03/11/2 016	156541-6	03/11/2016 03/11/2016	LCS-4	03/11/2016
Date analysed	-			04/11/2 016	156541-6	04/11/2016 04/11/2016	LCS-4	04/11/2016
Naphthalene	mg/kg	0.1	Org-012	<0.1	156541-6	<0.1 <0.1	LCS-4	106%
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012	<0.1	156541-6	<0.1 <0.1	LCS-4	107%
Phenanthrene	mg/kg	0.1	Org-012	<0.1	156541-6	<0.1 <0.1	LCS-4	99%
Anthracene	mg/kg	0.1	Org-012	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	156541-6	<0.1 <0.1	LCS-4	107%
Pyrene	mg/kg	0.1	Org-012	<0.1	156541-6	<0.1 <0.1	LCS-4	116%
Benzo(a)anthracene	mg/kg	0.1	Org-012 Org-012	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 Org-012	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
Benzo(b,j +k)fluoranthene	mg/kg	0.2	Org-012 Org-012	<0.1	156541-6	<0.2 <0.2	[NR]	[NR]

		Clie	ent Referenc	e: E	16016BN			
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II % RPD		
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	156541-6	<0.05 <0.05	LCS-4	112%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl- d14	%		Org-012	93	156541-6	87 84 RPD:4	LCS-4	137%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II % RPD		
Date prepared	-			03/11/2 016	156541-6	03/11/2016 03/11/2016	LCS-4	03/11/2016
Date analysed	-			03/11/2 016	156541-6	03/11/2016 03/11/2016	LCS-4	03/11/2016
Arsenic	mg/kg	4	Metals-020	<4	156541-6	<4 <4	LCS-4	111%
Cadmium	mg/kg	0.4	Metals-020	<0.4	156541-6	<0.4 <0.4	LCS-4	107%
Chromium	mg/kg	1	Metals-020	<1	156541-6	5 5 RPD:0	LCS-4	111%
Copper	mg/kg	1	Metals-020	<1	156541-6	3 3 RPD:0	LCS-4	110%
Lead	mg/kg	1	Metals-020	<1	156541-6	6 5 RPD:18	LCS-4	103%
Mercury	mg/kg	0.1	Metals-021	<0.1	156541-6	<0.1 <0.1	LCS-4	84%
Nickel	mg/kg	1	Metals-020	<1	156541-6	1 1 RPD:0	LCS-4	102%
Zinc	mg/kg	1	Metals-020	<1	156541-6	15 23 RPD:42	LCS-4	103%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate	Duplicate results	Spike Sm#	Spike %
Organochlorine					Sm#	Base II Duplicate II % RPD		Recovery
Pesticides in soil								
Date extracted				03/11/2	156541-6	03/11/2016/02/11/2016	LCS-4	03/11/2016
Date extracted	-			03/11/2	150541-0	03/11/2016 03/11/2016	L03-4	03/11/2010
Date analysed	-			04/11/2 016	156541-6	04/11/2016 04/11/2016	LCS-4	04/11/2016
HCB	mg/kg	0.1	Org-005	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	156541-6	<0.1 <0.1	LCS-4	111%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	156541-6	<0.1 <0.1	LCS-4	97%
Heptachlor	mg/kg	0.1	Org-005	<0.1	156541-6	<0.1 <0.1	LCS-4	103%
delta-BHC	mg/kg	0.1	Org-005	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	156541-6	<0.1 <0.1	LCS-4	100%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	156541-6	<0.1 <0.1	LCS-4	96%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	156541-6	<0.1 <0.1	LCS-4	101%
Dieldrin	mg/kg	0.1	Org-005	<0.1	156541-6	<0.1 <0.1	LCS-4	101%
Endrin	mg/kg	0.1	Org-005	<0.1	156541-6	<0.1 <0.1	LCS-4 LCS-4	102%
pp-DDD		0.1		<0.1	156541-6	<0.1 <0.1	LCS-4 LCS-4	108%
Endosulfan II	mg/kg	0.1	Org-005 Org-005	<0.1	156541-6	<0.1 <0.1		[NR]
	mg/kg		•				[NR]	
pp-DDT	mg/kg	0.1	Org-005	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate	Duplicate results	Spike Sm#	Spike %
	on the		METHOD	Diarin	Sm#	Dupilouto robuito	opino orini	Recovery
Organochlorine Pesticides in soil						Base II Duplicate II % RPD		
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	156541-6	<0.1 <0.1	LCS-4	110%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	97	156541-6	82 87 RPD:6	LCS-4	122%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate	Duplicate results	Spike Sm#	Spike %
PCBs in Soil					Sm#	Base II Duplicate II % RPD		Recovery
Date extracted	-			03/11/2 016	156541-6	03/11/2016 03/11/2016	LCS-4	03/11/2016
Date analysed	-			04/11/2 016	156541-6	04/11/2016 04/11/2016	LCS-4	04/11/2016
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	156541-6	<0.1 <0.1	LCS-4	107%
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	156541-6	<0.1 <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	97	156541-6	82 87 RPD:6	LCS-4	94%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Misc Inorg - Soil						Base II Duplicate II % RPD		
Date prepared	-			07/11/2 016	[NT]	[NT]	LCS-4	07/11/2016
Date analysed	-			07/11/2 016	[NT]	[NT]	LCS-4	07/11/2016
pH 1:5 soil:water	pHUnits		Inorg-001	[NT]	[NT]	[NT]	LCS-4	101%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
CEC						Base II Duplicate II % RPD		
Date prepared	-			04/11/2 016	[NT]	[NT]	LCS-4	04/11/2016
Date analysed	-			04/11/2 016	[NT]	[NT]	LCS-4	04/11/2016
Exchangeable Ca	meq/100 g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-4	106%
Exchangeable K	meq/100 g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-4	88%
ExchangeableMg	meq/100 g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-4	102%
ExchangeableNa	meq/100 g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-4	83%

		Client Reference	ce: E16016BN		
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXNin Soil			Base + Duplicate + %RPD		
Date extracted	-	156541-17	03/11/2016 03/11/2016	156541-14	03/11/2016
Date analysed	-	156541-17	03/11/2016 03/11/2016	156541-14	03/11/2016
TRHC6 - C9	mg/kg	156541-17	<25 <25	156541-14	83%
TRHC6 - C10	mg/kg	156541-17	<25 <25	156541-14	83%
Benzene	mg/kg	156541-17	<0.2 <0.2	156541-14	83%
Toluene	mg/kg	156541-17	<0.5 <0.5	156541-14	78%
Ethylbenzene	mg/kg	156541-17	<1 <1	156541-14	82%
m+p-xylene	mg/kg	156541-17	<2 <2	156541-14	86%
o-Xylene	mg/kg	156541-17	<1 <1	156541-14	93%
naphthalene	mg/kg	156541-17	<1 <1	[NR]	[NR]
Surrogate aaa- Trifluorotoluene	%	156541-17	95 97 RPD: 2	156541-14	85%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	156541-17	03/11/2016 03/11/2016	156541-14	03/11/2016
Date analysed	-	156541-17	04/11/2016 04/11/2016	156541-14	06/11/2016
TRHC 10 - C14	mg/kg	156541-17	<50 <50	156541-14	116%
TRHC 15 - C28	mg/kg	156541-17	<100 <100	156541-14	118%
TRHC29 - C36	mg/kg	156541-17	<100 <100	156541-14	79%
TRH>C10-C16	mg/kg	156541-17	<50 <50	156541-14	116%
TRH>C16-C34	mg/kg	156541-17	<100 <100	156541-14	118%
TRH>C34-C40	mg/kg	156541-17	<100 <100	156541-14	79%
Surrogate o-Terphenyl	%	156541-17	80 80 RPD:0	156541-14	84%
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate	Spike Sm#	Spike % Recovery
PAHs in Soil			Base + Duplicate + %RPD		
Date extracted	-	156541-17	03/11/2016 03/11/2016	156541-14	03/11/2016
Date analysed	-	156541-17	04/11/2016 04/11/2016	156541-14	04/11/2016
Naphthalene	mg/kg	156541-17	<0.1 <0.1	156541-14	96%
Acenaphthylene	mg/kg	156541-17	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	156541-17	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	156541-17	<0.1 <0.1	156541-14	91%
Phenanthrene	mg/kg	156541-17	<0.1 <0.1	156541-14	74%
Anthracene	mg/kg	156541-17	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	156541-17	0.2 0.1 RPD:67	156541-14	75%
Pyrene	mg/kg	156541-17	0.3 0.1 RPD:100	156541-14	80%
Benzo(a)anthracene	mg/kg	156541-17	0.1 <0.1	[NR]	[NR]
Chrysene	mg/kg	156541-17	0.2 <0.1	[NR]	[NR]
Benzo(b,j+k)fluoranthene	mg/kg	156541-17	0.3 <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	156541-17	0.2 0.07 RPD:96	156541-14	60%
Indeno(1,2,3-c,d)pyrene	mg/kg	156541-17	0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	156541-17	<0.1 <0.1	[NR]	[NR]

		Client Reference	e: E16016BN		
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate	Spike Sm#	Spike % Recovery
PAHs in Soil			Base + Duplicate + %RPD		
Benzo(g,h,i)perylene	mg/kg	156541-17	0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	156541-17	85 85 RPD:0	156541-14	116%
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil			Base + Duplicate + %RPD		
Date prepared	-	156541-17	03/11/2016 03/11/2016	156541-14	03/11/2016
Date analysed	-	156541-17	03/11/2016 03/11/2016	156541-14	03/11/2016
Arsenic	mg/kg	156541-17	4 6 RPD:40	156541-14	100%
Cadmium	mg/kg	156541-17	<0.4 <0.4	156541-14	107%
Chromium	mg/kg	156541-17	11 13 RPD:17	156541-14	110%
Copper	mg/kg	156541-17	12 8 RPD:40	156541-14	106%
Lead	mg/kg	156541-17	34 30 RPD:12	156541-14	94%
Mercury	mg/kg	156541-17	<0.1 <0.1	156541-14	82%
Nickel	mg/kg	156541-17	2 2 RPD:0	156541-14	104%
Zinc	mg/kg	156541-17	25 24 RPD:4	156541-14	90%
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate	Spike Sm#	Spike % Recovery
Organochlorine Pesticides in soil			Base + Duplicate + %RPD		
Date extracted	-	156541-17	03/11/2016 03/11/2016	156541-14	03/11/2016
Date analysed	-	156541-17	04/11/2016 04/11/2016	156541-14	04/11/2016
HCB	mg/kg	156541-17	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	156541-17	<0.1 <0.1	156541-14	89%
gamma-BHC	mg/kg	156541-17	<0.1 <0.1	[NR]	[NR]
beta-BHC	mg/kg	156541-17	<0.1 <0.1	156541-14	85%
Heptachlor	mg/kg	156541-17	<0.1 <0.1	156541-14	89%
delta-BHC	mg/kg	156541-17	<0.1 <0.1	[NR]	[NR]
Aldrin	mg/kg	156541-17	<0.1 <0.1	156541-14	86%
Heptachlor Epoxide	mg/kg	156541-17	<0.1 <0.1	156541-14	83%
gamma-Chlordane	mg/kg	156541-17	<0.1 <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	156541-17	<0.1 <0.1	[NR]	[NR]
Endosulfan I	mg/kg	156541-17	<0.1 <0.1	[NR]	[NR]
pp-DDE	mg/kg	156541-17	<0.1 <0.1	156541-14	89%
Dieldrin	mg/kg	156541-17	<0.1 <0.1	156541-14	90%
Endrin	mg/kg	156541-17	<0.1 <0.1	156541-14	95%
pp-DDD	mg/kg	156541-17	<0.1 <0.1	156541-14	92%
Endosulfan II	mg/kg	156541-17	<0.1 <0.1	[NR]	[NR]
pp-DDT	mg/kg	156541-17	<0.1 <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	156541-17	<0.1 <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	156541-17	<0.1 <0.1	156541-14	99%
Methoxychlor	mg/kg	156541-17	<0.1 <0.1	[NR]	[NR]
Surrogate TCMX	%	156541-17	 84 87 RPD:4	156541-14	114%

		Client Reference	e: E16016BN		
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	156541-17	03/11/2016 03/11/2016	156541-14	03/11/2016
Date analysed	-	156541-17	04/11/2016 04/11/2016	156541-14	04/11/2016
Aroclor 1016	mg/kg	156541-17	<0.1 <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	156541-17	<0.1 <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	156541-17	<0.1 <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	156541-17	<0.1 <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	156541-17	<0.1 <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	156541-17	<0.1 <0.1	156541-14	101%
Aroclor 1260	mg/kg	156541-17	<0.1 <0.1	[NR]	[NR]
Surrogate TCLMX	%	156541-17	84 87 RPD:4	156541-14	89%
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate	Spike Sm#	Spike % Recovery
Misc Inorg - Soil			Base + Duplicate + %RPD		
Date prepared	-	[NT]	[NT]	156541-14	07/11/2016
Date analysed	-	[NT]	[NT]	156541-14	07/11/2016
pH 1:5 soil:water	pH Units	[NT]	[NT]	156541-14	101%
QUALITYCONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD		
Date extracted	-	156541-34	03/11/2016 03/11/2016		
Date analysed	-	156541-34	03/11/2016 03/11/2016		
TRHC6 - C9	mg/kg	156541-34	<25 <25		
TRHC6 - C10	mg/kg	156541-34	<25 <25		
Benzene	mg/kg	156541-34	<0.2 <0.2		
Toluene	mg/kg	156541-34	<0.5 <0.5		
Ethylbenzene	mg/kg	156541-34	<1 <1		
m+p-xylene	mg/kg	156541-34	<2 <2		
o-Xylene	mg/kg	156541-34	<1 <1		
naphthalene	mg/kg	156541-34	<1 <1		
Surrogate aaa- Trifluorotoluene	%	156541-34	95 96 RPD:1		

		Client Referenc	e: E16016BN
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate
svTRH (C10-C40) in Soil			Base + Duplicate + % RPD
Date extracted	-	156541-34	03/11/2016 03/11/2016
Date analysed	-	156541-34	04/11/2016 04/11/2016
TRHC 10 - C14	mg/kg	156541-34	<50 <50
TRHC 15 - C28	mg/kg	156541-34	<100 <100
TRHC29 - C36	mg/kg	156541-34	<100 <100
TRH>C10-C16	mg/kg	156541-34	<50 <50
TRH>C16-C34	mg/kg	156541-34	<100 <100
TRH>C34-C40	mg/kg	156541-34	<100 <100
Surrogate o-Terphenyl	%	156541-34	81 82 RPD: 1
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate
PAHs in Soil			Base + Duplicate + %RPD
Date extracted	-	156541-34	03/11/2016 03/11/2016
Date analysed	-	156541-34	04/11/2016 04/11/2016
Naphthalene	mg/kg	156541-34	<0.1 <0.1
Acenaphthylene	mg/kg	156541-34	<0.1 <0.1
Acenaphthene	mg/kg	156541-34	<0.1 <0.1
Fluorene	mg/kg	156541-34	<0.1 <0.1
Phenanthrene	mg/kg	156541-34	<0.1 0.2
Anthracene	mg/kg	156541-34	<0.1 <0.1
Fluoranthene	mg/kg	156541-34	0.2 0.4 RPD:67
Pyrene	mg/kg	156541-34	0.2 0.5 RPD:86
Benzo(a)anthracene	mg/kg	156541-34	<0.1 0.2
Chrysene	mg/kg	156541-34	<0.1 0.2
Benzo(b,j+k)fluoranthene	mg/kg	156541-34	<0.2 0.4
Benzo(a)pyrene	mg/kg	156541-34	0.08 0.2 RPD:86
Indeno(1,2,3-c,d)pyrene	mg/kg	156541-34	<0.1 0.1
Dibenzo(a,h)anthracene	mg/kg	156541-34	<0.1 <0.1
Benzo(g,h,i)perylene	mg/kg	156541-34	<0.1 0.1
Surrogate p-Terphenyl-d14	%	156541-34	88 86 RPD:2

		Client Reference	ce: E16016BN		
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	156541-34	03/11/2016 03/11/2016	LCS-5	03/11/2016
Date analysed	-	156541-34	03/11/2016 03/11/2016	LCS-5	03/11/2016
Arsenic	mg/kg	156541-34	6 6 RPD:0	LCS-5	110%
Cadmium	mg/kg	156541-34	<0.4 <0.4	LCS-5	106%
Chromium	mg/kg	156541-34	13 12 RPD:8	LCS-5	110%
Copper	mg/kg	156541-34	24 24 RPD:0	LCS-5	106%
Lead	mg/kg	156541-34	420 420 RPD:0	LCS-5	102%
Mercury	mg/kg	156541-34	0.1 0.1 RPD:0	LCS-5	88%
Nickel	mg/kg	156541-34	2 2 RPD:0	LCS-5	101%
Zinc	mg/kg	156541-34	100 100 RPD:0	LCS-5	102%
QUALITY CONTROL CEC	UNITS	Dup.Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	156541-34	04/11/2016 04/11/2016	LCS-5	04/11/2016
Date analysed	-	156541-34	04/11/2016 04/11/2016	LCS-5	04/11/2016
Exchangeable Ca	meq/100 g	156541-34	0.5 0.4 RPD:22	LCS-5	107%
Exchangeable K	meq/100 g	156541-34	0.2 0.2 RPD:0	LCS-5	102%
ExchangeableMg	meq/100 g	156541-34	<0.1 <0.1	LCS-5	105%
ExchangeableNa	meq/100 g	156541-34	<0.1 <0.1	LCS-5	90%
QUALITY CONTROL CEC	UNITS	Dup.Sm#	Duplicate Base + Duplicate + %RPD		
Date prepared	-	156541-2	04/11/2016 04/11/2016		
Date analysed	-	156541-2	04/11/2016 04/11/2016		
Exchangeable Ca	meq/100 g	156541-2	15 15 RPD:0		
Exchangeable K	meq/100 g	156541-2	<0.1 <0.1		
ExchangeableMg	meq/100 g	156541-2	1.0 1.0 RPD:0		
ExchangeableNa	meq/100 g	156541-2	0.40 0.39 RPD:3		

		Client Referenc	e: E16016BN
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate
CEC			Base + Duplicate + %RPD
Date prepared	-	156541-20	04/11/2016 04/11/2016
Date analysed	-	156541-20	04/11/2016 04/11/2016
Exchangeable Ca	meq/100 g	156541-20	1.6 1.3 RPD:21
Exchangeable K	meq/100 g	156541-20	0.1 0.1 RPD:0
ExchangeableMg	meq/100 g	156541-20	1.2 0.95 RPD:23
ExchangeableNa	meq/100 g	156541-20	<0.1 <0.1
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate
Misc Inorg - Soil			Base + Duplicate + %RPD
Date prepared	-	156541-1	07/11/2016 07/11/2016
Date analysed	-	156541-1	07/11/2016 07/11/2016
pH 1:5 soil:water	pH Units	156541-1	9.6 9.6 RPD:0
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate
Misc Inorg - Soil			Base + Duplicate + %RPD
Date prepared	-	156541-19	07/11/2016 07/11/2016
Date analysed	-	156541-19	07/11/2016 07/11/2016
pH 1:5 soil:water	pH Units	156541-19	5.8 5.8 RPD:0
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate
Misc Inorg - Soil			Base + Duplicate + %RPD
Date prepared	-	156541-36	07/11/2016 07/11/2016
Date analysed	-	156541-36	07/11/2016 07/11/2016
pH 1:5 soil:water	pH Units	156541-36	6.2 6.2 RPD:0

Report Comments:

Asbestos: A portion of the supplied sample was sub-sampled for asbestos analysis according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g of sample in its own container.

Note: Samples 156541-6, 14, 17, 28 & 32 were sub-sampled from jars provided by the client.

Asbestos ID was analysed by Approved Identifier:Paul ChingAsbestos ID was authorised by Approved Signatory:Paul Ching

INS: Insufficient sample for this test NR: 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 (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics 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.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

			CHAIN OF CUST	I OF CUST	SO S		- YOO'	ODY - Client	Clie	nt							Envirolab
										1		Γ	Envi	delo	Envirolah Carvicas	Sec)
Client:		Geo-Environmental Engineering Pty Ltd	Pty Ltd	Client Project Nam	roject	vame al	e and Number:	Der:						Upin C	toho -		TANC WON
Project Mgr	S. McCormack				E16014BLA	A							TZ AS	c haili		nnnn	TZ ASIIIEY 34, CIIdLSWOOU, N3W, 2001
Sampler:	S. McCormack			PO No.:													
Address:	82 Bridge Street			Envirolab Services	ab Serv		Quote No.						Phone	e: 02 9	Phone: 02 9910 6200	00	
	Lane Cove NSW 2066	100 m		Date re	sults re	Date results required:							Fax:	02 9	02 9910 6201	101	
Email:	stephen@geoenvironmental.com.au	ental.com.au		Or choo	se: sta	ndard /	1 day	Or choose: standard / 1 day / 2 day / 3 day	/ 3 day		5 days		E-mai	I: ahio	e@envi	rolabs	E-mail: ahie@envirolabservices.com.au
Phone:	0431 480 980			Note: Inform lab i surcharge applies	applies	advance	if urgent t	Note: Inform lab in advance if urgent turnaround is required surcharge applies	t is requir	- pa			Conta	ct: Ail	Contact: Aileen Hie		
	Sample information	formation							Te	Tests Required	uired						Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	£ noitenidmoD	s£ noitsnidmo)	Combination 4	Combination 5b Combination 5	combination 5a	oCp/Opps	(8bf2) elsteM	Hd	EC	sotsədeA	втех / Volatile ТЯН	СЕС\рн	тен/втех	Provide as much information about the sample as you can
-	SM011116-01	1/11/2016	soil jar		t	╀	+	+	-								
7	SM011116-02	1/11/2016	soil jar							1					1		Envirole '
3	SM011116-03	1/11/2016	soil jar						-								En wurde 12 Aut
4	SM011116-04	1/11/2016	soil jar					_									Chatswood NSW
S	SM011116-05	1/11/2016	soil jar						1							_	
9	SM011116-06	1/11/2016	soil jar				-		_						-	-	156 541 Data Received: 2/11/16
L	SM011116-07	1/11/2016	soil jar				_	_	_							-	Tine Received: 11: 30cum
8	SM011116-08	1/11/2016	soil jar					_	_						-		
6	SM011116-09	1/11/2016	soil jar	1			_	-	_								Farily Contempored 14°C
0	SM011116-10	1/11/2016	soil jar	1			_	_	_							_	Contract (Carles Paral Broken None
11	SM011116-11	1/11/2016	soil jar	1				_								_	
12,	SM011116-13	1/11/2016	soil jar	1		-	_	_	_	_				-	_	_	
Relinquishe	Relinquished by (company):	Geo-Environmental Engineering	Engineering	Receiv	Received by (com	company):	1): EUS	~					Sample	es Recei	ved: Co	ol or Am	Samples Received: Cool or Ambient (circle one)
Print Name:		S. McCormack		Print Name:	ame:	Steph							Tempe	rature F	Temperature Recieved at:	at:	(if applicable)
Date & Time:	:9	02-Nov-16		Date & Time:	Time:	0 2/11/16	116	(11:3	11:30 am				Transp	orted b	/: Hand	deliver	Transported by: Hand delivered / courier
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			CHAIN OF CUSTODY - Client	OF	S	E	õ		Clie	nt							Finit	helo
				ENVIROLAB	DLAE		SERVICES	CES		6								Ania
Client:	Geo-Environm	Geo-Environmental Engineering Pty Ltd	Pty Ltd	Client Project Name and Number:	roject h	lame a	unN pu	ber:					Envi	rolat	Envirolab Services	ices		
Project Mgr	Ir: S. McCormack	د ۲			E16016BN	N							12 A	shley s	t, Cha	tswoo	12 Ashley St, Chatswood, NSW, 2067	
Sampler:	S. McCormack	,		PO No.:				1.00	a _ 5									
Address:	82 Bridge Street			Envirol	Envirolab Services Quote No.	ces Qu	ote No.						Phon	e: 02	Phone: 02 9910 6200	200		
	Lane Cove NSW 2066			Date re	Date results required:	quired:							Fax:	02	02 9910 6201	201		
Email:	stephen@geoenvironmental.com.au	ental.com.au		Or choo	se: sta	ndard ,	1 day	Or choose: standard / 1 day / 2 day / 3 day	/ 3 day		5 days	UN	E-ma	il: ah	e@en	virolab	E-mail: ahie@envirolabservices.com.au	-
Phone:	0431 480 980			Note: Inform lab I surcharge applies	rm lab in applies	advance	if urgent	Note: Inform lab in advance if urgent turnaround is required - surcharge applies	l is require	- <i>p</i> e			Cont	act: Ai	Contact: Aileen Hie	e		
	Sample information	formation				3			T	Tests Required	quired						Comments	ents
Envirolab	Client Sample ID	Date sampled	Tvne of sample	E noiter	e£ noite	4 noiter	ation 5b	2 noiter	opps stion 5a	(Std8)	H	S	sotse	Volatile RH	LEX	Hq\:	Provide as much	s much about th
Sample ID				nidmoጋ	nidmoD	nidmoD					d	3	ədeA		T8			you can
13	SM011116-14	1/11/2016	Soil jar				- 1933 - 1945 -		_	_	_				-	-		
14	SM011116-15	1/11/2016	Soil jar					1										
S	SM011116-16	1/11/2016	Soil jar						-	-								
16	SM011116-17	1/11/2016	Soil jar	1												1		
t	SM011116-18	1/11/2016	Soil jar			_		1										
18	SM011116-19	1/11/2016	Soil jar						_							-		
61	SM011116-20	1/11/2016	Soil jar	1					_									
30	SM011116-21	1/11/2016	Soil jar					-										
21	SM011116-22	1/11/2016	Soil jar															
22	SM011116-23	1/11/2016	Soil jar													- Comment		
23	SM011116-24	1/11/2016	Soil jar	1	_										\vee		1	
au	SM011116-25	1/11/2016	Soil jar					-	_						_			
35	SM011116-26	1/11/2016	Soil jar					1.2	_							_	-	
elinquish	Relinquished by (company):	Geo-Environmental Engineering	Engineering	Receive	Received by (company):	ompan		ELS					Sampl	es Rece	ived: C	ol or An	Samples Received: Cool or Ambient (circle one)	
Print Name:		S. McCormack		Print Name:		HUELS	+						Tempe	erature	Temperature Recieved at:	d at:	(if applicable)	(
Date & Time:	1e:	23-Aug-16		Date & Time:	Time:	24	11116	11 0	130				Trans	ported h	y: Han	deliver	Transported by: Hand delivered / courier	
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			CHAIN OF CUS	OF	S	STC	í d	TODY - Client	Clie	nt								Fnytrolah
			EN	ENVIROLAB	OLA		SERVICES	CES		2								
Client:	Geo-Environm	Geo-Environmental Engineering Pty Ltd	Pty Ltd	Client	Project	Client Project Name and Number:	nd Nun	nber:			1		Env	Envirolab Services) Ser	vices		
Project Mgr	r S. McCormack				E16014BLA	I.A		2					12 A	shley	st, ch	atswo	od, N	12 Ashley St, Chatswood, NSW, 2067
Sampler:	S. McCormack			PO No.:														
Address:	82 Bridge Street			Enviro	ab Ser	Envirolab Services Quote No. :	ote No.						Pho	Phone: 02 9910 6200	9910	6200		
	Lane Cove NSW 2066			Date re	esults r	Date results required:							Fax:		02 9910 6201	6201		
Email:	stephen@geoenvironmental.com.au	ental.com.au		Or cho	ose: st	andard	/ 1 day	Or choose: standard / 1 day / 2 day / 3 day	/ 3 day		5 days	S	E-m	ail: ah	ie@er	ivirola	bserv	E-mail: ahie@envirolabservices.com.au
Phone:	0431 480 980			Note: In surcharg	Note: Inform lab i surcharge applies	n advance	if urgent	Note: Inform lab in advance if urgent turnaround is required surcharge applies	d is requi	- pə.			Con	Contact: Aileen Hie	ileen	Hie		
	Sample information	formation							Ĥ	Tests Required	quired							Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	Combination 3	e£ noitenidmo)	4 noitenidmoD	Combination 5b	5 noitsnidmo) Gombination 5a	OCP/OPPs	(StdS) slaf9M	Hq	EC	sotsədeA	BTEX / Volatile ТЯН	ВТЕХ	сес\рн	тен/втех	Provide as much information about the sample as you can
36	SM011116-27	1/11/2016	Soil jar		T		-		-							1		
37	SM011116-28	1/11/2016	Soil jar															
28	SM011116-29	1/11/2016	Soil jar					1								1		
29	SM011116-30	1/11/2016	Soil jar							1								
30	SM011116-31	1/11/2016	Soil jar						-				_				Τ	
31	SM011116-35	1/11/2016	Soil jar															
32	SM011116-32	1/11/2016	Soil jar						_									
33	SM011116-33	1/11/2016	Soil jar					-	-									
34	SM011116-34	1/11/2016	Soil jar	-1				-	-				_					
35	SM011116-36	1/11/2016	Soil jar			-	_											
36	SM011116-37	1/11/2016	Soil jar															
37	Trip Blank	1/11/2016	Soil jar															
38	Trip Spike	1/11/2016	Soil jar					-	_		_						Τ	
		Cao Environmental Environmenta	Encirocetac	line		Possing hu (company)	-	6	-	-			Same	lac Pac	- Joined	- ool or	hilar	Samlas Bacaivad: Cool or Amhiant (circle one)
Palisinpilipa	Kellinquistieu by (company): Driat Namo:	C McCormack	rugii icci ii ig	Drint Name	ind.		CTEDH.						Tem	Temperature Recieved at:	Reciev	ed at:		(if applicable)
Date & Time-		23-Aug-16		Date 8	Date & Time:	A	01	-	1130	E			Tran	sported	bv: Ha	nd deliv	ered /	Transported by: Hand delivered / courier
	2	~ 6~					-						T					

Form: 302 - Chain of Custody-Client, Issued 14/02/08, Version 3, Page 1 of 1.

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email: sydney@envirolab.com.au **envirolab.com.au**

Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYS	SIS	15	7226
Client:			
Geo-Environmental Engineering			
82 Bridge St			
LaneCove			
NSW 2066			
Attention: Stephen McCormack			
Sample log in details:			
Your Reference:	E16016BN		
No. of samples:	8 Waters		
Date samples received / completed instructions received	14/11/16	/	14/11/16
Analysis Details: Please refer to the following pages for results, methodology Samples were analysed as received from the client. Results Results are reported on a dry weight basis for solids and on Please refer to the last page of this report for any comm	an as received ba	to t to t	he samples as received. for other matrices.
Report Details:			
Date results requested by: / Issue Date:	21/11/16	/	17/11/16
Date of Preliminary Report:	Not Issued		

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Results Approved By:

David Springer General Manager



Client Reference: E16016BN

vTRH(C6-C10)/BTEXN in Water Our Reference:	UNITS	157226-1	157226-2	157226-3	157226-4	157226-5
	UNITS					
Your Reference		AC111116-01	AC111116-02	AC111116-03	AC111116-04	AC111116-05
Date Sampled	-	11/11/2016	11/11/2016	11/11/2016	11/11/2016	11/11/2016
Type of sample		water	water	water	water	water
		water	water	water	water	water
Date extracted	-	14/11/2016	14/11/2016	14/11/2016	14/11/2016	14/11/2016
Date analysed	-	15/11/2016	15/11/2016	15/11/2016	15/11/2016	15/11/2016
TRHC6 - C9	µg/L	<10	<10	100	68	<10
TRHC6 - C10	µg/L	<10	<10	130	130	<10
TRHC6 - C10 less BTEX	µg/L	<10	<10	130	130	<10
(F1)						
Benzene	µg/L	<1	<1	1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	103	105	110	101	96
Surrogate toluene-d8	%	108	107	103	103	105
Surrogate 4-BFB	%	101	103	100	103	103

vTRH(C6-C10)/BTEXN in Water				
Our Reference:	UNITS	157226-6	157226-7	157226-8
Your Reference		AC111116-06	Trip Blank	Trip Spike
	-			
DateSampled		11/11/2016	11/11/2016	11/11/2016
Type of sample		water	water	water
Date extracted	-	14/11/2016	14/11/2016	14/11/2016
Date analysed	-	15/11/2016	15/11/2016	15/11/2016
TRHC6 - C9	µg/L	<10	<10	[NA]
TRHC6 - C10	µg/L	<10	<10	[NA]
TRHC6 - C10 less BTEX (F1)	µg/L	<10	<10	[NA]
Benzene	µg/L	<1	<1	119%
Toluene	µg/L	<1	<1	120%
Ethylbenzene	µg/L	<1	<1	115%
m+p-xylene	µg/L	<2	<2	119%
o-xylene	µg/L	<1	<1	121%
Naphthalene	µg/L	<1	<1	[NA]
Surrogate Dibromofluoromethane	%	106	99	93
Surrogate toluene-d8	%	106	105	104
Surrogate 4-BFB	%	101	102	102

svTRH (C10-C40) in Water						
Our Reference:	UNITS	157226-1	157226-2	157226-3	157226-4	157226-5
Your Reference		AC111116-01	AC111116-02	AC111116-03	AC111116-04	AC111116-05
Date Sampled Type of sample		11/11/2016 water	11/11/2016 water	11/11/2016 water	11/11/2016 water	11/11/2016 water
Date extracted	-	16/11/2016	16/11/2016	16/11/2016	16/11/2016	16/11/2016
Date analysed	-	16/11/2016	16/11/2016	16/11/2016	16/11/2016	16/11/2016
TRHC 10 - C 14	µg/L	<50	<50	260	480	<50
TRHC 15 - C28	µg/L	<100	<100	<100	120	<100
TRHC29 - C36	µg/L	<100	<100	<100	<100	<100
TRH>C10 - C16	µg/L	<50	<50	290	560	<50
TRH>C10 - C16 less Naphthalene (F2)	µg/L	<50	<50	290	560	<50
TRH>C16 - C34	µg/L	<100	<100	<100	<100	<100
TRH>C34 - C40	µg/L	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	80	85	81	80	83

svTRH (C10-C40) in Water		
Our Reference:	UNITS	157226-6
Your Reference		AC111116-06
	-	
Date Sampled		11/11/2016
Type of sample		water
Date extracted	-	16/11/2016
Date analysed	-	16/11/2016
TRHC 10 - C14	µg/L	<50
TRHC 15 - C28	µg/L	<100
TRHC29 - C36	µg/L	<100
TRH>C10 - C16	µg/L	<50
TRH>C10 - C16 less Naphthalene (F2)	µg/L	<50
TRH>C16 - C34	µg/L	<100
TRH>C34 - C40	µg/L	<100
Surrogate o-Terphenyl	%	91

PAHs in Water						
Our Reference:	UNITS	157226-1	157226-2	157226-3	157226-4	157226-5
Your Reference		AC111116-01	AC111116-02	AC111116-03	AC111116-04	AC111116-05
	-					
Date Sampled Type of sample		11/11/2016 water	11/11/2016 water	11/11/2016 water	11/11/2016 water	11/11/2016 water
		water	water	water	water	water
Date extracted	-	16/11/2016	16/11/2016	16/11/2016	16/11/2016	16/11/2016
Date analysed	-	16/11/2016	16/11/2016	16/11/2016	16/11/2016	16/11/2016
Naphthalene	µg/L	<1	<1	<1	<1	<1
Acenaphthylene	µg/L	<1	<1	<1	<1	<1
Acenaphthene	µg/L	<1	<1	<1	<1	<1
Fluorene	µg/L	<1	<1	<1	<1	<1
Phenanthrene	µg/L	<1	<1	<1	<1	<1
Anthracene	µg/L	<1	<1	<1	<1	<1
Fluoranthene	µg/L	<1	<1	<1	<1	<1
Pyrene	µg/L	<1	<1	<1	<1	<1
Benzo(a)anthracene	µg/L	<1	<1	<1	<1	<1
Chrysene	µg/L	<1	<1	<1	<1	<1
Benzo(b,j+k)fluoranthene	µg/L	<2	<2	<2	<2	<2
Benzo(a)pyrene	µg/L	<1	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1	<1	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1	<1	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1	<1	<1	<1
Benzo(a)pyrene TEQ	µg/L	<5	<5	<5	<5	<5
Total +ve PAH's	µg/L	NIL(+)VE	NIL(+)VE	NIL(+)VE	NIL(+)VE	NIL(+)VE
Surrogate p-Terphenyl-d14	%	81	103	89	91	94

PAHs in Water		457000.0
Our Reference: Your Reference	UNITS	157226-6 AC111116-06
Four Reference		AC111116-06
Date Sampled		11/11/2016
Type of sample		water
Date extracted	-	16/11/2016
Date analysed	-	16/11/2016
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	%	99

Total Phenolics in Water						
Our Reference:	UNITS	157226-1	157226-2	157226-3	157226-4	157226-5
Your Reference		AC111116-01	AC111116-02	AC111116-03	AC111116-04	AC111116-05
	-					
DateSampled		11/11/2016	11/11/2016	11/11/2016	11/11/2016	11/11/2016
Type of sample		water	water	water	water	water
Date extracted	-	15/11/2016	15/11/2016	15/11/2016	15/11/2016	15/11/2016
Date analysed	-	15/11/2016	15/11/2016	15/11/2016	15/11/2016	15/11/2016
Total Phenolics (as Phenol)	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05

Total Phenolics in Water		
Our Reference:	UNITS	157226-6
Your Reference		AC111116-06
	-	
Date Sampled		11/11/2016
Type of sample		water
		mator
Date extracted	-	15/11/2016
	-	

HM in water - dissolved						
Our Reference:	UNITS	157226-1	157226-2	157226-3	157226-4	157226-5
Your Reference		AC111116-01	AC111116-02	AC111116-03	AC111116-04	AC111116-05
Date Sampled Type of sample		11/11/2016 water	11/11/2016 water	11/11/2016 water	11/11/2016 water	11/11/2016 water
Date prepared	-	15/11/2016	15/11/2016	15/11/2016	15/11/2016	15/11/2016
Date analysed	-	15/11/2016	15/11/2016	15/11/2016	15/11/2016	15/11/2016
Arsenic-Dissolved	µg/L	<1	<1	<1	12	1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1	<1
Copper-Dissolved	µg/L	<1	<1	<1	<1	<1
Lead-Dissolved	µg/L	1	1	1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	10	11	2	2	<1
Zinc-Dissolved	µg/L	32	34	3	10	3

HM in water - dissolved		
Our Reference:	UNITS	157226-6
Your Reference		AC111116-06
	-	
Date Sampled		11/11/2016
Type of sample		water
Date prepared	-	15/11/2016
Date analysed	-	15/11/2016
Arsenic-Dissolved	µg/L	5
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	<1
Lead-Dissolved	µg/L	2
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	6
Zinc-Dissolved	µg/L	25

Client Reference: E16016BN

MethodID	MethodologySummary
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-013	Water samples are analysed directly 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	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.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Metals-021	Determination of Mercury by Cold Vapour AAS.

		Clie	ent Referenc	e: E	16016BN			
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXNin Water						Base II Duplicate II % RPD		
Date extracted	-			14/11/2 016	157226-3	14/11/2016 14/11/2016	LCS-W1	14/11/2016
Date analysed	-			15/11/2 016	157226-3	15/11/2016 15/11/2016	LCS-W1	15/11/2016
TRHC6 - C9	µg/L	10	Org-016	<10	157226-3	100 110 RPD:10	LCS-W1	115%
TRHC6 - C10	µg/L	10	Org-016	<10	157226-3	130 140 RPD:7	LCS-W1	115%
Benzene	µg/L	1	Org-016	<1	157226-3	1 1 RPD:0	LCS-W1	122%
Toluene	µg/L	1	Org-016	<1	157226-3	<1 <1	LCS-W1	123%
Ethylbenzene	µg/L	1	Org-016	<1	157226-3	<1 <1	LCS-W1	108%
m+p-xylene	µg/L	2	Org-016	~2	157226-3	<2 <2	LCS-W1	111%
o-xylene	µg/L	1	Org-016	<1	157226-3	<1 <1	LCS-W1	113%
Naphthalene	μg/L	1	Org-013	<1	157226-3	<1 <1	[NR]	[NR]
<i>Surrogate</i> Dibromofluoromethane	%		Org-016	100	157226-3	110 114 RPD:4	LCS-W1	95%
Surrogate toluene-d8	%		Org-016	110	157226-3	103 102 RPD:1	LCS-W1	111%
Surrogate 4-BFB	%		Org-016	102	157226-3	100 102 RPD:2	LCS-W1	101%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH (C10-C40) in Water						Base II Duplicate II % RPD		
Date extracted	-			16/11/2 016	[NT]	[NT]	LCS-W1	16/11/2016
Date analysed	-			16/11/2 016	[NT]	[NT]	LCS-W1	16/11/2016
TRHC 10 - C14	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	100%
TRHC 15 - C28	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	96%
TRHC29 - C36	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	119%
TRH>C10 - C16	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	100%
TRH>C16 - C34	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	96%
TRH>C34 - C40	μg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	119%
Surrogate o-Terphenyl	%		Org-003	75	[NT]	[NT]	LCS-W1	93%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II % RPD		
Date extracted	-			16/11/2 016	[NT]	[NT]	LCS-W1	16/11/2016
Date analysed	-			16/11/2 016	[NT]	[NT]	LCS-W1	16/11/2016
Naphthalene	µg/L	1	Org-012	<1	[NT]	[NT]	LCS-W1	84%
Acenaphthylene	µg/L	1	Org-012	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	Org-012	<1	[NT]	[NT]	LCS-W1	80%
Phenanthrene	μg/L	1	Org-012	<1	[NT]	[NT]	LCS-W1	92%
Anthracene	μg/L	1	Org-012	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	μg/L	1	Org-012	<1	[NT]	[NT]	LCS-W1	77%
Pyrene	μg/L	1	Org-012	<1	[NT]	[NT]	LCS-W1	77%
Benzo(a)anthracene	μg/L	1	Org-012	<1	[NT]	[NT]	[NR]	[NR]

				16016BN	Duplicate recults	Spike Sre#	Spiles 9/
UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
					Base II Duplicate II % RPD		
µg/L	1	Org-012	<1	[NT]	[NT]	[NR]	[NR]
µg/L	2	Org-012	~2	[NT]	[NT]	[NR]	[NR]
µg/L	1	Org-012	<1	[NT]	[NT]	LCS-W1	102%
µg/L	1	Org-012	<1	[NT]	[NT]	[NR]	[NR]
µg/L	1	Org-012	<1	[NT]	[NT]	[NR]	[NR]
µg/L	1	Org-012	<1	[NT]	[NT]	[NR]	[NR]
%		Org-012	90	[NT]	[NT]	LCS-W1	82%
UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
					Base II Duplicate II % RPD		
-			15/11/2 016	[NT]	[NT]	LCS-W1	15/11/2016
-			15/11/2 016	[NT]	[NT]	LCS-W1	15/11/2016
mg/L	0.05	Inorg-031	<0.05	[NT]	[NT]	LCS-W1	108%
UNITS	PQL	METHOD	Blank	Duplicate	Duplicate results	Spike Sm#	Spike %
				Sm#	Base II Duplicate II % RPD		Recovery
-			15/11/2 016	[NT]	[NT]	LCS-W2	15/11/2016
-			15/11/2 016	[NT]	[NT]	LCS-W2	15/11/2016
µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	98%
µg/L	0.1	Metals-022 ICP-MS	<0.1	[NT]	[NT]	LCS-W2	99%
µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	93%
µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	88%
µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	103%
µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	LCS-W2	106%
µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	92%
µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	95%
UNITS	6 1	Dup. Sm#		Duplicate	Spike Sm#	Spike % Reco	overy
r			Base + [Duplicate + %RP	D		
-		157226-1	16/11/2	016 16/11/201	6 157226-2	16/11/201	6
-		157226-1				16/11/201	6
ua/l					157226-2		
					157226-2	110%	
l/nu		15/226-1	· · · · · ·	10011<100	13/220-2	111170	
μg/L μg/L		157226-1 157226-1		100 <100 100 <100	157226-2	123%	
	μg/L μg/L μg/L μg/L % UNITS UNITS UNITS	μg/L 1 γ 0.05 mg/L 0.05 μg/L 1 μg/L 1		$\mu g/L$ 1 Org-012 <1 $\mu g/L$ 1 Org-012 <1	$\mu g/L$ 1 $Org-012$ <1 NTI $\mu g/L$ 1 $Org-012$ <2 $[NT]$ $\mu g/L$ 1 $Org-012$ <2 $[NT]$ $\mu g/L$ 1 $Org-012$ <1 $[NT]$ γM \sim $Org-012$ <0 $[NT]$ γM $Org-012$ 90 $[NT]$ $[NT]$ γM $Org-012$ 90 $[NT]$ $[NT]$ γM $Org-012$ 90 $[NT]$ $[NT]$ ηM $Org-012$ 90 $[NT]$ $[NT]$ $m g/L$ 0.05 $Inorg-031$ $[Shark$ $[NT]$ $\mu g/L$ 0.05 $MeTHOD$ $Blark$	Image: state of the	Image: Part of the state of the s

		Client Referenc	e: E16016BN		
QUALITY CONTROL svTRH (C10-C40) in Water	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
TRH>C16 - C34	µg/L	157226-1	<100 <100	157226-2	110%
TRH>C34 - C40	µg/L	157226-1	<100 <100	157226-2	123%
Surrogate o-Terphenyl	%	157226-1	80 86 RPD:7	157226-2	85%
QUALITY CONTROL PAHs in Water	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	157226-1	16/11/2016 16/11/2016	157226-2	16/11/2016
Date analysed	-	157226-1	16/11/2016 16/11/2016	157226-2	16/11/2016
Naphthalene	µg/L	157226-1	<1 <1	157226-2	81%
Acenaphthylene	µg/L	157226-1	<1 <1	[NR]	[NR]
Acenaphthene	µg/L	157226-1	<1 <1	[NR]	[NR]
Fluorene	µg/L	157226-1	<1 <1	157226-2	71%
Phenanthrene	µg/L	157226-1	<1 <1	157226-2	76%
Anthracene	µg/L	157226-1	<1 <1	[NR]	[NR]
Fluoranthene	µg/L	157226-1	<1 <1	157226-2	64%
Pyrene	µg/L	157226-1	<1 <1	157226-2	68%
Benzo(a)anthracene	µg/L	157226-1	<1 <1	[NR]	[NR]
Chrysene	µg/L	157226-1	<1 <1	[NR]	[NR]
Benzo(b,j+k)fluoranthene	µg/L	157226-1	<2 <2	[NR]	[NR]
Benzo(a)pyrene	µg/L	157226-1	<1 <1	157226-2	93%
Indeno(1,2,3-c,d)pyrene	µg/L	157226-1	<1 <1	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	157226-1	<1 <1	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	157226-1	<1 <1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	157226-1	81 98 RPD: 19	157226-2	81%

		Client Referenc	e: E16016BN		
QUALITY CONTROL Total Phenolics in Water	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD		
Date extracted	-	157226-1	15/11/2016 15/11/2016		
Date analysed	-	157226-1	15/11/2016 15/11/2016		
Total Phenolics (as Phenol)	mg/L	157226-1	<0.05 <0.05		
QUALITY CONTROL HM in water - dissolved	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	157226-1	15/11/2016 15/11/2016	157226-2	15/11/2016
Date analysed	-	157226-1	15/11/2016 15/11/2016	157226-2	15/11/2016
Arsenic-Dissolved	µg/L	157226-1	<1 <1	157226-2	95%
Cadmium-Dissolved	µg/L	157226-1	<0.1 <0.1	157226-2	98%
Chromium-Dissolved	µg/L	157226-1	<1 <1	157226-2	88%
Copper-Dissolved	µg/L	157226-1	<1 <1	157226-2	83%
Lead-Dissolved	µg/L	157226-1	1 <1	157226-2	96%
Mercury-Dissolved	µg/L	157226-1	<0.05 <0.05	157226-2	107%
Nickel-Dissolved	µg/L	157226-1	10 11 RPD:10	157226-2	87%
Zinc-Dissolved	µg/L	157226-1	32 32 RPD:0	157226-2	92%

Report Comments:

Asbestos ID was analysed by Approved Identifier: Asbestos ID was authorised by Approved Signatory: Not applicable for this job Not applicable for this job

INS: Insufficient sample for this test NR: 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 (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics 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.

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Measurement Uncertainty estimates are available for most tests upon request.

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			EN	ENVIROLAB	ILAB		SERVICES	ES										h
Client:	Geo-Environm	Geo-Environmental Engineering Pty Ltd	Pty Ltd	Client Project Name and Number:	roject N	ame al	Id Num	er:					Envi	rolat	Envirolab Services	rices		
Project Mgr:	McCormack				E16016BN	-							12 As	hley	st, Cha	tswo	12 Ashley St, Chatswood, NSW, 2067	
Sampler:	A. Chiem	-		PO No.:														
Address:	82 Bridge Street			Envirola	b Servi	ces Que	Envirolab Services Quote No.:						Phone	e: 02	Phone: 02 9910 6200	5200		
	Lane Cove NSW 2066			Date results required:	ults rec	luired:							Fax:	02	02 9910 6201	6201		
Email:	stephen@geoenvironmental.com.au	iental.com.au		Or choo	se: stai	dard /	Or choose: standard / 1 day / 2 day / 3 day	2 day /	3 day		5 days	10	E-mail:	il: ah	ie@en	virola	ahie@envirolabservices.com.au	n
	andy@geoenvironmental.com.au	tal.com.au																
Phone:	0431 480 980			Note: Inform lab i surcharge applies	rm lab in applies	advance	Note: Inform lab in advance if urgent turnaround is required surcharge applies	irnaroung	is require	- <i>p</i> ;			Conta	ict: Ai	Contact: Aileen Hie	lie		
	Sample information	formation							Te	Tests Required	uired						Comments	nts
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	E noitsnidmo)	Scombination 3a	Z noitenidmoD	ez noitenidmo)	Сотріпатіоn 4 ТКН/ВТЕХ	(8bf2) sletaM	sotesdeA	NOCS	НАЧ	ВТЕХ	тен(се-с9)/втех	EC	hardness	Provide as much information about the sample as you can	much ibout the ou can
-	AC111116-01	11/11/2016	water				-].										
2	AC111116-02	11/11/2016	water					-										
3	AC111116-03	11/11/2016	water				(
4	AC111116-04	11/11/2016	water				_								_			
5	AC111116-05	11/11/2016	water													(Envirolab Services	2
9	AC111116-06	11/11/2016	water												B	Enviroua	Í	12
L	Trip Blank	1	water														Ph: (02) 9910 6200	0
00	Trip Spike	1	water					_	_							:0N dol	157226	
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Date & Time:	14	+/11/19		Date & Time: 14	Time: 14	Ξ	2016	0	45				Transp	orted h	y: Han	d delive	Transported by: Hand delivered / courier	
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Form: 302 - Chain of Custody-Client, Issued 14/02/08, Version 3, Page 1 of 1.



email: sydney@envirolab.com.au envirolab.com.au

Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

157226-A

Client: Geo-Environmental Engineering 82 Bridge St Lane Cove NSW 2066 Attention: Stephen McCormack Sample log in details: E16016BN Your Reference: No. of samples: Additional testing Date samples received / completed instructions received 14/11/16 / 28/11/16 Analysis Details: Please refer to the following pages for results, methodology summary and quality control data.

CERTIFICATE OF ANALYSIS

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:
 30/11/16
 / 30/11/16

 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 - Testing

 Tests not covered by NATA are denoted with *.

Results Approved By:

David Springer General Manager

ACCREDITED FOR TECHNICAL COMPETENCE

Client Reference: E16016BN

Cations in water Dissolved Our Reference: Your Reference	UNITS	157226-A-1 AC111116-01	157226-A-2 AC111116-02	157226-A-3 AC111116-03	157226-A-4 AC111116-04	157226-A-5 AC111116-05
Date Sampled Type of sample		11/11/2016 water	11/11/2016 water	11/11/2016 water	11/11/2016 water	11/11/2016 water
Date digested	-	29/11/2016	29/11/2016	29/11/2016	29/11/2016	29/11/2016
Date analysed	-	29/11/2016	29/11/2016	29/11/2016	29/11/2016	29/11/2016
Calcium - Dissolved	mg/L	12	12	26	38	110
	····9/ =		12		00	
Magnesium - Dissolved	mg/L	26	26	23	13	15

Cations in water Dissolved		
Our Reference:	UNITS	157226-A-6
Your Reference		AC111116-06
	-	
Date Sampled		11/11/2016
Type of sample		water
Date digested	-	29/11/2016
Date analysed	-	29/11/2016
Calcium - Dissolved	mg/L	30
Magnesium - Dissolved	mg/L	30
Hardness	mgCaCO 3/L	200

Client Reference: E16016BN

MethodID	Methodology Summary
Metals-020	Determination of various metals by ICP-AES.

		Clie	nt Referenc	e: E [⁄]	16016BN			
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Cations in water Dissolved						Base II Duplicate II % RPD		
Date digested	-			29/11/2 016	157226-A-4	29/11/2016 29/11/2016	LCS-W1	29/11/2016
Date analysed	-			29/11/2 016	157226-A-4	29/11/2016 29/11/2016	LCS-W1	29/11/2016
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	157226-A-4	38 39 RPD:3	LCS-W1	104%
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	157226-A-4	13 14 RPD:7	LCS-W1	104%
Hardness	mgCaCO 3/L	3		[NT]	157226-A-4	150 150 RPD:0	[NR]	[NR]

Report Comments:

Asbestos ID was analysed by Approved Identifier: Asbestos ID was authorised by Approved Signatory: Not applicable for this job Not applicable for this job

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Measurement Uncertainty estimates are available for most tests upon request.



Geo-Environmental Engineering Pty Ltd 82 Bridge St Lane Cove NSW 2066





Certificate of Analysis

NATA Accredited Accreditation Number 1261 Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention:

Stephen McCormack

Report Project name Received Date **521920-S** E16016BN Nov 01, 2016

Client Sample ID			SM011116-12
Sample Matrix			Soil
Eurofins mgt Sample No.			S16-No00764
Date Sampled			Nov 01, 2016
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM I	-	01110	
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-36 (Total)	50	mg/kg	< 50
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	66
Total Recoverable Hydrocarbons - 2013 NEPM I	Fractions		
Naphthalene ^{N02}	0.5	mg/kg	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5



Client Sample ID Sample Matrix Eurofins mqt Sample No.			SM011116-12 Soil S16-No00764
Date Sampled			Nov 01, 2016
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	< 0.5
2-Fluorobiphenyl (surr.)	1	%	108
p-Terphenyl-d14 (surr.)	1	%	81
Total Recoverable Hydrocarbons - 2013	NEPM Fractions		
TRH >C10-C16	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
Heavy Metals			
Arsenic	2	mg/kg	20
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	34
Copper	5	mg/kg	17
Lead	5	mg/kg	66
Mercury	0.05	mg/kg	< 0.05
Nickel	5	mg/kg	15
Zinc	5	mg/kg	64
% Moisture	1	%	16



Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported. A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Nov 08, 2016	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Nov 07, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Nov 07, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	Nov 08, 2016	14 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Nov 07, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Metals M8	Sydney	Nov 07, 2016	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
% Moisture	Sydney	Nov 01, 2016	14 Day
- Method: LTM-GEN-7080 Moisture			



ABN - 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Melbourne 2-5 Kingston Town Close Oakleigh VIC 3166 Phone : +61 3 8564 5000 NATA # 1261 Site # 1254 & 14271 Sydney Unit F3, Building F 16 Mars Road Lane Cove West NSW 2066 Phone : +61 2 9900 8400 NATA # 1261 Site # 18217 Brisbane 1/21 Smallwood Place Murarrie QLD 4172 Phone : +61 7 3902 4600 NATA # 1261 Site # 20794

Ado	mpany Name: dress: Dject Name:	Geo-Environ 82 Bridge St Lane Cove NSW 2066 E16016BN	mental Engine	eering P/L			Re Pl	rder No.: eport #: none: ix:	521920 02 9592 0218 02 9519 9140		Received: Due: Priority: Contact Name:	Nov 1, 2016 6:00 PM Nov 9, 2016 5 Day Stephen McCormack
								1		Eurofin	s mgt Analytical Se	ervices Manager : Andrew Black
		Sa	mple Detail			Moisture Set	Eurofins mgt Suite B7					
	ourne Laborato			71				_				
	ey Laboratory					Х	X	_				
	Brisbane Laboratory - NATA Site # 20794				<u> </u>	1						
	rnal Laboratory							_				
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID							
1	SM011116-12	Nov 01, 2016		Soil	S16-No00764	х	х					
Test Counts			1	1								



Internal Quality Control Review and Glossary

General

- 1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
- 2. All soil results are reported on a dry basis, unless otherwise stated.
- 3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- 4. Results are uncorrected for matrix spikes or surrogate recoveries.
- 5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- 6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported. Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

**NOTE: pH duplicates are reported as a range NOT as RPD

Units

 mg/kg: milligrams per Kilogram
 mg/l: milligrams per litre

 ug/l: micrograms per litre
 ppm: Parts per million

 ppb: Parts per billion
 %: Percentage

 org/100ml: Organisms per 100 millilitres
 NTU: Nephelometric Turbidity Units

 MPN/100mL: Most Probable Number of organisms per 100 millilitres
 Hercentage

Terms	
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands.
	In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs 20-130%

QC Data General Comments

- 1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- 2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
- 3. Organochlorine Pesticide analysis where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
- 4. Organochlorine Pesticide analysis where reporting Spike data, Toxaphene is not added to the Spike.
- 5. Total Recoverable Hydrocarbons where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
- 6. pH and Free Chlorine analysed in the laboratory Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- 7. Recovery Data (Spikes & Surrogates) where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
- 8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
- 9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
- 10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.



Quality Control Results

Test	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code
Method Blank			Linito	Linito	0000
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	mg/kg	< 20	20	Pass	
TRH C10-C14	mg/kg	< 20	20	Pass	
TRH C15-C28	mg/kg	< 50	50	Pass	
TRH C29-C36	mg/kg	< 50	50	Pass	
Method Blank					
BTEX					
Benzene	mg/kg	< 0.1	0.1	Pass	
Toluene	mg/kg	< 0.1	0.1	Pass	
Ethylbenzene	mg/kg	< 0.1	0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2	0.2	Pass	
o-Xylene	mg/kg	< 0.1	0.1	Pass	
Xylenes - Total	mg/kg	< 0.3	0.3	Pass	
Method Blank		•	· ·		
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene	mg/kg	< 0.5	0.5	Pass	
TRH C6-C10	mg/kg	< 20	20	Pass	
Method Blank					
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	mg/kg	< 0.5	0.5	Pass	
Acenaphthylene	mg/kg	< 0.5	0.5	Pass	
Anthracene	mg/kg	< 0.5	0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5	0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5	0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5	0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5	0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5	0.5	Pass	
Chrysene	mg/kg	< 0.5	0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5	0.5	Pass	
Fluoranthene	mg/kg	< 0.5	0.5	Pass	
Fluorene	mg/kg	< 0.5	0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5	0.5	Pass	
Naphthalene	mg/kg	< 0.5	0.5	Pass	
Phenanthrene	mg/kg	< 0.5	0.5	Pass	
Pyrene	mg/kg	< 0.5	0.5	Pass	
Method Blank					
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
TRH >C10-C16	mg/kg	< 50	50	Pass	
TRH >C16-C34	mg/kg	< 100	100	Pass	
TRH >C34-C40	mg/kg	< 100	100	Pass	
Method Blank					
Heavy Metals					
Arsenic	mg/kg	< 2	2	Pass	
Cadmium	mg/kg	< 0.4	0.4	Pass	
Chromium	mg/kg	< 5	5	Pass	
Copper	mg/kg	< 5	5	Pass	
Lead	mg/kg	< 5	5	Pass	
Mercury	mg/kg	< 0.05	0.05	Pass	
Nickel	mg/kg	< 5	5	Pass	
Zinc	mg/kg	< 5	5	Pass	
LCS - % Recovery		<u> </u>			



Test			Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons -	1999 NEPM Fract	ions						
TRH C6-C9			%	105		70-130	Pass	
TRH C10-C14			%	107		70-130	Pass	
LCS - % Recovery				1				
BTEX								
Benzene			%	113		70-130	Pass	
Toluene			%	113		70-130	Pass	
Ethylbenzene			%	113		70-130	Pass	
m&p-Xylenes			%	112		70-130	Pass	
o-Xylene			%	113		70-130	Pass	
Xylenes - Total			%	112		70-130	Pass	
LCS - % Recovery				1				
Total Recoverable Hydrocarbons -	2013 NEPM Fract	ions						
Naphthalene			%	106		70-130	Pass	
TRH C6-C10			%	98		70-130	Pass	
LCS - % Recovery								
Polycyclic Aromatic Hydrocarbons	5							
Acenaphthene			%	105		70-130	Pass	
Acenaphthylene			%	107		70-130	Pass	
Anthracene			%	93		70-130	Pass	
Benz(a)anthracene			%	108		70-130	Pass	
Benzo(a)pyrene			%	93		70-130	Pass	
Benzo(b&j)fluoranthene			%	84		70-130	Pass	
Benzo(k)fluoranthene			%	81		70-130	Pass	
Chrysene			%	110		70-130	Pass	
Fluoranthene			%	114		70-130	Pass	
Fluorene			%	104		70-130	Pass	
Naphthalene			%	110		70-130	Pass	
Phenanthrene			%	123		70-130	Pass	
Pyrene			%	125		70-130	Pass	
LCS - % Recovery								
Total Recoverable Hydrocarbons -	2013 NEPM Fract	ions						
TRH >C10-C16			%	104		70-130	Pass	
LCS - % Recovery			/0			10.00	1 400	
Heavy Metals								
Arsenic			%	94		70-130	Pass	
Cadmium			%	106		70-130	Pass	
Chromium			%	93		70-130	Pass	
Copper			%	94		70-130	Pass	
Lead			%	103		70-130	Pass	
Mercury			%	94		70-130	Pass	
Nickel			%	90		70-130	Pass	
Zinc			%	90		70-130	Pass	
		QA				Acceptance	Pass	Qualifying
Test	Lab Sample ID	Source	Units	Result 1		Limits	Limits	Code
Spike - % Recovery		-		1 -				
Total Recoverable Hydrocarbons -				Result 1				
TRH C6-C9	S16-No02620	NCP	%	86		70-130	Pass	
TRH C10-C14	S16-No03259	NCP	%	108		70-130	Pass	
Spike - % Recovery								
BTEX		, ,		Result 1				
Benzene	S16-No02620	NCP	%	103		70-130	Pass	
Toluene	S16-No02620	NCP	%	103		70-130	Pass	
Ethylbenzene	S16-No02620	NCP	%	102	ļ	70-130	Pass	
m&p-Xylenes	S16-No02620	NCP	%	102		70-130	Pass	



Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
o-Xylene	S16-No02620	NCP	%	102			70-130	Pass	
Xylenes - Total	S16-No02620	NCP	%	102			70-130	Pass	
Spike - % Recovery				T			1		
Total Recoverable Hydrocarbon	s - 2013 NEPM Fract	tions		Result 1					
Naphthalene	S16-No02620	NCP	%	88			70-130	Pass	
TRH C6-C10	S16-No02620	NCP	%	95			70-130	Pass	
Spike - % Recovery				1			1		
Polycyclic Aromatic Hydrocarbo	ons			Result 1					
Acenaphthene	S16-No04669	NCP	%	87			70-130	Pass	
Acenaphthylene	S16-No04669	NCP	%	95			70-130	Pass	
Anthracene	S16-No04669	NCP	%	85			70-130	Pass	
Benz(a)anthracene	S16-No02486	NCP	%	109			70-130	Pass	
Benzo(a)pyrene	S16-No02486	NCP	%	111			70-130	Pass	
Benzo(b&j)fluoranthene	S16-No02486	NCP	%	108			70-130	Pass	
Benzo(k)fluoranthene	S16-No02486	NCP	%	118			70-130	Pass	
Chrysene	S16-No02486	NCP	%	118			70-130	Pass	
Fluoranthene	S16-No02486	NCP	%	123			70-130	Pass	
Fluorene	S16-No04669	NCP	%	88			70-130	Pass	
Naphthalene	S16-No04669	NCP	%	95			70-130	Pass	
Phenanthrene	S16-No02486	NCP	%	121			70-130	Pass	
Pyrene	S16-No02486	NCP	%	124			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbon	s - 2013 NEPM Fract	tions		Result 1					
TRH >C10-C16	S16-No03259	NCP	%	119			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S16-No01842	NCP	%	89			70-130	Pass	
Cadmium	S16-No07198	NCP	%	107			70-130	Pass	
Chromium	S16-No07198	NCP	%	86			70-130	Pass	
Copper	S16-No07198	NCP	%	72			70-130	Pass	
Lead	S16-No07198	NCP	%	86			70-130	Pass	
Mercury	S16-No07198	NCP	%	93			70-130	Pass	
Nickel	S16-No01842	NCP	%	95			70-130	Pass	
Zinc	S16-No07198	NCP	%	90			70-130	Pass	
		QA					Acceptance	Pass	Qualifying
Test	Lab Sample ID	Source	Units	Result 1			Limits	Limits	Code
Duplicate				i			1		
Total Recoverable Hydrocarbon	s - 1999 NEPM Fract	tions		Result 1	Result 2	RPD			
TRH C6-C9	S16-No00764	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S16-No03258	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S16-No03258	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S16-No03258	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate				-					
ВТЕХ				Result 1	Result 2	RPD			
Benzene	S16-No00764	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S16-No00764	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S16-No00764	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S16-No00764	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S16-No00764	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
	S16-No00764	СР	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Xylenes - Total	0.0.000.01								
Xylenes - Total Duplicate									
		tions		Result 1	Result 2	RPD			
Duplicate		tions CP	mg/kg	Result 1 < 0.5	Result 2 < 0.5	RPD <1	30%	Pass	



Duplicate									
Polycyclic Aromatic Hydrocar	bons			Result 1	Result 2	RPD			
Acenaphthene	S16-No02496	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S16-No02496	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S16-No02496	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S16-No02496	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S16-No02496	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S16-No02496	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S16-No02496	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S16-No02496	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S16-No02496	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S16-No02496	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S16-No02496	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S16-No02496	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S16-No02496	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S16-No02496	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S16-No02496	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S16-No02496	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbo	ons - 2013 NEPM Fract	ions		Result 1	Result 2	RPD			
TRH >C10-C16	S16-No03258	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S16-No03258	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S16-No03258	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate							-		
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S16-No01992	NCP	mg/kg	6.7	6.5	4.0	30%	Pass	
Cadmium	S16-No07197	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S16-No01992	NCP	mg/kg	18	18	1.0	30%	Pass	
Copper	S16-No01992	NCP	mg/kg	12	12	2.0	30%	Pass	
Lead	S16-No01992	NCP	mg/kg	15	16	11	30%	Pass	
Mercury	S16-No01992	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Nickel	S16-No01992	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S16-No01992	NCP	mg/kg	11	9.5	15	30%	Pass	
Duplicate				-					
				Result 1	Result 2	RPD			
% Moisture	S16-No04537	NCP	%	20	19	7.0	30%	Pass	



Quality Control Analyte Summary Compliance

The table below is the actual occurrence of QC performed on the batch of samples within this report and as defined below

Analysis	Samples Analysed	Laboratory Duplicates Reported	Laboratory Matrix Spikes Reported	Method Blanks Reported	Laboratory Control Samples Reported
BTEX	1	1	1	1	1
Total Recoverable Hydrocarbons - 1999 NEPM	1	1	1	1	1
Total Recoverable Hydrocarbons - 2013 NEPM	1	1	1	1	1
Polycyclic Aromatic Hydrocarbons	1	1	1	1	1
Heavy Metals	1	1	1	1	1
% Moisture	1	1	NA	NA	NA

Quality Control Parameter Frequency Compliance follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure April 2011, Schedule B3, Guideline on Laboratory Analysis of Potentially Contaminated Soils and US EPA SW-846 Chapter 1: 'Quality Control'.

It comprises the following when a laboratory process batch is deemed to consist of up to 20 samples that are similar in terms of matrix and test procedure, and are processed as one unit for QC purposes. If more than 20 samples are being processed, they are considered as more than one batch.

Method blank

One method blank per process batch.

Laboratory duplicate

There should be at least one duplicate per process batch, or two duplicates if the process batch exceeds 10 samples.

Laboratory control sample (LCS)

There should be at least one LCS per process batch.

Matrix spikes

There should be one matrix spike per matrix type per process batch.



Comments

Sample Integrity	
Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code Description

N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
	Et is determined by arithmetically subtracting the "Tetal DTEX" value from the "CC C40" value. The "Tetal DTEX" value is obtained by summing the concentrations of DTEX

F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.

N07 Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Analytical Services Manager
Senior Analyst-Inorganic (NSW)
Senior Analyst-Metal (NSW)
Senior Analyst-Organic (NSW)
Senior Analyst-Volatile (NSW)

li falle

Glenn Jackson National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please $\underline{\text{click here.}}$

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Brisbane 1/21 Smallwood Place Murarrie QLD 4172 Phone : +61 7 3902 4600 NATA # 1261 Site # 20794

Sample Receipt Advice

Company name:	Geo-Environmental Engineering P/L				
Contact name:	Stephen McCormack				
Project name:	E16016BN				
COC number:	Not provided				
Turn around time:	5 Day				
Date/Time received:	Nov 1, 2016 6:00 PM				
Eurofins mgt reference:	521920				

Sample information

- A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- All samples have been received as described on the above COC.
- COC has been completed correctly.
- \mathbf{V} Attempt to chill was evident.
- Appropriately preserved sample containers have been used.
- All samples were received in good condition.
- \mathbf{V} Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- Appropriate sample containers have been used.
- \boxtimes Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Andrew Black on Phone : (+61) 2 9900 8490 or by e.mail: AndrewBlack@eurofins.com

Results will be delivered electronically via e.mail to Stephen McCormack - stephen@geoenvironmental.com.au.





38 Years of Environmental Analysis & Experience



email: sydney@envirolab.com.au envirolab.com.au

Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERT	CERTIFICATE OF ANALYSIS			171789			
Client:							
Geo-Environmental Engineering							
82 Bridge St							
LaneCove							
NSW 2066							
Attention: S McCormack							
Sample log in details:							
Your Reference:		E16016BN					
No. of samples:		28 Soils					
Date samples received / completed ins	structions received	19/07/17	/	20/07/17			
Analysis Details:							
Please refer to the following pages for	results, methodology	summary and qua	ality	control data.			
Samples were analysed as received fr	om the client. Results	relate specifically	to	the samples as received.			
Results are reported on a dry weight b	asis for solids and on	an as received ba	sis	for other matrices.			
Please refer to the last page of this	report for any comm	ents relating to t	he i	results.			
Report Details:							

 Date results requested by: / Issue Date:
 27/07/17
 / 27/07/17

 Date of Preliminary Report:
 Not Issued

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 Accredited for compliance with ISO/IEC 17025 - Testing

 Tests not covered by NATA are denoted with *.

Results Approved By:

David Springer General Manager



Client Reference: E16016BN

vTRH(C6-C10)/BTEXN in Soil	Ι					
Our Reference:	UNITS	171789-1	171789-3	171789-6	171789-7	171789-8
Your Reference		JL190717-01	JL190717-03	JL190717-06	JL190717-07	JL190717-08
	-					
Date Sampled		19/07/2017	19/07/2017	19/07/2017	19/07/2017	19/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
Date analysed	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
TRHC6 - C9	mg/kg	<25	<25	<25	<25	<25
TRHC6 - C10	mg/kg	<25	<25	<25	<25	<25
vTPHC6 - 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
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	76	72	75	81	81
vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	171789-10	171789-11	171789-14	171789-16	171789-18
Your Reference		JL190717-10	JL190717-11	JL190717-14	JL190717-16	JL190717-18
Date Sampled		19/07/2017	19/07/2017	19/07/2017	19/07/2017	19/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
 Date extracted	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
Date analysed	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
TRHC6 - C9	mg/kg	<25	<25	<25	<25	<25
TRHC6 - C10	mg/kg	<25	<25	<25	<25	<25
vTPHC6 - C10 less BTEX	mg/kg	<25	<25	<25	<25	<25
(F1)						
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
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Total +ve Aylenes	mg/ng					

naphthalene

Surrogate aaa-Trifluorotoluene

mg/kg

%

<1

79

<1

82

<1

78

<1

84

<1

83

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	171789-19	171789-21	171789-24	171789-27	171789-28
Your Reference		JL190717-19	JL190717-21	JL190717-24	Trip Blank	Trip Spike
Date Sampled Type of sample		19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil
Date extracted	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
Date analysed	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
TRHC6 - C9	mg/kg	<25	<25	<25	<25	[NA]
TRHC6 - C10	mg/kg	<25	<25	<25	<25	[NA]
vTPHC6 - C10 less BTEX (F1)	mg/kg	<25	<25	<25	<25	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	103%
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	95%
Ethylbenzene	mg/kg	<1	<1	<1	<1	118%
m+p-xylene	mg/kg	<2	<2	<2	<2	96%
o-Xylene	mg/kg	<1	<1	<1	<1	106%
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	[NA]
naphthalene	mg/kg	<1	<1	<1	<1	[NA]
Surrogate aaa-Trifluorotoluene	%	85	81	75	83	101

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	171789-1	171789-3	171789-6	171789-7	171789-8
Your Reference		JL190717-01	JL190717-03	JL190717-06	JL190717-07	JL190717-08
	-					
Date Sampled		19/07/2017	19/07/2017	19/07/2017	19/07/2017	19/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
Date analysed	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
TRHC 10 - C 14	mg/kg	<50	<50	<50	<50	<50
TRHC 15 - C28	mg/kg	240	<100	<100	<100	<100
TRHC29 - C36	mg/kg	750	<100	<100	<100	<100
TRH>C10-C16	mg/kg	<50	<50	<50	<50	<50
TRH>C10 - C16 less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C16-C34	mg/kg	790	<100	<100	<100	<100
TRH>C34-C40	mg/kg	480	<100	<100	<100	<100
Total+veTRH(>C10-C40)	mg/kg	1,300	<50	<50	<50	<50
Surrogate o-Terphenyl	%	106	97	95	94	94
svTRH (C10-C40) in Soil						
Our Reference:	UNITS	171789-10	171789-11	171789-14	171789-16	171789-18
Your Reference		JL190717-10	JL190717-11	JL190717-14	JL190717-16	JL190717-18
Date Sampled		19/07/2017	19/07/2017	19/07/2017	19/07/2017	19/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
Date analysed	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
TRHC10 - C14	mg/kg	<50	<50	<50	<50	<50
TRHC 15 - C28	mg/kg	<100	<100	<100	<100	<100
TRHC29 - C36	mg/kg	<100	<100	<100	<100	<100
TRH>C10-C16	mg/kg	<50	<50	<50	<50	<50
TRH>C10 - C16 less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C16-C34	mg/kg	<100	<100	<100	<100	<100
TRH>C34-C40	mg/kg	<100	<100	<100	<100	<100
Total+veTRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	93	94	92	93	92

svTRH (C10-C40) in Soil				
Our Reference:	UNITS	171789-19	171789-21	171789-24
Your Reference		JL190717-19	JL190717-21	JL190717-24
	-			
Date Sampled		19/07/2017	19/07/2017	19/07/2017
Type of sample		Soil	Soil	Soil
Date extracted	-	21/07/2017	21/07/2017	21/07/2017
Date analysed	-	21/07/2017	21/07/2017	21/07/2017
TRHC 10 - C 14	mg/kg	<50	<50	<50
TRHC 15 - C28	mg/kg	<100	<100	<100
TRHC29 - C36	mg/kg	<100	<100	<100
TRH>C10-C16	mg/kg	<50	<50	<50
TRH>C10 - C16 less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH>C16-C34	mg/kg	<100	<100	<100
TRH>C34-C40	mg/kg	<100	<100	<100
Total+veTRH(>C10-C40)	mg/kg	<50	<50	<50
Surrogate o-Terphenyl	%	93	93	94

PAHs in Soil						
Our Reference:	UNITS	171789-1	171789-3	171789-6	171789-7	171789-8
Your Reference		JL190717-01	JL190717-03	JL190717-06	JL190717-07	JL190717-08
Date Sampled	-	19/07/2017	19/07/2017	19/07/2017	19/07/2017	19/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
Date analysed	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
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	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.1	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<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	0.5	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	0.50	1.3	<0.05	<0.05	<0.05
Surrogate p-Terphenyl-d14	%	90	100	92	94	93

PAHs in Soil						
Our Reference:	UNITS	171789-10	171789-11	171789-14	171789-16	171789-18
Your Reference		JL190717-10	JL190717-11	JL190717-14	JL190717-16	JL190717-18
Date Sampled	-	19/07/2017	19/07/2017	19/07/2017	19/07/2017	19/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
Date analysed	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
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	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	0.2	<0.2
Benzo(a)pyrene	mg/kg	0.05	<0.05	<0.05	0.1	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<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	<0.1	<0.1	<0.1	0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	0.06	<0.05	<0.05	1.0	<0.05
Surrogate p-Terphenyl-d14	%	94	97	99	90	95

PAHs in Soil Our Reference:	UNITS	171789-19	171789-21	171789-24
Your Reference		JL190717-19	JL190717-21	JL190717-24
	-			
Date Sampled		19/07/2017	19/07/2017	19/07/2017
Type of sample		Soil	Soil	Soil
Date extracted	-	21/07/2017	21/07/2017	21/07/2017
Date analysed	-	21/07/2017	21/07/2017	21/07/2017
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.2	0.2
Pyrene	mg/kg	<0.1	0.2	0.2
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	0.1	0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.06	0.1	0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.1	0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	0.06	0.76	0.83
Surrogate p-Terphenyl-d14	%	99	96	103

Organochlorine Pesticides in soil						
Our Reference:	UNITS	171789-6	171789-7	171789-11	171789-14	171789-16
Your Reference		JL190717-06	JL190717-07	JL190717-11	JL190717-14	JL190717-16
Date Sampled	-	19/07/2017	19/07/2017	19/07/2017	19/07/2017	19/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
		04/07/0047	04/07/0047	04/07/0047	04/07/0047	04/07/0047
Date extracted	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
Date analysed	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
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	0.6	<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
Endosulfanl	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
EndosulfanII	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
Total+veDDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	95	93	95	94

Organochlorine Pesticides in soil		
Our Reference:	UNITS	171789-24
Your Reference		JL190717-24
	-	
Date Sampled		19/07/2017
Type of sample		Soil
Date extracted	-	21/07/2017
Date analysed	-	21/07/2017
HCB	mg/kg	<0.1
alpha-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Total+veDDT+DDD+DDE	mg/kg	<0.1
Surrogate TCMX	%	93

PCBs in Soil Our Reference: Your Reference	UNITS	171789-6 JL190717-06	171789-7 JL190717-07	171789-11 JL190717-11	171789-14 JL190717-14	171789-16 JL190717-16
Date Sampled Type of sample		19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil
Date extracted	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
Date analysed	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	95	95	93	95	94

PCBs in Soil		
Our Reference:	UNITS	171789-24
Your Reference		JL190717-24
	-	
DateSampled		19/07/2017
Type of sample		Soil
Date extracted	-	21/07/2017
Date analysed	-	21/07/2017
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate TCLMX	%	93

Acid Extractable metals in soil Our Reference: Your Reference	UNITS 	171789-1 JL190717-01	171789-3 JL190717-03	171789-4 JL190717-04	171789-6 JL190717-06	171789-7 JL190717-07
Date Sampled Type of sample		19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil
Date prepared	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
Date analysed	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
Arsenic	mg/kg	8	5	<4	4	7
Cadmium	mg/kg	0.9	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	16	12	15	22	16
Copper	mg/kg	34	13	1	24	29
Lead	mg/kg	590	74	14	9	12
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	14	9	2	27	24
Zinc	mg/kg	250	75	21	30	39

Acid Extractable metals in soil						
Our Reference:	UNITS	171789-8	171789-9	171789-10	171789-11	171789-12
Your Reference		JL190717-08	JL190717-09	JL190717-10	JL190717-11	JL190717-12
Date Sampled Type of sample		19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil
Date prepared	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
Date analysed	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
Arsenic	mg/kg	<4	6	4	14	11
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	2	9	9	10	12
Copper	mg/kg	<1	9	11	8	2
Lead	mg/kg	1	43	29	65	13
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	2	2	3	2
Zinc	mg/kg	2	40	11	94	51

Acid Extractable metals in soil						
Our Reference:	UNITS	171789-14	171789-15	171789-16	171789-18	171789-19
Your Reference		JL190717-14	JL190717-15	JL190717-16	JL190717-18	JL190717-19
Date Sampled Type of sample		19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil
Date prepared	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
Date analysed	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
Arsenic	mg/kg	5	4	5	<4	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	0.5
Chromium	mg/kg	12	9	12	3	11
Copper	mg/kg	11	8	26	4	19
Lead	mg/kg	42	86	180	3	170
Mercury	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Nickel	mg/kg	2	3	3	<1	3
Zinc	mg/kg	36	130	180	18	220

Acid Extractable metals in soil						
Our Reference:	UNITS	171789-20	171789-21	171789-22	171789-24	171789-26
Your Reference		JL190717-20	JL190717-21	JL190717-22	JL190717-24	JL190717-26
	-					
Date Sampled		19/07/2017	19/07/2017	19/07/2017	19/07/2017	19/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
Date analysed	-	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
Arsenic	mg/kg	<4	5	<4	6	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	0.7	<0.4
Chromium	mg/kg	2	11	5	14	8
Copper	mg/kg	<1	28	<1	45	3
Lead	mg/kg	6	280	9	190	8
Mercury	mg/kg	<0.1	2.0	<0.1	0.1	<0.1
Nickel	mg/kg	<1	3	1	6	2
Zinc	mg/kg	19	270	6	380	25

71789-3 171789-4	171789-6 171789-7
71789-3 171789-4	171789-6 1 171789-7
90717-03 JL190717-04	JL190717-06 JL190717-07
	19/07/2017 19/07/2017
	Soil Soil
/07/2017 21/07/2017	21/07/2017 21/07/2017
/07/2017 24/07/2017	24/07/2017 24/07/2017
21 15	2.6 6.1
71789-9 171789-10	171789-11 171789-12
90717-09 JL190717-10	JL190717-11 JL190717-12
	40/07/0047
	19/07/2017 19/07/2017
	Soil Soil
/07/2017 21/07/2017	21/07/2017 21/07/2017
/07/2017 24/07/2017	24/07/2017 24/07/2017
22 17	7.8 9.3
71789-15 171789-16	171789-18 171789-19
90717-15 JL190717-16	JL190717-18 JL190717-19
	19/07/2017 19/07/2017
Soil Soil	Soil Soil
/07/2017 21/07/2017	21/07/2017 21/07/2017
/07/2017 24/07/2017	24/07/2017 24/07/2017
20 15	12 7.9
71789-21 171789-22	171789-24 171789-26
90717-21 JL190717-22	JL190717-24 JL190717-26
	19/07/2017 19/07/2017
Soil Soil	Soil Soil
/07/2017 21/07/2017	21/07/2017 21/07/2017
/07/2017 24/07/2017	24/07/2017 24/07/2017
= 1 1 4 $=$ 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4/07/2017 24/07/2017 21 15 171789-9 171789-10 .190717-09 JL190717-10 9/07/2017 19/07/2017 Soil Soil 1/07/2017 21/07/2017 4/07/2017 24/07/2017 22 17 171789-15 171789-16 19/07/2017 24/07/2017 22 17 171789-15 171789-16 .190717-15 JL190717-16 19/07/2017 21/07/2017 20 15 171789-21 171789-22 .190717-21 JL190717-22 19/07/2017 19/07/2017 20 15

Asbestos ID - soils				
Our Reference:	UNITS	171789-11	171789-16	171789-24
Your Reference		JL190717-11	JL190717-16	JL190717-24
	-			
Date Sampled		19/07/2017	19/07/2017	19/07/2017
Type of sample		Soil	Soil	Soil
Date analysed	-	27/07/2017	27/07/2017	27/07/2017
Sample mass tested	g	Approx. 35g	Approx. 30g	Approx. 30g
Sample Description	-	Brown	Brown	Brown
		coarse-grained	coarse-grained	coarse-grained
		soil & rocks	soil & rocks	soil & rocks
Asbestos ID in soil	-	No asbestos	No asbestos	No asbestos
		detected at	detected at	detected at
		reporting limit of	reporting limit of	reporting limit of
		0.1g/kg	0.1g/kg	0.1g/kg
		Organic fibres	Organic fibres	Organic fibres
		detected	detected	detected
Trace Analysis	-	No asbestos	No asbestos	No asbestos
		detected	detected	detected

						
Misc Inorg - Soil						
Our Reference:	UNITS	171789-1	171789-3	171789-4	171789-6	171789-8
Your Reference		JL190717-01	JL190717-03	JL190717-04	JL190717-06	JL190717-08
	-					
Date Sampled		19/07/2017	19/07/2017	19/07/2017	19/07/2017	19/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	24/07/2017	24/07/2017	24/07/2017	24/07/2017	24/07/2017
Date analysed	-	24/07/2017	24/07/2017	24/07/2017	24/07/2017	24/07/2017
pH 1:5 soil:water	pH Units	6.6	7.3	7.4	8.6	8.5
Misc Inorg - Soil						
Our Reference:	UNITS	171789-9	171789-10	171789-11	171789-12	171789-14
Your Reference		JL190717-09	JL190717-10	JL190717-11	JL190717-12	JL190717-14
Date Sampled	-	19/07/2017	19/07/2017	19/07/2017	19/07/2017	19/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	24/07/2017	24/07/2017	24/07/2017	24/07/2017	24/07/2017
Date analysed	-	24/07/2017	24/07/2017	24/07/2017	24/07/2017	24/07/2017
pH 1:5 soil:water	pH Units	7.7	7.2	6.8	6.5	6.9
Misc Inorg - Soil						
Our Reference:	UNITS	171789-15	171789-16	171789-18	171789-19	171789-20
Your Reference		JL190717-15	JL190717-16	JL190717-18	JL190717-19	JL190717-20
Date Sampled		19/07/2017	19/07/2017	19/07/2017	19/07/2017	19/07/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
		04/07/0047	04/07/0047	04/07/0047	04/07/0047	04/07/0047
Date prepared	-	24/07/2017	24/07/2017	24/07/2017	24/07/2017	24/07/2017
Date analysed	-	24/07/2017	24/07/2017	24/07/2017	24/07/2017	24/07/2017
pH 1:5 soil:water	pH Units	8.0	5.7	6.4	6.3	6.4
						7
Misc Inorg - Soil			171700.00	171700.01	171700 00	
Our Reference:	UNITS	171789-21	171789-22	171789-24	171789-26	
Your Reference	 -	JL190717-21	JL190717-22	JL190717-24	JL190717-26	
Date Sampled		19/07/2017	19/07/2017	19/07/2017	19/07/2017	
Type of sample		Soil	Soil	Soil	Soil	
Date prepared	_	24/07/2017	24/07/2017	24/07/2017	24/07/2017	1
Date analysed	_	24/07/2017	24/07/2017	24/07/2017	24/07/2017	
pH 1:5 soil:water	pHUnits	6.2	6.7	6.2	6.2	
	promis	0.2	0.7	0.2	0.2	

CEC						
Our Reference:	UNITS	171789-1	171789-3	171789-4	171789-6	171789-8
Your Reference		JL190717-01	JL190717-03	JL190717-04	JL190717-06	JL190717-08
Date Sampled Type of sample		19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil
Date prepared	-	24/07/2017	24/07/2017	24/07/2017	24/07/2017	24/07/2017
Date analysed	-	24/07/2017	24/07/2017	24/07/2017	24/07/2017	24/07/2017
Exchangeable Ca	meq/100g	19	5.8	5.2	25	0.3
Exchangeable K	meq/100g	0.2	<0.1	0.2	0.3	<0.1
Exchangeable Mg	meq/100g	1.0	0.40	0.57	4.3	<0.1
ExchangeableNa	meq/100g	<0.1	<0.1	<0.1	0.15	<0.1
Cation Exchange Capacity	meq/100g	20	6.3	6.0	29	<1.0

CEC						
Our Reference:	UNITS	171789-9	171789-10	171789-11	171789-12	171789-14
Your Reference		JL190717-09	JL190717-10	JL190717-11	JL190717-12	JL190717-14
Date Sampled Type of sample		19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil
Date prepared	-	24/07/2017	24/07/2017	24/07/2017	24/07/2017	24/07/2017
Date analysed	-	24/07/2017	24/07/2017	24/07/2017	24/07/2017	24/07/2017
Exchangeable Ca	meq/100g	18	5.0	5.5	3.5	11
ExchangeableK	meq/100g	0.5	0.2	0.1	<0.1	0.6
ExchangeableMg	meq/100g	2.2	1.3	0.74	0.60	0.75
ExchangeableNa	meq/100g	<0.1	<0.1	<0.1	<0.1	0.14
Cation Exchange Capacity	meq/100g	20	6.6	6.4	4.2	12

CEC						
Our Reference:	UNITS	171789-15	171789-16	171789-18	171789-19	171789-20
Your Reference		JL190717-15	JL190717-16	JL190717-18	JL190717-19	JL190717-20
Date Sampled Type of sample		19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil
Date prepared	-	24/07/2017	24/07/2017	24/07/2017	24/07/2017	24/07/2017
Date analysed	-	24/07/2017	24/07/2017	24/07/2017	24/07/2017	24/07/2017
Exchangeable Ca	meq/100g	20	5.4	1.4	4.9	1.4
ExchangeableK	meq/100g	0.5	0.2	<0.1	0.2	<0.1
ExchangeableMg	meq/100g	1.3	0.57	0.19	0.95	0.24
ExchangeableNa	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
Cation Exchange Capacity	meq/100g	22	6.2	1.7	6.1	1.7

CEC					
Our Reference:	UNITS	171789-21	171789-22	171789-24	171789-26
Your Reference		JL190717-21	JL190717-22	JL190717-24	JL190717-26
Date Sampled Type of sample		19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil	19/07/2017 Soil
Date prepared	-	24/07/2017	24/07/2017	24/07/2017	24/07/2017
Date analysed	-	24/07/2017	24/07/2017	24/07/2017	24/07/2017
Exchangeable Ca	meq/100g	4.6	1.5	4.9	2.9
ExchangeableK	meq/100g	0.3	<0.1	0.2	<0.1
ExchangeableMg	meq/100g	1.2	0.11	0.89	0.53
ExchangeableNa	meq/100g	<0.1	<0.1	<0.1	<0.1
Cation Exchange Capacity	meq/100g	6.1	1.7	6.1	3.5

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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-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. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.
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-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.
	Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-012	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.
	For soil results:- 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <pql actually="" are="" at="" is="" pql.="" the="" the<br="" this="">most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present.</pql>
	2. 'TEQ zero' values are assuming all contributing PAHs reported as <pql and="" approach="" are="" below="" but="" calculation="" conservative="" contribute="" false="" is="" least="" more="" negative="" pahs="" pql.<="" present="" susceptible="" td="" teq="" teqs="" that="" the="" this="" to="" when="" zero.=""></pql>
	3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <pql are="" half="" pql.<br="" stipulated="" the="">Hence a mid-point between the most and least conservative approaches above.</pql>
	Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
	Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
	Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Metals-020	Determination of various metals by ICP-AES.

Client Reference: E16016BN

MethodID	Methodology Summary
Metals-021	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 °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.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.

		Clie	ent Referenc	e: E	16016BN			
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXNin Soil						Base II Duplicate II %RPD		
Date extracted	-			21/07/2 017	171789-6	21/07/2017 21/07/2017	LCS-7	21/07/2017
Date analysed	-			21/07/2 017	171789-6	21/07/2017 21/07/2017	LCS-7	21/07/2017
TRHC6 - C9	mg/kg	25	Org-016	<25	171789-6	<25 <25	LCS-7	100%
TRHC6 - C10	mg/kg	25	Org-016	<25	171789-6	<25 <25	LCS-7	100%
Benzene	mg/kg	0.2	Org-016	<0.2	171789-6	<0.2 <0.2	LCS-7	86%
Toluene	mg/kg	0.5	Org-016	<0.5	171789-6	<0.5 <0.5	LCS-7	78%
Ethylbenzene	mg/kg	1	Org-016	<1	171789-6	<1 <1	LCS-7	110%
m+p-xylene	mg/kg	2	Org-016	~2	171789-6	<2 <2	LCS-7	114%
o-Xylene	mg/kg	1	Org-016	<1	171789-6	<1 <1	LCS-7	113%
naphthalene	mg/kg	1	Org-014	<1	171789-6	<1 <1	[NR]	[NR]
<i>Surrogate</i> aaa- Trifluorotoluene	%		Org-016	94	171789-6	75 80 RPD:6	LCS-7	90%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH (C10-C40) in Soil						Base II Duplicate II % RPD		
Date extracted	-			24/07/2 017	171789-6	21/07/2017 21/07/2017	LCS-7	21/07/2017
Date analysed	-			24/07/2 017	171789-6	21/07/2017 21/07/2017	LCS-7	21/07/2017
TRHC 10 - C 14	mg/kg	50	Org-003	<50	171789-6	<50 <50	LCS-7	107%
TRHC 15 - C28	mg/kg	100	Org-003	<100	171789-6	<100 <100	LCS-7	106%
TRHC29 - C36	mg/kg	100	Org-003	<100	171789-6	<100 <100	LCS-7	106%
TRH>C10-C16	mg/kg	50	Org-003	<50	171789-6	<50 <50	LCS-7	107%
TRH>C16-C34	mg/kg	100	Org-003	<100	171789-6	<100 <100	LCS-7	106%
TRH>C34-C40	mg/kg	100	Org-003	<100	171789-6	<100 <100	LCS-7	106%
Surrogate o-Terphenyl	%		Org-003	89	171789-6	95 95 RPD:0	LCS-7	101%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate	Duplicate results	Spike Sm#	Spike %
PAHs in Soil					Sm#	Base II Duplicate II % RPD		Recovery
Date extracted	-			21/07/2 017	171789-6	21/07/2017 21/07/2017	LCS-7	21/07/2017
Date analysed	-			21/07/2 017	171789-6	21/07/2017 21/07/2017	LCS-7	21/07/2017
Naphthalene	mg/kg	0.1	Org-012	<0.1	171789-6	<0.1 <0.1	LCS-7	104%
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012	<0.1	171789-6	<0.1 <0.1	LCS-7	105%
Phenanthrene	mg/kg	0.1	Org-012	<0.1	171789-6	<0.1 <0.1	LCS-7	107%
Anthracene	mg/kg	0.1	Org-012	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	171789-6	<0.1 <0.1	LCS-7	102%
Pyrene	mg/kg	0.1	Org-012	<0.1	171789-6	<0.1 <0.1	LCS-7	101%
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012	<0.1	171789-6	<0.1 <0.1	LCS-7	118%
Benzo(b,j+k) fluoranthene	mg/kg	0.2	Org-012	<0.2	171789-6	<0.2 <0.2	[NR]	[NR]

			ent Reference		16016BN			1.
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II % RPD		Recovery
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	171789-6	<0.05 <0.05	LCS-7	114%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl- d14	%		Org-012	100	171789-6	92 92 RPD:0	LCS-7	120%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Organochlorine Pesticides in soil						Base II Duplicate II % RPD		
Date extracted	-			21/07/2 017	171789-6	21/07/2017 21/07/2017	LCS-10	21/07/2017
Date analysed	-			21/07/2 017	171789-6	21/07/2017 21/07/2017	LCS-10	21/07/2017
HCB	mg/kg	0.1	Org-005	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	171789-6	<0.1 <0.1	LCS-10	84%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	171789-6	<0.1 <0.1	LCS-10	102%
Heptachlor	mg/kg	0.1	Org-005	<0.1	171789-6	<0.1 <0.1	LCS-10	106%
delta-BHC	mg/kg	0.1	Org-005	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	171789-6	<0.1 <0.1	LCS-10	99%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	171789-6	<0.1 <0.1	LCS-10	102%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	171789-6	<0.1 <0.1	LCS-10	98%
Dieldrin	mg/kg	0.1	Org-005	<0.1	171789-6	<0.1 <0.1	LCS-10	108%
Endrin	mg/kg	0.1	Org-005	<0.1	171789-6	<0.1 <0.1	LCS-10	97%
pp-DDD	mg/kg	0.1	Org-005	<0.1	171789-6	<0.1 <0.1	LCS-10	102%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	171789-6	<0.1 <0.1	LCS-10	87%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	99	171789-6	95 97 RPD:2	LCS-10	117%

		Clie	ent Referenc	e: E	16016BN			
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PCBs in Soil						Base II Duplicate II % RPD		
Date extracted	-			21/07/2 017	171789-6	21/07/2017 21/07/2017	LCS-10	21/07/2017
Date analysed	-			21/07/2 017	171789-6	21/07/2017 21/07/2017	LCS-10	21/07/2017
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	171789-6	<0.1 <0.1	LCS-10	97%
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	171789-6	<0.1 <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	99	171789-6	95 97 RPD:2	LCS-10	97%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II % RPD		
Date prepared	-			21/07/2 017	171789-6	21/07/2017 21/07/2017	LCS-7	21/07/2017
Date analysed	-			21/07/2 017	171789-6	21/07/2017 21/07/2017	LCS-7	21/07/2017
Arsenic	mg/kg	4	Metals-020	<4	171789-6	4 6 RPD:40	LCS-7	109%
Cadmium	mg/kg	0.4	Metals-020	<0.4	171789-6	<0.4 <0.4	LCS-7	100%
Chromium	mg/kg	1	Metals-020	<1	171789-6	22 23 RPD:4	LCS-7	104%
Copper	mg/kg	1	Metals-020	<1	171789-6	24 27 RPD:12	LCS-7	106%
Lead	mg/kg	1	Metals-020	<1	171789-6	9 11 RPD:20	LCS-7	104%
Mercury	mg/kg	0.1	Metals-021	<0.1	171789-6	<0.1 <0.1	LCS-7	105%
Nickel	mg/kg	1	Metals-020	<1	171789-6	27 31 RPD: 14	LCS-7	99%
Zinc	mg/kg	1	Metals-020	<1	171789-6	30 38 RPD:24	LCS-7	101%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Misc Inorg - Soil						Base II Duplicate II % RPD		
Date prepared	-			24/07/2 017	[NT]	[NT]	LCS-7	24/07/2017
Date analysed	-			24/07/2 017	[NT]	[NT]	LCS-7	24/07/2017
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	LCS-7	101%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
CEC						Base II Duplicate II % RPD		
Date prepared	-			24/07/2 017	[NT]	[NT]	LCS-1	24/07/2017
Date analysed	-			24/07/2 017	[NT]	[NT]	LCS-1	24/07/2017
Exchangeable Ca	meq/100 g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-1	99%
Exchangeable K	meq/100 g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-1	105%
ExchangeableMg	meq/100 g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-1	96%

		Clie	nt Referenc	e: E1	6016BN			
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate	Duplicate results	Spike Sm#	Spike %
CEC					Sm#	Base II Duplicate II % RPD		Recovery
ExchangeableNa	meq/100 g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-1	101%
QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	3	Dup.Sm#		Duplicate Duplicate + %RP	Spike Sm# D	Spike % Reco	overy
Date extracted	-	1	71789-18	21/07/2	017 21/07/201	7 171789-7	21/07/201	7
Date analysed	-	1	71789-18	21/07/2	017 21/07/201	7 171789-7	21/07/201	7
TRHC6 - C9	mg/kg	g 1	71789-18		<25 <25	171789-7	90%	
TRHC6 - C10	mg/kg	g 1	71789-18		<25 <25	171789-7	90%	
Benzene	mg/kg	g 1	71789-18	<	<0.2 <0.2	171789-7	77%	
Toluene	mg/kg	g 1	71789-18	<	<0.5 <0.5	171789-7	69%	
Ethylbenzene	mg/kg	g 1	71789-18		<1 <1	171789-7	99%	
m+p-xylene	mg/kg	g 1	71789-18		<2 <2	171789-7	103%	
o-Xylene	mg/kg	g 1	71789-18		<1 <1	171789-7	102%	
naphthalene	mg/kg	g 1	71789-18		<1 <1	[NR]	[NR]	
<i>Surrogate</i> aaa- Trifluorotoluene	%	1	71789-18	83	79 RPD:5	171789-7	81%	
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	6 1	Dup.Sm#		Duplicate Duplicate + %RP	Spike Sm# D	Spike % Reco	overy
Date extracted	-	1	71789-18	21/07/2	017 21/07/201	7 171789-7	21/07/201	7
Date analysed	-	1	71789-18	21/07/2	017 21/07/201	7 171789-7	21/07/201	7
TRHC 10 - C 14	mg/kg	g 1	71789-18		<50 <50	171789-7	101%	
TRHC 15 - C28	mg/kg	g 1	71789-18	<	100 <100	171789-7	102%	
TRHC29 - C36	mg/kg	g 1	71789-18	<	100 <100	171789-7	103%	
TRH>C10-C16	mg/kg	g 1	71789-18		<50 <50	171789-7	101%	
TRH>C16-C34	mg/kg	g 1	71789-18	<	100 <100	171789-7	102%	
TRH>C34-C40	mg/kg	g 1	71789-18	<	100 <100	171789-7	103%	
Surrogate o-Terphenyl	%	1	71789-18	92	91 RPD:1	171789-7	94%	
QUALITY CONTROL PAHs in Soil	UNITS	3 1	Dup.Sm#		Duplicate Duplicate+%RP	Spike Sm# D	Spike % Reco	overy
Date extracted	-	1	71789-18	21/07/2	017 21/07/201	7 171789-7	21/07/201	7
Date analysed	-	1	71789-18	21/07/2	017 21/07/201	7 171789-7	21/07/201	7
Naphthalene	mg/kg	g 1	71789-18		<0.1 <0.1	171789-7	105%	
Acenaphthylene	mg/kg	g 1	71789-18	<	<0.1 <0.1	[NR]	[NR]	
Acenaphthene	mg/kg	g 1	71789-18	<	<0.1 <0.1	[NR]	[NR]	
Fluorene	mg/kg	g 1	71789-18	<	<0.1 <0.1	171789-7	102%	
Phenanthrene	mg/kg	g 1	71789-18	<	<0.1 <0.1	171789-7	106%	
Anthracene	mg/kg	g 1	71789-18	<	<0.1 <0.1	[NR]	[NR]	
Fluoranthene	mg/kg	g 1	71789-18	<	<0.1 <0.1	171789-7	99%	
Pyrene	mg/kg	g 1	71789-18	<	<0.1 <0.1	171789-7	98%	
Benzo(a)anthracene	mg/kg	g 1	71789-18		<0.1 <0.1	[NR]	[NR]	
Chrysene	mg/kg	. 1	71789-18		<0.1 <0.1	171789-7	117%	

		Client Referenc	e: E16016BN		
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Benzo(b,j+k)fluoranthene	mg/kg	171789-18	<0.2 <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	171789-18	<0.05 <0.05	171789-7	122%
Indeno(1,2,3-c,d)pyrene	mg/kg	171789-18	<0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	171789-18	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	171789-18	<0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	171789-18	95 96 RPD:1	171789-7	114%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD		
Date extracted	-	[NT]	[NT]		
Date analysed	-	[NT]	[NT]		
HCB	mg/kg	[NT]	[NT]		
alpha-BHC	mg/kg	[NT]	[NT]		
gamma-BHC	mg/kg	[NT]	[NT]		
beta-BHC	mg/kg	[NT]	[NT]		
Heptachlor	mg/kg	[NT]	[NT]		
delta-BHC	mg/kg	[NT]	[NT]		
Aldrin	mg/kg	[NT]	[NT]		
Heptachlor Epoxide	mg/kg	[NT]	[NT]		
gamma-Chlordane	mg/kg	[NT]	[NT]		
alpha-chlordane	mg/kg	[NT]	[NT]		
Endosulfan I	mg/kg	[NT]	[NT]		
pp-DDE	mg/kg	[NT]	[NT]		
Dieldrin	mg/kg	[NT]	[NT]		
Endrin	mg/kg	[NT]	[NT]		
pp-DDD	mg/kg	[NT]	[NT]		
Endosulfan II	mg/kg	[NT]	[NT]		
pp-DDT	mg/kg	[NT]	[NT]		
Endrin Aldehyde	mg/kg	[NT]	[NT]		
Endosulfan Sulphate	mg/kg	[NT]	[NT]		
Methoxychlor	mg/kg	[NT]	[NT]		
Surrogate TCMX	%	[NT]	[NT]		

		Client Referenc	e: E16016BN		
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD		
Date extracted	-	[NT]	[NT]		
Date analysed	-	[NT]	[NT]		
Aroclor 1016	mg/kg	[NT]	[NT]		
Aroclor 1221	mg/kg	[NT]	[NT]		
Aroclor 1232	mg/kg	[NT]	[NT]		
Aroclor 1242	mg/kg	[NT]	[NT]		
Aroclor 1248	mg/kg	[NT]	[NT]		
Aroclor 1254	mg/kg	[NT]	[NT]		
Aroclor 1260	mg/kg	[NT]	[NT]		
Surrogate TCLMX	%	[NT]	[NT]		
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	171789-18	21/07/2017 21/07/2017	171789-7	21/07/2017
Date analysed	-	171789-18	21/07/2017 21/07/2017	171789-7	21/07/2017
Arsenic	mg/kg	171789-18	<4 <4	171789-7	97%
Cadmium	mg/kg	171789-18	<0.4 <0.4	171789-7	87%
Chromium	mg/kg	171789-18	3 3 RPD:0	171789-7	119%
Copper	mg/kg	171789-18	4 4 RPD:0	171789-7	104%
Lead	mg/kg	171789-18	3 4 RPD:29	171789-7	78%
Mercury	mg/kg	171789-18	<0.1 <0.1	171789-7	109%
Nickel	mg/kg	171789-18	<1 <1	171789-7	123%
Zinc	mg/kg	171789-18	18 18 RPD:0	171789-7	81%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD		
Date prepared	-	171789-1	21/07/2017 21/07/2017		
Date analysed	-	171789-1	21/07/2017 21/07/2017		
Arsenic	mg/kg	171789-1	8 6 RPD:29		
Cadmium	mg/kg	171789-1	0.9 0.7 RPD:25		
Chromium	mg/kg	171789-1	16 13 RPD:21		
Copper	mg/kg	171789-1	34 43 RPD: 23		
Lead	mg/kg	171789-1	590 470 RPD:23		
Mercury	mg/kg	171789-1	<0.1 <0.1		
Nickel	mg/kg	171789-1	14 13 RPD:7		
Zinc	mg/kg	171789-1	250 220 RPD:13		

		Client Referenc	e: E16016BN
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate
Misc Inorg - Soil			Base + Duplicate + % RPD
Date prepared	-	171789-1	24/07/2017 24/07/2017
Date analysed	-	171789-1	24/07/2017 24/07/2017
pH 1:5 soil:water	pH Units	171789-1	6.6 6.9 RPD:4
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate
CEC			Base + Duplicate + % RPD
Date prepared	-	171789-1	24/07/2017 24/07/2017
Date analysed	-	171789-1	24/07/2017 24/07/2017
Exchangeable Ca	meq/100 g	171789-1	19 20 RPD:5
Exchangeable K	meq/100 g	171789-1	0.2 0.2 RPD:0
ExchangeableMg	meq/100 g	171789-1	1.0 1.0 RPD:0
ExchangeableNa	meq/100 g	171789-1	<0.1 <0.1
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate
CEC			Base + Duplicate + %RPD
Date prepared	-	171789-15	24/07/2017 24/07/2017
Date analysed	-	171789-15	24/07/2017 24/07/2017
Exchangeable Ca	meq/100 g	171789-15	20 20 RPD:0
Exchangeable K	meq/100 g	171789-15	0.5 0.5 RPD:0
Exchangeable Mg	meq/100 g	171789-15	1.3 1.5 RPD:14
ExchangeableNa	meq/100 g	171789-15	<0.1 <0.1
QUALITYCONTROL	UNITS	Dup.Sm#	Duplicate
Misc Inorg - Soil			Base + Duplicate + %RPD
 Date prepared	-	171789-16	24/07/2017 24/07/2017
Date analysed	-	171789-16	24/07/2017 24/07/2017
pH 1:5 soil:water	pH Units	171789-16	5.7 5.9 RPD:3

Report Comments:

Asbestos: A portion of the supplied sample was sub-sampled for asbestos analysis according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g of sample in its own container.

Note: Samples 171789-11, 16 & 24 were sub-sampled from jars provided by the client.

Asbestos ID was analysed by Approved Identifier:	Matt Tang
Asbestos ID was authorised by Approved Signatory:	Lulu Scott

INS: Insufficient sample for this test NR: 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 (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics 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.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

			CHAIN OF CUSTODY - Client	DF (S	I	á	Ţ	Clie	int								nvtrolah
			EN	ENVIROLAB SERVICES	DLAI	3 SE	RVI	CES										
Client:	Geo-Environm	Geo-Environmental Engineering Pty Ltd	Pty Ltd	Client I	roject	Name a	Client Project Name and Number:	iber:					Env	irola	o Ser	Envirolab Services		
Project Mgr:	r: S. McCormack				E16016BN	7					1		12 A	shley	St, Ch	atswoo	12 Ashley St, Chatswood, NSW, 2067	1
Sampler:	J. Long			PO No.:									_					
Address:	82 Bridge Street			Envirol	ab Serv	ices Qu	Envirolab Services Quote No. :						Phor	Phone: 02 9910 6200	9910	6200		
	Lane Cove NSW 2066			Date re	Date results required:	quired		×					Fax:		02 9910 6201	6201		
Email:	stephen@geoenvironmental.com.au	iental.com.au		Or cho	se: sta	Indard	Or choose: standard / 1 day / 2 day / 3 day	/ 2 day	/ 3 day		Std		E-m	ail: al	ie@e	nvirolal	E-mail: ahie@envirolabservices.com.au	n.au
	josh@geoenvironmental.com.au	al.com.au																
Phone:	0431 480 980			Note: Inform lab i surcharge applies	orm lab ii e applies	n advance	Note: Inform lab in advance if urgent turnaround is required surcharge applies	turnarou	nd is requ	ired -			Cont	Contact: Aileen Hie	ileen	Hie		
	Sample information	formation							Т	Tests Required	quired						Co	Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	£ noitsnidmoD	as noitenidmoC	4 noitenidmoD	Combination 5b	Z noitenidmoD	Combination 5a	(Std8) Stals	Hd	NOCS	гндд	BTEX / Volatile TRH	ХЭТВ	сес/рн	TRH/BTEX informat sample	Provide as much information about the sample as you can
-	JL190717-01	19-07-17	soil jar		t	1	┢	╀		_						-		
2	JL190717-02	19-07-17	soil jar				-	-									(.	Envirolat Servic
3	JL190717-03	19-07-17	soil jar	1												1	ENVIROLAB	12 Ashiey Chatswood NSW 20
4	JL190717-04	19-07-17	soil jar							1						1		Ph: (02) 9910 62
S	JL190717-05	19-07-17	soil jar						1.4								100 100	DATE!
9	JL190717-06	19-07-17	soil jar				-			-						1	Date Receive	
t	JL190717-07	19-07-17	soil jar				-		-								Time Received:	d: 15-50
do	JL190717-08	19-07-17	soil jar				-			_						1	Temp: Cool/Am	eceived by. W emb. Cool/Ambleht 16 'S
0	JL190717-09	19-07-17	soil jar				-										Cooling: Ice/Icepack	cepack
0)	JL190717-10	19-07-17	soil jar	-				_	-							1	Tecurity: O	ecurity: Maci/Broken/None
11	JL190717-11	19-07-17	soil jar					-								1		
12	JL190717-12	19-07-17	soil jar													1		
13	JL190717-13	19-07-17	soil jar				-	-		_	_							
Relinquish	Relinquished by (company):	Geo-Environmental Engineering	Engineering	Received by (ed by (c	company):	y): (Z	5					Samp	les Rec	eived:	ool or A	Samples Received: Cool or Ambient (circle one)	le)
Print Name:		S. McCormack		Print Name:		LM1			8				Temp	erature	Reciev	Temperature Recieved at: 163	(if applicable)	able)
Date & Time:	le:	19-Jul-17		Date & Time:	Time:	51/5/81	1.1	cf:5]	Col	COL HC'd	2012/12	4	Trans	ported	by: Ha	nd delive	Transported by: Hand delivered / courier	
				Signature:	ire:						14:00		_				Dane No. 1 of 3	~f 3

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			CHAIN OF CUSTODY - Client	DF (ñ	Ĕ	à	-	Clie	ent								Fnytrolah
			Ē	ENVIROLA	DLAI	3 SE	B SERVICES	CES			л., у							
Client:	Geo-Environm	Geo-Environmental Engineering Pty Ltd	Pty Ltd	Client Project Name and Number:	roject	Name a	IN put	nber:					Env	irola	o Ser	Envirolab Services		
Project Mgr.	r: S. McCormack				E16016BN	N							12 A	shley	st, ch	atswo	od, N	12 Ashley St, Chatswood, NSW, 2067
Sampler:	J. Long			PO No.:														
Address:	82 Bridge Street			Envirolab Services Quote No. :	ab Serv	ices Q	iote No	.;					Phoi	Phone: 02 9910 6200	9910	6200		
	Lane Cove NSW 2066			Date results required:	sults re	quired							Fax:		02 9910 6201	6201		
Email:	stephen@geoenvironmental.com.au	iental.com.au		Or cho	se: st	andard	/ 1 day	/ 2 da	Or choose: standard / 1 day / 2 day / 3 day	>	Std		Ë.	ail: ał	iie@e	nvirola	bserv	E-mail: ahie@envirolabservices.com.au
	josh@geoenvironmental.com.au	al.com.au																
Phone:	0431 480 980			Note: Inform lab surcharge applies	orm lab il e applies	1 advanc	e if urgen	t turnaro	in advance if urgent turnaround is required	- nired			Cont	Contact: Aileen Hie	ileen	Hie		
	Sample information	formation								rests R	Tests Required							Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	£ noitsnidmo 	Combination 3a	4 noitenidmoD	Combination 5b	2 noitsnidmoD	Combination 5a	Metals (Std8)	Hd	۸OCs	shAq	BTEX / Volatile ТЯН	ВТЕХ	сес/рн	хэта\нят	Provide as much information about the sample as you can
It	JL190717-14	19-07-17	soil jar		t	+	┢	-	┢	╞	-				Γ	-	\uparrow	
5	JL190717-15	19-07-17	soil jar						\vdash	-						1		
9	JL190717-16	19-07-17	soil jar						1							1		
4	JL190717-17	19-07-17	soil jar															
18	JL190717-18	19-07-17	soil jar	1			_			-								
æ	JL190717-19	19-07-17	soil jar	1					_	_	_							
R	JL190717-20	19-07-17	soil jar				-		-	-	_							
X	JL190717-21	19-07-17	soil jar	1					-		_	_						
22	JL190717-22	19-07-17	soil jar							-	_	_						
52	JL190717-23	19-07-17	soil jar				_		_		-							
な	JL190717-24	19-07-17	soil jar				-			_	_							
25	JL190717-25	19-07-17	soil jar		1				_	-								
3/c	JL190717-26	19-07-17	soil jar					-	_									
Relinquish	Relinquished by (company):	Geo-Environmental Engineering	Engineering	Received by (company):	IV): E	5					Samp	oles Rec	eived:	Cool or /	Ambien	Samples Received: Cool or Ambient (circle one)
Print Name:		S. McCormack		Print Name:	ame:	2	-						Temp	Temperature Recieved at:	Reciev	ed at:		(if applicable)
Date & Time:	1e:	19-Jul-17		Date & Time:	Time:	(9) ¥	4 E	15:30	Col.	pech	2017/12	(17	Trans	sported	by: Ha	Transported by: Hand delivered / courier	ered /	courier
				Signature:	ire:				>		14.00		1					Pade No: 1 of 3

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			CHAIN OF CUSTODY - Client	I OF CU	in in iteration	ST	STODY -		Ü	ent								Envrolab
Clinet	Coo Environ	Coo Environmental Environmental Dtv 1 td		Client									En	Envirolah Sarvicas	h Sel	vice		
Project Mgr:		ck			E16016BN	N	E16016BN						12	Ashley	St, Cl	natsw	ood, N	12 Ashley St, Chatswood, NSW, 2067
Sampler:		Би		PO No.:														
Address:	82 Bridge Street			Enviro	ab Serv	rices Q	Envirolab Services Quote No. :						Pho	Phone: 02 9910 6200	9910	6200	_	
	Lane Cove NSW 2066			Date re	Date results required:	equired							Fax:		9916	02 9910 6201		
Email:	stephen@geoenvironmental.com.au	mental.com.au		Or cho	ose: st	andard	/ 1 da	y / 2 da	Or choose: standard / 1 day / 2 day / 3 day	ay	Std		Ë.	ail: a	hie@e	nvirol	abser	E-mail: ahie@envirolabservices.com.au
	josh@geoenvironmental.com.au	ital.com.au																
Phone:	0431 480 980			Note: In surcharg	Note: Inform lab il surcharge applies	n advanc	ce if urgei	nt turnaro	Note: Inform lab in advance if urgent turnaround is required - surcharge applies	quired -			Cor	Contact: Aileen Hie	Vileen	Hie		Late Bunder
	Sample i	Sample information								Tests Required	equired							Comments
Envirolab Sample ID	D Client Sample ID	Date sampled	Type of sample	E noitsnidmoD	e£ noitenidmoD	4 noitsnidmoD	d2 noitenidmoD	2 noitenidmoD	sZ noitenidmoD	Motale (5448)	(Sbt2) slst9M Hq	۸OCs	гНАЧ	втех / Volatile ТЯН	ВТЕХ	сес\рн	ткн/втех	Provide as much information about the sample as you can
54	Trip Blank	19-07-17	Soil Jar				┢	2			-							
28	Trip Spike	19-07-17	Soil Jar												1			
						+			+	+		_	-					
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Relinquist	Relinquished by (company):	Geo-Environmental Engineering	Engineering	Receiv	Received by (company):	compai	:(hu						Sam	ples Re	ceived:	Cool or	Ambiel	Samples Received: Cool or Ambient (circle one)
Print Name:	ie:	S. McCormack		Print Name:	ame:								Tem	Temperature Recieved at:	Recie	ved at:	vorad /	(if applicable)
	. me:	17-JUL-T		Signaturo										spure	ny		ACICA	Iransported by: name denvered / course Page No: 1 of 3

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