SOIL VAPOUR INVESTIGATION REPORT

11-13 Percy Street, Auburn NSW

Fabcot Pty Ltd – September 2020

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SOIL VAPOUR INVESTIGATION REPORT

11–13 Percy Street
Auburn, NSW 2144

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EXECUTIVE SUMMARY

Geo-Logix Pty Ltd (Geo-Logix) was commissioned by Fabcot Pty Ltd (Fabcot) to conduct a Soil Vapour Investigation (SVI) of 11–13 Percy Street, Auburn NSW (Figure 1). Fabcot intends to redevelop the site as a Customer Fulfilment Centre (CFC), comprising a single storey warehouse and distribution centre for online sales. Under the proposed development the western portion of the building would be constructed as slab on grade, and the eastern portion as suspended slab above the floodway area of the adjacent Haslams Creek.

Previous investigation of the site by Geo-Logix in 2019 identified trichloroethene (TCE) and its degradant products cis-1.2-dichloroethene (DCE) and vinyl chloride (VC) sporadically in groundwater across the eastern and northern portion of the site. The highest TCE concentrations were detected at the southeast site boundary with concentrations decreasing south to north across the site. Multiple lines of evidence suggested TCE originated from an off-site source.

TCE vapour intrusion into the proposed building was considered an incomplete exposure pathway under the proposed development as the portion of the site impacted by TCE was to be constructed with a suspended slab. The vapour intrusion pathway to the neighbouring downgradient property 15 Percy Street was also found to be incomplete but requiring further investigation. The only complete exposure pathway identified was to workers undertaking excavation to install the OSD tank in the southeast corner of the site.

The SVI was subsequently triggered to evaluate potential for vapour intrusion due to a change in design to include an enclosed ‘basement’ carpark beneath the suspended slab area in the southeast portion of the site. A second purpose of the SVI was to address the Site Auditor request to evaluate if a caged drum store in the existing undercroft area in the southeast portion of the site may be the TCE source. Following the completion of this investigation, the design was reverted back to the original plan of suspended slab with open and unoccupied undercroft in the southeast portion of the site.

The objective of this investigation was to evaluate the following:

- Potential vapour inhalation pathway across the south eastern portion of the site where the enclosed ‘basement’ area and OSD tank was proposed;
- If the caged drum area in the existing undercroft area may be the source of TCE contamination; and
- Vapour intrusion pathway to indoor air of the commercial / industrial building on 15 Percy Street to the north and downgradient of the site.

The approach was to collect soil vapour samples across the areas of concern and use CSI Australia Pty Ltd mobile laboratory to undertake sample collection and analysis and provide near real time results. The results were used to determine if additional sample locations were required to ‘chase out’ and define the extent of TCE and cis-1,2-DCE in soil vapour. The scope of work comprised:

- Collection of 11 soil vapour samples (VP1-VP6, VP9-VP10, VP14-VP16) on a 25 m grid based sampling plan across the footprint where the enclosed ‘basement’ carpark was proposed;
- Two soil vapour samples (VP11-VP12) were collected in the proposed OSD tank location and near the caged drum store;
- Two soil vapour samples (VP7-VP8) were collected along the perimeter of the caged drum storage area;

- Three sub slab soil vapour samples (VP17-VP19) were collected along the northern boundary shared with 15 Percy Street; and
- Collection of one soil vapour sample (VP20) paired with well MW102 where the highest TCE concentrations in groundwater have been identified.

Vapour samples VP1 to VP16 and VP20 targeted the vadose zone immediately above the capillary fringe to evaluate vapour concentrations emanating from impacted groundwater. The sample depths corresponded with what would have been the floor level of the enclosed basement carpark. Vapour samples VP17 to VP19 targeted sub slab vapour beneath the driveway and at the elevation of the neighbouring 15 Percy Street.

TCE Vapour Intrusion

TCE and cis-1,2-DCE were detected at concentrations above Tier 1 soil vapour screening criteria in soil vapour sample VP20 on the eastern boundary and nearby sample VP4 located adjacent to the northern end of the caged drum store and on the eastern edge of the existing undercroft area. TCE and cis-1,2-DCE were not detected at concentrations above Tier 1 screening criteria in any other soil vapour sample collected across the undercroft area including the location of the proposed OSD tank.

The results indicate the extent of TCE and cis-1,2-DCE in soil vapour at elevated concentrations is limited to an isolated area on the eastern boundary of the site where the building will be constructed with a suspended slab. On this basis TCE vapour intrusion to indoor air of the proposed development is considered incomplete and there is no requirement for vapour intrusion mitigation measures. In addition, work health and safety measures would not be necessary to control exposure to workers undertaking excavation and installation of the OSD tank.

The only potentially complete exposure pathway to TCE vapour in soil is to workers undertaking subsurface works in the area of VP4 and VP20 (trench worker). Potential exposure can be managed under the provisions of an Environmental Management Plan for both the construction phase and operational phase of the development.

TCE Source

TCE in soil vapour was detected at an elevated concentration in sample VP20 collected on the eastern boundary of the site paired with groundwater well MW102 where the highest TCE concentrations in groundwater have been identified. TCE vapour in soil attenuates rapidly away from VP20 and into the site.

The decreasing concentration away from VP20 toward the caged drum store area, and absence of TCE in any other soil vapour sample completed in the vicinity of the drum store (VP7, VP11 and VP12) indicates the caged drum store area is unlikely to be the TCE source.

The results substantiate the conclusions of the DSI that TCE is migrating onto site from an off-site source to the east or southeast.

15 Percy Street Vapour Intrusion

TCE and cis-1,2-DCE were not detected in shallow soil vapour samples VP17, VP18 and VP19 collected along the northern boundary of the site shared with 15 Percy Street. The indoor air inhalation pathway to occupants of 15 Percy Street is considered incomplete.

The investigation has established the following:

- The extent of TCE and its degradant products in soil vapour across the area that was proposed to have a basement carpark have been delineated and are limited to an isolated area in the southeast portion of the site. Indoor air inhalation is considered an incomplete exposure pathway to occupants of the proposed development and there is no requirement for vapour intrusion mitigation measures or remediation of groundwater;
- Potential for trench worker exposure via inhalation of TCE vapour should be managed through implementation of a site-specific Environmental Management Plan detailing safe work procedures during construction and long-term operation of the site;
- Multiple lines of evidence from previous investigations and the current investigation indicate TCE likely originates from an off-site source to the east or southeast; and
- The indoor air inhalation pathway to occupants of 15 Percy Street is considered incomplete.

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1. INTRODUCTION

Geo-Logix Pty Ltd (Geo-Logix) was commissioned by Fabcot Pty Ltd (Fabcot) to conduct a Soil Vapour Investigation (SVI) of 11–13 Percy Street, Auburn NSW (Figure 1). Fabcot intends to redevelop the site as a Customer Fulfilment Centre (CFC), comprising a single storey warehouse and distribution centre for online sales. Under the proposed development the western portion of the building would be constructed as slab on grade, and the eastern portion as suspended slab above the floodway area of the adjacent Haslams Creek.

Previous investigation of the site by Geo-Logix in 2019 identified trichloroethene (TCE) and its degradant products cis-1.2-dichloroethene (DCE) and vinyl chloride (VC) sporadically in groundwater across the eastern and northern portion of the site. The highest TCE concentrations were detected at the southeast site boundary with concentrations decreasing south to north across the site. Multiple lines of evidence suggested TCE originated from an off-site source.

TCE vapour intrusion into the proposed building was considered an incomplete exposure pathway under the proposed development as the portion of the site impacted by TCE was to be constructed with a suspended slab. The vapour intrusion pathway to the neighbouring downgradient property 15 Percy Street was also found to be incomplete but required further investigation.

The SVI was subsequently triggered to evaluate potential for vapour intrusion due to a change in design to include an enclosed ‘basement’ beneath the suspended slab area in the southeast portion of the site. The SVI was also completed to address the Site Auditor request to evaluate if a caged drum store in the existing undercroft area in the southeast portion of the site may be the TCE source.

The objective of this investigation was to evaluate the following:

- Potential vapour inhalation pathway across the south eastern portion of the site where the enclosed ‘basement’ area was proposed;
- If the caged drum area in the existing undercroft area may be the source of TCE contamination; and
- Vapour intrusion pathway to indoor air of the commercial / industrial building on 15 Percy Street to the north and downgradient of the site.

Following the completion of this investigation, the design was reverted back to the original plan of suspended slab with open and unoccupied undercroft across the eastern, lower portion of the site.

1.1 Proposed Development

The proposed development is for an on-grade warehouse and distribution centre for online sales. The proposed warehouse occupies the majority of the site. The eastern third of the building extends across the lower flood zone area of the site. The building across this area is proposed to be constructed with suspended slab. No filling of the lower area of the site is proposed (Attachment A).

2. SITE INFORMATION

2.1 Site Identification

The investigation area comprises the following properties:

Street Address	Lot and Deposited Plan (DP)	Approximate Area (m^2)
11 Percy Street, Auburn, NSW 2144 13 Percy Street, Auburn, NSW 2144	Lot 1 DP 1183821 Lot 2 DP 1183821	32,500

2.2 Site Zoning and Land Use

The site is zoned *'General Industrial IN1'* under the Auburn Local Environment Plan, 2010.

2.3 Site Description

The following observations were made during site inspection and field works conducted by Geo-Logix in June 2020.

The subject site is located in a commercial/industrial area in Auburn NSW. The site comprises two rectangular shaped lots encompassing an area of approximately 3.25 Ha. The lots are bound by Percy Street to the northwest, Haslams Creek to the southeast and commercial/industrial properties to southwest and northeast. Entry into the site is via two gates (North and South) from Percy Street.

At the time of the investigation Lot 1 was occupied by Chameleon Touring Systems, a stage lighting and equipment supplier and Lot 2 was occupied by Holden new vehicle accessories and auto detailing service centre. The front building (Lot 1) is located in the northwest portion of the site on the boundary with Percy Street. The building is constructed of metal cladding, a saw tooth roof and concrete floor slabs. The building is used for the storing and assembly of stage lighting equipment.

The back building (Lot 2) is located in the southeast portion of the site and is constructed on grade with Lot 1. Haslams Creek (concrete channel) is located on the southeast boundary. The building is constructed of brick, metal cladding and part of the building is on suspended concrete floor slabs with vehicle parking within the undercroft area.

The northeast portion of Lot 2 consists of a car ramp and concrete and bitumen paved car parking. The building is used for a variety of uses including vehicle washing/detailing, vehicle storage and shipping/receiving of goods.

One above ground storage tank (AST) was located in the middle of the site with one fuel dispenser noted. A caged area in the south of the site in the undercroft parking area had storage of polyurethane drums and scrap metal. Two drums were tipped over with evidence of polyurethane spillage noted. The caged area also had brown cloudy standing water approximately 50 mm deep with a sheen. Scrap metal, building rubble and general rubbish was also noted in the undercroft parking area in the south of the site. Fragments of bonded ACM were observed on the ground surface of the embankment leading from the undercroft area to a raised area on the eastern boundary.

Site features are presented on Figure 2.

2.4 Surrounding Land Use

At the time of the investigation, the surrounding land use comprised the following:

- **Northwest** – Percy Street, with commercial / industrial properties including Icon Medical Supplies and residential properties beyond;
- **Northeast** – Commercial / industrial properties, Haslams Creek and Tooheys Brewery beyond;
- **Southeast** – Haslams Creek, with commercial/industrial properties including the previous Offset Alpine Printing beyond; and
- **Southwest** – Commercial/industrial properties.

2.5 Topography

The western half of the site is largely level and located at an elevation of approximately 7 m Australian Height Datum (AHD). A retaining wall runs north to south through the central portion of the site. The eastern portion including the undercroft area, car parking area and wash bay is slightly undulating with an elevation of 4–5 mAHD.

2.6 Surface Water Receptor

The nearest surface water is Haslams Creek immediately adjacent to the southeast boundary of the site. Haslams Creek is a concrete lined urban drain that discharges into Homebush Bay (Parramatta River) 0.8 km northeast of the site. The water level in Haslams Creek is highly reactive to rainfall.

Reference to the WaterNSW All Groundwater Map (NSW Government, 2020) indicates there are no registered groundwater bores within 500 m of the site.

2.7 Geology

Review of the NSW 1:100,000 Sydney Map (Geological Survey of NSW, 1983) indicates the majority of the site is underlain by Cenozoic age silty to peaty quartz sand, silt, and clay with occasional ferruginous and humic cementation. The western area of the site is underlain by Triassic age Ashfield shale of the Wianamatta Group comprising black to dark grey shale and laminate (Herbert, 1983).

During the DSI (Geo-Logix 2019), Geo-Logix identified alluvial sediments comprising interbedded layers of mixed of sand, silts and clays with occasional peat layers across the eastern and central portion of the site. The sediments are up to 7 metres deep and originate from infill of the former channel of Haslams Creek. Alluvial sediments and residual clays are underlain by Ashfield Shale bedrock.

2.8 Hydrogeology

Groundwater exists 1.5–3 metres below grade (mbg) within alluvium of the former Haslams Creek. Groundwater flow direction in the alluvial water bearing zone is variable with general flow to the north and northeast. Groundwater flow direction in the bedrock water bearing zone is inferred to follow regional groundwater flow towards the northeast and Homebush Bay.

2.9 Underground Utilities

A Dial Before You Dig search was conducted to determine the presence of underground utilities which may act as conduits for contamination migration both onsite and offsite (Attachment B). The plans indicate:

- Sewer utilities run between the northeast corner of the building on Lot 1 to the southeast corner of the building on Lot 2 and along the south edge of the building;
- NBN utilities run underneath Percy Street and enter the site along the western boundary and run to the middle of Lot 1;
- Telstra utilities run underneath Percy Street and enter the site along the western boundary of Lot 1 and Lot 2 and run to the middle of each Lot on separate lines; and
- Optus, Sydney Water and Ausgrid utilities run underneath Percy Street on the northwest boundary of the site.

3. PREVIOUS ENVIRONMENTAL INVESTIGATIONS

3.1 OTEK (2000) Phase I & II Environmental Site Assessment

OTEK were engaged by Orlani Property Group Pty Ltd to undertake a Phase I and II Environmental Site Assessment (ESA) of the site.

The findings of the report were based on a review of site historical information and a site investigation undertaken during November and December 1999. Potential on-site contamination sources included a flammable goods cabinet and dangerous goods store, two decommissioned Underground Storage Tanks (UST) and one Aboveground Storage Tank (AST), the disused railway line, imported fill materials in the east and adjacent industrial sites.

The results of the soil testing indicated all concentrations were within the relevant guideline criteria for commercial / industrial land use. Groundwater testing indicated elevated levels of short chain hydrocarbons, BTEX and lead adjacent to a decommissioned UST and slightly elevated levels of heavy metals in all groundwater samples.

The report concluded that soils beneath the site were suitable for commercial / industrial land use and the presence of hydrocarbons and heavy metals in groundwater were not considered to pose a potential threat to human health or the environment.

OTEK concluded the site was suitable for continued commercial / industrial land use.

3.2 WSP (2012) Stage 1 & 2 Environmental Site Investigation

WSP were engaged by Motive Properties Pty Limited to conduct a combined Preliminary and Detailed Site Investigation to determine the suitability of the site for ongoing commercial / industrial land use in relation to the potential sale of the site.

The objective of the works was to undertake additional soil and groundwater investigation to supplement the findings of the OTEK (2000) investigation to meet the sampling density requirements of the NSW EPA (1995) Sampling Design Guidelines.

WSP identified trichloroethene (TCE) and its degradant products cis-1.2-dichloroethene (DCE) and vinyl chloride (VC) in shallow groundwater adjacent to a car wash area on Lot 2. The source, extent and magnitude of TCE contamination was not investigated or determined by WSP. The conclusions of the report are summarised below:

- Soils were found to be generally suitable for commercial / industrial land use;
- Offsite migration of TCE in groundwater was not ruled out and further investigation was recommended to delineate the extent of chlorinated solvents and establish the potential for offsite migration; and
- Vapour monitoring for TCE and its degradant products was not considered necessary given chlorinated solvents were detected in outdoor areas. However, Geo-Logix notes that only one groundwater sample was collected and analysed for TCE.

3.3 Geo-Logix (2019) Detailed Site Investigation

Geo-Logix was commissioned by Fabcot to conduct a Detailed Site Investigation of the site to assist Fabcot with their pre-purchase due diligence. Preliminary reviews identified TCE in groundwater as the primary commercial risk to acquisition and development of the property and subsequently the investigation focussed on assessing the source, magnitude and extent of TCE contamination. The investigation also considered other potential contamination issues associated with the site's history and condition. The investigation was undertaken in stages during the period from May to October 2019.

The scope of work comprised the following:

- Sampling and analysis of groundwater from three existing monitoring wells;
- Drilling, installation and sampling of 15 shallow and three deep wells across the site for analysis of a range of contaminants;
- Collection of soil vapour samples from 15 locations across the portion of the site where the building is to be constructed as slab on grade to assess vapour intrusion risk to the proposed building;
- Drilling 22 High Resolution Site Characterisation (HRSC) MiHPT borings across the site to characterise the extent of TCE in groundwater and geology; and
- Drilling, installation and sampling of five shallow wells and two deeper bedrock groundwater wells on the down gradient property 15 Percy Street to assess the off-site extent of TCE / DCE / VC in groundwater.

Groundwater was identified 1.5–3 mbg within alluvium of the former Haslams Creek. Groundwater flow direction in the alluvial water bearing zone was variable with general flow to the north and northeast. Groundwater flow direction in the bedrock water bearing zone was inferred to follow regional groundwater flow towards the northeast and Homebush Bay.

TCE and its degradant products DCE and VC were identified in groundwater across the eastern and northern portion of the site with potential for a minor incursion into 15 Percy Street. Soil vapour investigations did not identify TCE and its degradant products in soil vapour across the western portion of the site where the proposed building will be constructed as slab on grade. Soil vapour was not investigated across the lower eastern half of the site as the proposed construction method, suspended slab, negated the vapour intrusion pathway across this portion of the site.

To assess potential for vapour intrusion into 15 Percy Street a conservative screening method to estimate indoor air concentrations was applied in accordance with NSW EPA (2012) methodology. The estimated indoor air concentrations of TCE and DCE were below the target indoor air concentration for commercial / industrial land use. On this basis the potential for the vapour intrusion pathway to indoor air of the commercial / industrial building on 15 Percy Street was considered unlikely to be complete.

With the exception of potential for trench worker inhalation exposure in the eastern portion of the site where no soil vapour investigation was undertaken, no complete exposure pathways between TCE contaminated groundwater and potential receptors was identified. The potential for trench worker inhalation of TCE was determined to require further investigation.

Multiple lines of evidence indicated TCE in groundwater originated from an off-site source, and while there were a number of industrial properties in the vicinity of the site, the Offset Alpine Printing facility at 42 Boorea Street, Lidcombe located adjacent to the site was considered the most likely origin.

Bonded asbestos fragments were identified on the ground surface in the southeast and northwest corners of the site. Though the risk was considered low, potential for buried asbestos fragments in these areas was identified. Geo-Logix concluded further investigation would be required to determine if a condition exists that requires remediation and/or management.

No other conditions were identified that negate the suitability of the site for the proposed development. On this basis, Geo-Logix recommended the site can be made suitable for the proposed commercial redevelopment, and that if there is potential for worker exposure presented by either trench worker inhalation of TCE or construction worker exposure to bonded asbestos, the risk could be managed through implementation of a site-specific Environmental Management Plan detailing safe work procedures during construction and long-term operation of the site.

4. PRELIMINARY CONCEPTUAL SITE MODEL

For site contamination to present a risk to human health and the environment there has to be a link between the contaminant and the receptor as detailed below.

If any of the links do not exist contaminant exposure cannot occur.

The conceptual models below was prepared based on the results on DSI (Geo-Logix 2019).

Conceptual Site Model – Soil, Vapour & Groundwater				
Relevant Exposure Pathways	**Receptors**			
	Onsite users	**Onsite construction workers**	**Neighbouring site users**	**Other**
Soil ingestion / Dermal contact / Dust	X	✓ (asbestos inhalation)	X	Trench worker ✓ (asbestos inhalation) Terrestrial Ecology X[(a)]
Indoor inhalation of vapours derived from soil	X	X	--	--
Outdoor inhalation of vapours derived from soil	X	X	--	Trench workers X
Indoor inhalation of vapours derived from groundwater	✓	X	X	--
Outdoor inhalation of vapours derived from groundwater	X[(b)]	X[(b)]	X[(b)]	Trench workers ✓[(c)]
Soils leaching to groundwater	--	--	--	Ongoing groundwater impact X
Groundwater abstraction	X	X	X	--
Groundwater discharge to surface water	--	--	--	Recreation / Aquatic ecosystem X
Comments				
X – exposure pathway incomplete no unacceptable risk ✓ – exposure pathway potentially complete and requires either further investigation or remediation / management -- Not relevant				

5. DATA QUALITY OBJECTIVES

Geo-Logix has adopted the seven step Data Quality Objective (DQO) process as described in AS 4482.1–2005, US EPA (2000) and DEC (2006).

Step 1: State the problem.

TCE and its degradant products have been identified in groundwater across the eastern and northern portion of the site. Investigation of soil vapour was required to evaluate the following:

- Potential vapour inhalation pathway across the south eastern portion of the site where the enclosed 'basement' area was proposed;
- If the caged drum area in the existing undercroft area may be the source of TCE contamination; and
- Vapour intrusion pathway to indoor air of the commercial / industrial building on 15 Percy Street to the north and downgradient of the site.

Step 2: Identify the decision.

- The vapour intrusion pathway to the proposed 'basement' area beneath the suspended slab in the eastern portion of the site is incomplete and there is no requirement for vapour intrusion mitigation.
- The caged drum store is not the potential TCE source and it can be concluded TCE originates from an off-site source.
- The vapour intrusion pathway to occupants of 15 Percy Street is incomplete and there is no requirement for vapour intrusion mitigation.

Step 3: Identify inputs into the decision.

Soil vapour investigation across the footprint of the proposed enclosed 'basement' area, including investigation of the caged drum store, to assess potential vapour intrusion, the requirement for remediation and / or management and the source of TCE.

Soil vapour investigation along the northern boundary is required to reinforce the conclusion made in the DSI that the TCE vapour intrusion pathway to indoor air of the commercial / industrial building on 15 Percy Street is incomplete.

Step 4: Define the boundaries of the site.

The project boundary is defined as the area within the site boundary (11–13 Percy Street, Auburn NSW) to a vertical depth of 3 mbg.

Step 5: Develop a decision rule.

To conclude the vapour intrusion pathway to the proposed 'basement' area beneath the suspended slab in the eastern portion of the site is incomplete, the following decision rules apply:

- TCE and its degradant products cis-1,2-DCE and VC are not present in shallow soil vapour at concentrations above Tier 1 soil vapour screening criteria across the footprint of the basement.

To conclude whether the caged drum store is a potential TCE source, the following project decision applies:

- TCE concentrations in shallow soil vapour beneath and in the vicinity of the caged drum store are indicative of a TCE source, and soil vapour concentrations decrease with distance away from the caged drum store.

To conclude the vapour intrusion pathway to occupants of 15 Percy Street is incomplete, the following decision rules apply:

- TCE and its degradant products cis-1,2-DCE and VC are not present in shallow soil vapour on the down gradient site boundary with 15 Percy Street at concentrations above Tier 1 soil vapour screening criteria.

Step 6: Specify acceptable limits on decision errors.

The field sampling methodology, sample preservation techniques, and laboratory analytical procedures must be appropriate to provide confidence in data quality so any comparison against assessment criteria can be considered reliable. This is achieved by defining and comparing results against the Data Quality Indicators (DQIs).

Step 7: Optimise the design for obtaining data.

The investigation design has been optimised by considering data gaps and uncertainties associated with the conceptual model. This is achieved by sampling plan design in consideration of the available site history information, area of investigation, contaminant behaviour in the environment, results of previous site investigations and likely spatial distribution of contamination.

6. ASSESSMENT CRITERIA

The primary reference for environmental site assessment in Australia is the Amended Assessment of Site Contamination (ASC) National Environmental Protection Measure (NEPM) 1999 (NEPC, 2013). This document includes soil, soil vapour and groundwater criteria for use in evaluating potential contamination risk to human health and the environment.

The application of these investigation levels and screening levels is subject to a range of limitations and their selection and use must be in the context of the conceptual site model (CSM) relating to the nature and distribution of impacts and potential exposure pathways. Each relevant guideline is discussed further below and the adopted screening criteria are presented in summary sample analytical tables attached to this report.

6.1 Soil Vapour Assessment Criteria

NEPM Health Screening Levels D (HSLs D Soil Vapour)

HSLs are Tier 1 risk based generic soil vapour assessment criteria used for the assessment of potential risks to human health from chronic inhalation exposure of subsurface petroleum vapours (Vapour Risk). They are intentionally conservative and based on a reasonable worst-case scenario for generic soil types, contamination depth and land use settings including Residential (HSLs A/B), Open Space/Recreational (HSLs C) and Commercial Industrial (HSLs D). HSLs D vapour assessment criteria was adopted on the basis the proposed development is commercial / industrial.

NEPM Interim Health Investigation Levels D (HILs D)

NEPM provides interim soil vapour health-based investigation levels (HILs) for Volatile Organic Chlorinated Compounds (VOCCs) driven by the vapour intrusion pathway under particular land use settings. Commercial / Industrial HILs, referred to as HILs D, are the appropriate criteria to assess against sample results. Interim HILs are conservative Tier 1 soil vapour concentrations that apply to shallow (1 m depth) or sub-slab soil vapour. They are to be used to identify sites where further investigation is required to assess potential health risks from soil contamination sources and groundwater plumes.

VOCC	Interim Soil Vapor HILs for Commercial/ Industrial Land use (mg/m^3)
Trichloroethene	0.08
Tetrachloroethene	8
cis-1,2-Dichloroethene	0.3
Vinyl Chloride	0.1

7. INVESTIGATION METHODOLOGIES

Geo-Logix conducted the soil vapour investigation during the period 26 May to 19 June 2020. Sample locations are presented in Figure 3. The schedule of events completed is given below:

Date of Field Work	Task Completed
26/05/2020	Drilling of borings VP1-VP12 and VP14-VP16 and installation of soil vapour implants.
28/05/2020	Installation of soil vapour pins VP17-VP20 Collection of soil vapour samples VP1-VP12 and VP14-VP20
15/06/2020	Installation of soil vapour well VP20
19/06/2020	Collection of soil vapour sample VP20

7.1 Soil Vapour Sampling Plan

The approach was to collect soil vapour samples across the areas of concern and use CSI Australia Pty Ltd mobile laboratory to undertake sample collection and analysis and provide near real time results. The results were used to determine if additional sample locations were required to 'chase out' and define the extent of TCE and cis-1,2-DCE in soil vapour. Sample locations are presented on Figure 3 and described below:

- Eleven soil vapour wells (VP1-VP6, VP9-VP10, VP14-VP16) were installed on a 25 m grid based sampling plan across the footprint where the enclosed 'basement' carpark was proposed;
- Two vapour wells (VP11-VP12) were installed in the proposed OSD tank location and near the caged drum store;
- Two soil vapour wells (VP7-VP8) were installed along the perimeter of the caged drum storage area;

- Three sub slab soil vapour pins (VP17-VP19) were installed along the northern boundary shared with 15 Percy Street; and
- One soil vapour well (VP20) was installed paired with well MW102 where the highest TCE concentrations in groundwater have been identified.

Vapour wells VP1 to VP16 and VP20 targeted the vadose zone immediately above the capillary fringe to evaluate vapour concentrations emanating from impacted groundwater. The depth corresponded with what would have been the floor level of the enclosed basement carpark. Sample depths are presented in the table below:

Vapour Well ID	Approximate Surface Elevation (mAHD)	Well Depth (mbg)	Sample Depth (mAHD)	Status
VP1	4.5	1.0	3.5	Sampled
VP2	4.5	0.8	3.7	Sampled
VP3	4.5	1.0	3.5	Waterlogged – not sampled
VP4	4.5	0.8	3.7	Sampled
VP5	4.5	0.8	3.7	Waterlogged – not sampled
VP6	7.0	3.1	4.0	Sampled
VP7	4.5	0.8	3.7	Sampled
VP8	4.5	0.8	3.7	Waterlogged – not sampled
VP9	4.5	0.8	3.7	Sampled
VP10	7.0	3.0	4.0	Sampled
VP11	6.8	3.0	3.8	Sampled
VP12	6.0	2.0	4.0	Sampled
VP13	Not installed due to shallow groundwater			
VP14	4.5	0.8	3.7	Waterlogged – not sampled
VP15	4.5	0.6	3.9	Waterlogged – not sampled
VP16	7.0	3.0	4.0	Sampled
VP20	5.9	2.8	3.1	Sampled

Vapour samples VP17 to VP19 targeted sub slab vapour beneath the driveway and at the elevation of the floor slab of the building on the neighbouring property 15 Percy Street.

7.2 Soil Vapour Well Installation Methodology

Soil Vapour Wells

Soil vapour wells were constructed in accordance with the *Soil Vapour and Indoor Air Sampling Guidance* (State of Hawai'i, 2017) as follows. Vapour well construction logs are presented in Attachment C:

- Borings VP1 to VP16 were drilled to targeted depths by a Miniprobe drilling rig equipped with push tube. Boring VP20 was drilled to the target depth by a truck mounted drill rig equipped with 100 mm diameter solid stem auger;
- The vapour well was constructed by inserting 0.25 inch Teflon® tubing into the soil boring at the selected depth. A 150 mm stainless steel gauze sampling port was attached to the end of the tubing;
- The vapour well was completed by backfilling the bore annulus with 5 mm graded sand to 5 cm above the sampling port. The bore was sealed with hydrated bentonite and grouted to the surface; and
- Wells were purged of three system volumes with a syringe and capped with an air tight Swagelok fitting.

The vapour wells were left to equilibrate for a minimum of 17 hours before sampling. The equilibration time is in accordance with CRC CARE (2013) minimum requirement of eight hours for vapour probes where tubing is buried in the ground.

Soil Vapour Pins

Sub slab soil vapour pins were installed at locations VP17–VP19 near the northern boundary. The pins were installed in accordance with the manufacturer's specification as described below:

- A 16 mm diameter hole was drilled through the concrete slab and into underlying base course using a hand operated rotary hammer drill;
- The hole was cleaned using a bottle brush;
- The vapour pins were inserted into the holes;
- A short section of nylon tubing was attached to the barbed end of the vapour pin and capped with a two way valve;
- The pins were purged with a syringe at a flow rate of approximately 100 mL/min. 250 mL of air was removed; and
- The vapour pins were left to equilibrate before sampling. Vapour pins were installed on the day of analysis and were left to equilibrate for 1 hour before sample collection and analysis, in accordance with minimum equilibration requirements as per CRC CARE (2013).

7.3 Soil Vapour Sample Collection Methodology

CSI Australia Pty Ltd (CSI) were engaged to collect and analyse soil vapour samples VP1 to VP19 using an on-site mobile laboratory. The sample and analysis method comprised the following:

- Prior to sampling, field screening was completed with a PID to determine dilution requirements;
- 300 mL was purged from each well using a syringe;

- At sampling, a 50 cubic centimetre sample was extracted in a glass syringe. The sample was directly injected into a field vapour chromatogram for analysis. Samples were analysed by gas chromatography (GC) equipped with an electron capture detector (ECD) and a photo ionisation detector, following USEPA method TO-14 for tetrachloroethene (PCE), TCE, DCE and isopropyl alcohol;
- BTEX were also reported;
- Each analysis cycle was between 8–10 minutes;
- As vinyl chloride readily breaks down in the presence of oxygen, it is rarely the risk driver for vapour intrusion. For this reason, CSI did not analyse for vinyl chloride;
- Internal QA/QC procedures adopted by CSI include duplicate soil vapour samples, method blanks and calibration gas spikes;
- Leak detection was performed by pacing an isopropanol soaked rag at the well head covered by a shroud; and
- One duplicate soil vapour samples were collected via syringe method onto thermal desorption tubes and submitted to Eurofins to confirm accuracy of the field vapour chromatogram.

Calibration certificates are included in Attachment D.

Soil vapour well locations VP3, VP5, VP8, VP14 and VP15 could not be sampled due to saturated ground conditions.

Soil vapour sample VP20 was collected in a 1 litre SUMMA canister in accordance with the following methodology:

- A section of ¼" Teflon tubing was connected to the swagelok fitting at the well head;
- The sample train consists of a two-way brass Swagelok valve connected to the well tubing. A small (50 mm) section of tubing was attached to the down flow side of the valve;
- Prior to sampling, 300 mL of soil gas was purged from the system using a hand held pump. Following purging, the valve was closed to prevent backflow into the tubing;
- The soil vapour sample was collected in a 1 litre canister with flow controller set to 40 mL/min. Prior to sample collection the canister vacuum was checked to ensure it had not leaked in transit. Canister vacuum was satisfactory;
- Two rounds of shut in tests were completed prior to sampling. The first was completed as above to test the connection between the flow controller and the canister. The second was completed to test the connection between the tubing and the flow controller by connecting the sample tubing to the flow controller, leaving the valve on the tubing closed and opening the valve on the canister;
- The two-way brass valve on the sample tubing was opened and the valve on the canister was opened;
- During sampling, the well head connection was kept under a shroud with an Isopropyl Alcohol (IPA) soaked rag for leak detection;

- After approximately 60 minutes, and when remaining vacuum measure 12“ Hg, the canister was closed and the remaining canister vacuum was recorded on the chain of custody. This point marked equilibrium between canister vacuum and vapour well vacuum;
- Samples were transported under chain of custody to Eurofins laboratory. Eurofins checked the canister vacuum upon sample receipt, vacuums were consistent with field measured vacuums; and
- The sample was analysed for volatile organic compounds, which include TCE, cis-1,2-DCE and VC by US EPA Method TO-15.

7.4 Quality Assurance

Quality control (QC) sampling was undertaken in general accordance with specifications outlined in AS4482.1, *Guide to Sampling and Investigation of Potentially Contaminated Soil.* Field QC samples were collected and included the following:

Sample Identification	Sample Type	Sample Matrix	Rate of Collection
VP4DUP	Field duplicate of VP4	Soil Vapour	2 in 14 samples
VP9DUP	Field duplicate of VP9	Soil Vapour	2 in 14 samples
VP4-TD	Field triplicate of VP4 collected using a thermal desorption tube.	Soil Vapour	1 in 14 samples

Note – Rate of QC sample collection specified as 1 in 20 samples in AS4482.1

The laboratory internal QC procedures are consistent with NEPM policy on laboratory analysis of contaminated soils.

One triplicate sample (VP4-TD) was collected onto thermal desorption tubes and analysed in a different laboratory to confirm accuracy of the field vapour chromatogram.

8. INVESTIGATION RESULTS

8.1 Site Geology

Fill material was encountered across the borings to a maximum depth of 2.6 m. The fill material generally consisted of moderately compacted clayey sands. Anthropogenic material including glass, plastic and steel were observed in fill at VP6. In the area of soil vapour investigation, natural soils immediately underlying fill generally comprised alluvial clay.

8.2 Soil Vapour Analytical Data

Soil vapour analytical results are summarised in Tables 1 and 2. Laboratory reports are presented in Attachment E.

BTEX

BTEX were variously detected at concentrations above the laboratory reporting limits but well below the assessment criteria in the soil vapour samples analysed (Table 1).

VOCs

Trichloroethene was detected at concentrations greater than the Interim HILs assessment criteria in soil vapour samples VP4 and VP20 (Table 2).

cis-1.2-Dichloroethene was detected at concentrations greater than the Interim HILs assessment criteria in soil vapour samples VP4 and VP20.

Vinyl chloride was detected at concentrations greater than the Interim HILs assessment criteria in soil vapour samples VP20.

No other VOC's analysed were detected at concentrations above the assessment criteria.

8.3 QA/QC Results

RPD Results

Soil vapour duplicate results of samples analysed by CSI Australia Pty Ltd mobile laboratory are within the adopted acceptance criteria of 30-50% (AS4482.1).

One inter-laboratory triplicate sample (VP4-TD) was collected onto thermal desorption tubes to confirm accuracy of the field vapour chromatogram. The triplicate results are within the adopted acceptance criteria of 30–50% (AS4482.1) relative percent difference (RPD) except cis-1.2-Dichloroethene and trichloroethene in soil triplicate pair VP4 and VP4-TD. The RPD exceedances indicate TCE and cis-1,2-DCE concentrations may have been over reported by CSI Australia. This does not affect the outcome of the investigation.

Isopropyl alcohol was not detected in any soil vapour sample analysed indicating the sample train integrity was tight and potential for atmospheric breakthrough was minimal.

CSI Australia internal field duplicates passed their internal QA/QC requirements. A summary of Laboratory QA/QC data is presented on the following table.

Report #	Analysis Within Holding Time	Surrogate Recovery	Lab. Duplicate RPD %	Lab Matrix Spike Recovery	Lab. Control Sample	Lab Method Blank
CSI Australia	✓	-	✓	--	--	✓
723076-TO-V4	✓	✓	--	--	✓	✓
726829-TO-V2	✓	✓	--	--	✓	✓
✓ = Pass X = Fail -- = not required						

Quality Assurance Criteria	Quality Control Criteria
Holding Times	**Accuracy**
VOCs: 7 days soil, 7 days water SVOCs: 14 days soil, 7 days water TRH and BTEX: 14 days soil, 7 days water Metals: 6 months soil (mercury 28 days), 28 days water. Asbestos: no limit	Surrogate, matrix spike, control sample 70–130% and 30–130% for Phenols. Surrogate recovery 50–150% and 20–130% for Phenols. **Precision** Method Blank Not detected Duplicate – No limit (<10xEQL), 0–50% (10–20xEQL), 0–200% (>20xEQL)

Geo-Logix accepts the integrity of the analytical data.

9. DISCUSSION

Vapour wells VP3, VP5, VP8, VP14 and VP15 could not be sampled due to waterlogging from shallow groundwater across the undercroft area.

TCE Vapour Intrusion

TCE and cis-1,2-DCE were detected at concentrations above Tier 1 soil vapour screening criteria in soil vapour sample VP20 on the eastern boundary and nearby sample VP4 located adjacent to the northern end of the caged drum store and on the eastern edge of the existing undercroft area (Figure 4). TCE and cis-1,2-DCE were not detected at concentrations above Tier 1 screening criteria in any other soil vapour sample collected across the undercroft area including the location of the proposed OSD tank. TCE was also not detected in WSP (2012) soil samples collected from beneath the drum store slab and MiHPT borings around the drum store completed by Geo-Logix (2019).

The results indicate the extent of TCE and cis-1,2-DCE in soil vapour at elevated concentrations is limited to an isolated area on the eastern boundary of the site where the building will be constructed with a suspended slab. On this basis TCE vapour intrusion to indoor air of the proposed development is considered incomplete and there is no requirement for vapour intrusion mitigation measures. In addition, work health and safety measures would not be necessary to control exposure to workers undertaking excavation and installation of the OSD tank.

The only potentially complete exposure pathway to TCE vapour in soil is to workers undertaking subsurface works in the area of VP4 and VP20 (trench worker). Potential exposure can be managed under the provisions of an Environmental Management Plan for both the construction phase and operational phase of the development.

TCE Source

TCE in soil vapour was detected at an elevated concentration in sample VP20 collected on the eastern boundary of the site paired with groundwater well MW102 where the highest TCE concentrations in groundwater have been identified. TCE vapour in soil attenuates rapidly away from VP20 (Figure 5).

The decreasing concentration away from VP20 toward the caged drum store area, and absence of TCE in any other soil vapour sample completed in the vicinity of the drum store (VP7, VP11 and VP12) also indicates the caged drum store area is unlikely to be the TCE source.

The results substantiate the conclusions of the DSI that TCE is migrating onto site from an off-site source to the east or southeast.

15 Percy Street Vapour Intrusion

TCE and cis-1,2-DCE were not detected in shallow soil vapour samples VP17, VP18 and VP19 collected along the northern boundary of the site with 15 Percy Street. The indoor air inhalation pathway to occupants of 15 Percy Street is considered incomplete.

10. REVISED CONCEPTUAL SITE MODEL

A summary of the revised CSM for TCE, DCE and VC contamination is presented below.

Conceptual Site Model – Soil, Vapour & Groundwater				
Relevant Exposure Pathways	**Receptors**			
	On site users	**On site construction workers**	**Neighbouring site users**	**Other**
Soil ingestion / Dermal contact / Dust	X	X	X	Trench worker X Terrestrial Ecology X
Indoor inhalation of vapours derived from soil	X	X	X	--
Outdoor inhalation of vapours derived from soil	X	X	--	Trench workers X
Indoor inhalation of vapours derived from groundwater	X	X	X	--
Outdoor inhalation of vapours derived from groundwater	X	X	X	Trench workers ✓
Soils leaching to groundwater	--	--	--	Ongoing groundwater impact X
Groundwater abstraction	X	X	X	--
Groundwater discharge to surface water	--	--	--	Recreation / Aquatic ecosystem X
Comments				
X – exposure pathway incomplete no unacceptable risk ✓ – exposure pathway potentially complete and requires either further investigation or remediation / management -- Not relevant				

11. CONCLUSIONS

The investigation has established the following:

- The extent of TCE and its degradant products in soil vapour in the area of the proposed basement carpark area have been delineated and are limited to an isolated area in the southeast portion of the site. Indoor air inhalation is considered an incomplete exposure pathway to occupants of the proposed development and there is no requirement for vapour intrusion mitigation measures or remediation of groundwater;
- Potential for trench worker exposure via inhalation of TCE vapour should be managed through implementation of a site-specific Environmental Management Plan detailing safe work procedures during construction and long-term operation of the site;
- Multiple lines of evidence from previous investigations and the current investigation indicate TCE likely originates from an off-site source to the east or southeast; and
- The indoor air inhalation pathway to occupants of 15 Percy Street is considered incomplete.

12. LIMITATIONS

This report should be read in full, and no executive summary, conclusion or other section of the report may be used or relied on in isolation, or taken as representative of the report as a whole. No responsibility is accepted by Geo-Logix, and any duty of care that may arise but for this statement is excluded, in relation to any use of any part of this report other than on this basis.

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The works undertaken by Geo-Logix are based solely on the scope of works, as agreed by the Client (Scope of Works). No other investigations, sampling, monitoring works or reporting will be carried out other than as expressly provided in the Scope of Works. **A COPY OF THE SCOPE OF WORKS IS AVAILABLE ON REQUEST.**

To the extent permitted by law, Geo-Logix makes no warranties or representations as to the:

a. suitability of the Site for any specific use, or category of use, or

b. potential statutory requirements for remediation, if any, of the Site,

c. approvals, if any, that may be needed in respect of any use or category of use, or

d. level of remediation, if any, that is warranted to render the Site suitable for any specific use, or category of use, or

e. level of ongoing monitoring of Site conditions, if any, that is required in respect of any specific use, or category of use, or

f. presence, extent or absence of any substance in, on or under the Site, other than as expressly stated in this report.

The conclusions stated in this report are based solely on the information, Scope of Works, analysis and data that are stated or expressly referred to in this report.

To the extent that the information and data relied upon to prepare this report has been conveyed to Geo-Logix by the Client or third parties orally or in the form of documents, Geo-Logix has assumed that the information and data are completely accurate and has not sought independently to verify the accuracy of the information or data. Geo-Logix assumes no responsibility or duty of care in respect of any errors or omissions in the information or data provided to it.

Without limiting the paragraph above, where laboratory tests have been carried out by others on Geo-Logix's behalf, the tests are reproduced in this report on the assumption that the tests are accurate. Geo-Logix has not sought independently to verify the accuracy of those tests and assumes no responsibility in respect of them.

Geo-Logix assumes no responsibility in respect of any changes in the condition of the Site which have occurred since the time when Geo-Logix gathered data and/or took samples from the Site on its site inspections from 26 May to 19 June 2020

Given the nature of asbestos, and the difficulties involved in identifying asbestos fibres, despite the exercise of all reasonable due care and diligence, thorough investigations may not always reveal its presence in either buildings or fill. Even if asbestos has been tested for and those tests' results do not reveal the presence of asbestos at those specific points of sampling, asbestos or asbestos containing materials may still be present at the Site, particularly if fill has been imported at any time, buildings constructed prior to 1980 have been demolished on the Site or materials from such buildings have been disposed of on the Site.

Where the Scope of Works does not include offsite investigations, Geo-Logix provides no warranty as to offsite conditions, including the extent if any to which substances in the Site may be emanating off site, and if so whether any adjoining sites have been or may be impacted by contamination originating from the Site.

Where the Scope of Works does not include the investigation, sampling, monitoring or other testing of groundwater in, on or under the Site, Geo-Logix provides no warranty or representation as to the quality of groundwater on the Site or the actual or potential migration of contamination in groundwater across or off the Site.

Subsurface site conditions are typically heterogeneous, and may change with time. Samples taken from different points on the Site may not enable inferences to be drawn about the condition of areas of the Site significantly removed from the sample points, or about the condition of any part of the Site whatsoever, in particular where the proposed inferences are to be drawn a long time after the date of the report.

Geo-Logix has prepared this report with the diligence, care and skill which a reasonable person would expect from a reputable environmental consultancy and in accordance with environmental regulatory authority and industry standards, guidelines and assessment criteria applicable as at the date of this report. Industry standards and environmental criteria change frequently, and may change at any time after the date of this report.

13. REFERENCES

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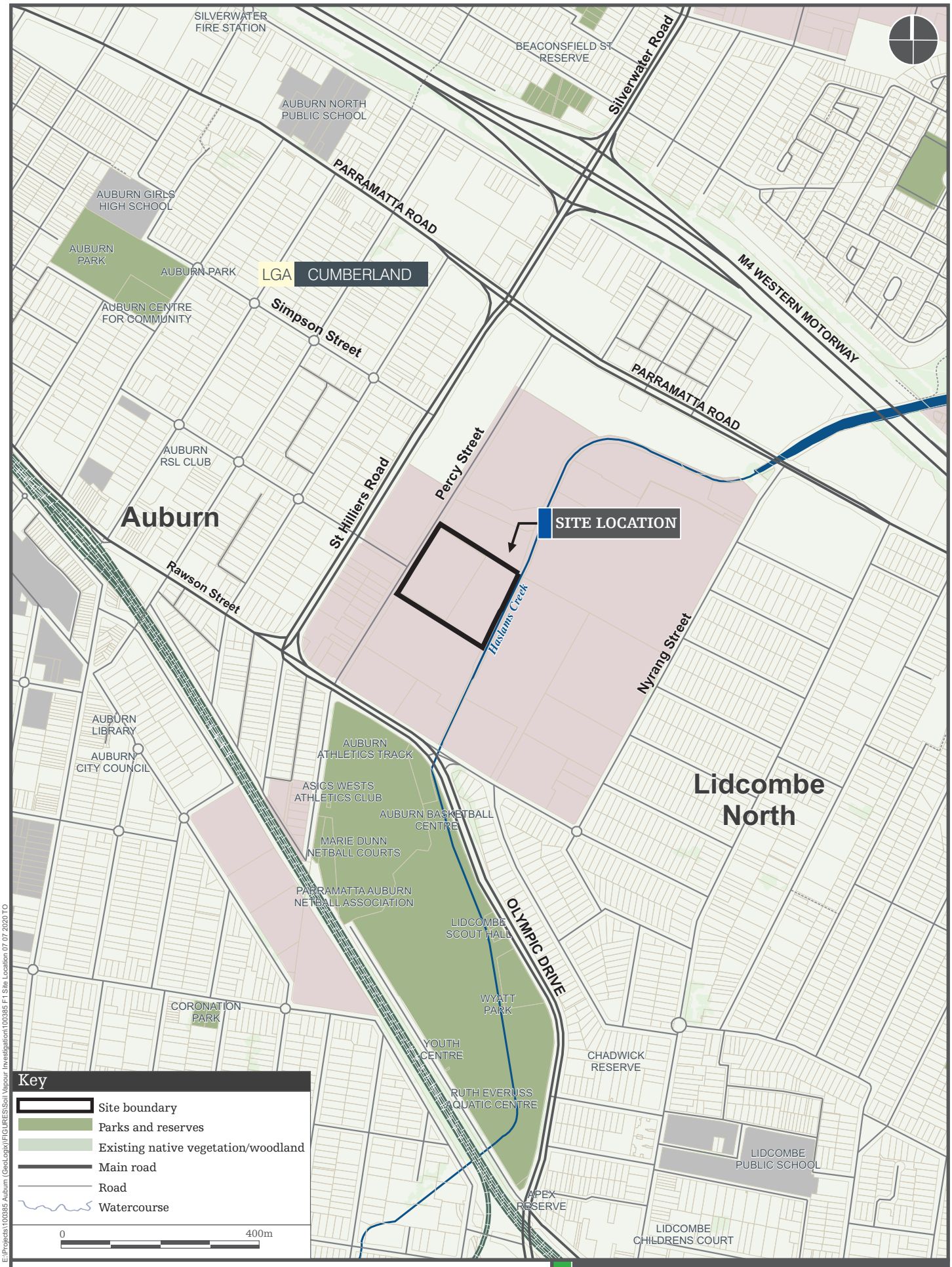
FIGURES



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SITE VICINITY MAP

Soil Vapour Investigation
11-13 Percy Street, Auburn NSW

Project No. 2002029

Figure 1

Site Features

1. Former radioactive store
2. Decommissioned UST
3. Former dangerous goods shed
4. Former cooling towers
5. Wash bay
6. AST/fuel dispenser
7. Waste oil tank
8. Former AST
9. Air compressor pump
10. Wastewater tank/former lime dosing unit
11. substation
12. Decommissioned UST
13. former grease trap & cooling towers

Hall Street

Percy Street

Former rail line

Haslams Creek

Former plastic raw materials silos

Retaining wall

Polyurethane drums/ spillage (in caged enclosure)

Proposed OSD Tank

Percy Street

Key

Site boundary

0 50m

E:\Projects\1001085 Auburn (GeoLogix)\FIG\LIRES\Soil Vapour Investigation\102385 F2 Site Features Map 17 07 2020 TO Rev A

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SITE FEATURES MAP

Soil Vapour Investigation
11-13 Percy Street, Auburn NSW

Project No. 2001029

Figure 2

E:\Projects\1\00985 Auburn (Geo\Logix)\FIGURES\Soil Vapour Investigation\102385 F3 Soil Vapour Sample Locations 17 07 2020 TO Rev A

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SOIL VAPOUR SAMPLE LOCATIONS

Soil Vapour Investigation
11-13 Percy Street, Auburn NSW

Project No. 2001029

Figure 3

Site Features

1. Former radioactive store
2. Decommissioned UST
3. Former dangerous goods shed
4. Former cooling towers
5. Wash bay
6. AST/fuel dispenser
7. Waste oil tank
8. Former AST
9. Air compressor pump
10. Wastewater tank/former lime dosing unit
11. substation
12. Decommissioned UST
13. former grease trap & cooling towers

Hall Street

Percy Street

Former rail line

Haslams Creek

SV1 SV2 SV3 SV4 SV5 SV6 SV7 SV8 SV9 SV10 SV11 SV12 SV13 SV14 SV15

VP19 TCE: ND PCE: ND DCE: ND

VP18 TCE: ND PCE: ND DCE: ND

VP17 TCE: ND PCE: ND DCE: ND

VP2 TCE: 4 PCE: ND DCE: ND

VP4 TCE: **12,000** PCE: 21 DCE: **1,100**

VP1 TCE: 2 PCE: ND DCE: ND

VP20 TCE: **77,000** PCE: ND DCE: **22,000**

VP7 TCE: ND PCE: ND DCE: ND

VP11 TCE: 1 PCE: ND DCE: ND

VP12 TCE: 12 PCE: ND DCE: ND

VP3 Not sampled

VP6 TCE: ND PCE: ND DCE: ND

VP10 TCE: ND PCE: ND DCE: ND

VP5 Not sampled

VP9 TCE: ND PCE: ND DCE: ND

VP16 TCE: ND PCE: ND DCE: ND

VP15 Not sampled

VP8 Not sampled

VP14 Not sampled

Former plastic raw materials silos

Undercroft parking

Retaining wall

Polyurethane drums/ spillage (in caged enclosure)

Proposed OSD Tank

Key

- Site boundary
- Soil vapour well location (Geo-Logix, Oct 2019)
- Soil vapour well location (Geo-Logix, Jul 2020)

0 50m

E:\Projects\100985 Auburn (GeoLogix)\FIGURES\Soil Vapour Investigation\120385 F4 Soil Vapour Analytical Results 16 07 2020.TO

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Note:
Chlorinated hydrocarbon concentrations are displayed in µg/L
Bold results indicate concentrations above human health or ecosystem protection criteria
TCE: Trichloroethene
DCE: cis-1.2-dichloroethene
PCE: Tetrachloroethylene
VP3, VP5, VP8, VP14 and VP15 were not sampled because of saturated ground conditions

SOIL VAPOUR ANALYTICAL RESULTS

Soil Vapour Investigation
11-13 Percy Street, Auburn NSW

Project No. 2001029

Figure 4

Site Features

1 Former radioactive store
2 Decommissioned UST
3 Former dangerous goods shed
4 Former cooling towers
5 Wash bay
6 AST/fuel dispenser
7 Waste oil tank
8 Former AST
9 Air compressor pump
10 Wastewater tank/former lime dosing unit
11 substation
12 Decommissioned UST
13 former grease trap & cooling towers

SV5
SV12
SV9
SV4
SV8
SV11
SV15
SV14
VP16 ND
VP15 Not sampled
VP14 Not sampled
VP10 ND
VP9 ND
VP7 ND
VP3 Not sampled
VP8 Not sampled
VP6 ND
VP5 Not sampled
VP2 TCE: 4
VP1 TCE: 2
VP4 TCE: 12,000
VP20 TCE: 77,000
VP11 TCE: 1
VP12 TCE: 12

Former plastic raw materials silos
Undercroft parking
Retaining wall
Polyurethane drums/ spillage (in caged enclosure)
Proposed OSD Tank

Colour Scale
TCE Concentrations in µg/m³
10000
1000
100
10
1

Key
Site boundary
Soil vapour well location (Geo-Logix, Oct 2019)
Soil vapour well location (Geo-Logix, Jul 2020)
0 25m

E:\Projects\100385 Auburn (GeoLogix)\FIGURES\Soil Vapour Investigation\100385 F5 Tce Concentration Map 17 07 2020 TO Rev A

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Note:
Chlorinated hydrocarbon concentrations are displayed in µg/L
Bold results indicate concentrations above human health or ecosystem protection criteria
TCE: Trichloroethene
DCE: cis-1.2-dichloroethene
PCE: Tetrachloroethylene
VP3, VP5, VP8, VP14 and VP15 were not sampled because of saturated ground conditions

TCE CONCENTRATION MAP

Soil Vapour Investigation
11-13 Percy Street, Auburn NSW

Project No. 2001029

Figure 5

TABLES

Table 1: Summary of Soil Vapour Analytical Data - BTEX

Soil Vapour Investigation

Project No.: 2001029

11-13 Percy Street,
Auburn NSW

	Criteria 1						
	HSLs - D						
	Sand	Sample ID	VP1	VP2	VP4	VP4DUP	RPD_VP4DUP
	0 to <1 m	Date	28/05/2020	28/05/2020	28/05/2020	28/05/2020	-
Benzene	4,000		< 60	< 60	< 60	< 60	*nc*
Toluene	4,800,000		< 100	< 100	< 100	< 100	*nc*
Ethylbenzene	1,300,000		< 200	< 200	430	340	*23%*
m&p-Xylenes	-		1,200	950	2,000	1,900	*5%*
o-Xylene	-		750	< 120	1,500	1,500	*0%*
Xylenes - Total	840,000		1,950	950	3,500	3,400	*3%*

Notes:

Criteria 1 = NEPC (1999) Amended, 'D' Comm./ind. Soil vapour Health Screening Levels for vapour intrusion, sand 0 to <1m.
Total concentrations in µg/m³
- = assessment criteria not available
VP4DUP = duplicate of VP4
VP4-TD = triplicate of VP4
VP9DUP = duplicate of VP9
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

Table 1: Summary of Soil Vapour Analytical Data - BTEX

Soil Vapour Investigation

Project No.: 2001029

11-13 Percy Street,
Auburn NSW

	Criteria 1						
	HSLs - D						
	Sand	Sample ID	VP4-TD	RPD_VP4-TD	VP6	VP7	VP9
	0 to <1 m	Date	28/05/2020	-	28/05/2020	28/05/2020	28/05/2020
Benzene	4,000		< 4	*nc*	< 60	< 60	< 60
Toluene	4,800,000		< 4	*nc*	< 100	< 100	< 100
Ethylbenzene	1,300,000		640	*39%*	< 200	350	< 200
m&p-Xylenes	-		2,920	*37%*	< 300	1,500	2,800
o-Xylene	-		1,200	*22%*	< 120	< 120	2,900
Xylenes - Total	840,000		4,120	*16%*	ND	1,500	5,700

Notes:

Criteria 1 = NEPC (1999) Amended, 'D' Comm./ind. Soil vapour Health Screening Levels for vapour intrusion, sand 0 to <1m.
Total concentrations in µg/m³
- = assessment criteria not available
VP4DUP = duplicate of VP4
VP4-TD = triplicate of VP4
VP9DUP = duplicate of VP9
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

Table 1: Summary of Soil Vapour Analytical Data - BTEX

Soil Vapour Investigation

Project No.: 2001029

11-13 Percy Street,
Auburn NSW

	Criteria 1					
	HSLs - D					
	Sand	Sample ID	VP9DUP	RPD_VP9DUP	VP10	VP11	VP12
	0 to <1 m	Date	28/05/2020	-	28/05/2020	28/05/2020	28/05/2020
Benzene	4,000		< 60	*nc*	< 60	< 60	< 60
Toluene	4,800,000		< 100	*nc*	< 100	< 100	< 100
Ethylbenzene	1,300,000		< 200	*nc*	< 200	< 200	< 200
m&p-Xylenes	-		2,500	*11%*	< 300	< 300	< 300
o-Xylene	-		2,000	*37%*	< 120	< 120	< 120
Xylenes - Total	840,000		4,500	*24%*	ND	ND	ND

Notes:

Criteria 1 = NEPC (1999) Amended, 'D' Comm./ind. Soil vapour Health Screening Levels for vapour intrusion, sand 0 to <1m.
Total concentrations in µg/m³
- = assessment criteria not available
VP4DUP = duplicate of VP4
VP4-TD = triplicate of VP4
VP9DUP = duplicate of VP9
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

Table 1: Summary of Soil Vapour Analytical Data - BTEX

Soil Vapour Investigation

Project No.: 2001029

11-13 Percy Street,
Auburn NSW

	Criteria 1						
	HSLs - D						
	Sand	Sample ID	VP16	VP17	VP18	VP19	VP20
	0 to <1 m	Date	28/05/2020	28/05/2020	28/05/2020	28/05/2020	19/06/2020
Benzene	4,000		< 60	80	90	< 60	< 16
Toluene	4,800,000		< 100	< 100	< 100	< 100	750
Ethylbenzene	1,300,000		200	< 200	< 200	< 200	60
m&p-Xylenes	-		530	< 300	< 300	< 300	260
o-Xylene	-		130	< 120	< 120	< 120	52
Xylenes - Total	840,000		660	ND	ND	ND	310

Notes:

Criteria 1 = NEPC (1999) Amended, 'D' Comm./ind. Soil vapour Health Screening Levels for vapour intrusion, sand 0 to <1m.
Total concentrations in µg/m³
- = assessment criteria not available
VP4DUP = duplicate of VP4
VP4-TD = triplicate of VP4
VP9DUP = duplicate of VP9
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

Table 2 : Summary of Soil Vapour Analytical Data - Volatile Organic Compounds

Soil Vapour Investigation

Project No.: 2001029

11-13 Percy Street,
Auburn NSW

	Criteria 1						
	HILs - D						
	Interim	Sample ID	VP1	VP2	VP4	VP4DUP	RPD_VP4DUP
	Soil Vapour	Date	28/05/2020	28/05/2020	28/05/2020	28/05/2020	-
cis-1.2-Dichloroethene	300		< 80	< 80	**1,100**	**1,000**	*10%*
trans-1.2-Dichloroethene	-		< 40	< 40	250	240	*4%*
1.2-Dichloroethene (Total)	-		ND	ND	1,350	1,240	*8%*
Trichloroethene	80		2	4	**12,000**	**10,500**	*13%*
Tetrachloroethene	8,000		< 1	< 1	21	15	*33%*
Isopropanol	-		< 50	< 50	< 50	< 50	*nc*
Vinyl chloride	100		--	--	--	--	--

Notes:

Criteria 1 = NEPC (1999) Amended, 'D' Commercial/industrial Interim soil vapour Health Investigation Levels for VOCCs.
Total concentrations in µg/m³
- = assessment criteria not available
VP4DUP = duplicate of VP4
VP4-TD = triplicate of VP4
VP9DUP = duplicate of VP9
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

Table 2 : Summary of Soil Vapour Analytical Data - Volatile Organic Compounds

Soil Vapour Investigation

Project No.: 2001029

11-13 Percy Street,
Auburn NSW

	Criteria 1					
	HILs - D					
	Interim	Sample ID	VP4-TD	RPD_VP4-TD	VP6	VP7	VP9
	Soil Vapour	Date	28/05/2020	-	28/05/2020	28/05/2020	28/05/2020
cis-1.2-Dichloroethene	300		168	*147%*	< 80	< 80	< 80
trans-1.2-Dichloroethene	-		< 4	*nc*	< 40	< 40	80
1.2-Dichloroethene (Total)	-		168	*156%*	ND	ND	80
Trichloroethene	80		**5,600**	*73%*	< 1	< 1	< 1
Tetrachloroethene	8,000		13.2	*46%*	< 8	< 1	< 1
Isopropanol	-		--	*nc*	< 50	< 50	< 50
Vinyl chloride	100		--	--	--	--	--

Notes:

Criteria 1 = NEPC (1999) Amended, 'D' Commercial/industrial Interim soil vapour Health Investigation Levels for VOCCs.
Total concentrations in µg/m³
- = assessment criteria not available
VP4DUP = duplicate of VP4
VP4-TD = triplicate of VP4
VP9DUP = duplicate of VP9
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

Table 2 : Summary of Soil Vapour Analytical Data - Volatile Organic Compounds

Soil Vapour Investigation

Project No.: 2001029

11-13 Percy Street,
Auburn NSW

	Criteria 1					
	HILs - D					
	Interim	Sample ID	VP9DUP	RPD_VP9DUP	VP10	VP11	VP12
	Soil Vapour	Date	28/05/2020	-	28/05/2020	28/05/2020	28/05/2020
cis-1.2-Dichloroethene	300		< 80	*nc*	< 80	< 80	< 80
trans-1.2-Dichloroethene	-		60	*29%*	< 40	41	< 40
1.2-Dichloroethene (Total)	-		60	*29%*	ND	41	ND
Trichloroethene	80		< 1	*nc*	< 1	1	12
Tetrachloroethene	8,000		< 1	*nc*	< 1	< 1	< 5
Isopropanol	-		< 50	*nc*	< 50	< 50	< 50
Vinyl chloride	100		--	--	--	--	--

Notes:

Criteria 1 = NEPC (1999) Amended, 'D' Commercial/industrial Interim soil vapour Health Investigation Levels for VOCCs.
Total concentrations in µg/m³
- = assessment criteria not available
VP4DUP = duplicate of VP4
VP4-TD = triplicate of VP4
VP9DUP = duplicate of VP9
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

Table 2 : Summary of Soil Vapour Analytical Data - Volatile Organic Compounds

Soil Vapour Investigation

Project No.: 2001029

11-13 Percy Street,
Auburn NSW

	Criteria 1						
	HILs - D						
	Interim	Sample ID	VP16	VP17	VP18	VP19	VP20
	Soil Vapour	Date	28/05/2020	28/05/2020	28/05/2020	28/05/2020	19/06/2020
cis-1.2-Dichloroethene	300		< 80	< 80	< 80	< 80	**22,000**
trans-1.2-Dichloroethene	-		60	< 40	< 40	< 40	1,100
1.2-Dichloroethene (Total)	-		60	ND	ND	ND	23,100
Trichloroethene	80		< 1	< 1	< 1	< 1	**77,000**
Tetrachloroethene	8,000		< 4	< 1	< 1	< 1	< 33
Isopropanol	-		< 50	< 50	< 50	< 50	< 482
Vinyl chloride	100		--	--	--	--	**650**

Notes:

Criteria 1 = NEPC (1999) Amended, 'D' Commercial/industrial Interim soil vapour Health Investigation Levels for VOCCs.
Total concentrations in µg/m³
- = assessment criteria not available
VP4DUP = duplicate of VP4
VP4-TD = triplicate of VP4
VP9DUP = duplicate of VP9
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

ATTACHMENT A

Client

Woolworths

Issue	Description	Date
P1	Draft DA	18.09.20

Builder

Builders Logo

Project Name
CFC Percy St. Auburn

Project Address
13 Percy Street, Auburn, NSW 2144

Key Plan
0 15000 37500

Drawing Title:
Site Plan

Author: ES
Checker:
Sheet Size: A1
Scale: 1:750

Drawing Number:
11250_DA001
Issue:
P1

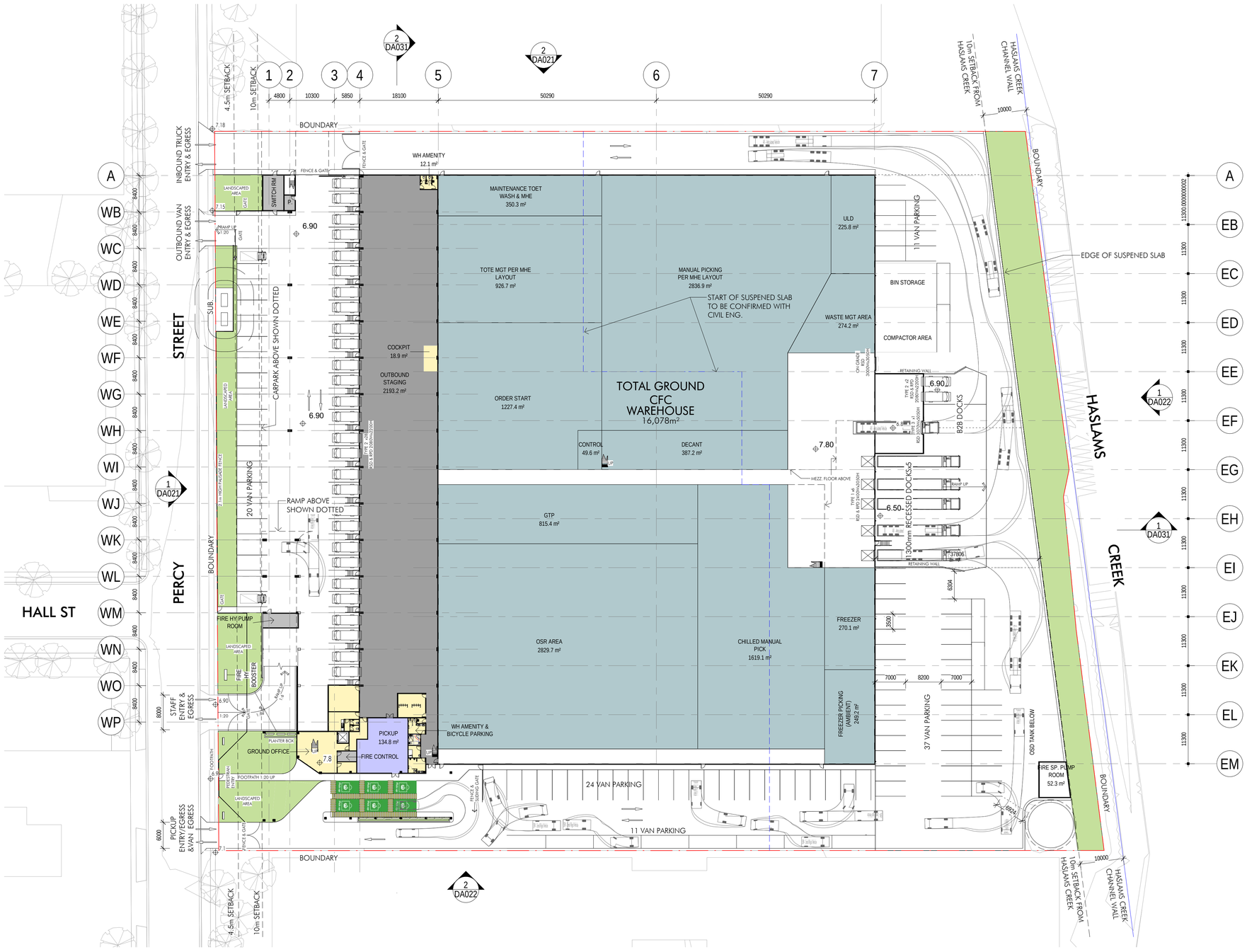
nettletontribe

nettleton tribe partnership pty ltd ABN 58 161 683 122

117 Willoughby Road, Crows Nest, NSW 2065
t +61 2 9431 6431
e: sydney@nettletontribe.com.au w: nettletontribe.com.au

DEVELOPMENT SCHEDULE		
SITE AREA	32,453	m²
WAREHOUSE	19,260	m²
GROUND FLOOR	16,078	m²
MEZZ. FLOOR	3,182	m²
OFFICE	1,220	m²
CFC OFFICE - GROUND	309	m²
CFC OFFICE - LEVEL 1	911	m²
PICKUP	135	m²
TOTAL GFA AREA	20,615	m²

PARKING	
STAFF PARKING	150
PICK UP BAYS	6
VAN PARKING	103



Client

woolworths

Issue	Description	Date
P1	Draft DA	18.09.20

Builder

Builders Logo

Project Name
CFC Percy St. Auburn

Project Address
13 Percy Street, Auburn, NSW 2144

Key Plan
0 10000 25000

Drawing Title:
Ground Floor Plan

Author:	Checker:	Sheet Size:	Scale:
ES		A1	1:500

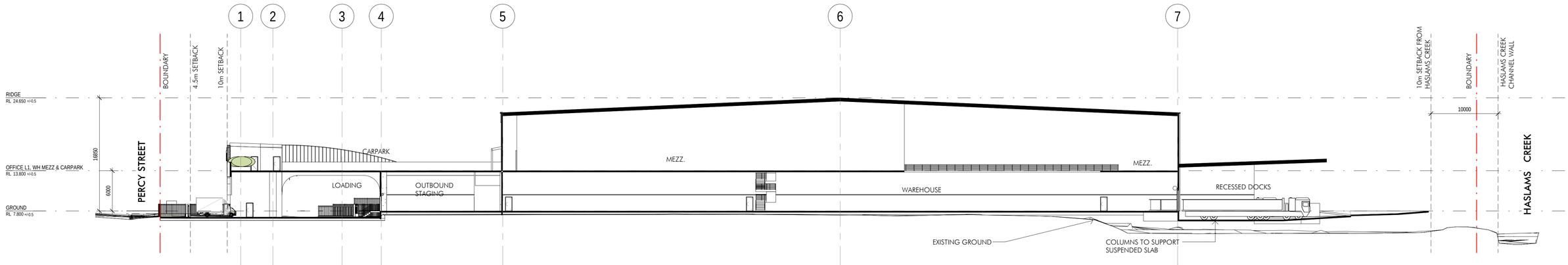
Drawing Number: **11250_DA011**

Issue: **P1**

nettletontribe

nettleton tribe partnership pty ltd ABN 58 161 683 122

117 Willoughby Road, Crows Nest, NSW 2065
t +61 2 9431 6431
e: sydney@nettletontribe.com.au w: nettletontribe.com.au



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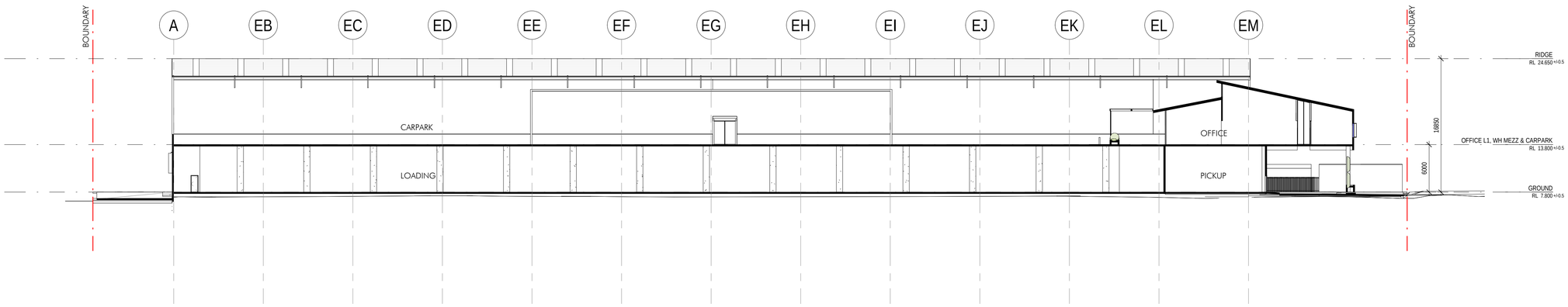

2 DA011 Section 2
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Client

Woolworths

Issue	Description	Date
P1	Draft DA	18.09.20

Builder

Builders Logo

Project Name
CFC Percy St. Auburn

Project Address
13 Percy Street, Auburn, NSW 2144

Key Plan
0 6000 15000

Drawing Title:
Sections

Author: ES
Checker:
Sheet Size: A1
Scale: 1:300
Drawing Number: **11250_DA031**
Issue: **P1**

nettletontribe

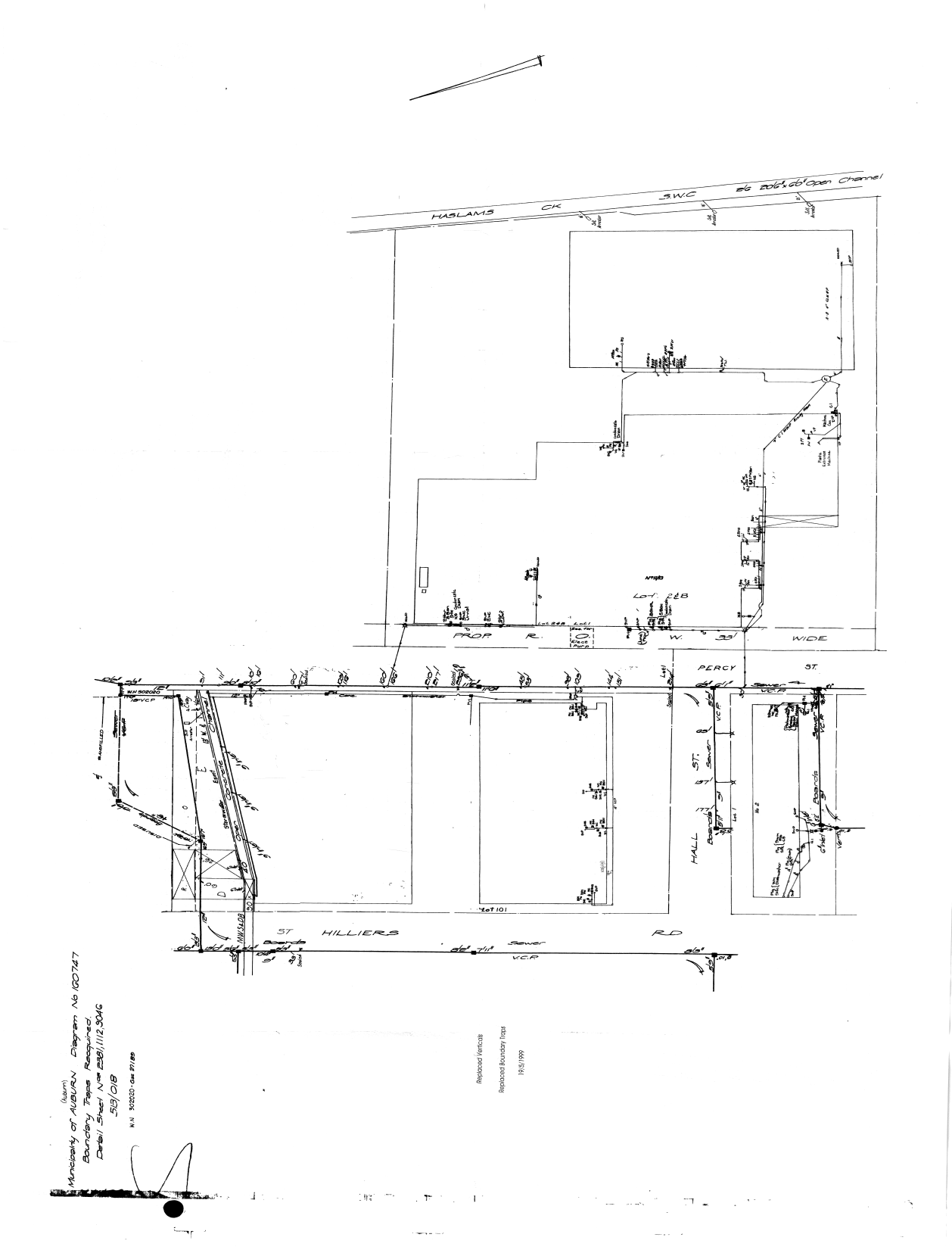
nettleton tribe partnership pty ltd ABN 58 161 683 122

117 Willoughby Road, Crows Nest, NSW 2065
t +61 2 9431 6431
e: sydney@nettletontribe.com.au w: nettletontribe.com.au

ATTACHMENT B

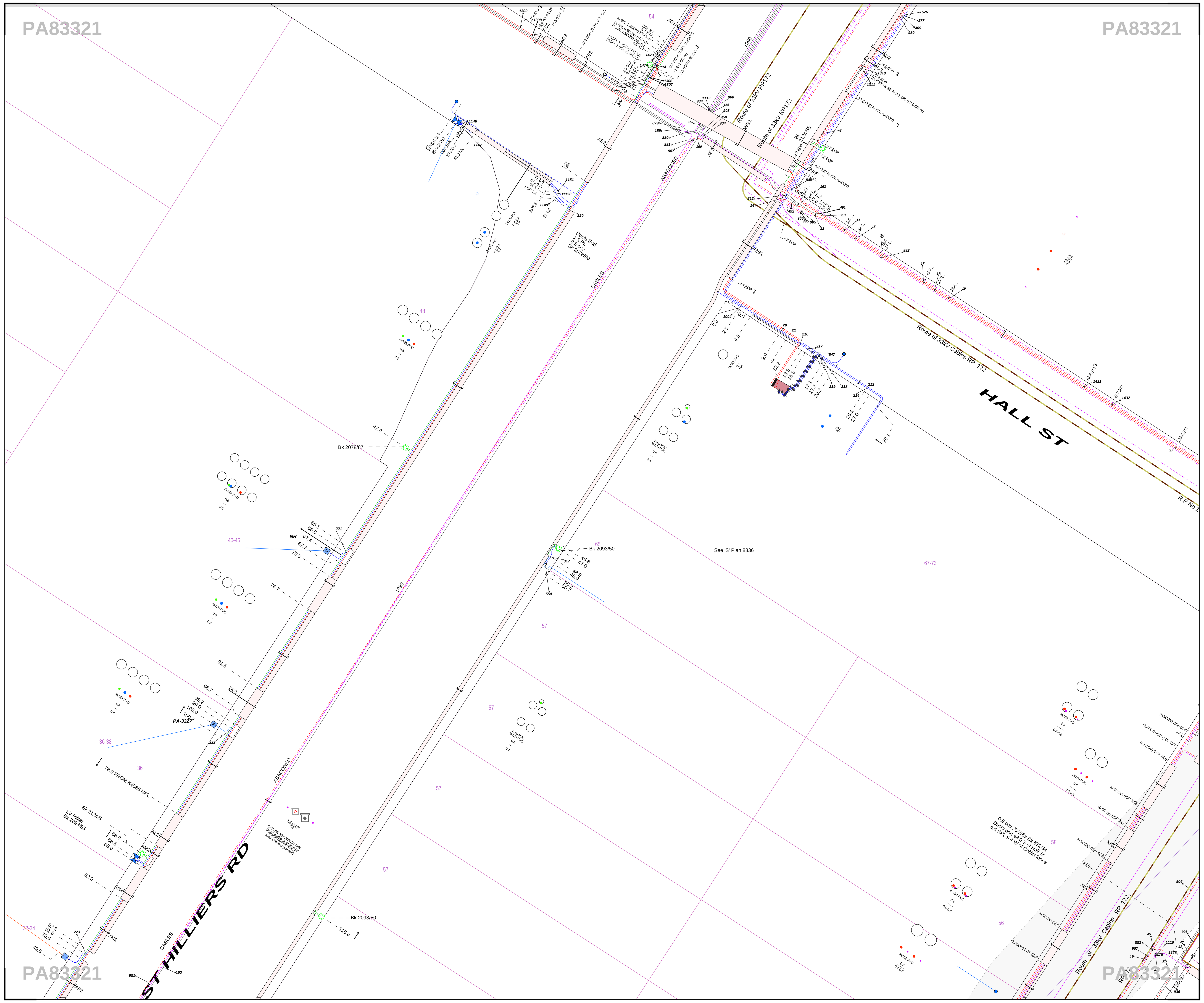
Sewer Service Diagram

Application Number: 659910



Document generated at 22-05-2019 03:37:57 PM

Disclaimer
The information in this diagram shows the private wastewater pipes on this property. It may not be accurate or to scale and may not show our pipes, structures or all property boundaries. If you'd like to see these, please buy a **Service location print**.



WARNING

Ausgrid's plans show the position of assets at the time of installation and may not account for subsequent changes to road alignments, fences or buildings. The plans show no more than the presence or absence of Ausgrid assets in the street.
Persons working near electricity networks must exercise care and will be held responsible for any damage caused.
You must excavate by hand or use vacuum excavation to establish the location of Ausgrid underground cables and associated assets.
Underground: Working near a cable may result in electric shock even if no contact is made. Any work in the vicinity of any cable should only be performed using safe work methods developed in accordance with the recommendations included in WorkCover Code of Practice for Excavation and WorkCover Guide for Work Near Underground Assets
as well as recommendations of Ausgrid's Network Standard NS156.
Overhead: Do not excavate near poles or towers until the stability of the foundation has been assessed by Ausgrid. Cables or earth conductors may be present close to substations, poles or towers.
Workers must maintain safe approach distances and follow applicable WorkCover Codes of Practice.
NOTE: 1. You must keep Ausgrid plans on site during excavation works. If the people actually performing the excavation works do not know how to read and interpret Ausgrid's plans, then the work must be directed by a person who knows how to read and interpret the plans. 2. This information includes data from the NSW Digital Cadastral Database by Land and Property Information (c) 2016, used under Creative Commons licence version 4.0.

ISG GRID

PA83143	PA83144	PA83233
PA83321	PA83322	PA83411
	PA83324	PA83413

GRID

232A1	232B1	232C1
232A2	232B2	232C2
232A3	232B3	232C3

PA83321GMLA0

Distribution - 86667916

INFORMATION ON THIS PLAN ONLY VALID FOR 30 DAYS FROM ISSUE DATE

14 Aug 2019

Page 1 of 1

1:251

0 — 15 metres

N

A0 MOCS_std_plot

PA833 - AX2

4x100 PVC

NA
0.9-1.2

Ref: E4

PA833 - XO1

3x150 AC

0.6
0.6

Ref: A6

JOINT DETAIL REPORT

No.	Bk-Pg	Pl/Cvr	Joint Location
Map: PA833			
22	597-54	/0.91	29.2 NE of Hall St ext NEPL
23	597-54	2.36/0.91	28.7 NE of Hall St ext NEPL
25	1834-36		1.9 N of Sub 982 SBL
32	393-9	10.66/0.91	NA
34	389-88	10.13/0.91	NA
412	393-9	10.66/0.61	NA
413	393-9	10.82/0.76	NA
425	1206-39	10.10/0.99	NA
426	1206-39	10.10/0.99	NA
427	597-44	10.28/0.84	37.1 SW of Hall St ext SPL
939	709-85	99.99/0.84	7.3 SW of Building X
963	709-85	50.74/0.84	7.3 SW of Building X
1064	2374-101	0.20/0.50	45.8 N OF HALL ST NPL
1219	BT06-666	0.20/1.20	10.6 S OF HALL ST EXTD SPL
1221	BT06-666	0.20/1.30	10.6 S OF HALL ST EXTD SPL
1226	BT06-549	0.50/0.90	19.5 N OF HALL ST EXTD SPL
1227	BT06-549	0.70/1.10	18.7 N OF HALL ST EXT S PL
1314	BT12-0130	0.10/1.10	22.1 S OF HALL ST EXTD SPL
1315	BT12-0130	0.10/1.10	
1320	BT12-0190	0.40/0.60	20.8 NE OF HALL ST EXT'D NEPL
1328	BT12-0190	0.80/0.80	33.7 NE OF HALL ST EXT'D NEPL

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ISG GRID

PA83143	PA83144	PA83233
PA83321	PA83322	PA83411
	PA83324	PA83413

GRID

232A1	232B1	232C1
232A2	232B2	232C2
232A3	232B3	232C3

PA83322GMLA0

Distribution - 86667916

INFORMATION ON THIS PLAN ONLY VALID FOR 30 DAYS FROM ISSUE DATE

14 Aug 2019

Page 1 of 1

1:251

0 — 15 metres

N

Ausgrid

A0 MOCS_std_plot

Laid By Malleys Ltd

13

10059

10060

46.0 CL

0.0

64.0 FROM PERCY ST EPL

7.5 CL

6.6 CL

20.0

Fence

Laid By OC E

30.2

New Building

79.7

88.5 FROM PERCY ST EPL

4x75 AC
5x150 AC

Trans Yard

See 'S' Plan 9460

7-9

JOINT DETAIL REPORT

No....	Blr.Pg.....	RSOe.....	Joint Location.....
Map: PA833			
90	597-30	28.95/0.94	NA
91	594-82	28.95/0.99	12.8 NM of Su 2801 NMBL, 5.6 NE of Trans yard NEBL
957	709-85	28.95/	NA

WARNING

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PA83143	PA83144	PA83233		PSO GRID
PA83321	PA83322	PA83411		
	PA83323	PA83413		
232A2	232B2	232C2		GRID
232A3	232B3	232C3		
232A4	232B4	232C4		

PA83324GMLA0

Distribution - 86667916

INFORMATION ON THIS PLAN ONLY VALID FOR 30 DAYS FROM ISSUE DATE

14 Aug 2019

Page 1 of 1

N

1:251

0 — 15 metres

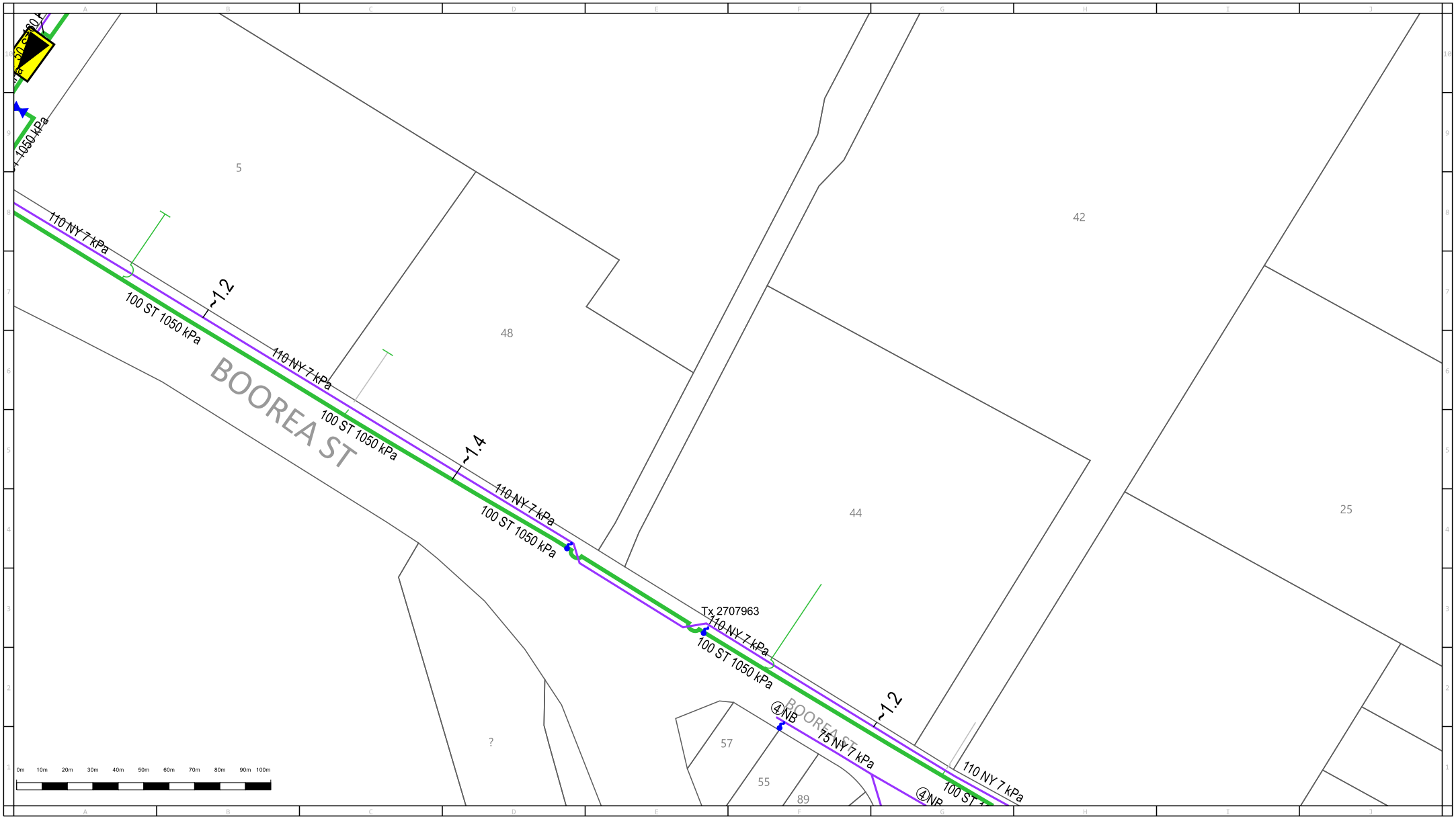
Ausgrid

A0 MOCS_std_plot

S_86667916_PA83324GMLA0_1.mapd

DBYD Authority: Jemena Gas Networks (NSW)

DBYD Location: 11-13 Percy Street Auburn NSW, 2144



Jemena
ABN 87 003 004 322

Main	In Service	Proposed
Unknown Pressure		
Distribution - 2 kPa		
Distribution - 7 kPa		
Distribution - 30 kPa		
Distribution - 100 kPa		
Distribution - 210 kPa		

Main	In Service	Proposed
Distribution - 300 kPa		
Distribution - 400 kPa		
Proposed Isolate (coloured according to kPa)		
Conduit or Casing (*Size & Material*)	*100 PVC*	

High Pressure Main & Pipeline	In Service	Proposed
Critical Main Treat as High Pressure Main		
Secondary - 1050 kPa		
Secondary Service		
Primary - 3500 kPa		
JGN Trunk - 7000 kPa		
Transmission		

Fittings, Valves & Regulators

- Siphon
- Valve
- Distance in metres of Main from Boundary Line ~1.5
- MBK = Metres Back of Kerb
- MFL = Metres from Fence Line
- Regulator Set
- Regulator Station
- Automatic Line Break Valve

N W E S

Scale: 1:2000

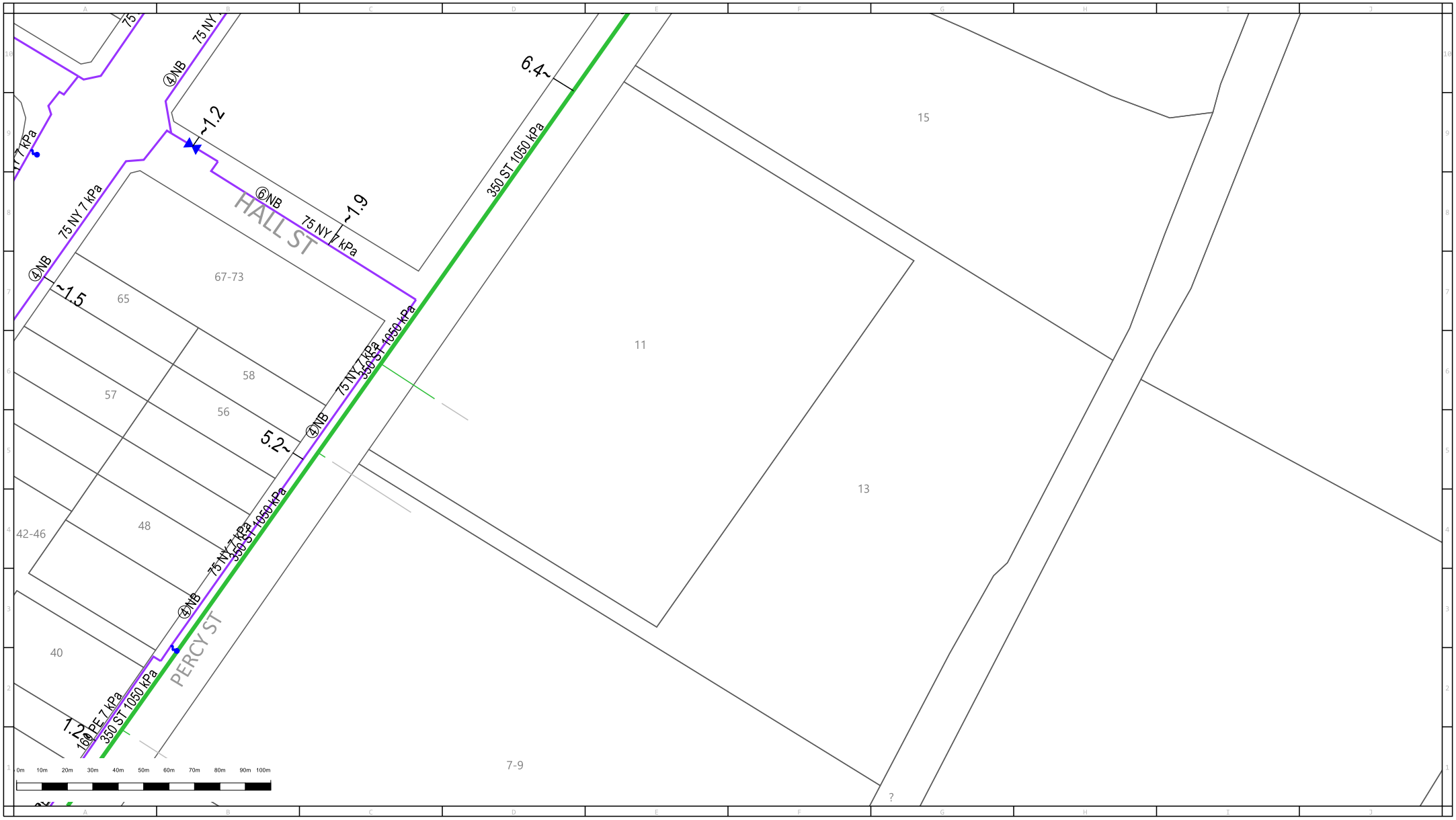
Issue Date: 14/08/2019

DBYD Seq No: 86667919

DBYD Job No: 16831059

WARNING: This is a representation of Jemena Gas Networks underground assets only and may not indicate all assets in the area. It must not be used for the purpose of exact asset location in order to undertake any type of excavation. This plan is diagramatic only, and distances scaled from this plan may not be accurate. Please read all conditions and information on the attached information sheet. This extract is subject to those conditions. The information contained on this plan is only valid for 28 days from the date of issue.

DBYD Authority: Jemena Gas Networks (NSW) **DBYD Location:** 11-13 Percy Street Auburn NSW, 2144



Jemena
ABN 87 003 004 322

Main	In Service	Proposed
Unknown Pressure		
Distribution - 2 kPa		
Distribution - 7 kPa		
Distribution - 30 kPa		
Distribution - 100 kPa		
Distribution - 210 kPa		

Main	In Service	Proposed
Distribution - 300 kPa		
Distribution - 400 kPa		
Proposed Isolate (coloured according to kPa)		
Conduit or Casing (*Size & Material*)	*100 PVC*	

High Pressure Main & Pipeline	In Service	Proposed
Critical Main Treat as High Pressure Main		
Secondary - 1050 kPa		
Secondary Service		
Primary - 3500 kPa		
JGN Trunk - 7000 kPa		
Transmission		

Fittings, Valves & Regulators

Siphon
Valve
Distance in metres of Main from Boundary Line ~1.5
MBK = Metres Back of Kerb
MFL = Metres from Fence Line
Regulator Set
Regulator Station
Automatic Line Break Valve

N W E S

Scale: 1:2000

Issue Date: 14/08/2019
DBYD Seq No: 86667919
DBYD Job No: 16831059

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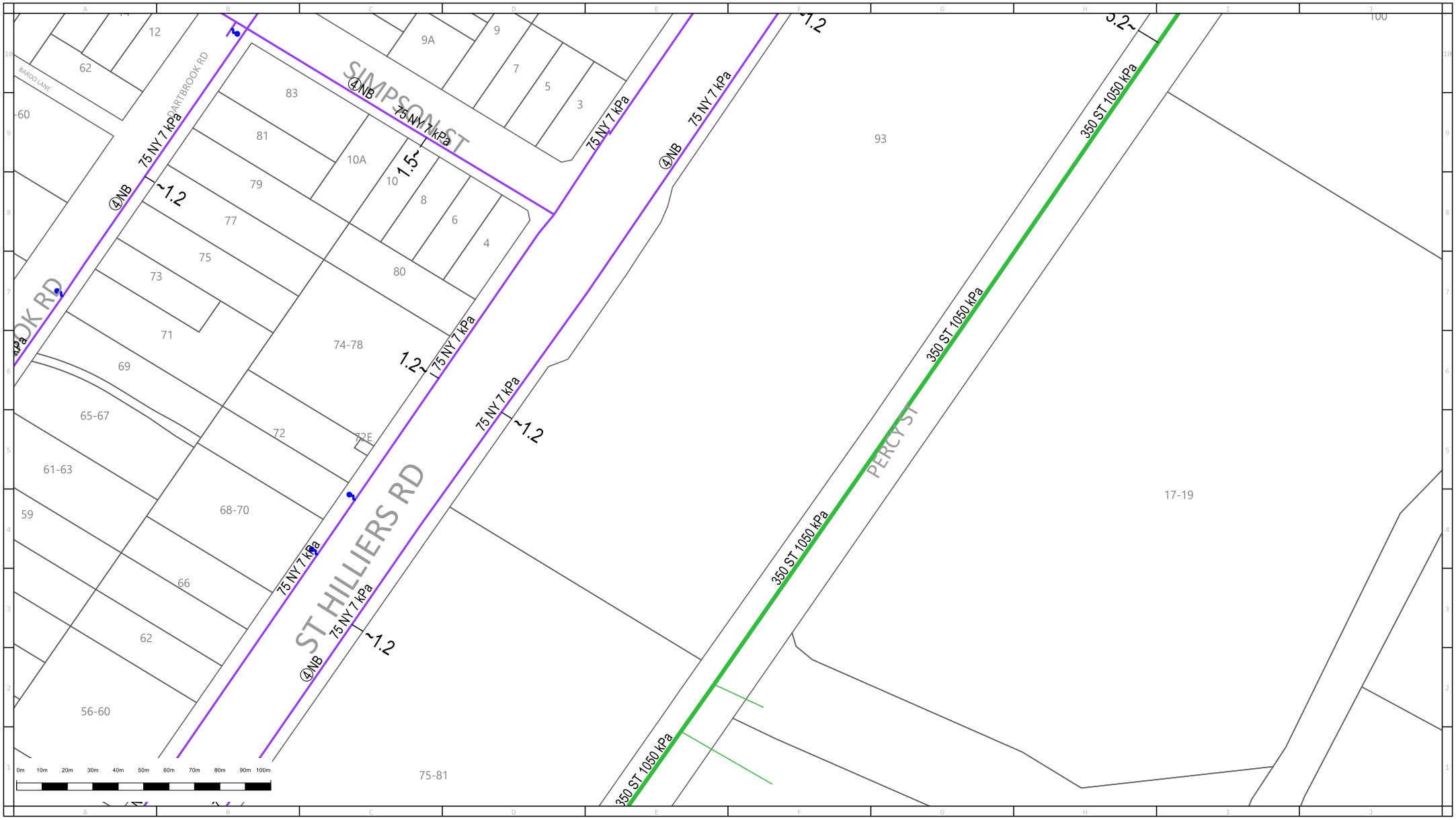
DBYD Authority: Jemena Gas Networks (NSW)

DBYD Location: 11-13 Percy Street Auburn NSW, 2144



Jemena
ABN 87 003 004 322

Main	In Service	Proposed
Unknown Pressure		
Distribution - 2 kPa		
Distribution - 7 kPa		
Distribution - 30 kPa		
Distribution - 100 kPa		
Distribution - 210 kPa		

Main	In Service	Proposed
Distribution - 300 kPa		
Distribution - 400 kPa		
Proposed Isolate (coloured according to kPa)		
Conduit or Casing (*Size & Material*)	*100 PVC*	

High Pressure Main & Pipeline	In Service	Proposed
Critical Main Treat as High Pressure Main		
Secondary - 1050 kPa		
Secondary Service		
Primary - 3500 kPa		
JGN Trunk - 7000 kPa		
Transmission		

Fittings, Valves & Regulators

- Siphon
- Valve
- Distance in metres of Main from Boundary Line ~1.5
- MBK = Metres Back of Kerb
- MFL = Metres from Fence Line
- Regulator Set
- Regulator Station
- Automatic Line Break Valve

N W E S

Scale: 1:2000

Issue Date: 14/08/2019

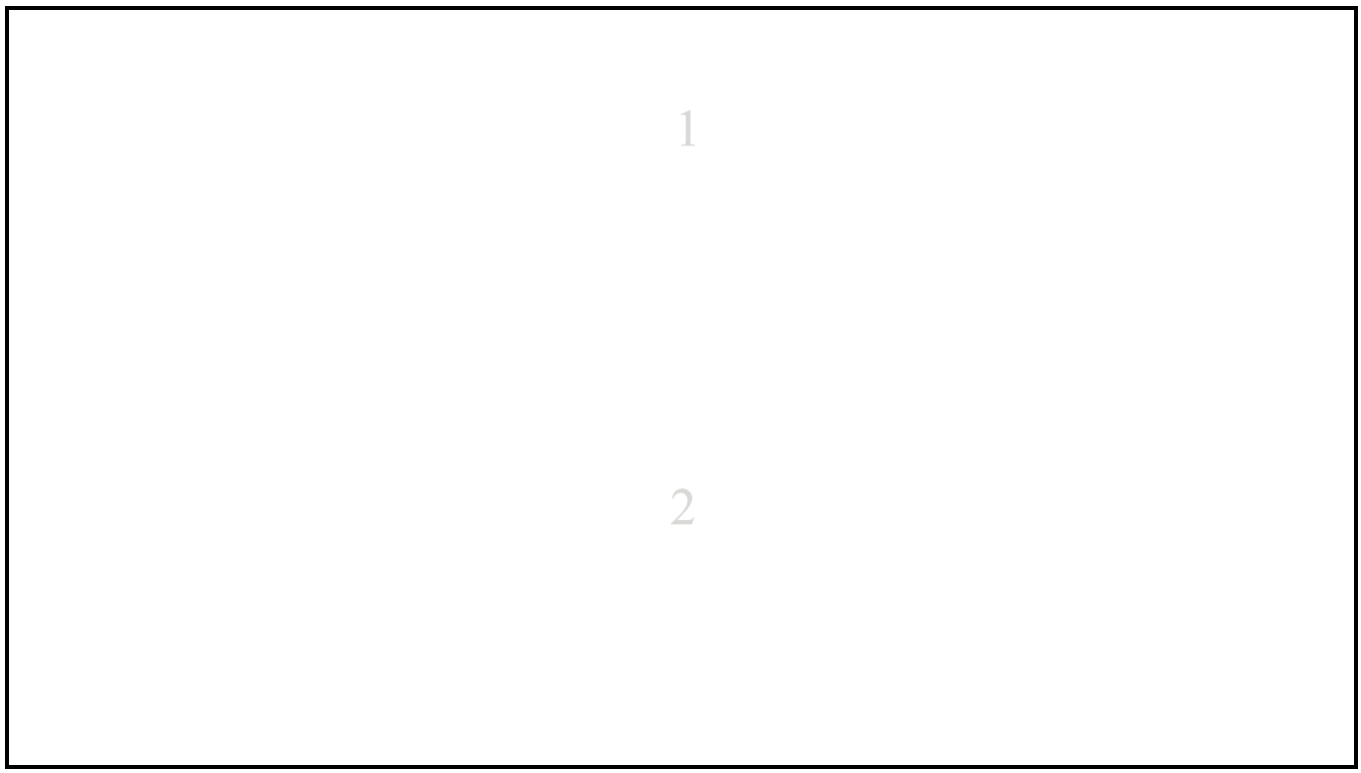
DBYD Seq No: 86667919

DBYD Job No: 16831059

WARNING: This is a representation of Jemena Gas Networks underground assets only and may not indicate all assets in the area. It must not be used for the purpose of exact asset location in order to undertake any type of excavation. This plan is diagramatic only, and distances scaled from this plan may not be accurate. Please read all conditions and information on the attached information sheet. This extract is subject to those conditions. The information contained on this plan is only valid for 28 days from the date of issue.

Indicative Plans

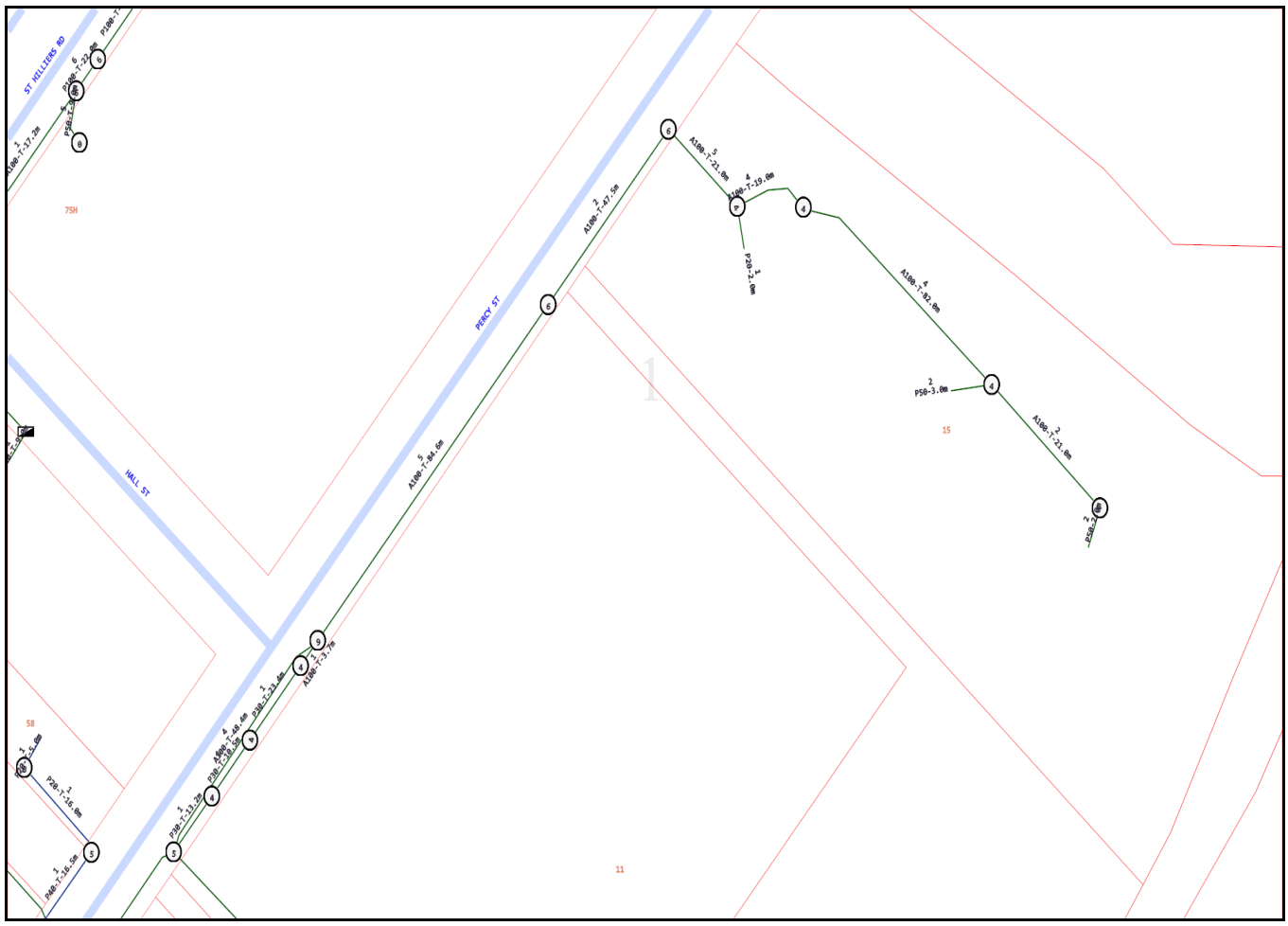
Issue Date:	13/08/2019
Location:	11-13 Percy Street , Auburn , NSW , 2144

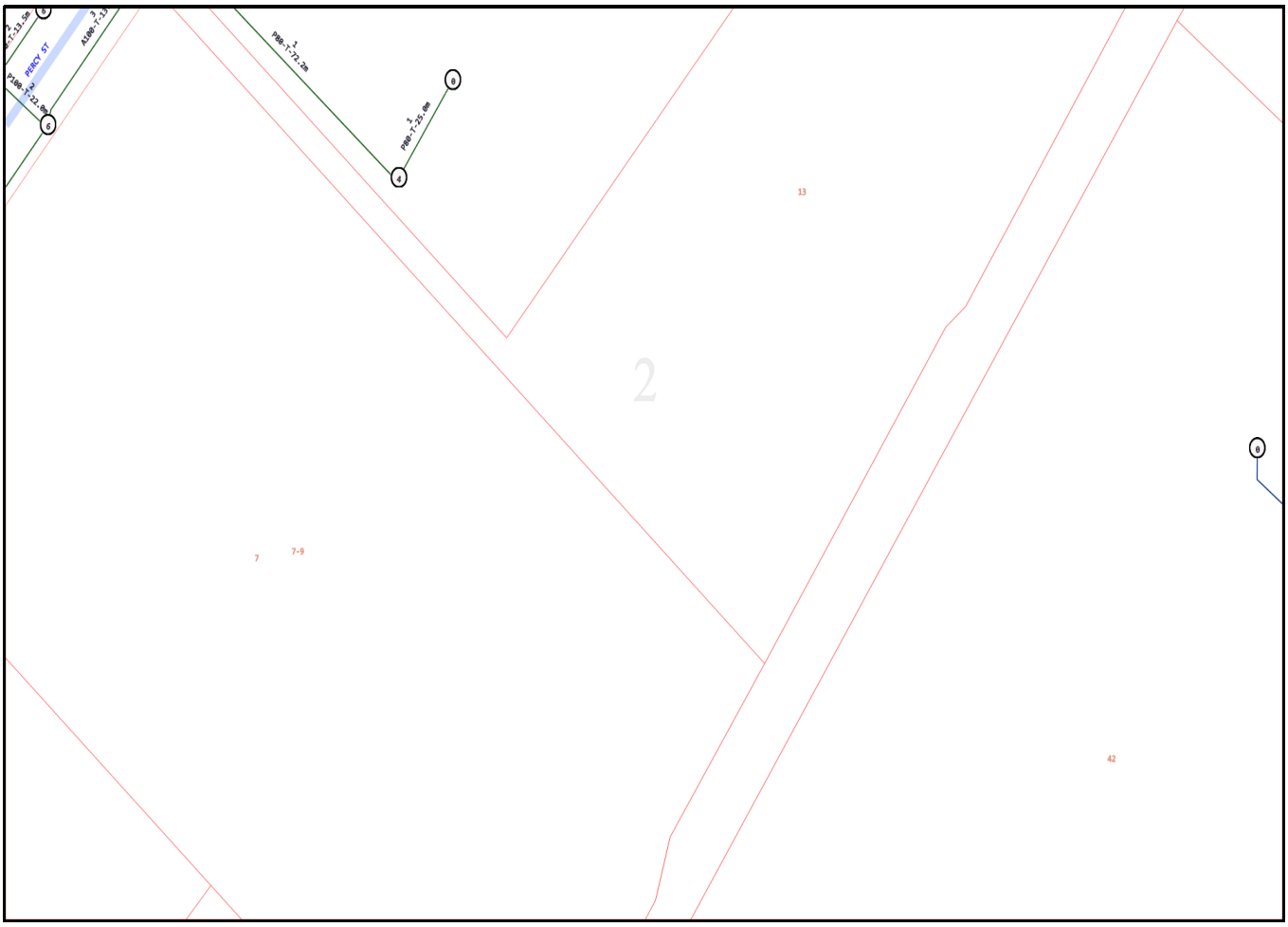


LEGEND

34	Parcel and the location
5	Pit with size "5"
2E	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
2 PO – T- 25.0m P40 – 20.0m 5 9	Cable count of trench is 2. One "Other size" PVC conduit (PO) owned by Telstra (-T-), between pits of sizes, "5" and "9" are 25.0m apart. One 40mm PVC conduit (P40) owned by NBN, between pits of sizes, "5" and "9" are 20.0m apart.
2 10.0m 5 9	2 Direct buried cables between pits of sizes ,"5" and "9" are 10.0m apart.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Copper/RF/Fibre) cables.
5 9	Trench containing only DESIGNED/PLANNED (Copper/RF/Fibre/Power) cables.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Power) cables.
BROADWAY ST	Road and the street name "Broadway ST"
Scale	0 20 40 60 Meters 1:2000 1 cm equals 20 m

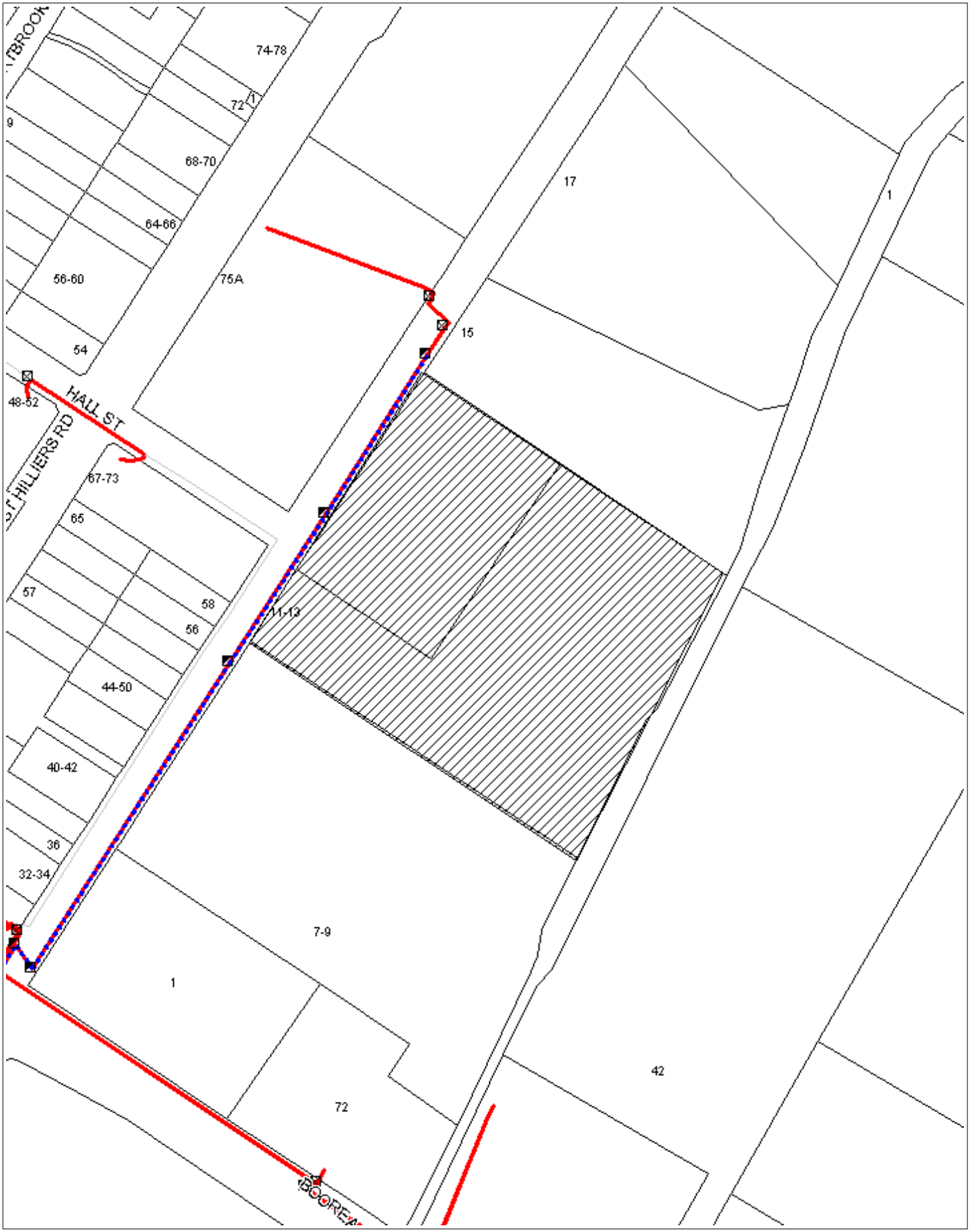
Email info@nbn.com.au Web nbn.com.au





Emergency Contacts

You must immediately report any damage to **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.



Sequence Number: 86667918

Date Generated: 14/08/2019

For all Optus DBYD plan enquiries –
Email: Fibre.Locations@optus.net.au
For urgent onsite assistance contact 1800 505 777
Optus Limited ACN 052 833 208

Uecomm

Cable Uecomm Underground

Scale: #INSERT MAP SCALE#

Printed On: 14/08/2019

Sequence Number: 86667918

Location: 11-13 Percy Street

Job Location

Line

Point

Area

Undergound Asset

Uecomm

A3

ST HILLIERS RD

Contingency Plan Tooheys_ Concord

BOOREA

DBYD Address:
11-13 Percy Street
Auburn NSW 2144

DBYD Job No: 16831059

DBYD Sequence No: 86667920

SYDNEY WATER CORPORATION

Scale: 1:1500

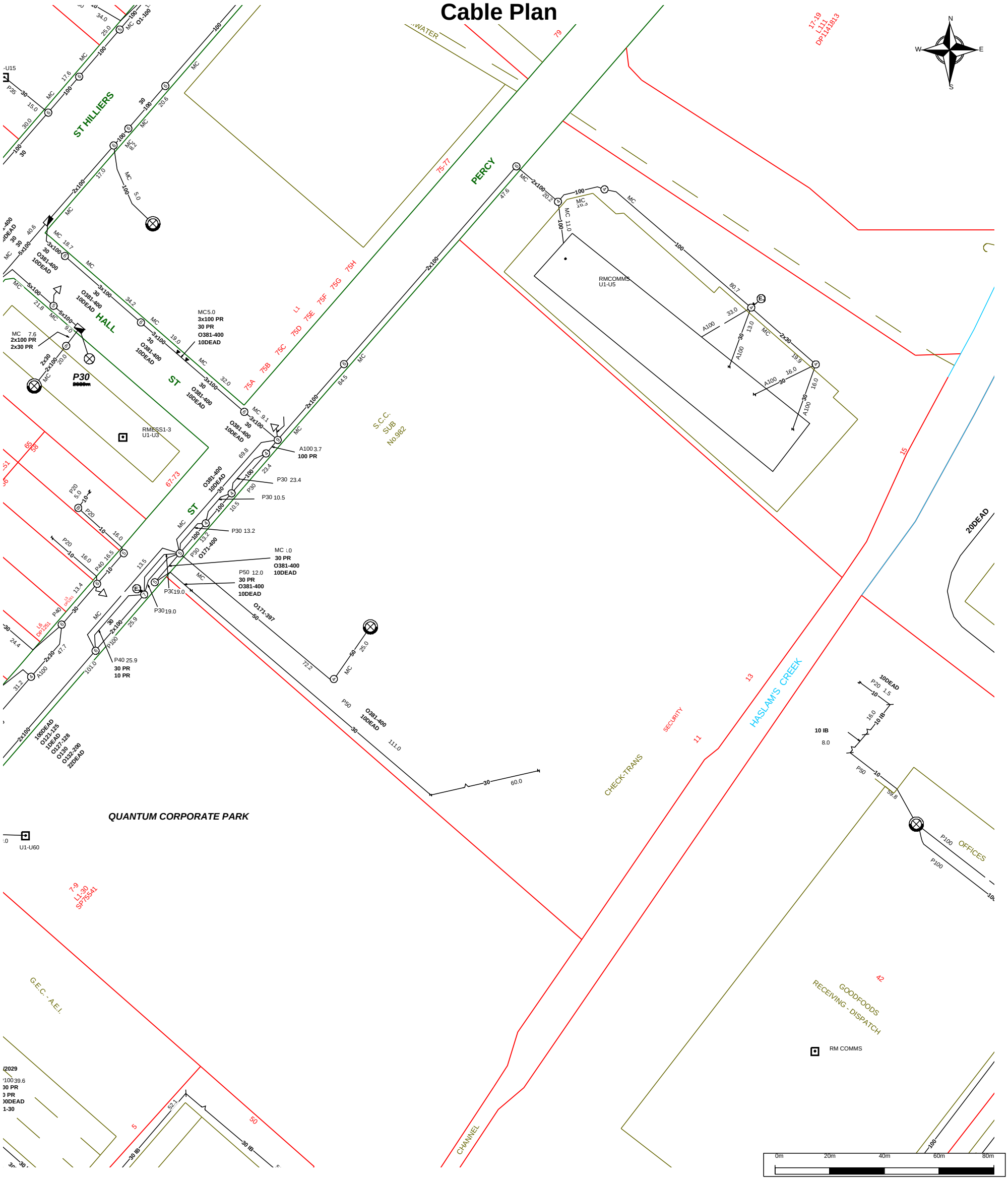
Date of Production: 14/08/2019

Plan 1 of 1

N

0m 7m 14m 21m 28m

Cable Plan



Telstra	For all Telstra DBYD plan enquiries - email - Telstra.Plans@team.telstra.com For urgent onsite contact only - ph 1800 653 935 (bus hrs)
TELSTRA CORPORATION LIMITED A.C.N. 051 775 556	
Generated On 14/08/2019 08:55:27	Sequence Number: 86667917
	CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

The above plan must be viewed in conjunction with the Mains Cable Plan on the following page

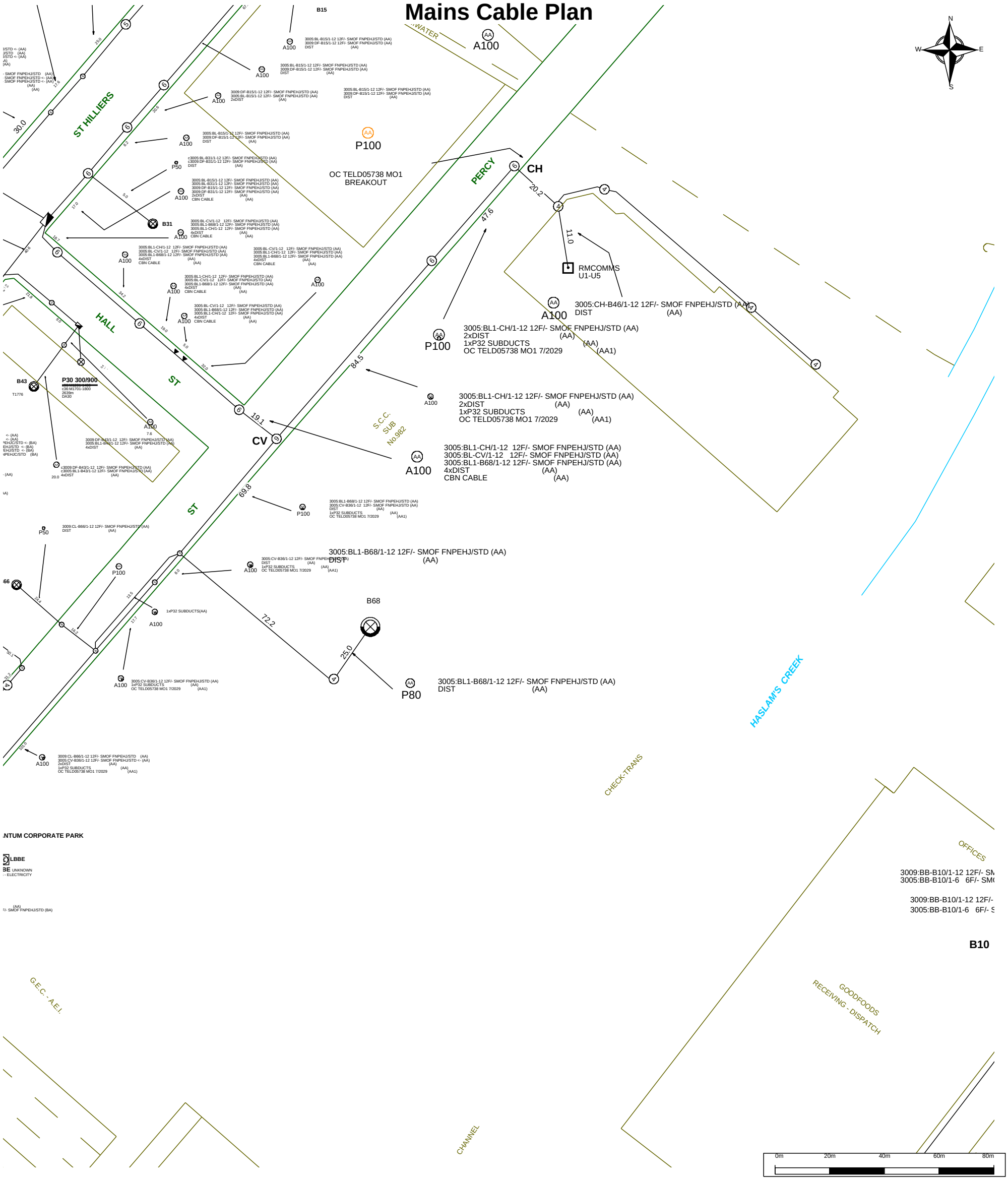
WARNING - Due to the nature of Telstra underground plant and the age of some cables and records, it is impossible to ascertain the precise location of all Telstra plant from Telstra's plans. The accuracy and/or completeness of the information supplied can not be guaranteed as property boundaries, depths and other natural landscape features may change over time, and accordingly the plans are indicative only. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy shown on the plans.

It is your responsibility to locate Telstra's underground plant by careful hand pot-holing prior to any excavation in the vicinity and to exercise due care during that excavation.

Please read and understand the information supplied in the duty of care statement attached with the Telstra plans. TELSTRA WILL SEEK COMPENSATION FOR LOSS CAUSED BY DAMAGE TO ITS PLANT.

Telstra plans and information supplied are valid for 60 days from the date of issue. If this timeframe has elapsed, please reapply for plans.

Mains Cable Plan



Telstra	For all Telstra DBYD plan enquiries - email - Telstra.Plans@team.telstra.com For urgent onsite contact only - ph 1800 653 935 (bus hrs)
TELSTRA CORPORATION LIMITED A.C.N. 051 775 556	
Generated On 14/08/2019 08:55:29	

Sequence Number: 86667917

CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

WARNING - Due to the nature of Telstra underground plant and the age of some cables and records, it is impossible to ascertain the precise location of all Telstra plant from Telstra's plans. The accuracy and/or completeness of the information supplied can not be guaranteed as property boundaries, depths and other natural landscape features may change over time, and accordingly the plans are indicative only. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy shown on the plans.

It is your responsibility to locate Telstra's underground plant by careful hand pot-holing prior to any excavation in the vicinity and to exercise due care during that excavation.

Please read and understand the information supplied in the duty of care statement attached with the Telstra plans. TELSTRA WILL SEEK COMPENSATION FOR LOSS CAUSED BY DAMAGE TO ITS PLANT.

Telstra plans and information supplied are valid for 60 days from the date of issue. If this timeframe has elapsed, please reapply for plans.

ATTACHMENT C

SOIL VAPOUR WELL LOG: VP1

Geo-Logix Pty Ltd
Building Q2, Level 3
Unit 2309 / 4 Daydream Street
Warriewood NSW 2102
www.geo-logix.com.au

Project Number:	**2001029**
Hole Depth:	**1.00 m**
Date Started:	**26/05/2020**
Date Completed:	**26/05/2020**

Project Name: **Vapour Well Install**
Location / Site: **Auburn NSW**
Client: **Fabcot Pty Ltd**
Contractor: **Terratest Pty Ltd**
Method: **Push Tube**

Method	Water Level	Depth (mBGL)	Material Type	USCS Symbol	Graphic Log	Material Description	Moisture	Observations / Comments	Well Details	Well Construction
PT		0.1	Fill			**FILL** - moderate yellowish brown (10YR 5/4), 20% clay, 10% silt, 30% sand, 40% gravel, moderately compacted.	damp		0.10	Gatic
		0.15								
		0.2				**FILL** - pale yellowish brown (10YR 6/2) and dark yellowish orange (10YR 6/6), 10% silt, 90% sand, poorly compacted.	dry	Fibre like fill mixed.		Bentonite
		0.3								
		0.40								
		0.5	Natural	CH		**CLAY** - moderate yellowish brown (10YR 5/4), 90% clay, 10% sand, medium to high plasticity, soft.	moist			Teflon Tube
		0.6								
		0.7							0.75	
		0.8							0.80	Sand
		0.90								
		1.0		CH		**CLAY with Sand** - moderate yellowish brown (10YR 5/4), 80% clay, 20% sand, medium to high plasticity, soft.	moist		0.95	Implant
		1.1				**Terminated at 1.000 m** Target depth.				
		1.2								
		1.3								
		1.4								

Abbreviations

Hydrocarbon Odour
H High
M Medium
L Low
Z Zero

Sample Type
D Disturbed
U Undisturbed
B Bulk
R Representative
C Continuous
J Jar
Asb Asbestos

Strength Testing
SPT Standard Penetration Test
DCP Dynamic Cone Penetrometer
PP Pocket Penetrometer

Water Levels
Encountered Groundwater
Stabilised Groundwater

Additional Comments

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Caden Pengelly** Date: **26/05/2020**
Checked By: **Kiran Baby** Date: **16/07/2020**

SOIL VAPOUR WELL LOG: VP2

Geo-Logix Pty Ltd
Building Q2, Level 3
Unit 2309 / 4 Daydream Street
Warriewood NSW 2102
www.geo-logix.com.au

Project Number:	**2001029**
Hole Depth:	**0.80 m**
Date Started:	**26/05/2020**
Date Completed:	**26/05/2020**

Project Name:	**Vapour Well Install**
Location / Site:	**Auburn NSW**
Client:	**Fabcot Pty Ltd**
Contractor:	**Terratest Pty Ltd**
Method:	**Push Tube**

Method	Water Level	Depth (mBGL)	Material Type	USCS Symbol	Graphic Log	Material Description	Moisture	Observations / Comments	Well Details	Well Construction
PT		0.1 – 0.6	Fill			**FILL** - moderate yellowish brown (10YR 5/4) and pale yellowish brown (10YR 6/2) and greyish orange (10YR 7/4), 65% clay, 10% sand, 25% gravel, low plasticity, moderately compacted.	damp		0.10	Gatic; Bentonite
		0.65							0.55	Teflon Tube
		0.7 – 0.8	Natural	CH		**CLAY with Silt** - brownish grey (5YR 4/1), 80% clay, 20% silt, high plasticity, soft.	moist		0.60	Sand
		0.9 – 1.4				**Terminated at 0.800 m** Target depth.			0.75	Implant

Abbreviations

Hydrocarbon Odour
H High
M Medium
L Low
Z Zero

Sample Type
D Disturbed
U Undisturbed
B Bulk
R Representative
C Continuous
J Jar
Asb Asbestos

Strength Testing
SPT Standard Penetration Test
DCP Dynamic Cone Penetrometer
PP Pocket Penetrometer

Water Levels
Encountered Groundwater
Stabilised Groundwater

Additional Comments

Log Drawn By:	Laurie White	Logged By:	**Caden Pengelly**
Contact:	laurie.white@reumad.com.au	Checked By:	**Kiran Baby**
		Date:	**26/05/2020**
		Date:	**16/07/2020**

SOIL VAPOUR WELL LOG: VP3

Geo-Logix Pty Ltd
Building Q2, Level 3
Unit 2309 / 4 Daydream Street
Warriewood NSW 2102
www.geo-logix.com.au

Project Number:	**2001029**
Hole Depth:	**1.00 m**
Date Started:	**26/05/2020**
Date Completed:	**26/05/2020**

Project Name: **Vapour Well Install**
Location / Site: **Auburn NSW**
Client: **Fabcot Pty Ltd**
Contractor: **Geo-Logix**
Method: **Hand Auger**

Method	Water Level	Depth (mBGL)	Material Type	USCS Symbol	Graphic Log	Material Description	Moisture	Observations / Comments
HA		0.1	Fill			**FILL** - moderate yellowish brown (10YR 5/4), and greyish orange (10YR 7/4), 65% clay, 10% sand, 25% gravel, low plasticity, moderately compacted.	damp	
		0.20						
	▼	0.3	Natural	CL		**CLAY with Silt** - moderate reddish brown (10R 4/6), 80% clay, 20% silt, high plasticity, soft.	moist	
		0.4						
		0.5						
		0.6						
		0.7						
		0.8						
	▽	0.9					wet	
		1.0						
		1.1				**Terminated at 1.000 m** Target depth.		
		1.2						
		1.3						
		1.4						

Abbreviations

Hydrocarbon Odour
H High
M Medium
L Low
Z Zero

Sample Type
D Disturbed
U Undisturbed
B Bulk
R Representative
C Continuous
J Jar
Asb Asbestos

Strength Testing
SPT Standard Penetration Test
DCP Dynamic Cone Penetrometer
PP Pocket Penetrometer

Water Levels
▽ Encountered Groundwater
▼ Stabilised Groundwater

Additional Comments
No well installed.

Log Drawn By:	Laurie White	Logged By:	**Ted Lilly** Date: **26/05/2020**
Contact:	laurie.white@reumad.com.au	Checked By:	**Kiran Baby** Date: **16/07/2020**

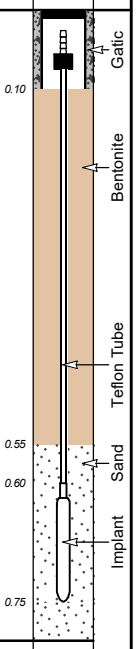
SOIL VAPOUR WELL LOG: VP4

Geo-Logix Pty Ltd
Building Q2, Level 3
Unit 2309 / 4 Daydream Street
Warriewood NSW 2102
www.geo-logix.com.au

Project Number:	**2001029**
Hole Depth:	**0.80 m**
Date Started:	**26/05/2020**
Date Completed:	**26/05/2020**

Project Name: **Vapour Well Install**
Location / Site: **Auburn NSW**
Client: **Fabcot Pty Ltd**
Contractor: **Terratest Pty Ltd**
Method: **Push Tube**

Method	Water Level	Depth (mBGL)	Material Type	USCS Symbol	Graphic Log	Material Description	Moisture	Observations / Comments	Well Details	Well Construction
PT		0.10	Fill			**FILL** - dusky red (5R 3/4), 30% clay, 70% sand, moderately compacted.	damp			
		0.2	Natural	CL		**CLAY** - moderate reddish brown (10R 4/6) and pale red (10R 6/2), 85% clay, 15% sand, medium plasticity, stiff.	moist			
		0.8				**Terminated at 0.800 m** Target depth.				



Abbreviations

Hydrocarbon Odour
H High
M Medium
L Low
Z Zero

Sample Type
D Disturbed
U Undisturbed
B Bulk
R Representative
C Continuous
J Jar
Asb Asbestos

Strength Testing
SPT Standard Penetration Test
DCP Dynamic Cone Penetrometer
PP Pocket Penetrometer

Water Levels
Encountered Groundwater
Stabilised Groundwater

Additional Comments

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Caden Pengelly** Date: **26/05/2020**
Checked By: **Kiran Baby** Date: **16/07/2020**

SOIL VAPOUR WELL LOG: VP5

Geo-Logix Pty Ltd
Building Q2, Level 3
Unit 2309 / 4 Daydream Street
Warriewood NSW 2102
www.geo-logix.com.au

Project Number:	**2001029**
Hole Depth:	**0.80 m**
Date Started:	**26/05/2020**
Date Completed:	**26/05/2020**

Project Name: **Vapour Well Install**
Location / Site: **Auburn NSW**
Client: **Fabcot Pty Ltd**
Contractor: **Terratest Pty Ltd**
Method: **Push Tube**

Method	Water Level	Depth (mBGL)	Material Type	USCS Symbol	Graphic Log	Material Description	Moisture	Observations / Comments	Well Details	Well Construction
PT		0.1 – 0.4	Fill			**FILL** - moderate yellowish brown (10YR 5/4) and dark yellowish orange (10YR 6/6) and greyish orange (10YR 7/4), 50% clay, 20% sand, 30% gravel, low plasticity, moderately compacted.	damp		0.10	Gatic; Bentonite
		0.5 – 0.8	Natural	CH		**CLAY** - olive grey (5Y 4/1), 90% clay, 10% sand, high plasticity, firm.	moist		0.55 0.60 0.75	Teflon Tube; Sand; Implant
		0.9 – 1.4				**Terminated at 0.800 m** Target depth.				

Abbreviations

Hydrocarbon Odour
H High
M Medium
L Low
Z Zero

Sample Type
D Disturbed
U Undisturbed
B Bulk
R Representative
C Continuous
J Jar
Asb Asbestos

Strength Testing
SPT Standard Penetration Test
DCP Dynamic Cone Penetrometer
PP Pocket Penetrometer

Water Levels
Encountered Groundwater
Stabilised Groundwater

Additional Comments

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Caden Pengelly** Date: **26/05/2020**
Checked By: **Kiran Baby** Date: **16/07/2020**

SOIL VAPOUR WELL LOG: VP6

Geo-Logix Pty Ltd
Building Q2, Level 3
Unit 2309 / 4 Daydream Street
Warriewood NSW 2102
www.geo-logix.com.au

Project Number:	**2001029**
Hole Depth:	**3.10 m**
Date Started:	**26/05/2020**
Date Completed:	**26/05/2020**

Project Name: **Vapour Well Install**
Location / Site: **Auburn NSW**
Client: **Fabcot Pty Ltd**
Contractor: **Terratest Pty Ltd**
Method: **Push Tube**

Method	Water Level	Depth (mBGL)	Material Type	USCS Symbol	Graphic Log	Material Description	Moisture	Observations / Comments	Well Details	Well Construction
CC		0.1 *0.20*				**CONCRETE HARDSTAND**.				Gatic
PT		0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5 *2.60*	Fill			**FILL** - pale brown (5YR 2/2), 85% clay, 15% sand, low plasticity, well compacted.	moist	Aggregate, glass, plastic, steel.	*0.40* *1.95* *2.00* *2.15*	Grout Bentonite Teflon Tube Imp. Sand
		2.7 2.8 2.9 3.0 3.1	Nat.	CL		**CLAY** - moderate orange pink (10R 7/4), 85% clay, 15% sand, medium plasticity, stiff.	moist			Bentonite
		3.2 3.3 3.4				**Terminated at 3.100 m** Target depth.				

Abbreviations

Hydrocarbon Odour
H High
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Z Zero

Sample Type
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C Continuous
J Jar
Asb Asbestos

Strength Testing
SPT Standard Penetration Test
DCP Dynamic Cone Penetrometer
PP Pocket Penetrometer

Water Levels
Encountered Groundwater
Stabilised Groundwater

Additional Comments

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Ted Lilly** Date: **26/05/2020**
Checked By: **Kiran Baby** Date: **16/07/2020**

SOIL VAPOUR WELL LOG: VP7

Geo-Logix Pty Ltd
Building Q2, Level 3
Unit 2309 / 4 Daydream Street
Warriewood NSW 2102
www.geo-logix.com.au

Project Number:	**2001029**
Hole Depth:	**0.80 m**
Date Started:	**26/05/2020**
Date Completed:	**26/05/2020**

Project Name: **Vapour Well Install**
Location / Site: **Auburn NSW**
Client: **Fabcot Pty Ltd**
Contractor: **Terratest Pty Ltd**
Method: **Push Tube**

Method	Water Level	Depth (mBGL)	Material Type	USCS Symbol	Graphic Log	Material Description	Moisture	Observations / Comments	Well Details	Well Construction
						Gravel surface				
PT		0.1 – 0.8	Natural	CL		**CLAY** - dusky brown (5YR 2/2), 90% clay, 10% sand, firm, medium dense.	moist		0.10 / 0.55 / 0.60 / 0.75	Gatic; Bentonite; Teflon Tube; Sand; Implant
		0.9 – 1.4				**Terminated at 0.800 m** Target depth.				

Abbreviations

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Sample Type
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J Jar
Asb Asbestos

Strength Testing
SPT Standard Penetration Test
DCP Dynamic Cone Penetrometer
PP Pocket Penetrometer

Water Levels
Encountered Groundwater
Stabilised Groundwater

Additional Comments

Log Drawn By:	Laurie White	Logged By:	**Ted Lilly**
Contact:	laurie.white@reumad.com.au	Checked By:	**Kiran Baby**
		Date:	**26/05/2020**
		Date:	**16/07/2020**

SOIL VAPOUR WELL LOG: VP8

Geo-Logix Pty Ltd
Building Q2, Level 3
Unit 2309 / 4 Daydream Street
Warriewood NSW 2102
www.geo-logix.com.au

Project Number:	**2001029**
Hole Depth:	**0.80 m**
Date Started:	**26/05/2020**
Date Completed:	**26/05/2020**

Project Name: **Vapour Well Install**
Location / Site: **Auburn NSW**
Client: **Fabcot Pty Ltd**
Contractor: **Terratest Pty Ltd**
Method: **Push Tube**

Method	Water Level	Depth (mBGL)	Material Type	USCS Symbol	Graphic Log	Material Description	Moisture	Observations / Comments	Well Details	Well Construction
PT		0.05				**ASPHALT**.				Gatic
		0.1	Fill			**FILL** - moderate brown (5YR 3/4), 30% clay, 60% sand, 10% gravel, moderately compacted.	wet		0.10	
		0.15								Bentonite
		0.2	Natural	CL		**CLAY** - moderate brown (5YR 3/4), 90% clay, 10% sand, medium plasticity, firm.	moist			Teflon Tube
		0.3								
		0.4								
		0.5							0.55	Sand
		0.6							0.60	
		0.7								Implant
		0.8							0.75	
		0.9				**Terminated at 0.800 m** Target depth.				
		1.0								
		1.1								
		1.2								
		1.3								
		1.4								

Abbreviations

Hydrocarbon Odour
H High
M Medium
L Low
Z Zero

Sample Type
D Disturbed
U Undisturbed
B Bulk
R Representative
C Continuous
J Jar
Asb Asbestos

Strength Testing
SPT Standard Penetration Test
DCP Dynamic Cone Penetrometer
PP Pocket Penetrometer

Water Levels
Encountered Groundwater
Stabilised Groundwater

Additional Comments

Log Drawn By:	Laurie White	Logged By:	**Ted Lilly**
Contact:	laurie.white@reumad.com.au	Checked By:	**Kiran Baby**
		Date:	**26/05/2020**
		Date:	**16/07/2020**

SOIL VAPOUR WELL LOG: VP9

Geo-Logix Pty Ltd
Building Q2, Level 3
Unit 2309 / 4 Daydream Street
Warriewood NSW 2102
www.geo-logix.com.au

Project Number:	**2001029**
Hole Depth:	**0.80 m**
Date Started:	**26/05/2020**
Date Completed:	**26/05/2020**

Project Name: **Vapour Well Install**
Location / Site: **Auburn NSW**
Client: **Fabcot Pty Ltd**
Contractor: **Terratest Pty Ltd**
Method: **Push Tube**

Method	Water Level	Depth (mBGL)	Material Type	USCS Symbol	Graphic Log	Material Description	Moisture	Observations / Comments	Well Details	Well Construction
PT		0.1	Fill			**FILL** - dark yellowish orange (10YR 6/6), 30% clay, 70% sand, moderately compacted.	damp		0.10	Gatic
		0.20								
		0.3				**FILL** - light brownish grey (5YR 6/1), 30% clay, 20% sand, 50% gravel, moderately compacted.	damp			Bentonite
		0.4								
		0.5								Teflon Tube
		0.60							0.55	
		0.7	Natural	CH		**CLAY** - olive grey (5Y 4/1), 90% clay, 10% sand, high plasticity, firm.	moist		0.60	Sand
		0.8								Implant
		0.9				**Terminated at 0.800 m** Target depth.			0.75	
		1.0								
		1.1								
		1.2								
		1.3								
		1.4								

Abbreviations

Hydrocarbon Odour
H High
M Medium
L Low
Z Zero

Sample Type
D Disturbed
U Undisturbed
B Bulk
R Representative
C Continuous
J Jar
Asb Asbestos

Strength Testing
SPT Standard Penetration Test
DCP Dynamic Cone Penetrometer
PP Pocket Penetrometer

Water Levels
Encountered Groundwater
Stabilised Groundwater

Additional Comments

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Ted Lilly** Date: **26/05/2020**
Checked By: **Kiran Baby** Date: **16/07/2020**

SOIL VAPOUR WELL LOG: VP10

Geo-Logix Pty Ltd
Building Q2, Level 3
Unit 2309 / 4 Daydream Street
Warriewood NSW 2102
www.geo-logix.com.au

Project Number:	**2001029**
Hole Depth:	**3.00 m**
Date Started:	**26/05/2020**
Date Completed:	**26/05/2020**

Project Name: **Vapour Well Install**
Location / Site: **Auburn NSW**
Client: **Fabcot Pty Ltd**
Contractor: **Terratest Pty Ltd**
Method: **Push Tube**

Method	Water Level	Depth (mBGL)	Material Type	USCS Symbol	Graphic Log	Material Description	Moisture	Observations / Comments	Well Details	Well Construction
CC		0.30				**CONCRETE HARDSTAND**.				Grout Gatic
PT		0.35	Fill			**FILL** - 100% sand, well compacted, bedding sand.	damp		0.30	
		0.5	Natural	CL		**CLAY** - moderate orange pink (10R 7/4), 85% clay, 15% sand, firm.	moist			Bentonite
		1.0								
		1.5								Teflon Tube
		2.0							1.95 2.00 2.15 2.20	Imp. Sand
	▽	2.50		CL		**CLAY** - olive grey (5Y 4/1), 90% clay, 10% sand, soft, organics.	wet			Bentonite
		3.0				**Terminated at 3.000 m** Target depth.				

Abbreviations

Hydrocarbon Odour
H High
M Medium
L Low
Z Zero

Sample Type
D Disturbed
U Undisturbed
B Bulk
R Representative
C Continuous
J Jar
Asb Asbestos

Strength Testing
SPT Standard Penetration Test
DCP Dynamic Cone Penetrometer
PP Pocket Penetrometer

Water Levels
▽ Encountered Groundwater
▼ Stabilised Groundwater

Additional Comments

Log Drawn By:	Laurie White	Logged By:	**Ted Lilly**
Contact:	laurie.white@reumad.com.au	Checked By:	**Kiran Baby**
		Date:	**26/05/2020**
		Date:	**16/07/2020**

SOIL VAPOUR WELL LOG: VP11

Geo-Logix Pty Ltd
Building Q2, Level 3
Unit 2309 / 4 Daydream Street
Warriewood NSW 2102
www.geo-logix.com.au

Project Number:	**2001029**
Hole Depth:	**3.00 m**
Date Started:	**26/05/2020**
Date Completed:	**26/05/2020**

Project Name: **Vapour Well Install**
Location / Site: **Auburn NSW**
Client: **Fabcot Pty Ltd**
Contractor: **Terratest Pty Ltd**
Method: **Push Tube**

Method	Water Level	Depth (mBGL)	Material Type	USCS Symbol	Graphic Log	Material Description	Moisture	Observations / Comments	Well Details	Well Construction
PT		0.10	Natural	CL		**Sandy CLAY** - pale brown (5YR 5/2), 60% clay, 40% sand, firm.	moist			Gatic
		0.5		CL		**CLAY** - pale brown (5YR 5/2) and dark yellowish orange (10YR 6/6) and greyish pink (5R 8/2) and moderate reddish brown (10R 4/6), 90% clay, 10% sand, low plasticity, soft, becoming stiffer with some shale like components.	damp		0.90	Grout
		1.0								
		1.50		GP		**Clayey Sandy GRAVEL** - moderate yellowish brown (10YR 5/4) and light brown (5YR 5/6), 20% clay, 30% sand, 50% gravel, loose, increasing shale component & hard rock.	dry			Bentonite
		1.70								
		1.75				**SHALE BAND** - greyish orange pink (5YR 7/2).	dry			
		2.0		CL		**CLAY with Sand** - greyish orange pink (5YR 7/2) and greyish orange (10YR 7/4), 80% clay, 20% sand, soft, ironstone component at transition with next layer.				Teflon Tube
		2.50		CL		**CLAY with Sand** - greyish orange pink (5YR 7/2), 80% clay, 20% sand, very soft.			2.75 2.80 2.95	Imp. Sand
		3.0				**Terminated at 3.000 m** Target depth.				

Abbreviations

Hydrocarbon Odour
H High
M Medium
L Low
Z Zero

Sample Type
D Disturbed
U Undisturbed
B Bulk
R Representative
C Continuous
J Jar
Asb Asbestos

Strength Testing
SPT Standard Penetration Test
DCP Dynamic Cone Penetrometer
PP Pocket Penetrometer

Water Levels
Encountered Groundwater
Stabilised Groundwater

Additional Comments

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Caden Pengelly** Date: **26/05/2020**
Checked By: **Kiran Baby** Date: **16/07/2020**

SOIL VAPOUR WELL LOG: VP12

Geo-Logix Pty Ltd
Building Q2, Level 3
Unit 2309 / 4 Daydream Street
Warriewood NSW 2102
www.geo-logix.com.au

Project Number:	**2001029**
Hole Depth:	**2.00 m**
Date Started:	**26/05/2020**
Date Completed:	**26/05/2020**

Project Name: **Vapour Well Install**
Location / Site: **Auburn NSW**
Client: **Fabcot Pty Ltd**
Contractor: **Terratest Pty Ltd**
Method: **Push Tube**

Method	Water Level	Depth (mBGL)	Material Type	USCS Symbol	Graphic Log	Material Description	Moisture	Observations / Comments	Well Details	Well Construction
PT		0.25	Natural	CL		**CLAY with Sand** - moderate yellowish brown (10YR 5/4) and greyish orange (10YR 7/4) and greyish orange pink (10R 8/2) and moderate reddish brown (10R 4/6), 60% clay, 10% silt, 30% sand, low plasticity, firm.	damp		0.50	Gatic
		0.5		CL		**CLAY with Sand** - moderate yellowish brown (10YR 5/4), 60% clay, 10% silt, 30% sand, low plasticity, firm, becoming stiffer, increasing clay.	dry to damp			Grout
		0.55		CL		**CLAY with Silt** - 70% clay, 30% silt, stiff.				Bentonite
		1.0								Teflon Tube
		1.5							1.75	
		2.0				**Terminated at 2.000 m** Target depth.			1.80 1.95	Implant Sand

Abbreviations

Hydrocarbon Odour
H High
M Medium
L Low
Z Zero

Sample Type
D Disturbed
U Undisturbed
B Bulk
R Representative
C Continuous
J Jar
Asb Asbestos

Strength Testing
SPT Standard Penetration Test
DCP Dynamic Cone Penetrometer
PP Pocket Penetrometer

Water Levels
Encountered Groundwater
Stabilised Groundwater

Additional Comments

Log Drawn By:	Laurie White	Logged By:	**Caden Pengelly**
Contact:	laurie.white@reumad.com.au	Checked By:	**Kiran Baby**
		Date:	**26/05/2020**
		Date:	**16/07/2020**

SOIL VAPOUR WELL LOG: VP14

Geo-Logix Pty Ltd
Building Q2, Level 3
Unit 2309 / 4 Daydream Street
Warriewood NSW 2102
www.geo-logix.com.au

Project Number:	**2001029**
Hole Depth:	**0.80 m**
Date Started:	**26/05/2020**
Date Completed:	**26/05/2020**

Project Name:	**Vapour Well Install**
Location / Site:	**Auburn NSW**
Client:	**Fabcot Pty Ltd**
Contractor:	**Terratest Pty Ltd**
Method:	**Push Tube**

Method	Water Level	Depth (mBGL)	Material Type	USCS Symbol	Graphic Log	Material Description	Moisture	Observations / Comments	Well Details	Well Construction
PT		0.1 – 0.8	Natural	CL		**CLAY** - dark yellowish orange (10YR 6/6), 85% clay, 15% sand, medium plasticity, firm.	moist		0.10 / 0.55 / 0.60 / 0.75	Gatic; Bentonite; Teflon Tube; Sand; Implant
		0.9 – 1.4				**Terminated at 0.800 m** Target depth.				

Abbreviations

Hydrocarbon Odour
H High
M Medium
L Low
Z Zero

Sample Type
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U Undisturbed
B Bulk
R Representative
C Continuous
J Jar
Asb Asbestos

Strength Testing
SPT Standard Penetration Test
DCP Dynamic Cone Penetrometer
PP Pocket Penetrometer

Water Levels
Encountered Groundwater
Stabilised Groundwater

Additional Comments

Log Drawn By:	Laurie White	Logged By:	**Ted Lilly**
Contact:	laurie.white@reumad.com.au	Checked By:	**Kiran Baby**
		Date:	**26/05/2020**
		Date:	**16/07/2020**

SOIL VAPOUR WELL LOG: VP15

Geo-Logix Pty Ltd
Building Q2, Level 3
Unit 2309 / 4 Daydream Street
Warriewood NSW 2102
www.geo-logix.com.au

Project Number:	**2001029**
Hole Depth:	**0.60 m**
Date Started:	**26/05/2020**
Date Completed:	**26/05/2020**

Project Name: **Vapour Well Install**
Location / Site: **Auburn NSW**
Client: **Fabcot Pty Ltd**
Contractor: **Terratest Pty Ltd**
Method: **Push Tube**

Method	Water Level	Depth (mBGL)	Material Type	USCS Symbol	Graphic Log	Material Description	Moisture	Observations / Comments	Well Details	Well Construction
PT		0.1	Natural	CL		**CLAY** - greyish orange (10YR 7/4), 70% clay, 30% sand, low plasticity, firm.	moist		0.10	Gatic
		0.2								Bentonite
		0.30								Teflon Tube
		0.4		CH		**CLAY** - olive grey (5Y 4/1), 90% clay, 10% sand, high plasticity, firm.	moist		0.35	Sand
		0.5							0.40	
		0.6								Implant
		0.7				**Terminated at 0.600 m** Target depth.			0.55	
		0.8								
		0.9								
		1.0								
		1.1								
		1.2								
		1.3								
		1.4								

Abbreviations

Hydrocarbon Odour
H High
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Z Zero

Sample Type
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U Undisturbed
B Bulk
R Representative
C Continuous
J Jar
Asb Asbestos

Strength Testing
SPT Standard Penetration Test
DCP Dynamic Cone Penetrometer
PP Pocket Penetrometer

Water Levels
Encountered Groundwater
Stabilised Groundwater

Additional Comments

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Ted Lilly** Date: **26/05/2020**
Checked By: **Kiran Baby** Date: **16/07/2020**

SOIL VAPOUR WELL LOG: VP16

Geo-Logix Pty Ltd
Building Q2, Level 3
Unit 2309 / 4 Daydream Street
Warriewood NSW 2102
www.geo-logix.com.au

Project Number:	**2001029**
Hole Depth:	**3.00 m**
Date Started:	**26/05/2020**
Date Completed:	**26/05/2020**

Project Name: **Vapour Well Install**
Location / Site: **Auburn NSW**
Client: **Fabcot Pty Ltd**
Contractor: **Terratest Pty Ltd**
Method: **Push Tube**

Method	Water Level	Depth (mBGL)	Material Type	USCS Symbol	Graphic Log	Material Description	Moisture	Observations / Comments	Well Details	Well Construction
CC		0.1				**CONCRETE HARDSTAND**.				Gatic
		0.20								
PT		0.30	Fill			**FILL** - 20% sand, 80% gravel, aggregate.				
		0.4				**FILL** - greyish orange (10YR 7/4), 70% clay, 30% sand, low plasticity, well compacted.	damp			
		0.50								
		0.6	Natural	CL		**CLAY** - moderate orange pink (10R 7/4), 90% clay, 10% sand, medium plasticity, stiff.	moist			
		0.7								
		0.8								
		0.9							0.90	Grout
		1.0								
		1.1								
		1.2								Bentonite
		1.3								
		1.4								
		1.5								
		1.6								Teflon Tube
		1.7								
		1.8								
		1.9								
		2.0							1.95 2.00	Imp. Sand
		2.1								
		2.2							2.15 2.20	
		2.3								
		2.4								
		2.5								
		2.6								
		2.7								
		2.8								
		2.9								Bentonite
		3.0								
		3.1				**Terminated at 3.000 m** Target depth.				
		3.2								
		3.3								
		3.4								

Abbreviations

Hydrocarbon Odour
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L Low
Z Zero

Sample Type
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U Undisturbed
B Bulk
R Representative
C Continuous
J Jar
Asb Asbestos

Strength Testing
SPT Standard Penetration Test
DCP Dynamic Cone Penetrometer
PP Pocket Penetrometer

Water Levels
Encountered Groundwater
Stabilised Groundwater

Additional Comments

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Ted Lilly** Date: **26/05/2020**
Checked By: **Kiran Baby** Date: **16/07/2020**

SOIL VAPOUR WELL LOG: VP20

Geo-Logix Pty Ltd
Building Q2, Level 3
Unit 2309 / 4 Daydream Street
Warriewood NSW 2102
www.geo-logix.com.au

Project Number:	**2001029**
Hole Depth:	**2.80 m**
Date Started:	**15/06/2020**
Date Completed:	**15/06/2020**

Project Name: **Vapour Well Install**
Location / Site: **Auburn NSW**
Client: **Fabcot Pty Ltd**
Contractor: **Fico Group Pty Limited**
Method: **Solid Flight Auger**

Method	Water Level	Depth (mBGL)	Material Type	USCS Symbol	Graphic Log	Material Description	Moisture	Observations / Comments	Well Details	Well Construction
SFA		0.1 0.2 **0.30**	Natural	CL		**CLAY with Sand & Silt** - moderate brown (5YR 3/4), 50% clay, 20% silt, 30% sand, medium plasticity, soft.	damp			Gatic
		0.4 0.5 0.6 0.7 0.8 0.9 1.0 **1.10**		CL		**CLAY** - light brown (5YR 5/6), 90% clay, 10% sand, medium plasticity, soft.	damp		1.00	Grout
		1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 **2.50**		CL		**CLAY with Sand** - dark yellowish orange (10YR 6/6) and pale yellowish brown (10YR 6/2), 80% clay, 20% sand, low plasticity, stiff.	dry			Bentonite
		2.6 2.7 2.8		CL		**CLAY** - pale yellowish brown (10YR 6/2), 90% clay, 10% sand, low plasticity, firm.	dry		2.55 2.60 2.75	Teflon Tube Imp. Sand
		2.9 3.0 3.1 3.2 3.3 3.4				**Terminated at 2.800 m** Target depth.				

Abbreviations

Hydrocarbon Odour
H High
M Medium
L Low
Z Zero

Sample Type
D Disturbed
U Undisturbed
B Bulk
R Representative
C Continuous
J Jar
Asb Asbestos

Strength Testing
SPT Standard Penetration Test
DCP Dynamic Cone Penetrometer
PP Pocket Penetrometer

Water Levels
Encountered Groundwater
Stabilised Groundwater

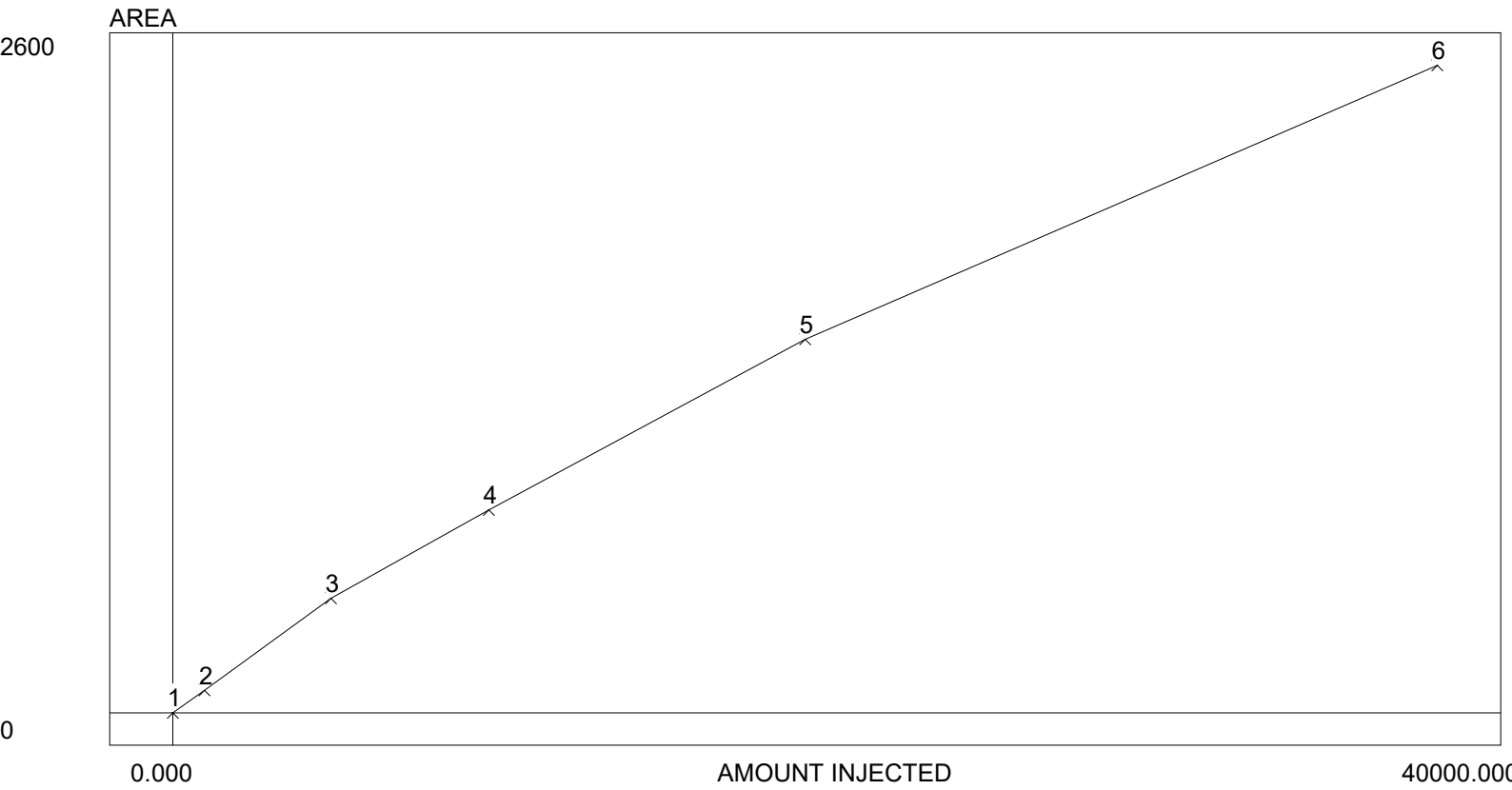
Additional Comments

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Caden Pengelly** Date: **15/06/2020**
Checked By: **Kiran Baby** Date: **16/07/2020**

ATTACHMENT D

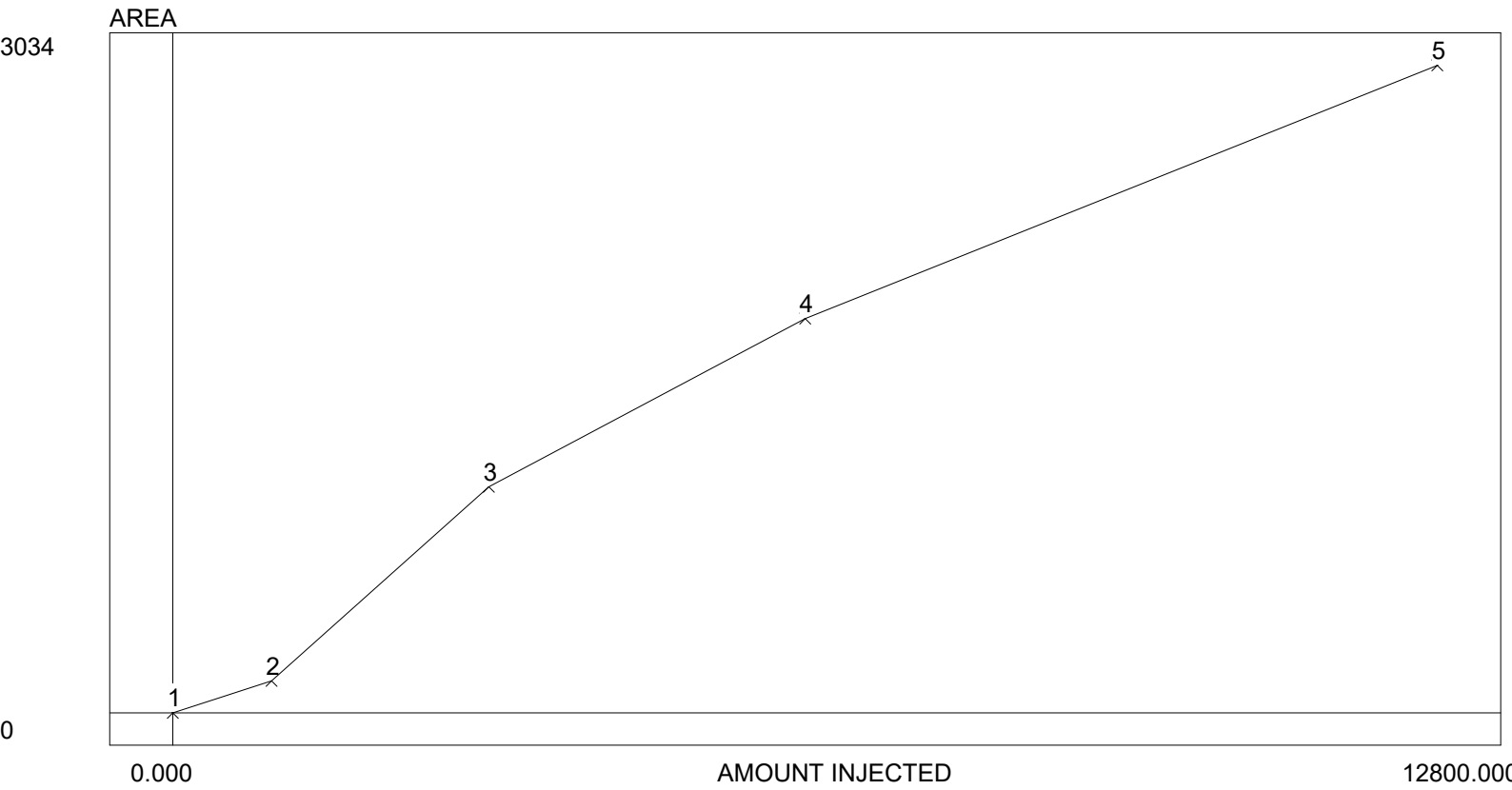
Calibration file: C:\peak454-64bitWin10\PID Benzene.cal



Avg slope of curve: 0.08
Y-axis intercept: 0.00
Linearity: 0.82
Number of levels: 6
SD/rel SD of CF's: 0.0/51.2
Y=<multi-line>
r2: 1.0000
Last calibrated: Fri Apr 05 07:43:20 2019

Lvl.	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	91.000	1000.000	0.091	91.000	N/A	N/A
3	460.000	5000.000	0.092	460.000	N/A	N/A
4	815.000	10000.000	0.082	815.000	N/A	N/A
5	1500.000	20000.000	0.075	1500.000	N/A	N/A
6	2600.000	40000.000	0.065	2600.000	N/A	N/A

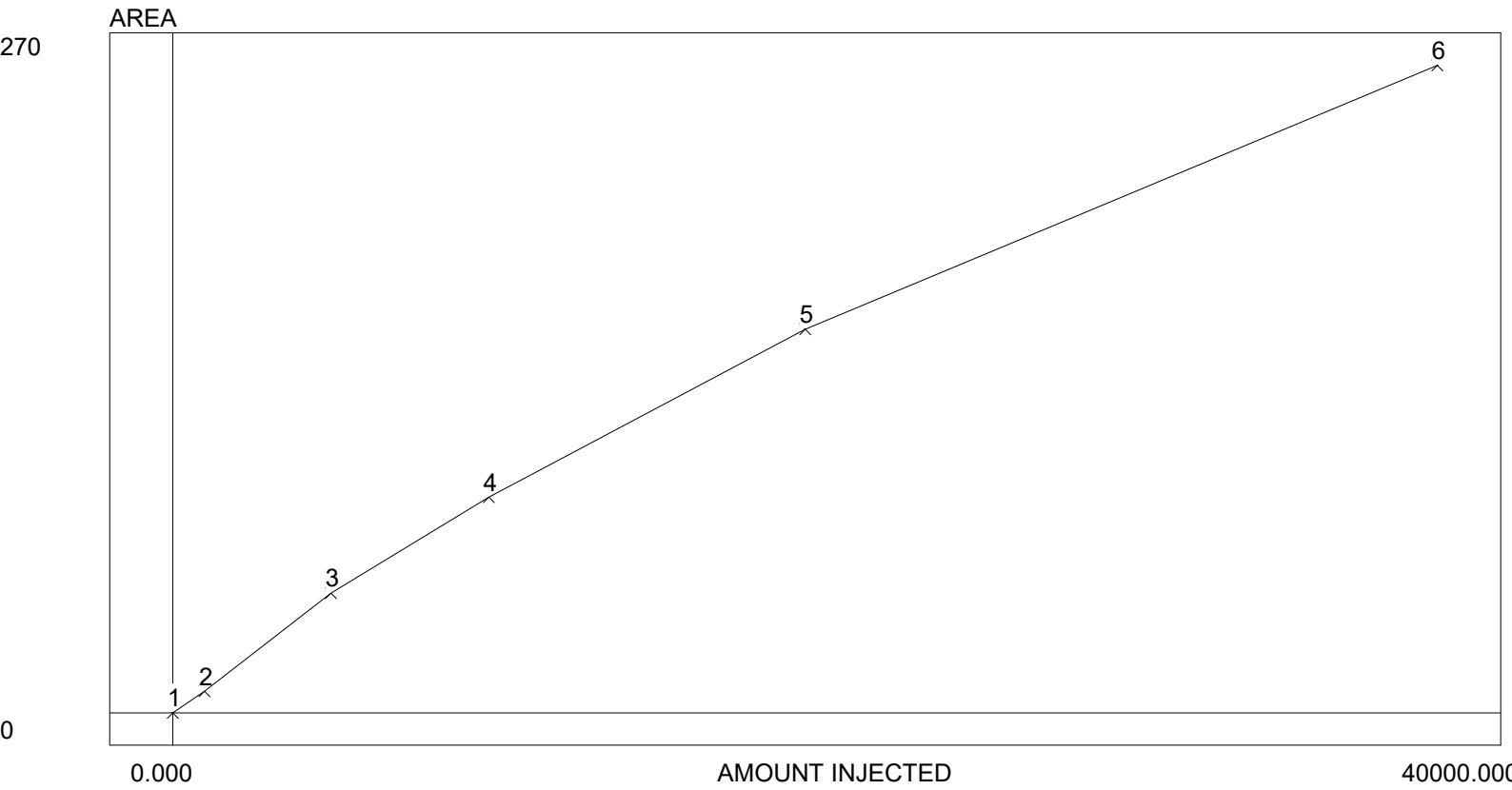
Calibration file: C:\peak454-64bitWin10\cis DCE Hi Range Hi gain.cal



Avg slope of curve: 0.25
Y-axis intercept: 0.00
Linearity: 0.60
Number of levels: 5
SD/rel SD of CF's: 0.1/65.2
Y=<multi-line>
r2: 1.0000
Last calibrated: Thu Nov 15 11:58:10 2018

Lvl.	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	150.000	1000.000	0.150	150.000	N/A	N/A
3	1060.000	3200.000	0.331	1060.000	N/A	N/A
4	1847.000	6400.000	0.289	1847.000	N/A	N/A
5	3034.000	12800.000	0.237	3034.000	N/A	N/A

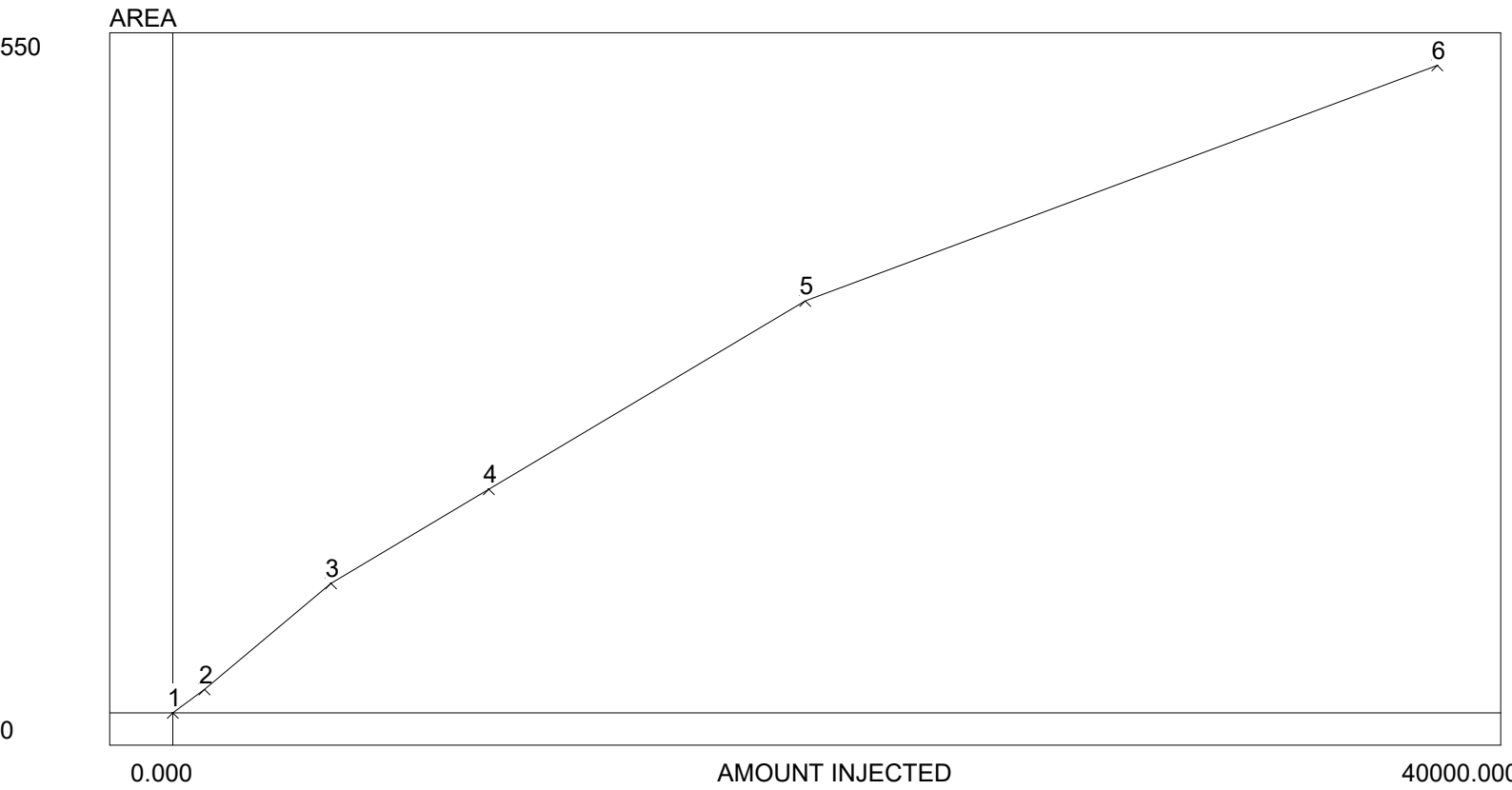
Calibration file: C:\peak454-64bitWin10\PID Ethyl B.cal



Avg slope of curve: 0.01
Y-axis intercept: 0.00
Linearity: 0.78
Number of levels: 6
SD/rel SD of CF's: 0.0/51.4
Y=<multi-line>
r2: 1.0000
Last calibrated: Fri Apr 05 07:45:30 2019

Lvl.	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	9.000	1000.000	0.009	9.000	N/A	N/A
3	50.000	5000.000	0.010	50.000	N/A	N/A
4	90.000	10000.000	0.009	90.000	N/A	N/A
5	160.000	20000.000	0.008	160.000	N/A	N/A
6	270.000	40000.000	0.007	270.000	N/A	N/A

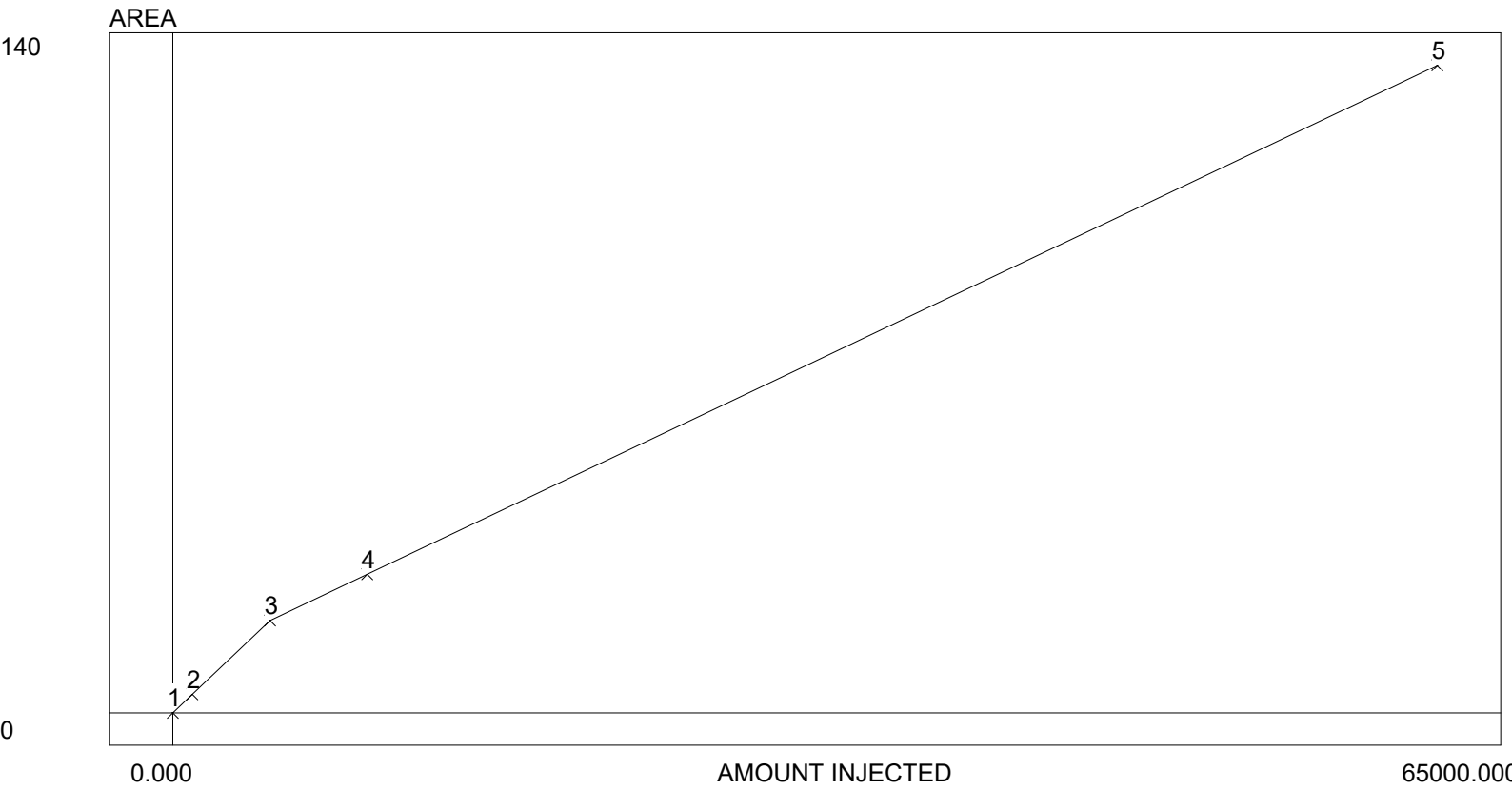
Calibration file: C:\peak454-64bitWin10\PID M&P Xylene.cal



Avg slope of curve: 0.02
Y-axis intercept: 0.00
Linearity: 0.75
Number of levels: 6
SD/rel SD of CF's: 0.0/52.2
Y=<multi-line>
r2: 1.0000
Last calibrated: Fri Apr 05 07:48:47 2019

Lvl.	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	20.000	1000.000	0.020	20.000	N/A	N/A
3	110.000	5000.000	0.022	110.000	N/A	N/A
4	190.000	10000.000	0.019	190.000	N/A	N/A
5	350.000	20000.000	0.018	350.000	N/A	N/A
6	550.000	40000.000	0.014	550.000	N/A	N/A

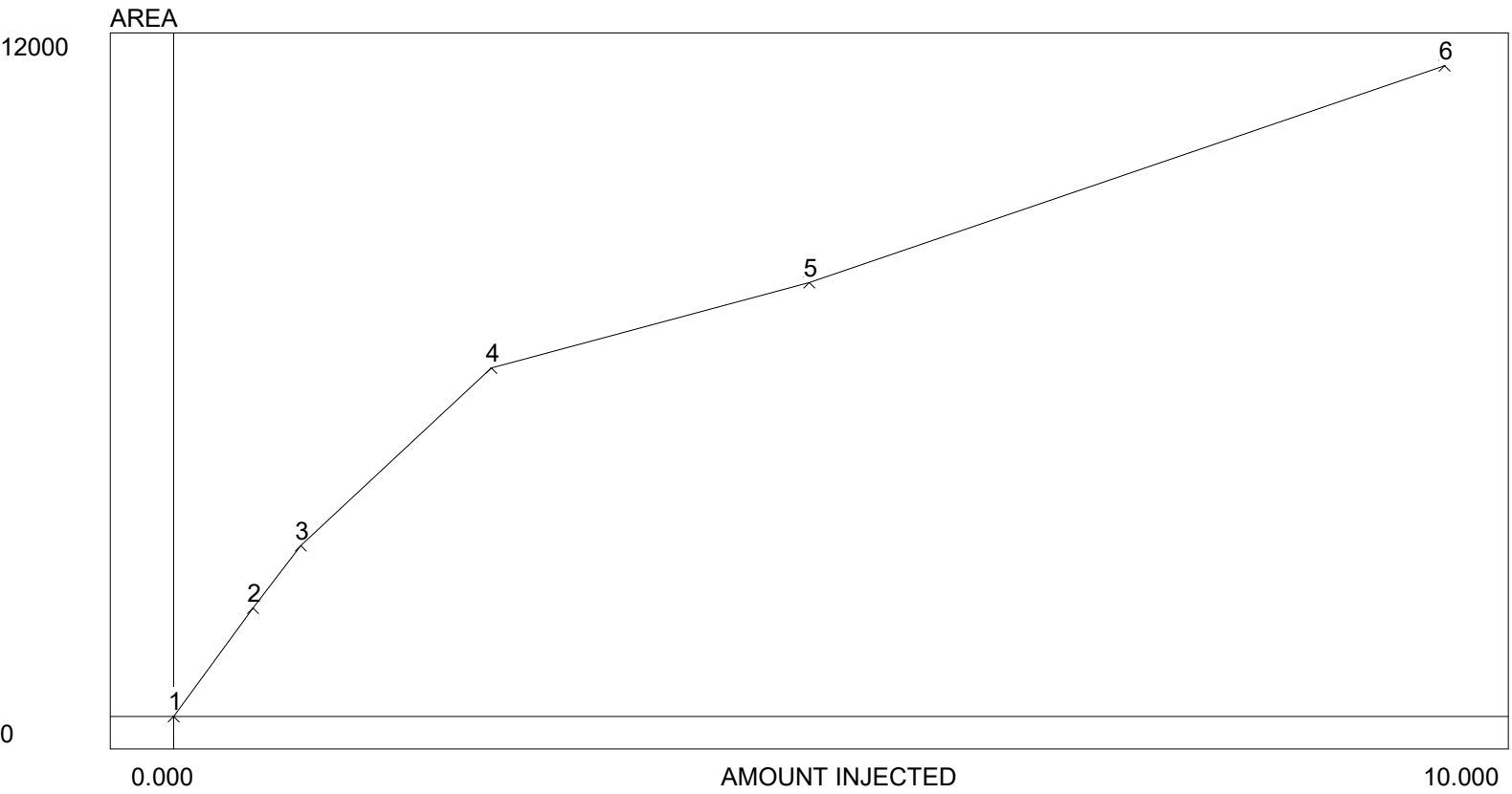
Calibration file: C:\peak454-64bitWin10\PID OXylene.cal



Avg slope of curve: 0.00
Y-axis intercept: 0.00
Linearity: 0.75
Number of levels: 5
SD/rel SD of CF's: 0.0/63.1
Y=<multi-line>
r2: 1.0000
Last calibrated: Thu Dec 19 08:53:10 2019

Lvl.	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	4.000	1000.000	0.004	4.000	N/A	N/A
3	20.000	5000.000	0.004	20.000	N/A	N/A
4	30.000	10000.000	0.003	30.000	N/A	N/A
5	140.000	65000.000	0.002	140.000	N/A	N/A

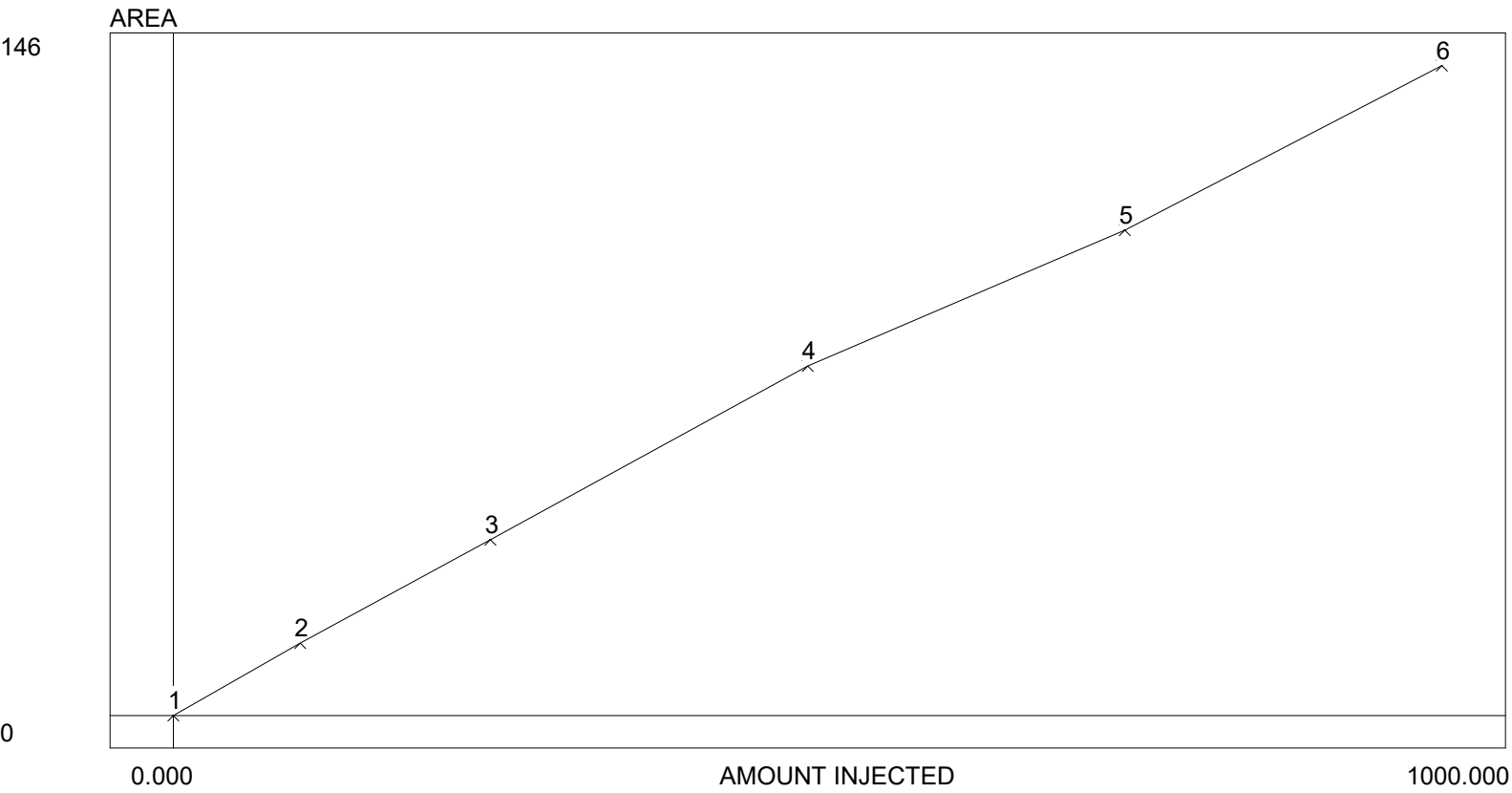
Calibration file: C:\peak454-64bitWin10\ECD PCE 140220.cal



Avg slope of curve: 1976.00
Y-axis intercept: 0.00
Linearity: 0.62
Number of levels: 6
SD/rel SD of CF's: 1254.9/64.2
Y=<multi-line>
r2: 1.0000
Last calibrated: Fri Feb 14 10:52:35 2020

Lvl.	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	2000.000	0.625	3200.000	2000.000	N/A	N/A
3	3150.000	1.000	3150.000	3150.000	N/A	N/A
4	6425.000	2.500	2570.000	6425.000	N/A	N/A
5	8000.000	5.000	1600.000	8000.000	N/A	N/A
6	12000.000	10.000	1200.000	12000.000	N/A	N/A

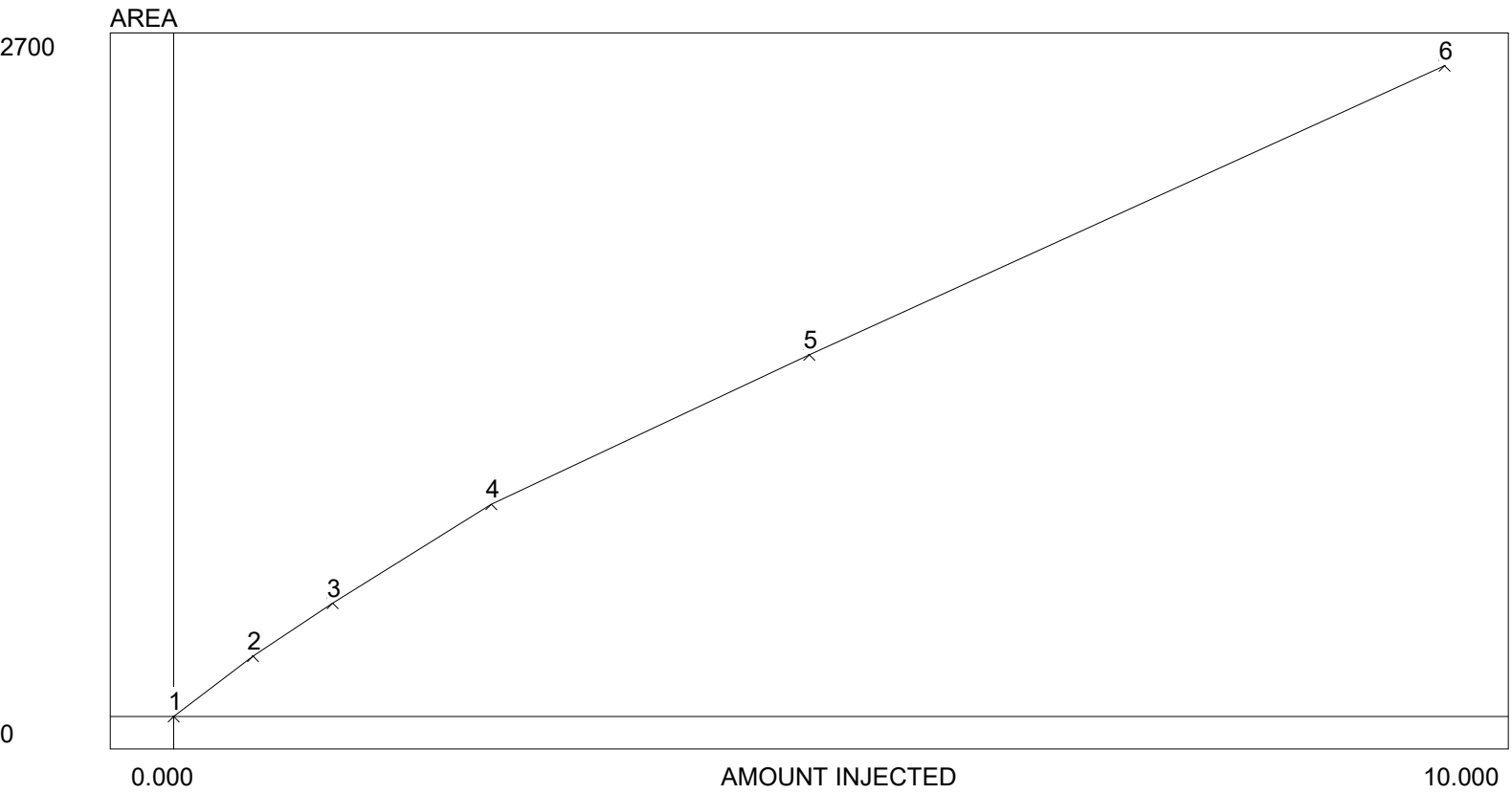
Calibration file: C:\peak454-64bitWin10\trDCE-PID 070319.cal



Avg slope of curve: 0.15
Y-axis intercept: 0.00
Linearity: 0.91
Number of levels: 6
SD/rel SD of CF's: 0.1/49.3
Y=<multi-line>
r2: 1.0000
Last calibrated: Tue Oct 16 14:13:44 2018

Lvl.	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	16.300	100.000	0.163	16.300	N/A	N/A
3	39.500	250.000	0.158	39.500	N/A	N/A
4	78.550	500.000	0.157	78.550	N/A	N/A
5	109.000	750.000	0.145	109.000	N/A	N/A
6	146.000	1000.000	0.146	146.000	N/A	N/A

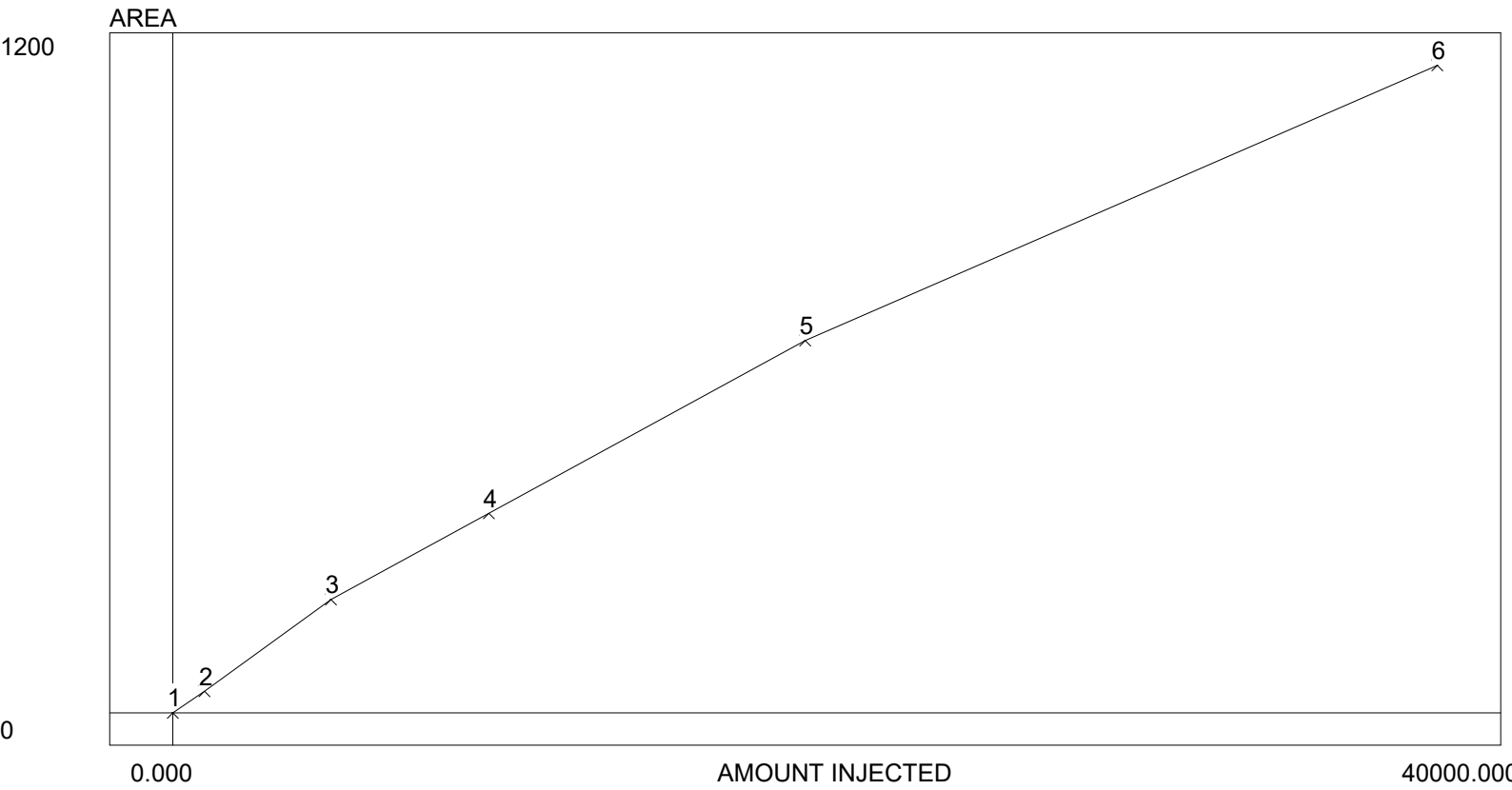
Calibration file: C:\peak454-64bitWin10\ECD TCE 210619.cal



Avg slope of curve: 313.60
Y-axis intercept: 0.00
Linearity: 0.78
Number of levels: 6
SD/rel SD of CF's: 146.7/51.8
Y=<multi-line>
r2: 1.0000
Last calibrated: Fri Jun 21 15:57:37 2019

Lvl.	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	250.000	0.625	400.000	250.000	N/A	N/A
3	470.000	1.250	376.000	470.000	N/A	N/A
4	880.000	2.500	352.000	880.000	N/A	N/A
5	1500.000	5.000	300.000	1500.000	N/A	N/A
6	2700.000	10.000	270.000	2700.000	N/A	N/A

Calibration file: C:\peak454-64bitWin10\PID Toluene.cal



Avg slope of curve: 0.03
Y-axis intercept: 0.00
Linearity: 0.81
Number of levels: 6
SD/rel SD of CF's: 0.0/50.9
Y=<multi-line>
r2: 1.0000
Last calibrated: Fri Apr 05 07:44:25 2019

Lvl.	Area/ht.	Amount	CF	Current	Previous #1	Previous #2
1	0.000	0.000	0.000	0.000	N/A	N/A
2	40.000	1000.000	0.040	40.000	N/A	N/A
3	210.000	5000.000	0.042	210.000	N/A	N/A
4	370.000	10000.000	0.037	370.000	N/A	N/A
5	690.000	20000.000	0.035	690.000	N/A	N/A
6	1200.000	40000.000	0.030	1200.000	N/A	N/A

ATTACHMENT E

Site: 11-13 Percy St, Auburn
Instrument: SRI 8610 Gas Chromatograph with ECD & PID
Operator: D.Egelton
File Route ECD Geo_Logix_Auburn-01+
Detction limit Working Range of <1.0 to <50,000µg/m^3 for TCE and PCE
Date: 28-May-20

				ECD & PID DATA (units = µg/m3)			
Sample ID	**FIELD PID**	**File**	**Analysis Time**	**TCE**	**PCE**	**Notes**	
VP12	0.4	04	9:50	12	<5	Raised DL due to interference	
VP11	0.5	05	10:01	1	<1		
VP1	1.2	06	10:17	2	<1		
VP2	0.9	07	10:29	4	<1		
VP9	2.6	08	10:37	<1	<1		
VP9 DUP	2.6	09	10:50	<1	<1	Duplicate	
VP7	2.4	10	11:04	<1	<1		
VP4	7.9	11	11:37	12,000	21		
VP4 DUP	7.9	12	11:49	10,500	15	Duplicate	
VP10	0.8	13	12:05	<1	<1		
VP6	1.2	14	12:19	<1	<8	Raised DL due to interference	
VP16	3.2	15	12:35	<1	<4	Raised DL due to interference	
VP17		16	12:48	<1	<1		
VP18		17	12:59	<1	<1		
VP19		18	13:25	<1	<1		
				ECD & PID DATA units = µg/m^3			
Sample ID	**FIELD PID**	**File**	**Analysis Time**	**TrDCE**	**cDCE**	**IPA**	**Notes**
VP12	0.4	04	9:50	<40	<80	<50	
VP11	0.5	05	10:01	41	<80	<50	
VP1	1.2	06	10:17	<40	<80	<50	
VP2	0.9	07	10:29	<40	<80	<50	
VP9	2.6	08	10:37	80	<80	<50	
VP9 DUP	2.6	09	10:50	60	<80	<50	Duplicate
VP7	2.4	10	11:04	<40	<80	<50	
VP4	7.9	11	11:37	250	1,100	<50	
VP4 DUP	7.9	12	11:49	240	1,000	<50	Duplicate
VP10	0.8	13	12:05	<40	<80	<50	
VP6	1.2	14	12:19	<40	<80	<50	
VP16	3.2	15	12:35	60	<80	<50	
VP17		16	12:48	<40	<80	<50	
VP18		17	12:59	<40	<80	<50	
VP19		18	13:25	<40	<80	<50	

CSI Australia
CONTAMINATED SITE INVESTIGATIONS

Site: 11-13 Percy St, Auburn
Instrument: SRI 8610 Gas Chromatograph with ECD & PID
Operator: D.Egelton
File Route PID Geo_Logix_Auburn-01+
Detction limit Working range of <60 to <300,000 µg/m^3 for BTEX
Date: 28-May-20

				PID Data (units = µg/m3)		
Sample ID	**Benzene**	**Toluene**	**Ethylbenzene**	**M+P-Xylene**	**O-Xylene**	**Notes**
VP12	<60	<100	<200	<300	<120	
VP11	<60	<100	<200	<300	<120	
VP1	<60	<100	<200	1,200	750.0	
VP2	<60	<100	<200	950	<120	
VP9	<60	<100	<200	2,800	2,900	
VP9 DUP	<60	<100	<200	2,500	2,000	Duplicate
VP7	<60	<100	350	1,500	<120	
VP4	<60	<100	430	2,000	1,500	
VP4 DUP	<60	<100	340	1,900	1,500	Duplicate
VP10	<60	<100	<200	<300	<120	
VP6	<60	<100	<200	<300	<120	
VP16	<60	<100	200	530	130	
VP17	80	<100	<200	<300	<120	
VP18	90	<100	<200	<300	<120	
VP19	<60	<100	<200	<300	<120	

Method Blanks and Site Calibration Checks

ID	**PID**	**File**	**Time**	**Compound & Recovery %**		
				TCE	**PCE**	**T DCE**
Filtered Air	<1	01	9:08	ND	ND	ND
Filtered Air	<1	19	13:55	ND	ND	ND
10ppm	N/A	02	9:18	87%	91%	100%
500ppm	N/A	03	9:29	73%	71%	100%

Duplicate RPD Values (%)

Sample ID	**TCE**	**RPD**	**PCE**	**RPD**	**M+P Xyl**	**RPD**
VP9	<1	0	<1	0	2,800	33
VP9 DUP	<1		<1		2,000	
VP4	12,000	13	21	33	2,000	5
VP4 DUP	10,500		15		1,900	
Sample ID	**cDCE**	**RPD**	**tDCE**	**RPD**	**Ethyl B**	**RPD**
VP4	1,100	10	250	4	350	-21
VP4 DUP	1,000		240		430	
Sample ID	**Ortho Xy**	**RPD**				
VP9	2,900	37				
VP9 DUP	2,000					

Geo-Logix P/L
Bld Q2 Level 3, 2309/4 Daydream St
Warriewood
NSW 2102

Attention: **Ben Pearce**

Report **723076-TO-V4**
Project name AUBURN
Project ID 2001029
Received Date Jun 02, 2020

Client Sample ID			**VP4**
Sample Matrix			**Thermal Desorption**
Eurofins Sample No.			**S20-Jn02504**
Date Sampled			**May 28, 2020**
Receipt Vac./Pressure (inHg)			
Final Pressure (psi)			
Test/Reference	LOR	Unit	
US EPA Compendium Method TO-17			
1.1.1.2-Tetrachloroethane	0.004	mg/m3	< 0.004
1.2-Dibromo-3-chloropropane	0.004	mg/m3	< 0.004
1.2-Dibromoethane (EDB)	0.004	mg/m3	< 0.004
1.2.3-Trichloropropane	0.004	mg/m3	< 0.004
2-Chlorotoluene	0.004	mg/m3	< 0.004
4-Chlorotoluene	0.004	mg/m3	< 0.004
Bromobenzene	0.004	mg/m3	< 0.004
Bromodichloromethane	0.004	mg/m3	< 0.004
Bromoform	0.004	mg/m3	< 0.004
cis-1.3-Dichloropropene	0.004	mg/m3	< 0.004
Dibromochloromethane	0.004	mg/m3	< 0.004
Dibromomethane	0.004	mg/m3	< 0.004
n-Butylbenzene	0.004	mg/m3	< 0.004
p-Isopropyltoluene	0.004	mg/m3	0.0100
sec-Butylbenzene	0.004	mg/m3	< 0.004
tert-Butylbenzene	0.004	mg/m3	< 0.004
trans-1.3-Dichloropropene	0.004	mg/m3	< 0.004
1.1-Dichloroethane	0.004	mg/m3	0.156
1.1-Dichloroethene	0.004	mg/m3	< 0.004
1.1.1-Trichloroethane	0.004	mg/m3	< 0.004
1.1.2-Trichloroethane	0.004	mg/m3	< 0.004
1.1.2.2-Tetrachloroethane	0.004	mg/m3	< 0.004
1.2-Dichlorobenzene	0.004	mg/m3	< 0.004
1.2-Dichloroethane	0.004	mg/m3	< 0.004
1.2-Dichloropropane	0.004	mg/m3	< 0.004
1.2.4-Trichlorobenzene	0.004	mg/m3	< 0.004
1.2.4-Trimethylbenzene	0.004	mg/m3	< 0.004
1.3-Dichlorobenzene	0.004	mg/m3	< 0.004
1.3.5-Trimethylbenzene	0.004	mg/m3	< 0.004
1.4-Dichlorobenzene	0.004	mg/m3	< 0.004
Benzene	0.004	mg/m3	< 0.004
Carbon Tetrachloride	0.004	mg/m3	< 0.004

Client Sample ID			VP4
Sample Matrix			Thermal Desorption
Eurofins Sample No.			S20-Jn02504
Date Sampled			May 28, 2020
Receipt Vac./Pressure (inHg)			
Final Pressure (psi)			
Test/Reference	LOR	Unit	
US EPA Compendium Method TO-17			
Chlorobenzene	0.004	mg/m3	< 0.004
Chloroform	0.004	mg/m3	0.088
cis-1.2-Dichloroethene	0.004	mg/m3	0.168
Isopropyl benzene (Cumene)	0.004	mg/m3	0.0380
Ethylbenzene	0.004	mg/m3	0.640
m.p-Xylene	0.004	mg/m3	2.920
Naphthalene	0.004	mg/m3	< 0.004
o-Xylene	0.004	mg/m3	1.200
n-Propylbenzene	0.004	mg/m3	< 0.004
Styrene	0.004	mg/m3	< 0.004
Tetrachloroethene	0.004	mg/m3	0.0132
Toluene	0.004	mg/m3	< 0.004
trans-1.2-Dichloroethene	0.004	mg/m3	< 0.004
Trichloroethene	0.004	mg/m3	5.600
Vinyl Chloride	0.004	mg/m3	< 0.004
4-Bromofluorobenzene (surr.)	1	%	80

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.

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
US EPA Compendium Method TO-17	BrisbaneAir	Jun 09, 2020	30 Days

- Method: SOP #109 Analysis of Volatile and Semi-Volatile Organic Compounds in Vapour by Thermal Desorption GC/MS Full Scan using Modified EPA Method TO-17

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NATA # 1261
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Phone : +64 9 526 45 51
IANZ # 1327

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43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: Geo-Logix P/L
Address: Bld Q2 Level 3, 2309/4 Daydream St
Warriewood
NSW 2102

Project Name: AUBURN
Project ID: 2001029

Order No.: PO3828
Report #: 723076
Phone: 02 9979 1722
Fax: 02 9979 1222

Received: Jun 2, 2020 8:40 AM
Due: Jun 9, 2020
Priority: 5 Day
Contact Name: Ben Pearce

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						US EPA Compendium Method TO-17
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	VP4	May 28, 2020		Thermal Desorption	S20-Jn02504	X
Test Counts						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. Dilutions are performed on samples due to the presence of high level target species or the presence of high level non-target species.
3. Results are uncorrected for surrogate recoveries.
4. All QC limit exceedances and affected sample results are noted by flags. Each qualifying flag is defined below in section entitled 'Definition of Data Qualifying Flags' and additionally on individual sample results (where relevant).
5. "100% certification" is defined as evaluating the sampling system with humid zero air/N2 and humid calibration gases that pass through all active components of the sampling system. The system is "100% certified" if no significant additions or deletions (less than 0.2 ppbv each of target compounds) have occurred when challenged with the test gas stream.
6. The conversion equation from ppbv to g/m3 uses a temperature of 25 °C and an ambient sea level atmospheric pressure of 1 atmosphere (101.325 kPa) is assumed.
7. All canister samples are only analysed once temperature equilibrium with the laboratory has been achieved.
8. Safe Sampling Volume (SSV) - calculated by taking two-thirds of the breakthrough volume (direct method) and Appendix 1 of Method T0-17.
9. Samples were analysed on an 'as received' basis.
10. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
11. This report replaces any interim results previously issued.

Definition of Data Qualifying Flags

Qualifiers may have been used on the data analysis sheets and indicates as follows:

A01 Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
A02 Estimated value.
A03 Exceeds instrument calibration range.
A04 Saturated peak.
A05 Exceeds quality control limits.
A06 Compound analysed for but not detected above the Limit of Reporting (LOR). See data page for project specific U-flag definition.
A07 Non-detected compound associated with low bias in the CCV.
A08 The identification is based on presumptive evidence.
A09 SSV has been exceeded for this compound. It is likely that this compound has been underestimated.
A10 LORs cited do not take into account sample dilution due to canister pressurisation.
A11 Naphthalene elutes outside the >C10-C12 range on the system used for sample analysis. As a result, >C10-C12 TRH value is equivalent to the modified F2 value.

Holding Times

Under conditions of normal usage for sampling ambient air, most Volatile Organic Compounds (VOCs) can be recovered from canisters near their original concentrations after storage times of up to thirty days. For thermal desorption tubes (TDT) samples should be refrigerated at <4°C in a clean environment during storage and analysed within 30 days of sample collection (within one week for limonene, carene, bis-chloromethyl ether and labile sulfur or nitrogen containing volatiles).

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.

Units

ppbv: parts per billion by volume
ug/m3: micrograms per cubic metre
kPa: kilopascal
psig: pounds per square inch gauge

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
US EPA Compendium Method TO-17							
1.1.1.2-Tetrachloroethane	mg/m3	< 0.004			0.004	Pass	
1.2-Dibromo-3-chloropropane	mg/m3	< 0.004			0.004	Pass	
1.2-Dibromoethane (EDB)	mg/m3	< 0.004			0.004	Pass	
1.2.3-Trichloropropane	mg/m3	< 0.004			0.004	Pass	
2-Chlorotoluene	mg/m3	< 0.004			0.004	Pass	
4-Chlorotoluene	mg/m3	< 0.004			0.004	Pass	
Bromobenzene	mg/m3	< 0.004			0.004	Pass	
Bromodichloromethane	mg/m3	< 0.004			0.004	Pass	
Bromoform	mg/m3	< 0.004			0.004	Pass	
cis-1.3-Dichloropropene	mg/m3	< 0.004			0.004	Pass	
Dibromochloromethane	mg/m3	< 0.004			0.004	Pass	
Dibromomethane	mg/m3	< 0.004			0.004	Pass	
n-Butylbenzene	mg/m3	< 0.004			0.004	Pass	
p-Isopropyltoluene	mg/m3	< 0.004			0.004	Pass	
sec-Butylbenzene	mg/m3	< 0.004			0.004	Pass	
tert-Butylbenzene	mg/m3	< 0.004			0.004	Pass	
trans-1.3-Dichloropropene	mg/m3	< 0.004			0.004	Pass	
1.1-Dichloroethane	mg/m3	< 0.004			0.004	Pass	
1.1-Dichloroethene	mg/m3	< 0.004			0.004	Pass	
1.1.1-Trichloroethane	mg/m3	< 0.004			0.004	Pass	
1.1.2-Trichloroethane	mg/m3	< 0.004			0.004	Pass	
1.1.2.2-Tetrachloroethane	mg/m3	< 0.004			0.004	Pass	
1.2-Dichlorobenzene	mg/m3	< 0.004			0.004	Pass	
1.2-Dichloroethane	mg/m3	< 0.004			0.004	Pass	
1.2-Dichloropropane	mg/m3	< 0.004			0.004	Pass	
1.2.4-Trichlorobenzene	mg/m3	< 0.004			0.004	Pass	
1.2.4-Trimethylbenzene	mg/m3	< 0.004			0.004	Pass	
1.3-Dichlorobenzene	mg/m3	< 0.004			0.004	Pass	
1.3.5-Trimethylbenzene	mg/m3	< 0.004			0.004	Pass	
1.4-Dichlorobenzene	mg/m3	< 0.004			0.004	Pass	
Benzene	mg/m3	< 0.004			0.004	Pass	
Carbon Tetrachloride	mg/m3	< 0.004			0.004	Pass	
Chlorobenzene	mg/m3	< 0.004			0.004	Pass	
Chloroform	mg/m3	< 0.004			0.004	Pass	
cis-1.2-Dichloroethene	mg/m3	< 0.004			0.004	Pass	
Isopropyl benzene (Cumene)	mg/m3	< 0.004			0.004	Pass	
Ethylbenzene	mg/m3	< 0.004			0.004	Pass	
m.p-Xylene	mg/m3	< 0.004			0.004	Pass	
Naphthalene	mg/m3	< 0.004			0.004	Pass	
o-Xylene	mg/m3	< 0.004			0.004	Pass	
n-Propylbenzene	mg/m3	< 0.004			0.004	Pass	
Styrene	mg/m3	< 0.004			0.004	Pass	
Tetrachloroethene	mg/m3	< 0.004			0.004	Pass	
Toluene	mg/m3	< 0.004			0.004	Pass	
trans-1.2-Dichloroethene	mg/m3	< 0.004			0.004	Pass	
Trichloroethene	mg/m3	< 0.004			0.004	Pass	
Vinyl Chloride	mg/m3	< 0.004			0.004	Pass	
LCS - % Recovery							
US EPA Compendium Method TO-17							
1.1.1.2-Tetrachloroethane	%	95			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1.2-Dibromo-3-chloropropane	%	72			70-130	Pass	
1.2-Dibromoethane (EDB)	%	85			70-130	Pass	
1.2.3-Trichloropropane	%	75			70-130	Pass	
2-Chlorotoluene	%	78			70-130	Pass	
4-Chlorotoluene	%	87			70-130	Pass	
Bromobenzene	%	80			70-130	Pass	
Bromodichloromethane	%	78			70-130	Pass	
Bromoform	%	89			70-130	Pass	
cis-1.3-Dichloropropene	%	92			70-130	Pass	
Dibromochloromethane	%	89			70-130	Pass	
Dibromomethane	%	92			70-130	Pass	
n-Butylbenzene	%	73			70-130	Pass	
p-Isopropyltoluene	%	73			70-130	Pass	
sec-Butylbenzene	%	76			70-130	Pass	
tert-Butylbenzene	%	80			70-130	Pass	
trans-1.3-Dichloropropene	%	92			70-130	Pass	
1.1-Dichloroethane	%	100			70-130	Pass	
1.1-Dichloroethene	%	123			70-130	Pass	
1.1.1-Trichloroethane	%	117			70-130	Pass	
1.1.2-Trichloroethane	%	86			70-130	Pass	
1.1.2.2-Tetrachloroethane	%	82			70-130	Pass	
1.2-Dichlorobenzene	%	75			70-130	Pass	
1.2-Dichloroethane	%	86			70-130	Pass	
1.2-Dichloropropane	%	88			70-130	Pass	
1.2.4-Trichlorobenzene	%	75			70-130	Pass	
1.2.4-Trimethylbenzene	%	80			70-130	Pass	
1.3-Dichlorobenzene	%	75			70-130	Pass	
1.3.5-Trimethylbenzene	%	95			70-130	Pass	
1.4-Dichlorobenzene	%	72			70-130	Pass	
Benzene	%	77			70-130	Pass	
Carbon Tetrachloride	%	92			70-130	Pass	
Chlorobenzene	%	77			70-130	Pass	
Chloroform	%	97			70-130	Pass	
cis-1.2-Dichloroethene	%	113			70-130	Pass	
Isopropyl benzene (Cumene)	%	82			70-130	Pass	
Ethylbenzene	%	79			70-130	Pass	
m.p-Xylene	%	78			70-130	Pass	
Naphthalene	%	79			70-130	Pass	
o-Xylene	%	84			70-130	Pass	
n-Propylbenzene	%	84			70-130	Pass	
Styrene	%	82			70-130	Pass	
Tetrachloroethene	%	81			70-130	Pass	
Toluene	%	74			70-130	Pass	
trans-1.2-Dichloroethene	%	105			70-130	Pass	
Trichloroethene	%	73			70-130	Pass	
Vinyl Chloride	%	107			70-130	Pass	

Comments

This report has been revised (V2) to apply unit conversion.
This report has been revised (V3) to amend project name.
This report has been revised (V4) to amend LORs.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
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

Authorised By

Ursula Long	Analytical Services Manager
Laurence Hearn	Senior Analyst-Air (QLD)

Glenn Jackson
General 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 click here.

eurofins | Environment Testing

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NATA # 1261 Site # 23736

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

Sample Receipt Advice

Company name: **Geo-Logix P/L**

Contact name: Ben Pearce
Project name: AUBURN
Project ID: 2001029
COC number: Not provided
Turn around time: 5 Day
Date/Time received: Jun 2, 2020 8:40 AM
Eurofins reference: **723076**

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.

N/A Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Split sample sent to requested external lab.

☒ 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:

Ursula Long on Phone : or by e.mail: UrsulaLong@eurofins.com

Results will be delivered electronically via e.mail to Ben Pearce - bpearce@geo-logix.com.au.

Geo-Logix Pty Ltd
Building Q2, Level 3
2309/4 Daydream St
Warriewood, NSW 2102
ABN: 86 116 892 936
P: (02) 9979 1722
F: (02) 9979 1222

CHAIN OF CUSTODY

Project Manager: Ben Peace
Contact email: bpeace@geo-logix.com.au
Project Name: Rockdale
Project Number: 2001029
Date Submitted: 2/6/20

Purchase Order No: PO38828
Quote Reference:
Send Invoice to: accounts@geo-logix.com.au
TAT required: 5 day

ANALYSIS REQUIRED

Lab ID	Sample ID	Date	Matrix: soil	water	air	paint, filters	other	Comments	COMPOSITE	TRH - C6 - C10	TRH - C10 - C40	VOCs	BTEXN	PAHs	PCBs	OCPs	OPPs	Phenols	Metals - M8	Metals - Lead	Metals - Specify **	TCLP	Asbestos (ID only)	Asbestos (WA DOH)	Foreign Materials	Conductivity (EC)	pH	x TO17		Hold	SUITE
	~~VP4~~ VP4	28/5/20					x	tube A01880																				x TO17			
								0.25L volume																							
								100mL/min flow																							
								rate																							

Metals(circle)** As, Cd, Cr, Cu, Ni, Pb, Zn, Hg, Cr^{6+}, Cr^{3+}, Fe^{2+}, Fe^{3+}, Be, B, Al, V, Mn, Fe, Co, Se, Sr, Sn, Mo, Ag, Ba, Tl, Bi, Sb

Chain of Custody

Relinquished by: [signature] Date/Time: 1/6/20 Signature: [signature]
Received by: Luca D. Eurofins Date/Time: 02/06/20 Signature: [signature]

723076

Version: V1
Date Issued: April 2019
Review Date: April 2021

Ursula Long

From: Ben Pearce <bpearce@geo-logix.com.au>
Sent: Thursday, 11 June 2020 2:42 PM
To: Ursula Long
Subject: FW: Eurofins Test Results - Report 723076 : Site ROCKDALE (2001029)
Attachments: 2001029.723076.Header.xml; ROCKDALE 2001029.723076.Chemistry2e.csv; ROCKDALE 2001029.723076.Sample2e.csv; 723076_data.csv; 723076_COC.pdf; 723076 _sample_receipt_coc.pdf; 723076_summary.pdf; 723076-TO.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

EXTERNAL EMAIL*

Hi Ursula,

Can you please change the job name Auburn and re issue.

Thanks,

Ben

From: UrsulaLong@eurofins.com <UrsulaLong@eurofins.com>
Sent: Tuesday, 9 June 2020 1:58 PM
To: Ben Pearce <bpearce@geo-logix.com.au>
Subject: Eurofins Test Results - Report 723076 : Site ROCKDALE (2001029)

Please find attached results for your project in the subject header.

Regards

Ursula Long

Eurofins
Unit F3, Parkview Building
16 Mars Road
LANE COVE WEST NSW 2066
AUSTRALIA
Phone: +61 299 008 420
Email: UrsulaLong@eurofins.com
Website:environment.eurofins.com.au
EnviroNote 1098 - Melbourne PFAS Accreditation
EnviroNote 1103 - NATA Accreditation for Dioxins

Geo-Logix P/L
Bld Q2 Level 3, 2309/4 Daydream St
Warriewood
NSW 2102

Attention: **Ben Pearce**

Report **726829-TO-V2**
Project name AUBURN
Project ID 2001029
Received Date Jun 19, 2020

Client Sample ID			**VP20**
Sample Matrix			**1L Summa Canister**
Eurofins Sample No.			**S20-Jn34726**
Date Sampled			**Jun 19, 2020**
Receipt Vac./Pressure (inHg)			**5.3**
Final Pressure (psi)			**15**
Test/Reference	LOR	Unit	
Dilution Factor	0.1		9.8
US EPA Compendium Methods TO-14a/TO-15			
1.1-Dichloroethane	2	ug/m3	300
1.1-Dichloroethene	2	ug/m3	610
1.1.1-Trichloroethane	2.7	ug/m3	< 27
1.1.2-Trichloroethane	2.7	ug/m3	140
1.1.2.2-Tetrachloroethane	3.4	ug/m3	< 34
1.2-Dibromoethane (EDB)	3.6	ug/m3	< 35
1.2-Dichlorobenzene	3	ug/m3	< 29
1.2-Dichloroethane	2	ug/m3	< 20
1.2-Dichloropropane	2.3	ug/m3	< 23
1.2.4-Trichlorobenzene	15	ug/m3	< 145
1.2.4-Trimethylbenzene	2.5	ug/m3	< 24
1.3-Butadiene	1.1	ug/m3	< 11
1.3-Dichlorobenzene	3	ug/m3	< 29
1.3.5-Trimethylbenzene	2.5	ug/m3	< 24
1.4-Dichlorobenzene	3	ug/m3	< 29
1.4-Dioxane	7.2	ug/m3	< 71
2-Butanone (Methyl Ethyl Ketone)	5.9	ug/m3	< 58
2-Hexanone	8.2	ug/m3	< 80
2.2.4-Trimethylpentane	9.3	ug/m3	< 91
3-Chloropropene	6.3	ug/m3	< 61
4-Ethyltoluene	2.5	ug/m3	< 24
4-Methyl-2-Pentanone (MIBK)	2.1	ug/m3	< 20
Acetone	11.9	ug/m3	< 116
Benzene	1.6	ug/m3	< 16
Bromodichloromethane	3.4	ug/m3	< 33
Bromoform	5.2	ug/m3	< 51
Bromomethane	19.4	ug/m3	< 190
Carbon Disulfide	6.2	ug/m3	< 61
Carbon Tetrachloride	3.1	ug/m3	< 31
Chlorobenzene	2.3	ug/m3	< 23

Client Sample ID			VP20
Sample Matrix			1L Summa Canister
Eurofins Sample No.			S20-Jn34726
Date Sampled			Jun 19, 2020
Receipt Vac./Pressure (inHg)			5.3
Final Pressure (psi)			15
Test/Reference	LOR	Unit	
US EPA Compendium Methods TO-14a/TO-15			
Chloroethane	5.3	ug/m3	< 52
Chloroform	2.4	ug/m3	140
Chloromethane	10.3	ug/m3	< 101
Chlorotoluene (Benzyl Chloride)	2.6	ug/m3	< 25
cis-1.2-Dichloroethene	2	ug/m3	22000
cis-1.3-Dichloropropene	2.3	ug/m3	< 22
Cyclohexane	1.7	ug/m3	< 17
Dibromochloromethane	4.3	ug/m3	< 42
Methylene Chloride	17.4	ug/m3	< 170
Ethanol	3.8	ug/m3	< 37
Ethylbenzene	2.2	ug/m3	60
Freon 11 (Trichlorofluoromethane)	2.8	ug/m3	< 28
Freon 113 (Trichlorotrifluoroethane)	3.8	ug/m3	< 38
Freon 114	3.5	ug/m3	< 34
Freon 12 (Dichlorodifluoromethane)	2.5	ug/m3	< 24
Heptane	2.1	ug/m3	< 20
Hexachlorobutadiene	21.3	ug/m3	< 209
Hexane	3.5	ug/m3	< 17
Isopropanol	49	ug/m3	< 482
m.p-Xylene	4.4	ug/m3	260
Xylenes - Total	6.6	ug/m3	310
Methyl t-Butyl Ether (MTBE)	7.2	ug/m3	< 71
Naphthalene	10.5	ug/m3	< 105
o-Xylene	2.2	ug/m3	52
Propylene	3.4	ug/m3	< 34
Styrene	2.1	ug/m3	< 21
Tetrachloroethene	3.4	ug/m3	< 33
Tetrahydrofuran	1.5	ug/m3	< 14
Toluene	7.5	ug/m3	750
trans-1.2-Dichloroethene	2	ug/m3	1100
trans-1.3-Dichloropropene	2.3	ug/m3	< 22
Trichloroethene	2.7	ug/m3	77000
Vinyl Acetate	7.0	ug/m3	< 69
Vinyl Chloride	1.3	ug/m3	650
4-Bromofluorobenzene (surr.)	1	%	83

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.

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
US EPA Compendium Methods TO-14a/TO-15	BrisbaneAir	Jun 20, 2020	30 Days

- Method: SOP #6 Analysis of Volatile Organic Compounds in Summa Polished Canisters EPA Method TO-15 And Modified EPA Method TO-14A

eurofins | Environment Testing

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

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Site # 1254 & 14271

Sydney
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Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
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NATA # 1261 Site # 20794

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NATA # 1261
Site # 23736

New Zealand

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35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: Geo-Logix P/L
Address: Bld Q2 Level 3, 2309/4 Daydream St
Warriewood
NSW 2102

Project Name: AUBURN
Project ID: 2001029

Order No.: 3893
Report #: 726829
Phone: 02 9979 1722
Fax: 02 9979 1222

Received: Jun 19, 2020 5:20 PM
Due: Jun 26, 2020
Priority: 5 Day
Contact Name: Ben Pearce

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Dilution Factor	Final Pressure (psi)	Receipt Vac./Pressure (in Hg)	US EPA Compendium Methods TO-14a/TO-15
Melbourne Laboratory - NATA Site # 1254 & 14271									
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	VP20	Jun 19, 2020		1L Summa Canister	S20-Jn34726	X	X	X	X
Test Counts						1	1	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. Dilutions are performed on samples due to the presence of high level target species or the presence of high level non-target species.
3. Results are uncorrected for surrogate recoveries.
4. All QC limit exceedances and affected sample results are noted by flags. Each qualifying flag is defined below in section entitled 'Definition of Data Qualifying Flags' and additionally on individual sample results (where relevant).
5. "100% certification" is defined as evaluating the sampling system with humid zero air/N2 and humid calibration gases that pass through all active components of the sampling system. The system is "100% certified" if no significant additions or deletions (less than 0.2 ppbv each of target compounds) have occurred when challenged with the test gas stream.
6. The conversion equation from ppbv to g/m3 uses a temperature of 25 °C and an ambient sea level atmospheric pressure of 1 atmosphere (101.325 kPa) is assumed.
7. All canister samples are only analysed once temperature equilibrium with the laboratory has been achieved.
8. Safe Sampling Volume (SSV) - calculated by taking two-thirds of the breakthrough volume (direct method) and Appendix 1 of Method T0-17.
9. Samples were analysed on an 'as received' basis.
10. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
11. This report replaces any interim results previously issued.

Definition of Data Qualifying Flags

Qualifiers may have been used on the data analysis sheets and indicates as follows:

A01 Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

A02 Estimated value.

A03 Exceeds instrument calibration range.

A04 Saturated peak.

A05 Exceeds quality control limits.

A06 Compound analysed for but not detected above the Limit of Reporting (LOR). See data page for project specific U-flag definition.

A07 Non-detected compound associated with low bias in the CCV.

A08 The identification is based on presumptive evidence.

A09 SSV has been exceeded for this compound. It is likely that this compound has been underestimated.

A10 LORs cited do not take into account sample dilution due to canister pressurisation.

A11 Naphthalene elutes outside the >C10-C12 range on the system used for sample analysis. As a result, >C10-C12 TRH value is equivalent to the modified F2 value.

Holding Times

Under conditions of normal usage for sampling ambient air, most Volatile Organic Compounds (VOCs) can be recovered from canisters near their original concentrations after storage times of up to thirty days. For thermal desorption tubes (TDT) samples should be refrigerated at <4°C in a clean environment during storage and analysed within 30 days of sample collection (within one week for limonene, carene, bis-chloromethyl ether and labile sulfur or nitrogen containing volatiles).

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.

Units

ppbv: parts per billion by volume

ug/m3: micrograms per cubic metre

kPa: kilopascal

psig: pounds per square inch gauge

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
US EPA Compendium Methods TO-14a/TO-15							
1.1-Dichloroethane	ug/m3	< 2			2	Pass	
1.1-Dichloroethene	ug/m3	< 2			2	Pass	
1.1.1-Trichloroethane	ug/m3	< 2.7			2.7	Pass	
1.1.2-Trichloroethane	ug/m3	< 2.7			2.7	Pass	
1.1.2.2-Tetrachloroethane	ug/m3	< 3.4			3.4	Pass	
1.2-Dibromoethane (EDB)	ug/m3	< 3.6			3.6	Pass	
1.2-Dichlorobenzene	ug/m3	< 3			3	Pass	
1.2-Dichloroethane	ug/m3	< 2			2	Pass	
1.2-Dichloropropane	ug/m3	< 2.3			2.3	Pass	
1.2.4-Trichlorobenzene	ug/m3	< 15			15	Pass	
1.2.4-Trimethylbenzene	ug/m3	< 2.5			2.5	Pass	
1.3-Butadiene	ug/m3	< 1.1			1.1	Pass	
1.3-Dichlorobenzene	ug/m3	< 3			3	Pass	
1.3.5-Trimethylbenzene	ug/m3	< 2.5			2.5	Pass	
1.4-Dichlorobenzene	ug/m3	< 3			3	Pass	
1.4-Dioxane	ug/m3	< 7.2			7.2	Pass	
2-Butanone (Methyl Ethyl Ketone)	ug/m3	< 5.9			5.9	Pass	
2-Hexanone	ug/m3	< 8.2			8.2	Pass	
2.2.4-Trimethylpentane	ug/m3	< 9.3			9.3	Pass	
3-Chloropropene	ug/m3	< 6.3			6.3	Pass	
4-Ethyltoluene	ug/m3	< 2.5			2.5	Pass	
4-Methyl-2-Pentanone (MIBK)	ug/m3	< 2.1			2.1	Pass	
Acetone	ug/m3	< 11.9			11.9	Pass	
Benzene	ug/m3	< 1.6			1.6	Pass	
Bromodichloromethane	ug/m3	< 3.4			3.4	Pass	
Bromoform	ug/m3	< 5.2			5.2	Pass	
Bromomethane	ug/m3	< 19.4			19.4	Pass	
Carbon Disulfide	ug/m3	< 6.2			6.2	Pass	
Carbon Tetrachloride	ug/m3	< 3.1			3.1	Pass	
Chlorobenzene	ug/m3	< 2.3			2.3	Pass	
Chloroethane	ug/m3	< 5.3			5.3	Pass	
Chloroform	ug/m3	< 2.4			2.4	Pass	
Chloromethane	ug/m3	< 10.3			10.3	Pass	
Chlorotoluene (Benzyl Chloride)	ug/m3	< 2.6			2.6	Pass	
cis-1.2-Dichloroethene	ug/m3	< 2			2	Pass	
cis-1.3-Dichloropropene	ug/m3	< 2.3			2.3	Pass	
Cyclohexane	ug/m3	< 1.7			1.7	Pass	
Dibromochloromethane	ug/m3	< 4.3			4.3	Pass	
Methylene Chloride	ug/m3	< 17.4			17.4	Pass	
Ethanol	ug/m3	< 3.8			3.8	Pass	
Ethylbenzene	ug/m3	< 2.2			2.2	Pass	
Freon 11 (Trichlorofluoromethane)	ug/m3	< 2.8			2.8	Pass	
Freon 113 (Trichlorotrifluoroethane)	ug/m3	< 3.8			3.8	Pass	
Freon 114	ug/m3	< 3.5			3.5	Pass	
Freon 12 (Dichlorodifluoromethane)	ug/m3	< 2.5			2.5	Pass	
Heptane	ug/m3	< 2.1			2.1	Pass	
Hexachlorobutadiene	ug/m3	< 21.3			21.3	Pass	
Hexane	ug/m3	< 3.5			3.5	Pass	
Isopropanol	ug/m3	< 49			49	Pass	
m.p-Xylene	ug/m3	< 4.4			4.4	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Xylenes - Total	ug/m3	< 6.6			6.6	Pass	
Methyl t-Butyl Ether (MTBE)	ug/m3	< 7.2			7.2	Pass	
Naphthalene	ug/m3	< 10.5			10.5	Pass	
o-Xylene	ug/m3	< 2.2			2.2	Pass	
Propylene	ug/m3	< 3.4			3.4	Pass	
Styrene	ug/m3	< 2.1			2.1	Pass	
Tetrachloroethene	ug/m3	< 3.4			3.4	Pass	
Tetrahydrofuran	ug/m3	< 1.5			1.5	Pass	
Toluene	ug/m3	< 7.5			7.5	Pass	
trans-1.2-Dichloroethene	ug/m3	< 2			2	Pass	
trans-1.3-Dichloropropene	ug/m3	< 2.3			2.3	Pass	
Trichloroethene	ug/m3	< 2.7			2.7	Pass	
Vinyl Acetate	ug/m3	< 7			7.0	Pass	
Vinyl Chloride	ug/m3	< 1.3			1.3	Pass	
LCS - % Recovery							
US EPA Compendium Methods TO-14a/TO-15							
1.1-Dichloroethane	%	110			70-130	Pass	
1.1-Dichloroethene	%	126			70-130	Pass	
1.1.1-Trichloroethane	%	97			70-130	Pass	
1.1.2-Trichloroethane	%	104			70-130	Pass	
1.1.2.2-Tetrachloroethane	%	99			70-130	Pass	
1.2-Dibromoethane (EDB)	%	93			70-130	Pass	
1.2-Dichlorobenzene	%	72			70-130	Pass	
1.2-Dichloroethane	%	127			70-130	Pass	
1.2-Dichloropropane	%	122			70-130	Pass	
1.2.4-Trichlorobenzene	%	82			70-130	Pass	
1.2.4-Trimethylbenzene	%	77			70-130	Pass	
1.3-Butadiene	%	120			70-130	Pass	
1.3-Dichlorobenzene	%	84			70-130	Pass	
1.3.5-Trimethylbenzene	%	82			70-130	Pass	
1.4-Dichlorobenzene	%	82			70-130	Pass	
1.4-Dioxane	%	87			70-130	Pass	
2-Butanone (Methyl Ethyl Ketone)	%	93			70-130	Pass	
2-Hexanone	%	85			70-130	Pass	
2.2.4-Trimethylpentane	%	122			70-130	Pass	
3-Chloropropene	%	127			70-130	Pass	
4-Ethyltoluene	%	94			70-130	Pass	
4-Methyl-2-Pentanone (MIBK)	%	71			70-130	Pass	
Acetone	%	112			70-130	Pass	
Benzene	%	106			70-130	Pass	
Bromodichloromethane	%	107			70-130	Pass	
Bromoform	%	85			70-130	Pass	
Bromomethane	%	104			70-130	Pass	
Carbon Disulfide	%	103			70-130	Pass	
Carbon Tetrachloride	%	99			70-130	Pass	
Chlorobenzene	%	90			70-130	Pass	
Chloroethane	%	122			70-130	Pass	
Chloroform	%	108			70-130	Pass	
Chloromethane	%	118			70-130	Pass	
Chlorotoluene (Benzyl Chloride)	%	72			70-130	Pass	
cis-1.2-Dichloroethene	%	108			70-130	Pass	
cis-1.3-Dichloropropene	%	99			70-130	Pass	
Cyclohexane	%	96			70-130	Pass	
Dibromochloromethane	%	99			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Methylene Chloride	%	125			70-130	Pass	
Ethanol	%	87			70-130	Pass	
Ethylbenzene	%	99			70-130	Pass	
Freon 11 (Trichlorofluoromethane)	%	98			70-130	Pass	
Freon 113 (Trichlorotrifluoroethane)	%	80			70-130	Pass	
Freon 114	%	83			70-130	Pass	
Freon 12 (Dichlorodifluoromethane)	%	111			70-130	Pass	
Heptane	%	90			70-130	Pass	
Hexachlorobutadiene	%	92			70-130	Pass	
Hexane	%	98			70-130	Pass	
Isopropanol	%	106			70-130	Pass	
m.p-Xylene	%	101			70-130	Pass	
Xylenes - Total	%	102			70-130	Pass	
Methyl t-Butyl Ether (MTBE)	%	98			70-130	Pass	
Naphthalene	%	79			70-130	Pass	
o-Xylene	%	104			70-130	Pass	
Propylene	%	125			70-130	Pass	
Styrene	%	86			70-130	Pass	
Tetrachloroethene	%	80			70-130	Pass	
Tetrahydrofuran	%	94			70-130	Pass	
Toluene	%	94			70-130	Pass	
trans-1.2-Dichloroethene	%	117			70-130	Pass	
trans-1.3-Dichloropropene	%	105			70-130	Pass	
Trichloroethene	%	83			70-130	Pass	
Vinyl Acetate	%	103			70-130	Pass	
Vinyl Chloride	%	122			70-130	Pass	

Comments

This report has been revised (V2) to amend sample name.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
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

Authorised By

Ursula Long	Analytical Services Manager
Laurence Hearn	Senior Analyst-Air (QLD)

Glenn Jackson
General 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 click here.

eurofins | Environment Testing

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Site # 1254 & 14271

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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

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

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

Sample Receipt Advice

Company name: **Geo-Logix P/L**

Contact name: Ben Pearce
Project name: AUBURN
Project ID: 2001029
COC number: Not provided
Turn around time: 5 Day
Date/Time received: Jun 19, 2020 5:20 PM
Eurofins reference: **726829**

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.

N/A Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Split sample sent to requested external lab.

☒ 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:

Ursula Long on Phone : or by e.mail: UrsulaLong@eurofins.com

Results will be delivered electronically via e.mail to Ben Pearce - bpearce@geo-logix.com.au.

Geo-Logix Pty Ltd

Building Q2, Level 3
2309/4 Daydream St
Warriewood, NSW 2102

ABN: 86 116 892 936

P: (02) 9979 1722
F: (02) 9979 1222

GAS SAMPLING SHEET AND CHAIN OF CUSTODY

Project Manager: Ben Pearce
Project Name: Auburn
Project Number: 2001029

bpearce@geo-logix.com.au

Purchase Order No: 3893
Quote Reference:
Send Invoice to: accounts@geo-logix.com.au
TAT required: Standard

Sample ID	Date	Oxygen conc (%)	Purge Volume (L)	Canister ID	Vacuum Before Sampling	Start Date/Time	Vacuum After Sampling	Stop Date/Time	Analysis
VP17	19/6		250mL	27416/N2386	26	11:15	9.5	12:20	TO15 (standard 62)

Chain of Custody

Relinquished by: Caden Pengelly Date/Time: 19/6 Signature: Cpengelly

Received by: [signature] Date/Time: 19/6/20 5.20 Signature:

Lina D. 19/6/20 5:20 pm

#726829

EXCAVATION SKETCH

Version: V1
Date Issued: June 2015
Review Date: January 2022

Ursula Long

From: Ben Pearce <bpearce@geo-logix.com.au>
Sent: Friday, 26 June 2020 3:23 PM
To: Ursula Long
Subject: RE: Eurofins Test Results - Report 726829 : Site AUBURN (2001029)

Follow Up Flag: Follow up
Flag Status: Flagged

EXTERNAL EMAIL*

Hi Ursula,

Can you please change the sample ID on this to VP20.

Thanks

Ben

From: UrsulaLong@eurofins.com <UrsulaLong@eurofins.com>
Sent: Friday, 26 June 2020 2:32 PM
To: Ben Pearce <bpearce@geo-logix.com.au>
Subject: Eurofins Test Results - Report 726829 : Site AUBURN (2001029)

Please find attached results for your project in the subject header.

Regards

Ursula Long

Eurofins
Unit F3, Parkview Building
16 Mars Road
LANE COVE WEST NSW 2066
AUSTRALIA
Phone: +61 299 008 420
Email: UrsulaLong@eurofins.com
Website:environment.eurofins.com.au
EnviroNote 1098 - Melbourne PFAS Accreditation
EnviroNote 1103 - NATA Accreditation for Dioxins

Ursula Long

From: Ben Pearce <bpearce@geo-logix.com.au>
Sent: Friday, 26 June 2020 3:23 PM
To: Ursula Long
Subject: RE: Eurofins Test Results - Report 726829 : Site AUBURN (2001029)

Follow Up Flag: Follow up
Flag Status: Flagged

EXTERNAL EMAIL*

Hi Ursula,

Can you please change the sample ID on this to VP20.

Thanks

Ben

From: UrsulaLong@eurofins.com <UrsulaLong@eurofins.com>
Sent: Friday, 26 June 2020 2:32 PM
To: Ben Pearce <bpearce@geo-logix.com.au>
Subject: Eurofins Test Results - Report 726829 : Site AUBURN (2001029)

Please find attached results for your project in the subject header.

Regards

Ursula Long

Eurofins
Unit F3, Parkview Building
16 Mars Road
LANE COVE WEST NSW 2066
AUSTRALIA
Phone: +61 299 008 420
Email: UrsulaLong@eurofins.com
Website:environment.eurofins.com.au
EnviroNote 1098 - Melbourne PFAS Accreditation
EnviroNote 1103 - NATA Accreditation for Dioxins

Geo-Logix P/L
Bld Q2 Level 3, 2309/4 Daydream St
Warriewood
NSW 2102

Attention: **Ben Pearce**

Report **726829-TO-V2**
Project name AUBURN
Project ID 2001029
Received Date Jun 19, 2020

Client Sample ID			**VP20**
Sample Matrix			**1L Summa Canister**
Eurofins Sample No.			**S20-Jn34726**
Date Sampled			**Jun 19, 2020**
Receipt Vac./Pressure (inHg)			**5.3**
Final Pressure (psi)			**15**
Test/Reference	LOR	Unit	
Dilution Factor	0.1		9.8
US EPA Compendium Methods TO-14a/TO-15			
1.1-Dichloroethane	2	ug/m3	300
1.1-Dichloroethene	2	ug/m3	610
1.1.1-Trichloroethane	2.7	ug/m3	< 27
1.1.2-Trichloroethane	2.7	ug/m3	140
1.1.2.2-Tetrachloroethane	3.4	ug/m3	< 34
1.2-Dibromoethane (EDB)	3.6	ug/m3	< 35
1.2-Dichlorobenzene	3	ug/m3	< 29
1.2-Dichloroethane	2	ug/m3	< 20
1.2-Dichloropropane	2.3	ug/m3	< 23
1.2.4-Trichlorobenzene	15	ug/m3	< 145
1.2.4-Trimethylbenzene	2.5	ug/m3	< 24
1.3-Butadiene	1.1	ug/m3	< 11
1.3-Dichlorobenzene	3	ug/m3	< 29
1.3.5-Trimethylbenzene	2.5	ug/m3	< 24
1.4-Dichlorobenzene	3	ug/m3	< 29
1.4-Dioxane	7.2	ug/m3	< 71
2-Butanone (Methyl Ethyl Ketone)	5.9	ug/m3	< 58
2-Hexanone	8.2	ug/m3	< 80
2.2.4-Trimethylpentane	9.3	ug/m3	< 91
3-Chloropropene	6.3	ug/m3	< 61
4-Ethyltoluene	2.5	ug/m3	< 24
4-Methyl-2-Pentanone (MIBK)	2.1	ug/m3	< 20
Acetone	11.9	ug/m3	< 116
Benzene	1.6	ug/m3	< 16
Bromodichloromethane	3.4	ug/m3	< 33
Bromoform	5.2	ug/m3	< 51
Bromomethane	19.4	ug/m3	< 190
Carbon Disulfide	6.2	ug/m3	< 61
Carbon Tetrachloride	3.1	ug/m3	< 31
Chlorobenzene	2.3	ug/m3	< 23

Client Sample ID			VP20
Sample Matrix			1L Summa Canister
Eurofins Sample No.			S20-Jn34726
Date Sampled			Jun 19, 2020
Receipt Vac./Pressure (inHg)			5.3
Final Pressure (psi)			15
Test/Reference	LOR	Unit	
US EPA Compendium Methods TO-14a/TO-15			
Chloroethane	5.3	ug/m3	< 52
Chloroform	2.4	ug/m3	140
Chloromethane	10.3	ug/m3	< 101
Chlorotoluene (Benzyl Chloride)	2.6	ug/m3	< 25
cis-1.2-Dichloroethene	2	ug/m3	22000
cis-1.3-Dichloropropene	2.3	ug/m3	< 22
Cyclohexane	1.7	ug/m3	< 17
Dibromochloromethane	4.3	ug/m3	< 42
Methylene Chloride	17.4	ug/m3	< 170
Ethanol	3.8	ug/m3	< 37
Ethylbenzene	2.2	ug/m3	60
Freon 11 (Trichlorofluoromethane)	2.8	ug/m3	< 28
Freon 113 (Trichlorotrifluoroethane)	3.8	ug/m3	< 38
Freon 114	3.5	ug/m3	< 34
Freon 12 (Dichlorodifluoromethane)	2.5	ug/m3	< 24
Heptane	2.1	ug/m3	< 20
Hexachlorobutadiene	21.3	ug/m3	< 209
Hexane	3.5	ug/m3	< 17
Isopropanol	49	ug/m3	< 482
m.p-Xylene	4.4	ug/m3	260
Xylenes - Total	6.6	ug/m3	310
Methyl t-Butyl Ether (MTBE)	7.2	ug/m3	< 71
Naphthalene	10.5	ug/m3	< 105
o-Xylene	2.2	ug/m3	52
Propylene	3.4	ug/m3	< 34
Styrene	2.1	ug/m3	< 21
Tetrachloroethene	3.4	ug/m3	< 33
Tetrahydrofuran	1.5	ug/m3	< 14
Toluene	7.5	ug/m3	750
trans-1.2-Dichloroethene	2	ug/m3	1100
trans-1.3-Dichloropropene	2.3	ug/m3	< 22
Trichloroethene	2.7	ug/m3	77000
Vinyl Acetate	7.0	ug/m3	< 69
Vinyl Chloride	1.3	ug/m3	650
4-Bromofluorobenzene (surr.)	1	%	83

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.

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
US EPA Compendium Methods TO-14a/TO-15	BrisbaneAir	Jun 20, 2020	30 Days

- Method: SOP #6 Analysis of Volatile Organic Compounds in Summa Polished Canisters EPA Method TO-15 And Modified EPA Method TO-14A

eurofins | Environment Testing

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

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NATA # 1261 Site # 18217

Brisbane
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Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

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NATA # 1261
Site # 23736

New Zealand

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Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: Geo-Logix P/L
Address: Bld Q2 Level 3, 2309/4 Daydream St
Warriewood
NSW 2102

Project Name: AUBURN
Project ID: 2001029

Order No.: 3893
Report #: 726829
Phone: 02 9979 1722
Fax: 02 9979 1222

Received: Jun 19, 2020 5:20 PM
Due: Jun 26, 2020
Priority: 5 Day
Contact Name: Ben Pearce

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Dilution Factor	Final Pressure (psi)	Receipt Vac./Pressure (in Hg)	US EPA Compendium Methods TO-14a/TO-15
Melbourne Laboratory - NATA Site # 1254 & 14271									
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 23736									
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	VP20	Jun 19, 2020		1L Summa Canister	S20-Jn34726	X	X	X	X
Test Counts						1	1	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. Dilutions are performed on samples due to the presence of high level target species or the presence of high level non-target species.
3. Results are uncorrected for surrogate recoveries.
4. All QC limit exceedances and affected sample results are noted by flags. Each qualifying flag is defined below in section entitled 'Definition of Data Qualifying Flags' and additionally on individual sample results (where relevant).
5. "100% certification" is defined as evaluating the sampling system with humid zero air/N2 and humid calibration gases that pass through all active components of the sampling system. The system is "100% certified" if no significant additions or deletions (less than 0.2 ppbv each of target compounds) have occurred when challenged with the test gas stream.
6. The conversion equation from ppbv to g/m3 uses a temperature of 25 °C and an ambient sea level atmospheric pressure of 1 atmosphere (101.325 kPa) is assumed.
7. All canister samples are only analysed once temperature equilibrium with the laboratory has been achieved.
8. Safe Sampling Volume (SSV) - calculated by taking two-thirds of the breakthrough volume (direct method) and Appendix 1 of Method T0-17.
9. Samples were analysed on an 'as received' basis.
10. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
11. This report replaces any interim results previously issued.

Definition of Data Qualifying Flags

Qualifiers may have been used on the data analysis sheets and indicates as follows:

A01 Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

A02 Estimated value.

A03 Exceeds instrument calibration range.

A04 Saturated peak.

A05 Exceeds quality control limits.

A06 Compound analysed for but not detected above the Limit of Reporting (LOR). See data page for project specific U-flag definition.

A07 Non-detected compound associated with low bias in the CCV.

A08 The identification is based on presumptive evidence.

A09 SSV has been exceeded for this compound. It is likely that this compound has been underestimated.

A10 LORs cited do not take into account sample dilution due to canister pressurisation.

A11 Naphthalene elutes outside the >C10-C12 range on the system used for sample analysis. As a result, >C10-C12 TRH value is equivalent to the modified F2 value.

Holding Times

Under conditions of normal usage for sampling ambient air, most Volatile Organic Compounds (VOCs) can be recovered from canisters near their original concentrations after storage times of up to thirty days. For thermal desorption tubes (TDT) samples should be refrigerated at <4°C in a clean environment during storage and analysed within 30 days of sample collection (within one week for limonene, carene, bis-chloromethyl ether and labile sulfur or nitrogen containing volatiles).

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.

Units

ppbv: parts per billion by volume

ug/m3: micrograms per cubic metre

kPa: kilopascal

psig: pounds per square inch gauge

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
US EPA Compendium Methods TO-14a/TO-15							
1.1-Dichloroethane	ug/m3	< 2			2	Pass	
1.1-Dichloroethene	ug/m3	< 2			2	Pass	
1.1.1-Trichloroethane	ug/m3	< 2.7			2.7	Pass	
1.1.2-Trichloroethane	ug/m3	< 2.7			2.7	Pass	
1.1.2.2-Tetrachloroethane	ug/m3	< 3.4			3.4	Pass	
1.2-Dibromoethane (EDB)	ug/m3	< 3.6			3.6	Pass	
1.2-Dichlorobenzene	ug/m3	< 3			3	Pass	
1.2-Dichloroethane	ug/m3	< 2			2	Pass	
1.2-Dichloropropane	ug/m3	< 2.3			2.3	Pass	
1.2.4-Trichlorobenzene	ug/m3	< 15			15	Pass	
1.2.4-Trimethylbenzene	ug/m3	< 2.5			2.5	Pass	
1.3-Butadiene	ug/m3	< 1.1			1.1	Pass	
1.3-Dichlorobenzene	ug/m3	< 3			3	Pass	
1.3.5-Trimethylbenzene	ug/m3	< 2.5			2.5	Pass	
1.4-Dichlorobenzene	ug/m3	< 3			3	Pass	
1.4-Dioxane	ug/m3	< 7.2			7.2	Pass	
2-Butanone (Methyl Ethyl Ketone)	ug/m3	< 5.9			5.9	Pass	
2-Hexanone	ug/m3	< 8.2			8.2	Pass	
2.2.4-Trimethylpentane	ug/m3	< 9.3			9.3	Pass	
3-Chloropropene	ug/m3	< 6.3			6.3	Pass	
4-Ethyltoluene	ug/m3	< 2.5			2.5	Pass	
4-Methyl-2-Pentanone (MIBK)	ug/m3	< 2.1			2.1	Pass	
Acetone	ug/m3	< 11.9			11.9	Pass	
Benzene	ug/m3	< 1.6			1.6	Pass	
Bromodichloromethane	ug/m3	< 3.4			3.4	Pass	
Bromoform	ug/m3	< 5.2			5.2	Pass	
Bromomethane	ug/m3	< 19.4			19.4	Pass	
Carbon Disulfide	ug/m3	< 6.2			6.2	Pass	
Carbon Tetrachloride	ug/m3	< 3.1			3.1	Pass	
Chlorobenzene	ug/m3	< 2.3			2.3	Pass	
Chloroethane	ug/m3	< 5.3			5.3	Pass	
Chloroform	ug/m3	< 2.4			2.4	Pass	
Chloromethane	ug/m3	< 10.3			10.3	Pass	
Chlorotoluene (Benzyl Chloride)	ug/m3	< 2.6			2.6	Pass	
cis-1.2-Dichloroethene	ug/m3	< 2			2	Pass	
cis-1.3-Dichloropropene	ug/m3	< 2.3			2.3	Pass	
Cyclohexane	ug/m3	< 1.7			1.7	Pass	
Dibromochloromethane	ug/m3	< 4.3			4.3	Pass	
Methylene Chloride	ug/m3	< 17.4			17.4	Pass	
Ethanol	ug/m3	< 3.8			3.8	Pass	
Ethylbenzene	ug/m3	< 2.2			2.2	Pass	
Freon 11 (Trichlorofluoromethane)	ug/m3	< 2.8			2.8	Pass	
Freon 113 (Trichlorotrifluoroethane)	ug/m3	< 3.8			3.8	Pass	
Freon 114	ug/m3	< 3.5			3.5	Pass	
Freon 12 (Dichlorodifluoromethane)	ug/m3	< 2.5			2.5	Pass	
Heptane	ug/m3	< 2.1			2.1	Pass	
Hexachlorobutadiene	ug/m3	< 21.3			21.3	Pass	
Hexane	ug/m3	< 3.5			3.5	Pass	
Isopropanol	ug/m3	< 49			49	Pass	
m.p-Xylene	ug/m3	< 4.4			4.4	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Xylenes - Total	ug/m3	< 6.6			6.6	Pass	
Methyl t-Butyl Ether (MTBE)	ug/m3	< 7.2			7.2	Pass	
Naphthalene	ug/m3	< 10.5			10.5	Pass	
o-Xylene	ug/m3	< 2.2			2.2	Pass	
Propylene	ug/m3	< 3.4			3.4	Pass	
Styrene	ug/m3	< 2.1			2.1	Pass	
Tetrachloroethene	ug/m3	< 3.4			3.4	Pass	
Tetrahydrofuran	ug/m3	< 1.5			1.5	Pass	
Toluene	ug/m3	< 7.5			7.5	Pass	
trans-1.2-Dichloroethene	ug/m3	< 2			2	Pass	
trans-1.3-Dichloropropene	ug/m3	< 2.3			2.3	Pass	
Trichloroethene	ug/m3	< 2.7			2.7	Pass	
Vinyl Acetate	ug/m3	< 7			7.0	Pass	
Vinyl Chloride	ug/m3	< 1.3			1.3	Pass	
LCS - % Recovery							
US EPA Compendium Methods TO-14a/TO-15							
1.1-Dichloroethane	%	110			70-130	Pass	
1.1-Dichloroethene	%	126			70-130	Pass	
1.1.1-Trichloroethane	%	97			70-130	Pass	
1.1.2-Trichloroethane	%	104			70-130	Pass	
1.1.2.2-Tetrachloroethane	%	99			70-130	Pass	
1.2-Dibromoethane (EDB)	%	93			70-130	Pass	
1.2-Dichlorobenzene	%	72			70-130	Pass	
1.2-Dichloroethane	%	127			70-130	Pass	
1.2-Dichloropropane	%	122			70-130	Pass	
1.2.4-Trichlorobenzene	%	82			70-130	Pass	
1.2.4-Trimethylbenzene	%	77			70-130	Pass	
1.3-Butadiene	%	120			70-130	Pass	
1.3-Dichlorobenzene	%	84			70-130	Pass	
1.3.5-Trimethylbenzene	%	82			70-130	Pass	
1.4-Dichlorobenzene	%	82			70-130	Pass	
1.4-Dioxane	%	87			70-130	Pass	
2-Butanone (Methyl Ethyl Ketone)	%	93			70-130	Pass	
2-Hexanone	%	85			70-130	Pass	
2.2.4-Trimethylpentane	%	122			70-130	Pass	
3-Chloropropene	%	127			70-130	Pass	
4-Ethyltoluene	%	94			70-130	Pass	
4-Methyl-2-Pentanone (MIBK)	%	71			70-130	Pass	
Acetone	%	112			70-130	Pass	
Benzene	%	106			70-130	Pass	
Bromodichloromethane	%	107			70-130	Pass	
Bromoform	%	85			70-130	Pass	
Bromomethane	%	104			70-130	Pass	
Carbon Disulfide	%	103			70-130	Pass	
Carbon Tetrachloride	%	99			70-130	Pass	
Chlorobenzene	%	90			70-130	Pass	
Chloroethane	%	122			70-130	Pass	
Chloroform	%	108			70-130	Pass	
Chloromethane	%	118			70-130	Pass	
Chlorotoluene (Benzyl Chloride)	%	72			70-130	Pass	
cis-1.2-Dichloroethene	%	108			70-130	Pass	
cis-1.3-Dichloropropene	%	99			70-130	Pass	
Cyclohexane	%	96			70-130	Pass	
Dibromochloromethane	%	99			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Methylene Chloride	%	125			70-130	Pass	
Ethanol	%	87			70-130	Pass	
Ethylbenzene	%	99			70-130	Pass	
Freon 11 (Trichlorofluoromethane)	%	98			70-130	Pass	
Freon 113 (Trichlorotrifluoroethane)	%	80			70-130	Pass	
Freon 114	%	83			70-130	Pass	
Freon 12 (Dichlorodifluoromethane)	%	111			70-130	Pass	
Heptane	%	90			70-130	Pass	
Hexachlorobutadiene	%	92			70-130	Pass	
Hexane	%	98			70-130	Pass	
Isopropanol	%	106			70-130	Pass	
m.p-Xylene	%	101			70-130	Pass	
Xylenes - Total	%	102			70-130	Pass	
Methyl t-Butyl Ether (MTBE)	%	98			70-130	Pass	
Naphthalene	%	79			70-130	Pass	
o-Xylene	%	104			70-130	Pass	
Propylene	%	125			70-130	Pass	
Styrene	%	86			70-130	Pass	
Tetrachloroethene	%	80			70-130	Pass	
Tetrahydrofuran	%	94			70-130	Pass	
Toluene	%	94			70-130	Pass	
trans-1.2-Dichloroethene	%	117			70-130	Pass	
trans-1.3-Dichloropropene	%	105			70-130	Pass	
Trichloroethene	%	83			70-130	Pass	
Vinyl Acetate	%	103			70-130	Pass	
Vinyl Chloride	%	122			70-130	Pass	

Comments

This report has been revised (V2) to amend sample name.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
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

Authorised By

Ursula Long	Analytical Services Manager
Laurence Hearn	Senior Analyst-Air (QLD)

Glenn Jackson
General 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 click here.

eurofins | Environment Testing

Melbourne
6 Monterey Road
Dandenong South Vic 3175
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

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

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

Sample Receipt Advice

Company name: **Geo-Logix P/L**

Contact name: Ben Pearce
Project name: AUBURN
Project ID: 2001029
COC number: Not provided
Turn around time: 5 Day
Date/Time received: Jun 19, 2020 5:20 PM
Eurofins reference: **726829**

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.

N/A Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Split sample sent to requested external lab.

☒ 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:

Ursula Long on Phone : or by e.mail: UrsulaLong@eurofins.com

Results will be delivered electronically via e.mail to Ben Pearce - bpearce@geo-logix.com.au.

Geo-Logix Pty Ltd

Building Q2, Level 3
2309/4 Daydream St
Warriewood, NSW 2102

ABN: 86 116 892 936

P: (02) 9979 1722
F: (02) 9979 1222

GAS SAMPLING SHEET AND CHAIN OF CUSTODY

Project Manager: Ben Pearce
Project Name: Auburn
Project Number: 2001029

bpearce@geo-logix.com.au

Purchase Order No: 3893
Quote Reference:
Send Invoice to: accounts@geo-logix.com.au
TAT required: Standard

Sample ID	Date	Oxygen conc (%)	Purge Volume (L)	Canister ID	Vacuum Before Sampling	Start Date/Time	Vacuum After Sampling	Stop Date/Time	Analysis
VP17	19/6		250mL	27416/N2386	26	11:15	9.5	12:20	TO15 (standard 62)

Chain of Custody

Relinquished by: Caden Pengelly Date/Time: 19/6 Signature: Cpengelly

Received by: [signature] Date/Time: 19/6/20 5.20 Signature:

Lina D. 19/6/20 5:20 pm

#726829

EXCAVATION SKETCH

Version: V1
Date Issued: June 2015
Review Date: January 2022

Ursula Long

From: Ben Pearce <bpearce@geo-logix.com.au>
Sent: Friday, 26 June 2020 3:23 PM
To: Ursula Long
Subject: RE: Eurofins Test Results - Report 726829 : Site AUBURN (2001029)

Follow Up Flag: Follow up
Flag Status: Flagged

EXTERNAL EMAIL*

Hi Ursula,

Can you please change the sample ID on this to VP20.

Thanks

Ben

From: UrsulaLong@eurofins.com <UrsulaLong@eurofins.com>
Sent: Friday, 26 June 2020 2:32 PM
To: Ben Pearce <bpearce@geo-logix.com.au>
Subject: Eurofins Test Results - Report 726829 : Site AUBURN (2001029)

Please find attached results for your project in the subject header.

Regards

Ursula Long

Eurofins
Unit F3, Parkview Building
16 Mars Road
LANE COVE WEST NSW 2066
AUSTRALIA
Phone: +61 299 008 420
Email: UrsulaLong@eurofins.com
Website:environment.eurofins.com.au
EnviroNote 1098 - Melbourne PFAS Accreditation
EnviroNote 1103 - NATA Accreditation for Dioxins

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Regards

Ursula Long

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Unit F3, Parkview Building
16 Mars Road
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AUSTRALIA
Phone: +61 299 008 420
Email: UrsulaLong@eurofins.com
Website:environment.eurofins.com.au
EnviroNote 1098 - Melbourne PFAS Accreditation
EnviroNote 1103 - NATA Accreditation for Dioxins

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