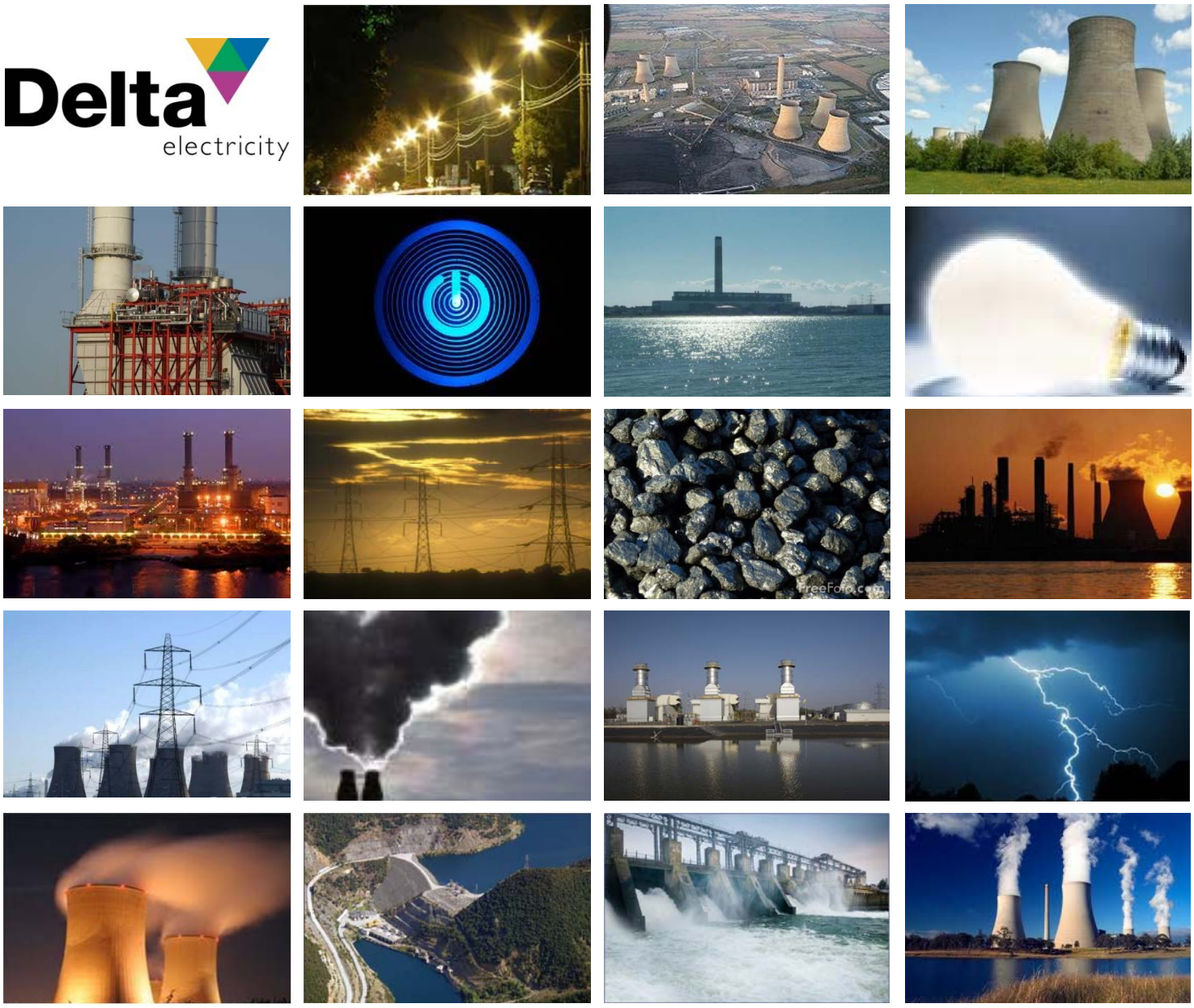

COMMERCIAL IN CONFIDENCE

Delta Electricity – Project Symphony

A Station - Environmental Site Assessment - Vales Point Power Station, NSW

Ref: 0237747RP02 _Draft

September 2014

The world's leading sustainability consultancy

Project Symphony –
Vales Point Power Station

A Station - Environmental Site Assessment

Approved by:	Peter Lavelle
Position:	*Technical Director*
Signed:	
Date:	September, 2014

Environmental Resources Management Australia Pty Ltd Quality System

Delta Electricity - Project Symphony

September 2014

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EXECUTIVE SUMMARY

Environmental Resources Management Australia Pty Ltd (ERM) was commissioned by Delta Electricity to undertake additional works subsequent to a Stage 2 Environmental Site Assessment (Stage 2 ESA) at Vales Point Power Station (ERM Reference: 0237747RP01). These additional works focused on the former A station area of the Vales Point Power Station (herein referred to as the "Site"), as this area was not accessible during the initial works, due to ongoing demolition activities.

The primary objective for the additional works was to develop a baseline of environmental conditions at the former A Station area, as at or near the time of the sale of the Power Station. Data obtained during completion of these works may also be used to inform future management of potential contamination at the Site. Due to the potential presence of unknown underground services at depth, this scope of works was limited to non-destructive methods and focussed on the collection of soil samples from within the top 1.5 metres below ground level.

Investigation Methodology

To achieve the stated objectives, ERM collected soil samples and submitted the samples to environmental laboratories for analysis of Constituents of Potential Concern (COPCs). The Conceptual Site Model (CSM) developed for the Site during the Stage 2 ESA was further refined and the analytical data was compared against published environmental screening values to assess potential risks to human health and the environment.

The following conclusions were made based on the data collected during the investigation.

Investigation Outcomes

- *The key impacts identified included TRH, asbestos and metals in individual soil samples across the A Station area.*

- *The impacts identified in soil within the A Station area are generally unlikely to represent a significant risk to human health and/or the environment, given use of the Site as a Power Station and the implementation of appropriate ongoing management strategies.*

- *Asbestos was detected in individual shallow soil samples collected from the former A Station area at concentrations in excess of the adopted human health screening values. ERM understands that Delta has recorded these areas of asbestos impact in its Asbestos Register and that they will be managed in accordance with Delta's existing asbestos management procedures. These areas of asbestos impact would only represent a risk to the health of Site employees, if they were to come into contact with them.*

- *No impacts that are likely to require material remediation under the ongoing use of the Site as an operational area within a Power Station were identified during this investigation.*

- *No impacts that trigger a duty to report under the Contaminated Land Management (CLM) Act 1997 were identified during the additional works undertaken within the former A Station area. The 2014 draft revision of the Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997 requires the notification of friable asbestos that is present in soils at concentrations in excess of the ASC NEPM (2013) Health Screening Levels and to which a person has been, or foreseeably will be, exposed to the asbestos fibres by breathing them into their lungs. The 'foreseeability' of people being exposed to the identified asbestos will be dependent upon the future use of the Site and the asbestos management practices employed to control potential exposure and these factors should be evaluated by Delta when assessing the requirement to report the identified asbestos contamination to the NSW EPA, upon the finalisation of the revised guidelines.*

1 INTRODUCTION

On 24 November 2011, the New South Wales (NSW) Government announced that it would divest certain State-owned electricity generation assets. In order to support the sale of electricity generation assets owned and operated by Delta Electricity (a State Owned Corporation), Environmental Resources Management Australia Pty Ltd (ERM) was commissioned to undertake a Stage 2 Environmental Site Assessment (Stage 2 ESA) at Vales Point Power Station (*ERM Reference: 0237747RP01*). The Stage 2 ESA was completed between March and June 2014 but the demolition of the former A Station during this period prevented the investigation of this area. ERM was therefore commissioned to undertake an additional assessment targeting the former A Station, to supplement the original *Vales Point Power Station Stage 2 ESA*.

This report should be evaluated in conjunction with the *Vales Point Power Station Stage 2 ESA* (ERM, 2014b)

Vales Point Power Station is situated adjacent to the southern shore of Lake Macquarie, near the township of Mannering Park, approximately 35 km south of Newcastle, NSW (*Figure 1* of *Annex A*). The former A Station, herein referred to as "the Site", occupies an area of approximately 15 ha in the central portion of Vales Point Power Station. The general Site layout is presented as *Figure 2* of *Annex A*.

The works detailed herein were completed in general accordance with the Sampling, Analyses and Quality Plan (SAQP) presented in the *Preliminary Environmental Site Assessment* (*PESA)* (ERM, 2014a) and Data Quality Objectives (DQO) included within the *Stage 2 ESA* (ERM, 2014b). Due to the potential presence of unknown underground services at depth at the Site, this scope of works was limited to non-destructive methods and focussed on the collection of soil samples from within the top 1.5 metres below ground level (m bgl).

1.1 OBJECTIVES

The primary objective of this assessment was to gather shallow soil data to establish a baseline assessment of environmental conditions within the former A Station area, as at or near the time of the proposed sale of the Vales Point Power Station. Data obtained during completion of this assessment may also be used to inform future management of contamination issues within the former A Station area.

1.2 APPROACH AND SCOPE OF WORK

The adopted approach and scope of works for the works undertaken within the former A Station area comprised the following general tasks, in accordance with the requirements set out in the Sampling Analysis and Quality Plan (*SAQP)* defined in *Annex G* of the *PESA* (ERM, 2014a):

Preliminaries

- preparation of a site-specific Health and Safety Plan (HASP) and Environmental Management Plan (EMP);
- engagement of subcontractors including underground utility locators, non-destructive vacuum excavation contractors, concrete corers and laboratories;
- scheduling of Site works with Delta Electricity; and
- completion of site-specific inductions and permitting.

Site Works

- ground-truthing of proposed sampling locations;
- identification of above and below ground services in the vicinity of drilling locations by reviewing publically available Dial Before You Dig (DBYD) plans and site engineering drawings, and engaging suitably qualified underground service locators;
- non-destructive vertical boring and environmental soil sampling in accordance with the requirements of the *SAQP* (ERM, 2014a); and
- laboratory analysis of selected soil samples for particular constituents of potential concern (COPC) in accordance with the requirements of the *PESA* (ERM, 2014a) and as outlined in *Section 3.5*.

Reporting

- preparation and submission of this report at the completion of works.

1.3 MATERIALITY THRESHOLD

For the purposes of this report, a consistent approach regarding the materiality of a contamination issue has been adopted to that utilised in the *PESA* (ERM, 2014a) and *Vales Point Power Station Stage 2 ESA* (ERM, 2014b) which was as follows:

- ERM adopted a materiality threshold of AUD 0.5 M (+ GST if applicable) per contamination source;
- material costs are the costs for that item to meet the relevant requirements of NSW Environment Protection Authority (EPA) under its current land use to remediate or manage the contamination issue. Remediation or management includes additional assessment, environmental monitoring, management, containment or other remediation measures; and

- any issue that ERM considers could have the potential to lead to prosecution by the regulatory authorities that could lead to significant business disruption or reputational impact has been considered material.

1.4 REPORT STRUCTURE

This report has been prepared as a supplement to the broader *Vales Point Power Station Stage 2 ESA* (ERM, 2014b) and in general accordance with the NSW EPA *Guidelines for Consultants Reporting on Contaminated Sites* (EPA, 1997), as follows:

- *Section 1* - Introduction, objectives and scope of works;
- *Section 2* – Background, including a summary of the Site history and Site conditions;
- *Section 3* - Sampling and works methodologies for completing the investigation;
- *Section 4* - Results of the Stage 2 ESA works; and
- *Section 5* – Overall discussion
- *Section 6* - Conclusions.

A full list of all references is also appended to this report.

1.5 LIMITATIONS

The findings of this report are based on the client-approved *SAQP* within the PESA (ERM, 2014a) and the scope of work summarised in *Section 1.2* of this report. ERM performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental assessment profession. No warranties express or implied, are made.

Although normal standards of professional practice have been applied, the absence of any identified hazardous or toxic materials on the subject Site should not be interpreted as a guarantee that such materials do not exist on the Site.

This assessment is based on Site inspections conducted by ERM personnel, sampling and analyses described in the report, and information provided by people with knowledge of Site conditions.

All conclusions and recommendations made in the report are the professional opinions of the ERM personnel involved with the project and, while normal checking of the accuracy of data has been conducted, ERM assumes no responsibility or liability for errors in data obtained from regulatory agencies

or any other external sources, nor from occurrences outside the scope of this project.

ERM is not engaged in environmental assessment and reporting for the purpose of advertising sales promoting, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity purposes. The client acknowledges that this report is for the exclusive use of the client, its representatives and advisors and any investors, lenders, underwriters and financiers who agree to execute a reliance letter, and the client agrees that ERM's report or correspondences will not be, except as set forth herein, used or reproduced in full or in parts for such promotional purposes, and may not be used or relied upon in any prospectus or offering circular.

2 BACKGROUND

2.1 SITE SETTING

2.1.1 Site Identification

The Site location and the Site boundaries are presented in *Figure 1* and *Figure 2 (*respectively) of *Annex A*. A summary of site identification information is presented in *Table 2.1*.

Table 2.1 Site Identification Details

Site Detail	Description
Site Name	A Station area
Site Location	Vales Point Power Station, Vales Road, Mannering Park, NSW
Coordinates	N: 364066, E: 6329937.
Area	Total area is approximately 15 hectares (Ha)
Owner	Delta Electricity (State Owned Corporation)
Local Government	Wyong Shire Council
Title Information	The Site falls within Lot 102 of Deposited Plan 1065718
Zoning[1]	Under the Wyong Local Environmental Plan (LEP) 2012, the Site is zoned SP2 - Electricity Generating Works.

1. Detailed zoning plans are presented in *Annex D* of the *PESA* (ERM, 2014a).

2.1.2 Site Features

The Site comprises the former A Station demolition area which incorporates the footprint of former A Station structures and the area surrounding Stack No. 1, adjacent to and south of the former A Station. The Site is one of the 21 individual Areas of Environmental Concern (AECs) defined within the *Vales Point Power Station Stage 2 ESA* (ERM, 2014b). The Site boundaries presented on *Figure 2* of *Annex A* correlate with the boundaries of AEC VB on *Figure 6.5, Annex A* of the *Vales Point Power Station Stage 2 ESA* (ERM, 2014b).

Vales Point A Station was built in the 1960s as a four-unit station. These generating units were decommissioned in 1989 and since then have undergone partial dismantling, with most of the internal plant items removed. During ERMs initial site works (March 2014) the A Station buildings were undergoing demolition and removal offsite. Environmental investigation works in this area were therefore undertaken when the site was cleared in August 2014.

Prior to the decommissioning and demolition of A Station, this facility was comprised of;

- four coal-fired boilers;
- a turbine house incorporating four steam turbines;

- four generator units (units 1 to 4), with a total capacity of 875 MW;
- an auxiliary bay; and
- two chimney stacks (serving four boilers).

ERM understands that, for the foreseeable future, the ground surface will be covered with recycled crushed concrete and left vacant.

The demolition of the former A Station infrastructure was completed in 2013 and early 2014. With the exception of the two stacks located on the south eastern boundary, all surface infrastructure within the former A Station area has been cleared to basement concrete level. The majority of the underground infrastructure has been decommissioned but remains in situ, including the following;

- the former transformer runway, which is comprised of very thick concrete (estimated to continue to approximately 3 m bgl) extends approximately 15 m into the A Station area from the north western boundary;
- the remainder of the A Station area is largely capped with a concrete slab, estimated to be 30 to 40 cm in thickness, but the slab is not continuous;
- the surface above the areas formerly occupied by the pilings and underground cable tunnels are covered with recycled concrete rubble;
- eight Cooling Water Pits are located within the former Turbine area. These are estimated to be approximately 3 m deep and have been filled with recycled concrete rubble; and
- two former ash pits are located within the A Station area, one in the central portion and one on the north eastern corner.

A portion of the Site, extending approximately 50 m into the A Station area from the south eastern boundary, was covered with approximately 50 cm of imported fill material (crushed concrete) in the months prior to the field investigations and compacted. This area formerly housed the precipitators and boiler houses and at the time of the field works was being used by contractors for the refabrication of components of the B Station. This portion of the A Station is approximately 4000 m^2 and was inaccessible during the field works.

2.1.3 Surrounding Environment

The Site is surrounded by the Vales Point Power Station in all directions. The Vales Point Power Station B Station operational area is located immediate to the east of the Site and the administrative area is located to the south west. The cooling water canal is located to the north of the A Station area, across which lies the Chlorine Plant and TransGrid Switchyard.

The closest residential areas to the Site include:

- Mannering Park, located approximately 600 m north of the Site; and
- Kingfisher Shores, approximately 1.4 km south east of Site.

Ecologically significant areas or recreational areas of note surrounding the Site include:

- Tom Barney Oval, located approximately 200 m south west of Site. Based on discussions with the Site Environmental Officer, this oval is occasionally booked out for sporting events, and is regularly accessed by the public; and
- recreational fishing and boating activities are also undertaken in Lake Macquarie, including Mannering Bay, Chain Valley Bay and Wyee Bay. These areas are also contain aquatic environments of significance. The Vales Point cooling water canal, located immediately to the north of the Site enters the power station at Chain Valley Bay and drains into Wyee Bay and Mannering Bay to the northwest.

2.2 ENVIRONMENTAL SETTING

2.2.1 Topography

The Site is located on the shore of Lake Macquarie, in between Wyee Bay and Chain Valley Bay. The Site is generally flat and lies at an average elevation of approximately 3 m Australian Height Datum (AHD).

2.2.2 Hydrology

The Site is located in the Lake Macquarie catchment area, with Lake Macquarie identified as the main local hydrological feature. Local waterways can be summarised as follows:

- Chain Valley Bay, located approximately 300 m north east of the Site;
- Mannering Bay with Wyee Bay immediately beyond, located approximately 1km to the north west of the Site;
- the Vales Point cooling water canal, immediately to the north of the Site, which enters the power station at Chain Valley Bay and exits the at Wyee Bay;
- Chain Valley Retention Pond (also known as Lake Rodham), located approximately 300 m north east of the Site, forms a part of the power station contaminated water management system;
- three settling ponds associated with the sewage treatment works on Site, located 500 m north west of Site;

- five settling ponds associated with the coal storage area, approximately 700 m south west of Site; and

- the Vales Point Power Station Ash Dam, located approximately 1.2 km south west of the Site. A large proportion of the ash which is produced from the Power Station is transported by wet sluicing via a pipeline to the Ash Dam under the current Vales Point Power Station Environment Protection Licence (EPL) (Clause P1.3 of EPL 761).

The surface water within the Site is channelled into a stormwater system around that also discharges into Lake Macquarie via Lake Rodham. ERM understands that the stormwater system is largely still active following the demolition works, although the stormwater pipes on the south-eastern boundary of the Site (adjacent to the laydown area) may have been disturbed during demolition works. A number of surface grates were observed on the Site at the time of our works and had been protected with geo-fabric to prevent silting.

The areas of the Site that are filled with crushed concrete could also become potential sumps for surface water.

2.2.3 Geology

Based on a review of the *Gosford – Lake Macquarie 1:100 000 Provisional Geology Sheet* (Geological Survey of New South Wales, 2003), the Site is located on the late Permian to early Triassic Munmorah Conglomerate formation of the Clifton Subgroup, Narrabeen Group. The Munmorah Conglomerate formation is comprised of conglomerate and medium to coarse-grained sandstone with minor siltstone and claystone (Geoscience Australia).

Further information on regional geology is presented in the *Vales Point Power Station Stage 2 ESA* (ERM, 2014b).

2.2.4 Hydrogeology

Groundwater flow is expected to be towards the cooling water canal, which is located to the north of the Site. Temporal and localised variations in the direction of groundwater flow is considered likely given the low lying nature of the area and potential tidal influences. The pits and sumps that are filled with crushed concrete could also increase the rate of infiltration into the subsurface and become potential sumps for surface water.

Further information on regional hydrogeology is presented in the *Vales Point Power Station Stage 2 ESA* (ERM, 2014b).

2.2.5 *Groundwater Use*

The groundwater beneath the Site is not extracted for use.

The NSW Natural Resource Atlas online bore register (accessed April 2014) (NSW Government) identifies six groundwater bores within a 5 km radius of the Vales Point Power Station, in addition to the groundwater monitoring wells installed during the *Vales Point Power Station Stage 2 ESA* (ERM, 2014b).

One groundwater bore, located approximately 700 m north of the Site in Mannering Park, is reportedly used for domestic purposes. The Standing Water Level (SWL) was recorded in this well at 5.5 m bgl. One groundwater bore, located approximately 1km south west of the Site is reportedly used for stock (poultry) watering purposes. The remaining four groundwater bores were reported to have been installed for test or monitoring purposes, with SWL recorded in three of these bores at 6m bgl.

2.3 *SITE OPERATIONAL HISTORY*

Detailed information regarding the history and operation of the Site, including historical aerial photographs, zoning and environmental approvals, licenses and management is presented in the *PESA* (ERM, 2014a).

The demolition of the former A Station infrastructure was completed in 2013 and early 2014.

2.4 *NSW EPA CONTAMINATED SITE RECORDS*

The *Contaminated Land Management Record of Notices* is a public database of information regarding significantly contaminated land in NSW and is managed by the NSW EPA under the *Contaminated Land Management Act 1997 (CLM Act 1997)*.

At the time of this assessment, no areas of the Vales Point Power Station had been notified to the NSW EPA as being potentially contaminated. A number of recommendations for the notification impacts within the Vales Point Power Station are however presented in the *Vales Point Power Station Stage 2 ESA* (ERM, 2014b) and ERM understands that Delta were evaluating these at the time of the current assessment.

2.5 *PREVIOUS ENVIRONMENTAL INVESTIGATIONS*

Intrusive soil and groundwater investigations have not, to ERM's knowledge, previously been undertaken within the Site but during the Vales Point Power Station Stage 2 ESA (ERM, 2014b) impacts were identified in groundwater around the boundary of the A Station area, including:

- PFOS (a chemical associated with firefighting foams) was identified at concentrations in excess of the adopted human health (drinking water) screening levels was identified in VB_MW02, which is located on the south western boundary of the Site. PFOA was not detected. On the basis that groundwater is not extracted for potable use within the vicinity of the operational area of the Power Station, this identified PFOS impact was not considered to represent a significant risk to human health;

- Total Recoverable Hydrocarbons (TRH), chlorinated hydrocarbons and phenol were reported at concentrations above the laboratory LOR in groundwater samples collected along the south western and south eastern boundaries of the Site but the concentrations did not exceed the adopted screening values;

- The adopted ecological screening value for TRH C_{10}-C_{16} (excluding naphthalene) was exceeded in one soil sample collected from VB_MW01, which is located on the south eastern boundary of the Site. The ground surface at VB_MW01 is covered in concrete hardstanding and this area is used for miscellaneous operational activities, including the storage of skip bins and spare parts. On this basis, TRH impact in this area was not considered to represent a significant risk to the terrestrial environment; and

- Benzene was reported at concentrations exceeding the adopted human health (drinking water) screening values in two groundwater monitoring wells (VH_X_MW06 and VH_X_MW08) located within the Vehicle Refuelling Area, approximately 60 m to the south west and up hydraulic gradient from the Site. The adopted human health (recreational) screening value for benzene was also exceeded at VH_X_MW08. Groundwater monitoring has been ongoing within the Vehicle Refuelling Area since 2010 and the hydrocarbon detections in the *Vales Point Power Station Stage 2 ESA* did not suggest the presence of a significant ongoing release. On the basis that groundwater is not extracted for potable use within the vicinity of the operational area of the Power Station these impacts were not considered to represent a significant potential risk to human health under the ongoing use of the Site as a Power Station.

2.6 POTENTIAL AND KNOWN SOURCES OF CONTAMINATION

The primary sources of potential contamination identified within the former A Station area are potential leaks or spills of lubricating oil and fuel during the historic operation of the Site, which may have migrated through cracks in concrete or via damaged drains. The network of drains which run beneath the Site may also represent a potential source of impact.

A major fire event fire occurred in the 5A Air Heater, in the northern portion of the Site in 2011 and Aqueous Film Forming Foam (AFFF) constituents (used in firefighting foams) are therefore potential COPCs.

Many of the structures which were formerly housed within the former A Station area contained asbestos material, some of which remains in subsurface following the demolition activities. Areas of know subsurface asbestos impact within the Site including the following;

- a former ash pit is located on the north eastern corner of the Site, as shown in *Figure 6* of *Annex A*. Delta staff indicated that the north eastern ash pit contains asbestos contamination and that works previously undertaken by Delta included removal of approximately 1 m of asbestos impacted material from the top of this ash pit. The remainder of the asbestos containing material was covered with fill and HEPA filters to prevent potential asbestos fibres becoming airborne; and

- asbestos has been identified in some of the infrastructure remaining in the subsurface, including conduits and pipes.

Anecdotal evidence provided by Delta personnel indicated that during the demolition of the A Station surface infrastructure, fragments of galbestos were released from the former A Station structures onto the ground surface. ERM understands that an asbestos contractor was engaged and that the galbestos fragments were removed.

2.7 *SENSITIVE RECEPTORS*

The sensitive receptors identified in association with the Site include:

- human health receptors, in the form of Vales Point Power Station employees working within the former A Station and surrounding areas;

- intrusive workers working within the former A Station and surrounding areas;

- recreational users and ecological receptors within Mannering Bay, Wyee Bay and Chain Valley Bay; and

- aquifers beneath the Site.

3 INVESTIGATION METHODOLOGY

3.1 SAMPLING LOCATIONS

Based on a review of the available data, the most appropriate sampling design to achieve the stated project objectives was considered to be primarily based on a judgemental (targeted) sampling program.

It is noted that intrusive investigations were limited to areas where access and site activities enabled investigations to occur without unacceptable health and safety risks to personnel and/or unacceptable disruption to site operations. The sampling plan was discussed with site management prior to the commencement of works to assess this risk and was subject to alteration.

The main constraints on the implementation of A Station program were the presence of subsurface utilities and below ground infrastructure which remained following the demolition of the A Station infrastructure, preventing intrusive activities in some areas. Areas of crushed concrete fill are also present in the subsurface within the former CW pits, cable tunnels and pilings (see *Section 2.1.2*). A portion of the Site, extending approximately 50 m into the A Station area from the south eastern boundary, was also being used by contractors for the refabrication of components of the B Station and was inaccessible during the field works.

Due to the potential presence of unknown underground services at depth within the A Station area, the intrusive works were limited to non-destructive methods and focussed on the collection of soil samples from within the top 1.5m bgl.

The proposed A Station program comprised of soil sampling from 23 locations. The completed program comprised of soil samples from 16 locations.

Deviations from the A Station program were tracked during the course of the investigation via daily field sheets. *Table 3.1* below highlights locations proposed but abandoned or relocated due to subsurface constraints.

Table 3.1 Vales Point Power Station – Locations Abandoned or Relocated

Location ID	Location Type	Comments
VB_SB05	Soil Bore	Abandoned due to location within a current workshop area. Delta refused access.
VB_SB06	Soil Bore	Relocated south of the former cooling water pits due to large number of services in the proposed location and inability to physically locate them. Cored concrete to 0.6 m in auxiliary location but discontinued due to the absence of a shallow soil profile and uncertainty attributed to service clearance techniques caused by exceptionally thick concrete.
VB_SB14	Soil Bore	Encountered a subsurface slab 50 mm below surface slab and unable to core through it.
VB_SB15	Soil Bore	Abandoned as the amended VB_SB06 location was very close by and alternate locations were limited by presence of former cooling water pits and underground services.
VB_SB16	Soil Bore	Abandoned due to location within a current workshop area – unable to be accessed.
VB_SB18	Soil Bore	Abandoned as it fell within the outage laydown area – unable to be accessed.
VB_SB23	Soil Bore	Abandoned as it fell within the outage laydown area – unable to be accessed.
VB_SB24	Soil Bore	Abandoned as it fell within the outage laydown area – unable to be accessed.

Final investigation locations and the locations that were abandoned are presented in *Figure 2* of *Annex A*.

3.2 SITE INSPECTION

The work areas of the Site were inspected and the sampling locations were marked out to target identified Site features and potential contamination sources. At the same time as clarifying the investigation locations, sub-surface utilities were marked out using an appropriately qualified service locator. Ground penetrating radar (GPR) and Cable Avoidance Tool (CAT), along with Dial Before You Dig (DBYD) plans and Site engineering drawings were utilised to identify underground services and utilities.

3.3 SOIL INVESTIGATION

3.3.1 Soil Sampling Procedure

Soil investigation and sampling works were undertaken in general accordance with ERM's Standard Operating Procedures (SOPs). The location and number of sampling locations are presented within *Figure 2* of *Annex A*. Where practicable, all boreholes were advanced to a depth of 1.5 m bgl using Non-

Destructive Digging (NDD) and/or hand-auger techniques in accordance with ERM's sub-surface clearance procedures. Non-Destructive Drilling was used as the primary method of advancement however at increments of approximately 0.3 m, the borehole was sucked dry using the NDD and hand augered to provide clarity on soil profile and facilitate the collection of appropriate samples.

Field screening was conducted in accordance with ERM's SOPs using a photo-ionisation detector (PID) fitted with a 10.6 eV lamp, calibrated at the beginning of each working day. Calibration certificates are presented in *Annex D*. Where practicable, soil was collected at 0.3 m depth intervals (or where significant changes in lithology were identified) to 1.5 m bgl. Soil samples were placed in a zip lock bag, sealed and screened for the presence of ionisable volatile compounds. Where the presence of volatiles or other impact was suspected, additional samples were collected.

Soil properties were logged by an appropriately trained and experienced field scientist in general accordance with *Australian Standard AS 1726-1993, Geotechnical Site Investigations* (Standards Association of Australia, 1993). Representative soil samples were collected for laboratory analysis at selected locations, based on visual and/or olfactory evidence of the following:

- fill material;
- changes in the soil profile; and
- potential impact.

Soil samples were collected, to the extent practicable, in accordance with techniques described in *Australian Standard AS4482-2005* (Parts 1 and 2) to maintain the representativeness and integrity of the samples. Soil samples for laboratory analysis were collected from the hand auger. The frequency and nature of field QA/QC samples collected during the assessment works are summarised in *Annex E.*

Sample jars were filled with minimal headspace, sealed and immediately placed in an insulated cooler, on ice, and stored to reduce the potential for loss or degradation of volatile compounds. Samples were shipped under chain of custody documentation to the analytical laboratory. Trip blanks and field blanks were used to assess whether cross contamination occurred during the sample collection process.

Potential asbestos containing material (ACM) was identified at the surface in the form of intact (redundant) power cable conduits. The location of these conduits correlated with asbestos impact on Delta supplied plans and so samples of this material were not collected. Further, no ACM fragments were visibly identified within the fill profile during the investigation works and so there were no ACM fragments submitted for analysis. Discrete samples of soil were collected in 500 mL snap lock bags during NDD for laboratory analysis

for asbestos fibres. These samples were submitted to the laboratory for asbestos identification and (where identified) quantification (%w/w analysis) in accordance with the WA DOH guidelines (WA DOH, 2009).

3.3.2 Decontamination Procedure

Down-hole drilling and non-single use sampling equipment was decontaminated by initially removing any residual soil with a stiff brush and then washing the equipment in a 2% Decon 90 solution and rinsing with potable water.

3.3.3 Soil Bore Reinstatement

Upon completion, soil bores were backfilled and the surface covering reinstated to match existing.

3.3.4 Management of Waste Materials Generated During Drilling

Non-liquid waste materials generated during drilling works were stored on-site in stockpiles inside a temporary bund in a designated area near the Vales Point Power Station Ash Dam, prior to disposal by Delta at a later date within the Ash Dam in accordance with relevant EPL conditions.

3.4 SURVEYING

All soil bore investigation locations were digitally located by field staff with a handheld Global Positioning System (GPS) unit.

3.5 LABORATORY ANALYSIS

The laboratories used for the investigations were accredited by the National Association of Testing Authorities (NATA), Australia. The primary laboratory used for soil and groundwater analysis was ALS Environmental Pty Ltd (ALS). Inter-laboratory duplicate samples were analysed by a secondary laboratory, Envirolab Services Pty Ltd (Envirolab). The analytical methods used by each laboratory are provided in the laboratory certificates in *Annex G*.

All samples were analysed for the following COPCs:

- metals and metalloids (arsenic, cadmium, chromium, copper, nickel, lead, mercury, selenium and zinc);
- Polychlorinated Biphenyls (PCBs);
- Total Recoverable Hydrocarbons (TRH); and
- Polycyclic Aromatic Hydrocarbons (PAHs).

Additional contaminants of concern were analysed within individual AECs to target specific sources of contamination or if required based on observations made in the field.

These contaminants include:

- Volatile Organic Compounds (including benzene, toluene, ethylbenzene and xylenes - BTEX); and
- Perfluorooctane sulfonate (PFOS) and Perfluorooctanoic acid (PFOA) – to target areas where fire retardants may have been used or stored;
- Asbestos.

3.6 QUALITY ASSURANCE / QUALITY CONTROL

A detailed QA/QC report including field procedures, laboratory methods and an analysis of QA/QC results from the investigation is provided in *Annex E*. QA/QC information incorporating inter-laboratory and intra-laboratory duplicates, rinsate samples and trip spike/blank samples are also tabulated in *Annex E*.

In summary, the QA/QC data reported by ALS for soil samples and field duplicate results were generally free of systematic and method biases and were assessed to be of sufficient quality for the purposes of this investigation.

3.7 DATA SCREENING

Individual soil, groundwater, sediment and surface water data, along with the maximum, minimum, mean, standard deviation and 95% upper confidence limit (UCL) of the mean concentration (if required) were compared to adopted screening values.

The screening values adopted for the Site are designed to provide a screening value assessment of potential risks that may be associated with the SPR linkages that have been identified for this Site. The specific assessment levels adopted are presented alongside the analytical data in the summary tables presented in *Annex B*. The approach to the screening of the data gathered in this assessment has generally been to initially adopt conservative assessment values. Any exceedances of these values have then been evaluated on a case by case basis, in light of the specific characteristics of the individual sample and the area of the Site from which the sample was collected.

The adopted screening values have generally been sourced from guidelines made or approved under the *CLM Act 1997*, which includes the *ASC NEPM* (ASC NEPC, 2013). Where alternative sources have been utilised, appropriate justification has been provided.

3.7.1 Soil Screening Values

Soil data was assessed against investigation criteria published in the NEPC (2013) *National Environment Protection (Assessment of Site Contamination) Measure 1999,* Schedule B1 - Guideline on Investigation Levels for Soil and Groundwater (ASC NEPC, 2013), including;

- Health Investigation Level (HIL) – 'D' Commercial/Industrial;
- Health Screening values (HSLs) for Vapour Intrusion and Direct Soil - 'D' Commercial/Industrial;
- Ecological Investigation/Screening values (EILs/ESLs) – for commercial industrial areas (as applicable); and
- The Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE, 2011) *Technical Report No. 10* HSLs for Vapour Intrusion and Direct Contact - Intrusive Maintenance Workers (labouring within shallow trenches).

The EILs/ESLs for commercial/industrial areas have been adopted across the Site.

Laboratory analysis for pH and CEC is required to establish site specific EILs/ESLs, and an assessment of background conditions is necessary. The EILs/ESLs established during the *Vales Point Power Station Stage 2 ESA* (ERM, 2014b) using the analytical data collected from buffer/boundary locations were utilised in this assessment establishing background conditions. The details of the calculations used to establish Site specific EILs/ESLs are provided in *Annex I* of the *Vales Point Power Station Stage 2 ESA* report.

The ASC NEPM (2013) also provides EILs for aged and fresh contamination for the metal constituents Ni, Cr III, Cu, Zn and Pb. For the purposes of EIL derivation, a constituent incorporated in soil for at least two years was considered to be aged. Given that the Site has been operational since the 1960s and no significant individual release events of these metals have been recorded, any identified impacts are likely to primarily represent aged contamination. The EILs for aged contamination have been adopted.

The ASC NEPM (2013) and CRC CARE (2011) *Health screening values for petroleum hydrocarbons in soil and groundwater* provide Health Screening values (HSLs) for soil and groundwater impacts located at depths from 0 to 4+ m bgl in soil types ranging from sand to clay and Health Investigation Levels (HILs) for shallow soil impacts. The screening values for sandy soils have been adopted across the Site, as a conservative approach. The significance of any exceedances of the HILs/HSLs have been evaluated on a case by case basis, with reference to the use of the area of identified potential concern.

3.7.2 Screening values for Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA)

No authoritative screening criteria have been published within Australia for assessing chronic risks to human health from either perfluorooctane sulfonate (PFOS) or Perfluorooctanoic acid (PFOA) in soils. As such, a literature review and web-based research were conducted to identify conservative screening values for these COPCs.

Values of 6 mg/kg and 16 mg/kg were adopted for PFOS and PFOA in soil respectively, based on recently published US EPA Region 4 guidance *Emerging Contaminants Fact Sheet –PFOS and PFOA, May 2012* (US EPA, 2009c) for residential land-use settings. Whilst these criteria are acknowledged to be designed for application to a more sensitive land-use, they are considered appropriate to inform requirements for more detailed, or site-specific, risk characterisation.

It is noted that these guideline values have no regulatory standing in NSW and hence these values have been adopted to provide a high level evaluation of potential ecological risk and have not been used to assess the duty to report requirements under the CLM Act (1997).

4 INVESTIGATION RESULTS

This section discusses the results associated with the soil samples collected from within the Site. It is noted that due to uncertainties regarding sub surface infrastructure, further groundwater investigation works were not undertaken in the operational area of the former A Station.

4.1 SITE GEOLOGY OBSERVATIONS

A generalised description of the lithology and geology encountered in the Site is presented *in Table 4.1*.

Due to uncertainties regarding sub surface services, the maximum depth to which locations were advanced was 1.5 m bgs. Twelve of the 16 locations were advanced in an area where there was a concrete slab present. Fill present directly below the slab varied between sandy clay and sand with some gravels. Beyond this initial fill was re worked clay fill with highly weathered sandstone encountered towards the bottom of the hole in some locations.

Table 4.1 Generalised Field Lithology Descriptions

Lithological Unit	Description	Depth[1] (m bgl)
Hardstanding	Concrete and asphalt generally in good condition (present in some locations within the operational area).	0 – up to 0.3
Fill	Fill material of variable composition, varying from sandy gravel to re-worked gravelly sandy clay (present in some locations within the Site).	0 – up to 1.5

1. Depths and lithologies varied across the site.

Detailed descriptions of the Site lithology and geology as observed at each location during the investigation are presented in the borehole logs in *Annex C.*

4.2 FIELD OBSERVATIONS

During the sampling process, indicators of contamination such as black staining and hydrocarbon odours were noted in several bore holes within this AEC. Measured concentrations of ionisable volatile compounds via headspace analysis were noted not to exceed 0.3 ppm v (isobutylene equivalent) in any soil sample collected from this AEC.

A summary of the field observations from the drilling works are presented within *Table 4.2* and also on the borehole logs included within *Annex C.*

Table 4.2 Field Observations Summary

Borehole ID	Depth (m bgl)	Visual or Olfactory Evidence	PID Range (ppm v - isobutylene equivalents)
VB_SB07	4	None	0
VB_SB07	1.5	None	0
VB_SB08	0.8	Hydrocarbon odour/black staining	0-0.3
VB_SB09	1.5	None	0-0.1
VB_SB10	1.5	None	0
VB_SB11	1.3	Black Staining	0
VB_SB12	0.8	None	0
VB_SB13	1.5	None	0
VB_SB17	1.5	None	0
VB_SB19	1.5	None	0-0.1
VB_SB20	1.5	None	0
VB_SB21	1.5	Black staining	0
VB_SB22	1.5	None	0
VB_SB25	0.7	None	0-0.1
VB_SB26	0.4	None	0
VB_SB27	1.5	None	0

4.3 SOIL ANALYTICAL RESULTS

The soil analytical results have been compared to the adopted human health and ecological screening values as presented in *Annex B*.

4.3.1 Hydrocarbons

Concentrations of TRH were reported above the laboratory LOR in the following soil samples;

- VB_SB08 at a depth of 0.2 and 0.7 m bgl;
- VB_SB10 at a depth of 0.3 m bgl;
- VB_SB11 at a depth of 0.7 m bgl;
- VB_SB19 at a depth of 0.3 m bgl;
- VB_SB20 at a depth of 0.4 m bgl;
- VB_SB25 at a depth of 0.6 m bgl; and
- VB_SB26 at a depth of 0.2m bgl.

All concentrations were however below the adopted human health screening values.

The adopted ecological screening value for TRH C_{10}-C_{16} (excluding naphthalene) was exceeded in one soil sample collected from VB_SB08 and the adopted ecological screening value for TRH C_{16}-C_{34} was exceeded in three soil

samples collected from within the top 1 m bgl at VB_SB08, VB_SB10 and VB_SB11. The ground surface at VB_SB08,VB_SB10 and VB_SB11 is covered in concrete hardstanding and this area is currently used for miscellaneous operational activities, including as a lay down area during outages at the operational B Station. On this basis, TRH impact in this area is not considered to represent a significant risk to potential terrestrial ecological receptors.

It is noted that the deeper soil sample collected at all three locations, also reported TRH concentrations either below or only marginally above the laboratory LoR. This provides some evidence that indicates that the vertical migration of these impacts may be limited.

Measurable concentrations of PAHs (benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, chrysene and fluoranthene) were detected in one sample collected from VB_SB25 at a depth of 0.6 m bgl but the concentration did not exceed the adopted screening criteria.

4.3.2 PFOS/PFOA

Concentrations of PFOS were reported above the laboratory LOR in the soil sample collected from VB_SB09, VB_SB10, VB_SB11, VB_SB25 and VB_SB25 at 0.5m bgl however the detected concentrations were below the adopted screening value.

4.3.3 Metals

Measurable concentrations of metals were detected in 30 of the 32 samples analysed however only the adopted ecological screening levels for zinc were exceeded in two samples; VB_SB19 at 0.3m bgl and VB_SB26 at 0.2m bgl. The ground surface at VB_SB19 is covered in concrete hardstanding and this area is currently used for miscellaneous operational activities, including as a lay down area during outages at the operational B Station. VB_SB26 is located within an unsealed roadway area.

Given the these detections were only noted in two shallow samples, and that all deeper samples across the AEC returned measured concentrations below the adopted ecological screening criteria, significant vertical migration from surface soils does not appear to be occurring. Further to this, the fact that only two samples from thirty two exceeded the ecological screening criteria suggests that these are localised elevated concentrations, not likely to be representative of gross zinc impacts across the area. The 95% UCL was calculated for zinc in all samples across this area (*Annex H*) and found to be less than the adopted screening level. The concentrations which exceeded the screening level detected are also less than 2 x the adopted screening level and as such are not considered to represent a significant risk to the terrestrial environment.

4.3.4 Asbestos

Asbestos was detected in three samples collected within this AEC; VB_SB07 at 0.3m bgl, VB_SB13 at 0.2m bgl and VB_SB19 at 0.3m bgl.

At VB_SB07_0.3 the measured concentrations of amosite asbestos fines and fibrous asbestos (%w/w) did not exceed the adopted human health screening value. The laboratory described this detection as "one small friable asbestos fibre bundle (approximately 2 x 0.5 x 0.5mm)".

At VB_SB13_0.2 and VB_SB19_0.3, the fibrous asbestos concentrations exceeded the adopted human health screening levels. At VB_SB13, the laboratory report identified "one small fragment of degraded and friable asbestos fibre board (approximately 3 x 3 x 2mm) and several small friable asbestos fibre bundles (approximately 2 x 0.5 x 0.5mm)". At VB_SB19, fibrous chrysotile and amosite asbestos were detected and the laboratory report identified "several small friable asbestos fibre bundles (approximately 3 x 1 x 0.5mm)".

All three locations, at which asbestos was detected, are covered in concrete hardstand. These areas of asbestos impact would only represent a risk to the health of Site employees, if they were to come into contact with them during intrusive works requiring the removal of the concrete. ERM understands that Delta has recorded these areas of asbestos impact in its Asbestos Register and that they will be managed in accordance with Delta's existing asbestos management procedures to reduce the potential for exposure to occur.

It is noted that this asbestos assessment is considered indicative in nature, and additional analysis, in accordance with ASC NEPM (2013) would need to be undertaken to comprehensively delineate asbestos impacts associated with this area. The asbestos assessment is however considered sufficient for the purpose of this baseline assessment and that a more detailed assessment would not be required unless the future use of the areas was to change.

4.4 DATA QUALITY

The data presented in the ESA was considered to generally be of a suitable quality and completeness to provide a baseline of environmental conditions at the Site. Whilst some minor non-conformances have been identified in relation to field and laboratory QA/QC, these are not considered to have a material impact on the outcomes of this assessment. A detailed review of the Data Quality of this assessment is provided in *Annex E.*

Comparison of the LOR to the screening values has been undertaken, confirming that the screening values are less than the laboratory LOR for all compounds analysed.

5 OVERALL DISCUSSION

The primary objective of these additional works was to develop a baseline assessment of environmental conditions in the footprint of the former A Station which was not accessible during the completion of the *Vales Point Power Station Stage 2 ESA* (ERM, 2014b). The results of the assessment have also been used to assess:

- the nature and extent of soil impact on / beneath the Site and in relation to neighbouring sensitive receptors;
- whether the impacts at the Site represent a risk to human health and/or the environment, based on the continuation of the current use;
- whether the impact at the Site is likely to warrant notification /regulation under the *CLM Act 1997*;
- whether material remediation is considered likely to be required; and
- whether the data collected during the assessment was of a suitable quality and completeness to provide a baseline of environmental conditions at the Site.

The overall results of the assessment are discussed herein, with reference to these objectives.

5.1 SUMMARY – THE NATURE AND EXTENT OF SOIL IMPACTS AND ASSOCIATED HEALTH AND ENVIRONMENTAL RISKS

A CSM was developed and refined, which identified the following ecological and human receptors:

- human health receptors, in the form of Vales Point Power Station employees working within the former A Station and surrounding areas;
- intrusive workers working within the former A Station and surrounding areas;
- recreational users and ecological receptors within Mannering Bay, Wyee Bay and Chain Valley Bay; and
- aquifers beneath the Site;

Soil data was compared against published environmental quality levels to provide a screening level assessment of potential risks to these identified receptors. The findings of the screening process indicated that concentrations in soil generally complied with the adopted screening values, with some exceptions, as outlined in *Section 4.3*.

The soil results do not suggest the presence of contamination in the subsurface at the Site that may represent a significant risk to human health of the terrestrial environment. As with any investigation of this nature, the potential exists for unidentified contamination to exist between the completed sampling locations or in areas not sampled. In particular, samples were not collected from within the transformer runway on the north western portion of the Site or within the south eastern portion of the Site that was inaccessible during the field works.

The soil results also do not suggest the migration of the identified soil impacts into Site groundwater. It is noted however that the presence of groundwater contamination within the Site cannot be discounted in the absence of groundwater analytical data.

The results of the assessment identified some areas of asbestos impact in fill material. It is noted however that as identified in the ASC NEPM (2013) the vertical boring of soils is not a comprehensive method via which to identify asbestos, however given the objectives of this assessment and the operational constraints, the assessment methodology adopted was considered appropriate. The absence of asbestos impacts across the areas of the Site that were not sampled cannot however be guaranteed on the basis of the results of this assessment.

5.2 SUMMARY – DOES THE IMPACT WARRANT NOTIFICATION UNDER THE CONTAMINATED LAND MANAGEMENT ACT 1997?

Under Section 60 of the *CLM Act (1997)*, a person whose activities have contaminated land or a landowner whose land has been contaminated is required to notify NSW EPA when they become aware (or ought reasonably have been aware) of the contamination. The DECC (2009) *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997*, state that a landowner or a person whose activities have contaminated land is required to notify NSW EPA that the land is contaminated if:

- the level of the contaminant exceeds the appropriate published screening level with respect to a current or approved use of the land, **and** people have been, or foreseeably will be, exposed to the contaminant; or
- the contamination meets a specific criterion prescribed by the regulations; or
- the contaminant has entered, or will foreseeably enter, neighbouring land, the atmosphere, groundwater or surface water, **and** the contamination exceeds, or will foreseeably exceed, an appropriate published screening value and will foreseeably continue to remain above that level.

The soil results obtained in this assessment have been compared against the screening values specified in NSW DECC (2009) *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997* and a number of exceedances have been identified. It is also noted that a draft revision of this document was published in 2014 and that the guidance provided in this document has also been considered.

Every exceedance of these screening values is not, however, required to be reported to the NSW EPA. In the case of onsite soil contamination, if no plausible exposure pathway to people or the environment is present, reporting is not required.

On the basis of the discussions outlined in *Section 4.3*, the constituents that have been identified in soil collected within the Site are not considered likely to represent a significant risk to human health or the environment, due to the absence of a plausible exposure pathway. Consequently, the reporting of these impacts to the NSW EPA under the current guidelines is not considered likely to be required.

The 2014 draft revision of the *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997* requires the notification of friable asbestos that is present in soils at concentrations in excess of the *ASC NEPM* (2013) Health Screening Levels **and** to which a person has been, or foreseeably will be, exposed to the asbestos fibres by breathing them into their lungs. The 'foreseeability' of people being exposed to the identified asbestos will be dependent upon the future use of the Site and the asbestos management practices employed to control potential exposure. These factors should be evaluated by Delta when assessing the requirement to report the identified asbestos contamination to the NSW EPA, upon the finalisation of the revised guidelines.

5.3 SUMMARY – IS MATERIAL REMEDIATION OR MANAGEMENT LIKELY TO BE REQUIRED?

The material remediation or management of the zinc, TRH and PFOS impacts identified in soil collected from within the Site is considered unlikely to be required under the ongoing use of the Site for general maintenance activities associated with the operation of the Power Station.

Further assessment and remediation may be required to address unidentified deeper soil and groundwater impacts within the Site if the landuse was to change in the future. A detailed costing for such works has not been prepared since this would be dependent on the nature and layout of the proposed use which cannot be predicted at this point in time.

Asbestos contamination has previously been identified by Delta within the former A Station area and during this investigation additional asbestos impacts were identified in surface soil. ERM understands that Delta has

recorded these areas of asbestos impact in its Asbestos Register. The further assessment and remediation of these impacts may be required in the event that the use of the Site was to change but under the current use of the area ERM understands that these impacts will be appropriately managed in accordance with Delta's existing asbestos management procedures.

5.4 SUMMARY – IS THE DATA SUITABLE TO PROVIDE A BASELINE OF ENVIRONMENTAL CONDITIONS AT THE SITE AND IMMEDIATE SURROUNDING RECEIVING ENVIRONMENTS

The data presented in the ESA was considered to generally be of a suitable quality and completeness to provide a baseline of environmental conditions at the Site as at or near the time of the transaction, given the constraints that are associated with intrusive works in this area, including the presence of potential subsurface and overhead utilities, areas of thick hardstanding and concrete rubble fill and access restrictions.

The majority of the locations proposed were able to be advanced, with the exception of the locations listed in *Section 3.1*. In conjunction with the data collected around the boundaries of the Site during the *Vales Point Power Station Stage 2 ESA* (ERM, 2014b), the locations completed are considered adequate to provide a general indication of potential shallow soil contamination within the former A Station Area.

The installation of groundwater wells within the Former A Station demolition Area was not considered feasible, due to the health and safety issues associated with the presence of potential unknown underground services in this area. The investigation of this AEC was therefore limited to assessment of shallow soils (to a maximum depth of 1.5 m bgl). Unidentified soil and groundwater impacts may be present at depth within the Site, but the results of the current assessment do not provide evidence that the historic operation of the former A Station area was associated with potentially significant contamination.

On the basis of the above discussion, the data collected during this assessment is considered to be suitable to provide a baseline of soil conditions in the area of the former A station, at or near the time of the transaction.

6 CONCLUSIONS

ERM completed additional works within the former A Station area, subsequent to completion of the *Vales Point Power Station Stage 2 ESA,* in order to further develop a baseline assessment of environmental conditions within the former A Station area as at or near the time of the sale of the Power Station. Soil data were compared against published environmental quality levels to provide a screening level assessment of potential risks to identified human and environmental receptors. The following conclusions were made based on the data collected during the investigation:

- the key impacts identified included TRH, asbestos and metals in individual soil samples across the A Station area;

- the impacts identified in soil within the A Station area are generally unlikely to represent a significant risk to human health and/or the environment, given use of the Site as a Power Station and the implementation of appropriate ongoing management strategies;

- asbestos was detected in individual shallow soil samples collected from the former A Station area at concentrations in excess of the adopted human health screening values. ERM understands that Delta has recorded these areas of asbestos impact in its Asbestos Register and that they will be managed in accordance with Delta's existing asbestos management procedures. These areas of asbestos impact would only represent a risk to the health of Site employees, if they were to disregard the implemented management controls and to come into contact with them;

- no impacts that are likely to require material remediation under the ongoing use of the Site for general maintenance activities associated with the operation of the Power Station were identified during this investigation;

- no impacts that trigger a duty to report under the Contaminated Land Management (CLM) Act 1997 were identified during the additional works undertaken within the former A Station area. The 2014 draft revision of the *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997* requires the notification of friable asbestos that is present in soils at concentrations in excess of the *ASC NEPM* (2013) Health Screening Levels and to which a person has been, or foreseeably will be, exposed to the asbestos fibres by breathing them into their lungs. The 'foreseeability' of people being exposed to the identified asbestos will be dependent upon the future use of the Site and the asbestos management practices employed to control potential exposure and these factors should be evaluated by Delta when assessing the requirement to report the identified asbestos contamination to the NSW EPA, upon the finalisation of the revised guidelines.

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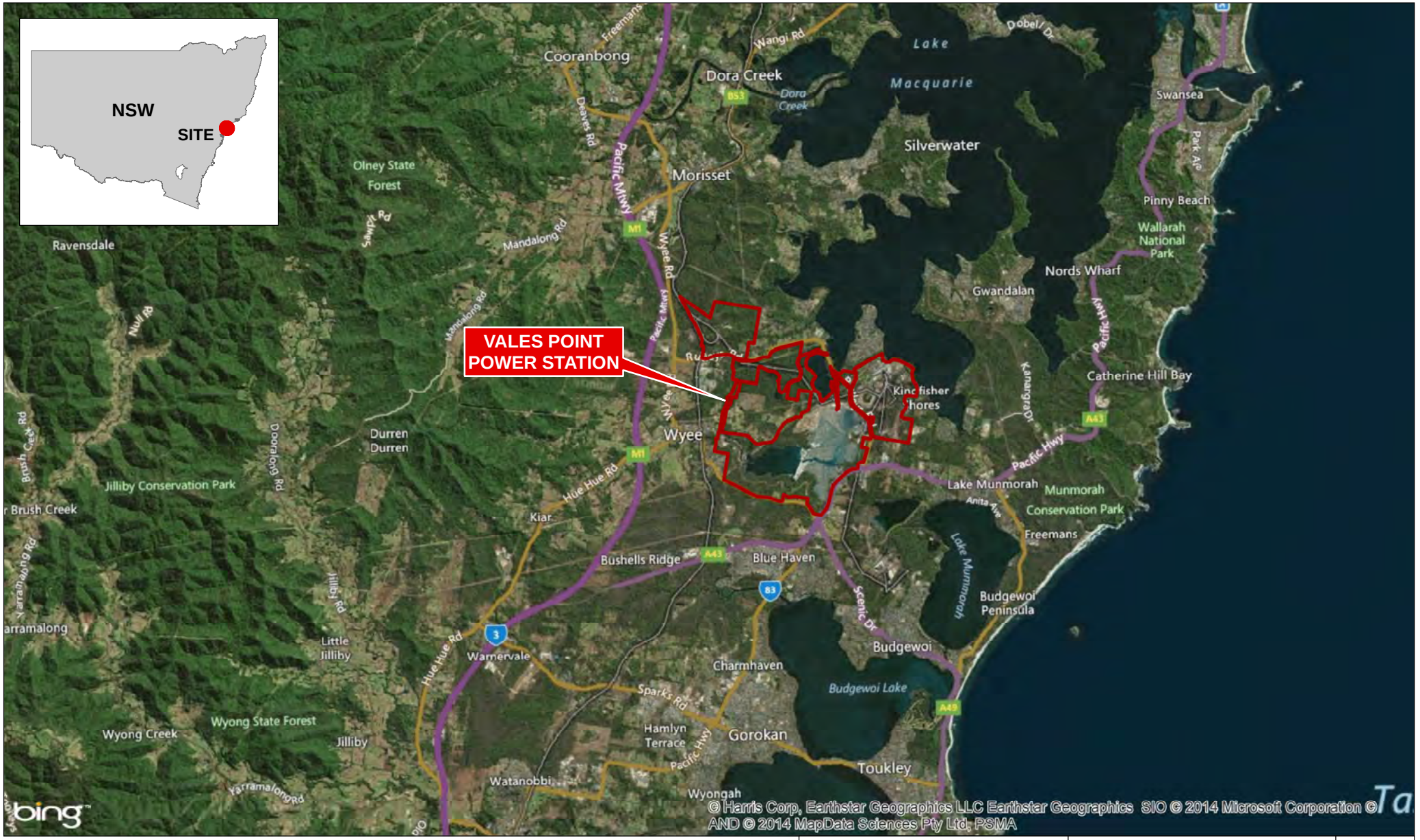
Annex A

Figures



Legend

Site Boundary

Source:
bing maps aerial, imagery date September 2012

0 1 2 3km

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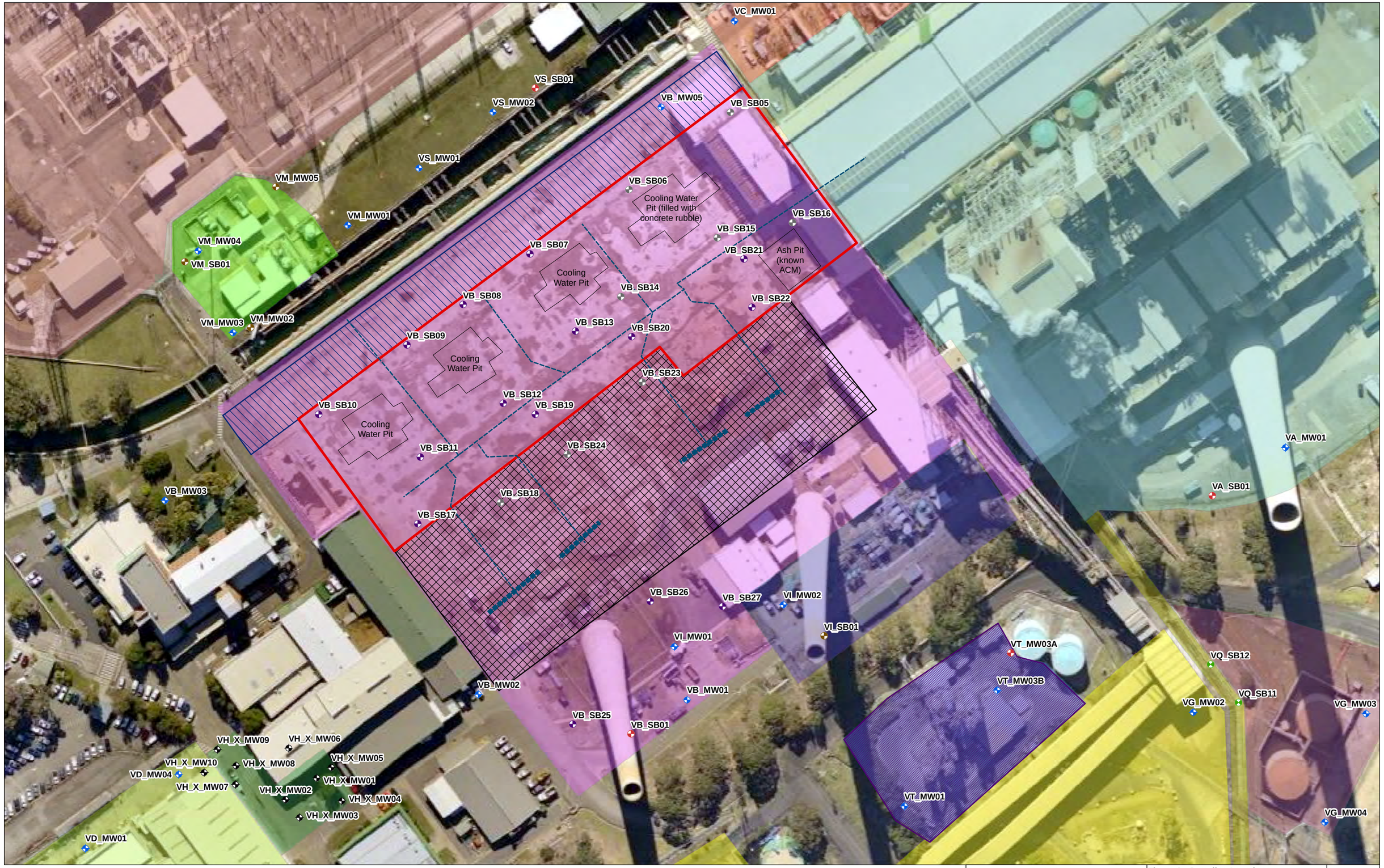
Client:	Delta Electricity		**Figure 1 - Site Locality**
Drawing No:	0237747s_ASESA2_G001_R0.mxd		
Date:	02/09/2014	Drawing Size: A4	Project Symphony - Vales Point
Drawn By:	GC	Reviewed By: JE	A Station Environmental Site Assessment

Environmental Resources Management ANZ

Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney

ERM



Legend

- A Station Investigation Area
- Removed Site Infrastructure
- Fly Ash Plant
- Cable Tunnels

AECs:

- VA - B Station Power Block
- VB - A Station Power Block
- VC - Transformers
- VD - Main Store
- VG - Fuel Oil Installation
- VH - Vehicle Refuelling Depot
- VI - Water Treatment Plant
- VJ - Coal Storage Area
- VM - Chlorine Plant
- VQ - Asbestos-containing Pipeline
- VS - TransGrid Switchyard
- VT - Fly Ash Plant

Excluded Areas:

- Inaccessible (Laydown Area)
- Inaccessible (Transformer Runway)

Vales Point Stage 2 ESA Sampling Locations:

- Existing Monitoring Well
- Monitoring Well
- Shallow Soil Bore
- Soil Bore
- Surface Soil Sample

Vales Point A Station Sampling Locations:

- Soil Bore
- Abandoned Soil Bore

Source:
nearmap imagery date: 3 June 2014

0 10 20 30m

N

Client:	Delta Electricity		
Drawing No:	0237747s_ASESA2_G002_R0.mxd		
Date:	08/09/2014	Drawing Size: A3	
Drawn By:	GC	Reviewed By: JE	

This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

Figure 2 - Sampling Locations
A Station ESA

Project Symphony - Vales Point
A Station Environmental Site Assessment

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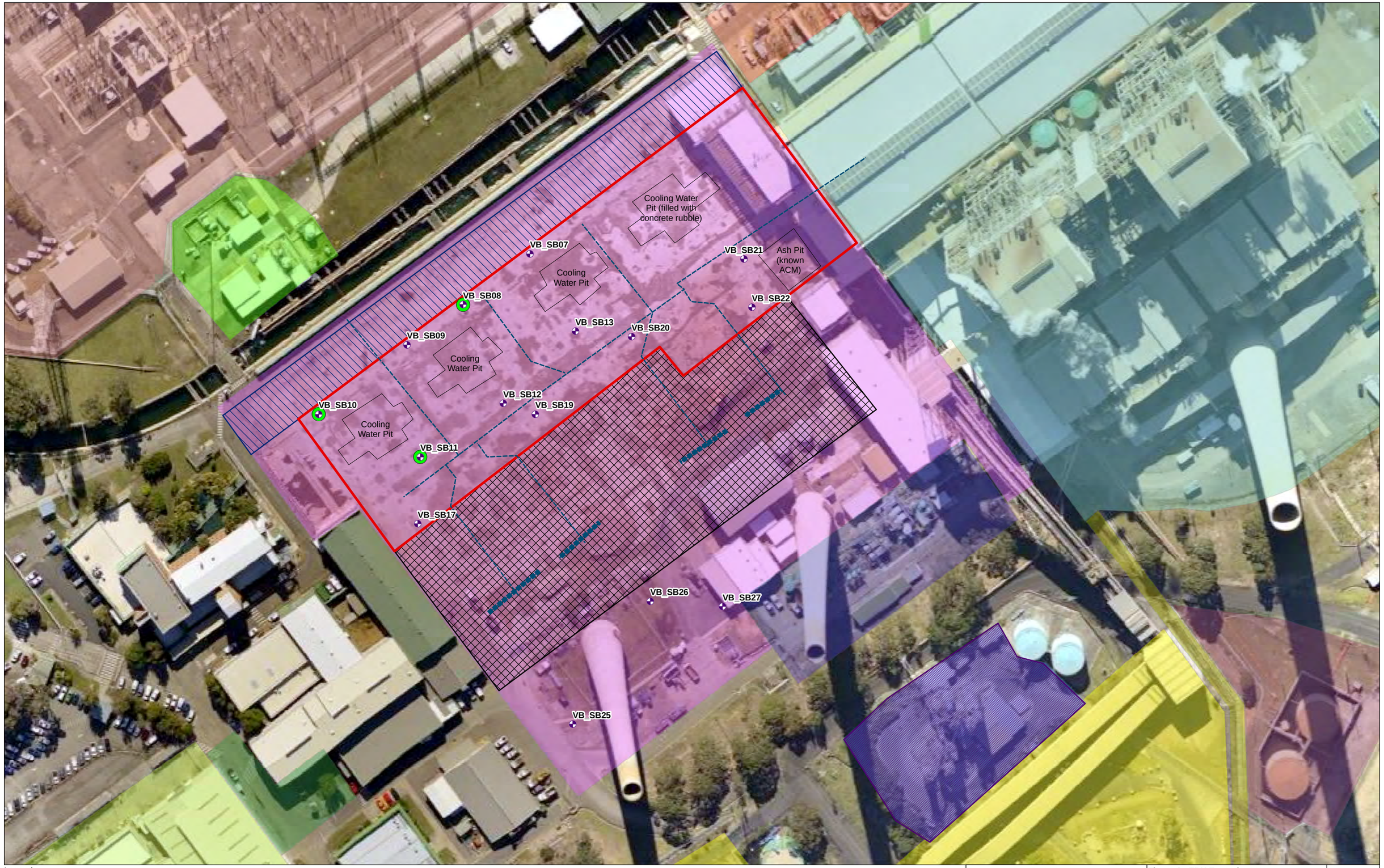
ERM



Legend

- A Station Investigation Area
- Removed Site Infrastructure
- Fly Ash Plant
- Cable Tunnels

AECs:

- VA - B Station Power Block
- VB - A Station Power Block
- VC - Transformers
- VD - Main Store
- VG - Fuel Oil Installation
- VH - Vehicle Refuelling Depot
- VI - Water Treatment Plant
- VJ - Coal Storage Area
- VM - Chlorine Plant
- VQ - Asbestos-containing Pipeline
- VS - TransGrid Switchyard
- VT - Fly Ash Plant

Excluded Areas:

- Inaccessible (Laydown Area)
- Inaccessible (Transformer Runway)

Vales Point A Station Sampling Locations:

- Soil Bore
- TRH Exceedances

Source:
nearmap imagery date: 3 June 2014

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Client:	Delta Electricity		
Drawing No:	0237747s_ASESA2_G003_R0.mxd		
Date:	08/09/2014	Drawing Size: A3	
Drawn By:	GC	Reviewed By: JE	

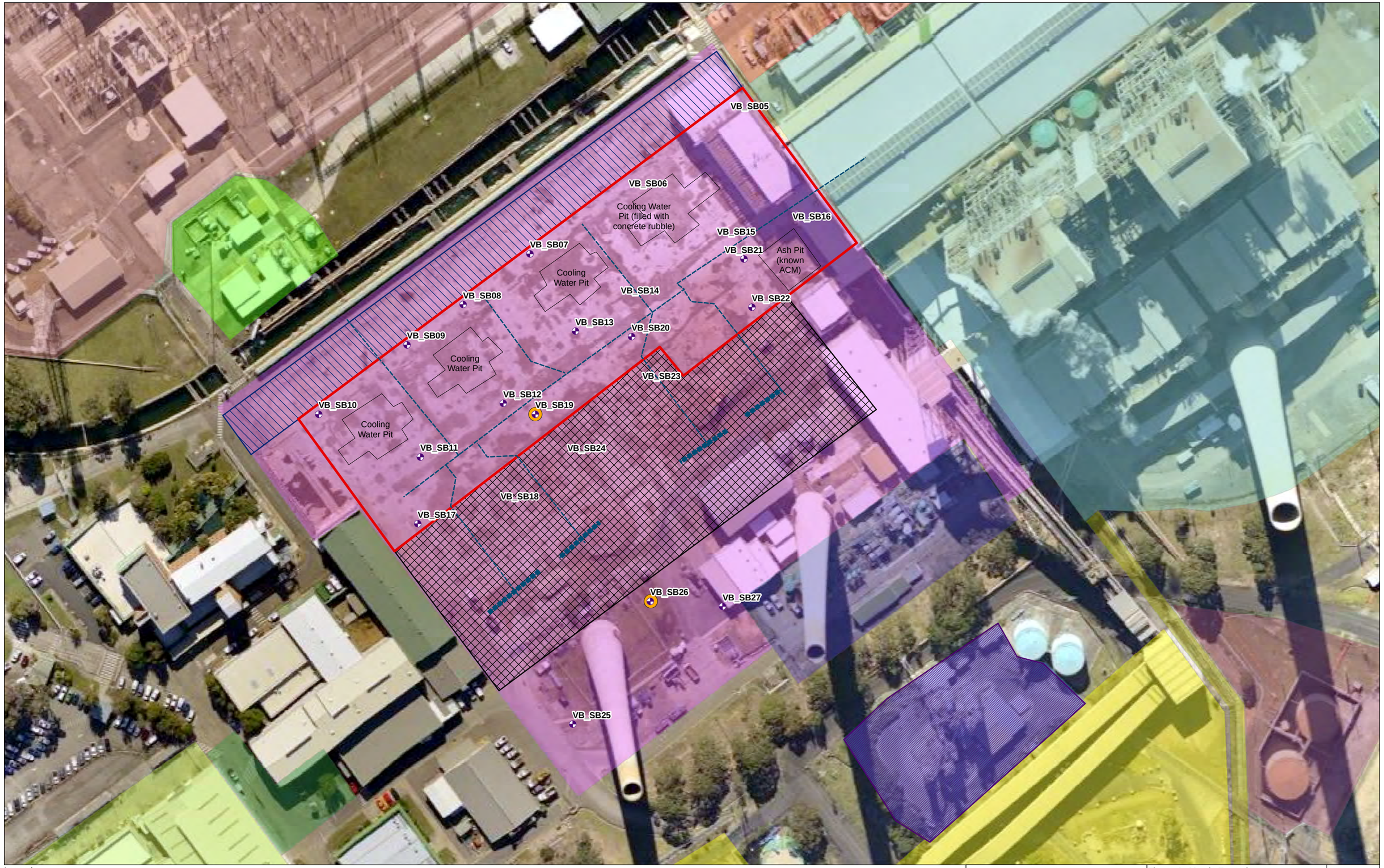
Figure 3 - TRH Exceedances
A Station ESA

Project Symphony - Vales Point
A Station Environmental Site Assessment

Environmental Resources Management ANZ

Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney

ERM



Legend

- A Station Investigation Area
- Removed Site Infrastructure
- Fly Ash Plant
- Cable Tunnels

AECs:

- VA - B Station Power Block
- VB - A Station Power Block
- VC - Transformers
- VD - Main Store
- VG - Fuel Oil Installation
- VH - Vehicle Refuelling Depot
- VI - Water Treatment Plant
- VJ - Coal Storage Area
- VM - Chlorine Plant
- VQ - Asbestos-containing Pipeline
- VS - TransGrid Switchyard
- VT - Fly Ash Plant

Excluded Areas:

- Inaccessible (Laydown Area)
- Inaccessible (Transformer Runway)

Vales Point A Station Sampling Locations:

- Soil Bore
- Metals Exceedances

Source:
nearmap imagery date: 3 June 2014

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Client:	Delta Electricity		
Drawing No:	0237747s_ASESA2_G004_R0.mxd		
Date:	08/09/2014	Drawing Size: A3	
Drawn By:	GC	Reviewed By: JE	

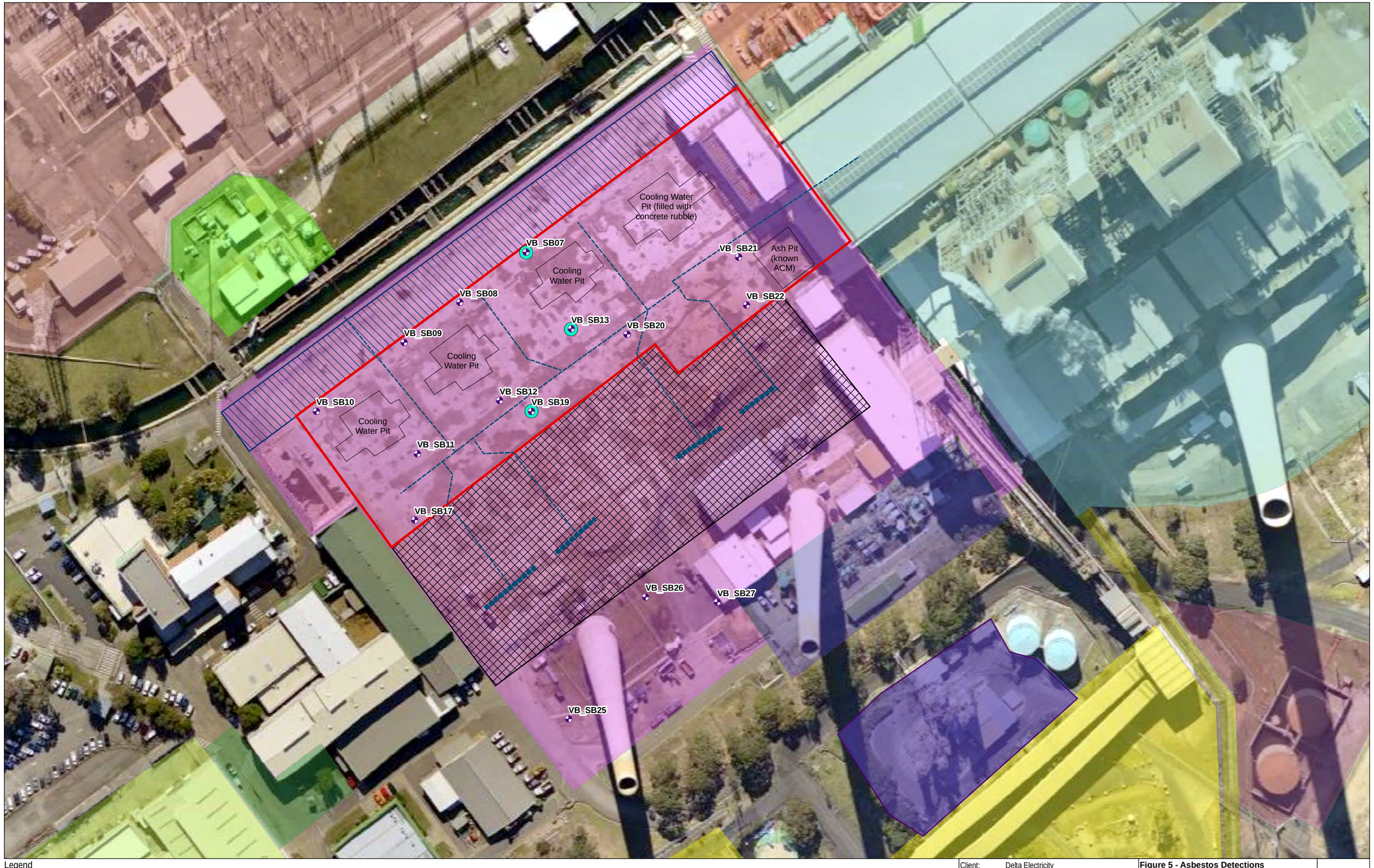
Figure 4 - Metals Exceedances A Station ESA

Project Symphony - Vales Point
A Station Environmental Site Assessment

Environmental Resources Management ANZ

Auckland, Brisbane, Canberra, Christchurch, Melbourne, Newcastle, Perth, Port Macquarie, Sydney

ERM



Legend

- A Station Investigation Area
- Removed Site Infrastructure
- Fly Ash Plant
- Cable Tunnels

AECs:

- VA - B Station Power Block
- VB - A Station Power Block
- VC - Transformers
- VD - Main Store
- VG - Fuel Oil Installation
- VH - Vehicle Refuelling Depot
- VI - Water Treatment Plant
- VJ - Coal Storage Area
- VM - Chlorine Plant
- VQ - Asbestos-containing Pipeline
- VS - TransGrid Switchyard
- VT - Fly Ash Plant

Excluded Areas:

- Inaccessible (Laydown Area)
- Inaccessible (Transformer Runway)

Vales Point A Station Sampling Locations:

- Soil Bore
- Asbestos Detections

Source:
nearmap imagery date: 3 June 2014

0 10 20 30m

N

Client:	Delta Electricity		
Drawing No:	0237747s_ASESA2_G005_R0.mxd		
Date:	08/09/2014	Drawing Size: A3	
Drawn By:	GC	Reviewed By: JE	

Figure 5 - Asbestos Detections
A Station ESA

Project Symphony - Vales Point
A Station Environmental Site Assessment

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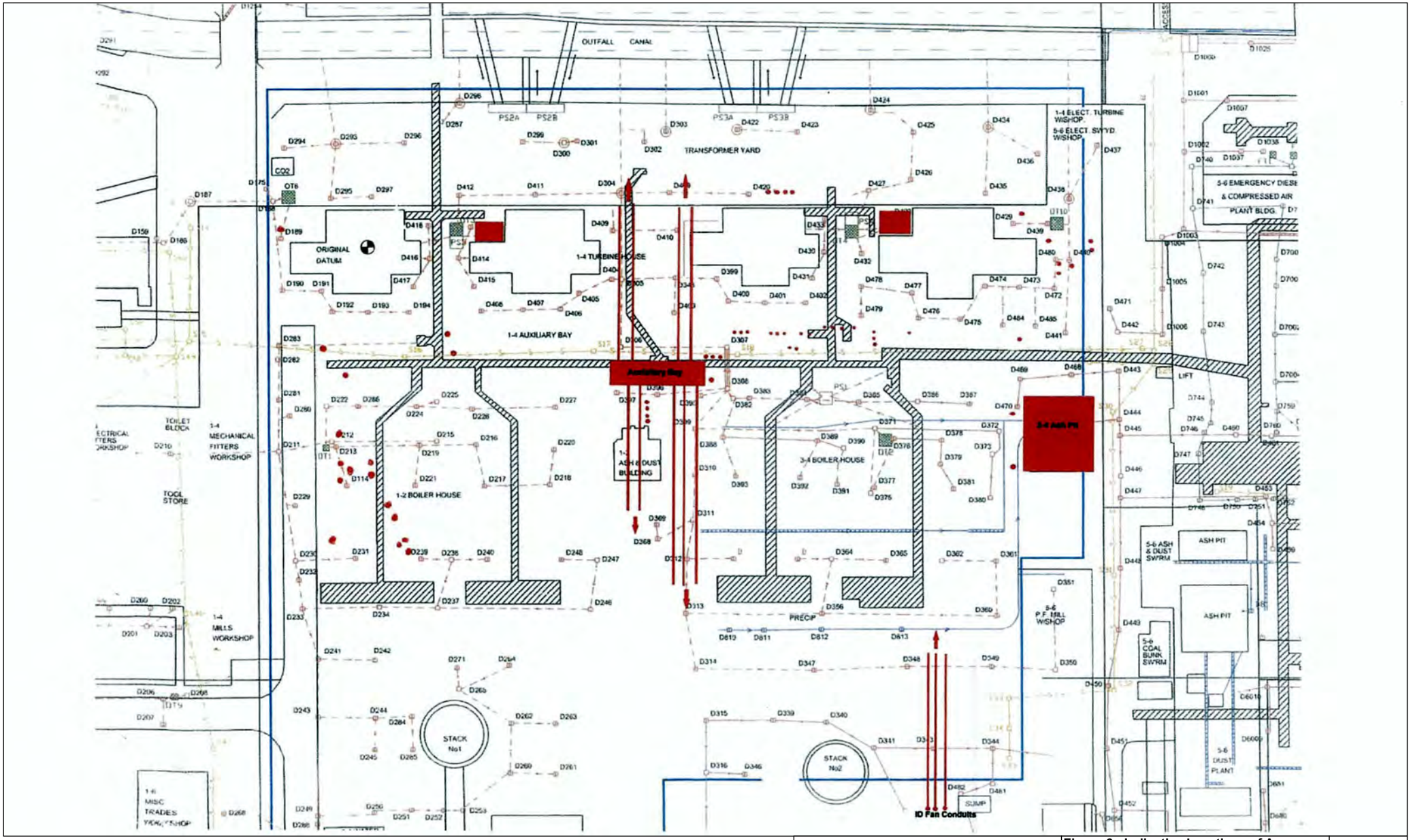
ERM



Legend

Area Contaminated with Asbestos Containing Material (ACM)

Source:
Delta Electricity, 2014.

Drawing Not to Scale

N

Client:	Delta Electricity		
Drawing No:	0237747s_ASESA2_C001_R0.cdr		
Date:	08/09/2014	Drawing size:	A4
Drawn by:	GC	Reviewed by:	SM

This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

Figure 6 - Indicative Locations of Areas containing Asbestos Containing Material (17/04/2014) - A Station ESA

Project Symphony - Vales Point
A Station Environmental Site Assessment

Environmental Resources Management ANZ

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ERM

Annex B

Tables

				TRH												BTEX							Metals							
				TRH >C6-C9 Fraction	TRH >C10-C14 Fraction	TRH >C15-C28 Fraction	TRH >C29-C36 Fraction	TRH >C10-C36 Fraction	TRH >C6-C10 Fraction	TRH >C6-C10 less BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	TRH >C16-C34 Fraction	TRH >C34-C40 Fraction	TRH >C10-C40 Fraction	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				10	50	100	100	50	10	10	50	50	100	100	50	0.2	0.5	0.5	0.2	0.5	0.5	0.5	5	1	2	5	5	0.1	2	5
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND										260[#9]		NL[#9]				3[#9]	NL[#9]	NL[#9]				230[#9]								
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND										370[#8]		NL[#8]				3[#8]	NL[#8]	NL[#8]				NL[#8]								
Human Health - Intrusive - Vapour Intrusion 0-<2m										NL[#3]		NL[#3]				77[#3]	NL[#3]	NL[#3]				NL[#3]								
Human Health - Intrusive - Direct Contact										82000[#5]		62000[#5]	85000[#5]	120000[#5]		1100[#5]	85000[#5]	120000[#5]				130000[#5]								
Human Health - Direct Contact - HIL-D										26000[#6]		20000[#6]	27000[#6]	38000[#6]		430[#6]	27000[#6]	99000[#6]				81000[#6]	3000[#12]	900[#12]		240000[#12]	1500[#12]	730[#12]	6000[#12]	400000[#12]
NEPM (2013) EIL - Commercial/Industrial (Aged)																									160[#1]		670[#1]	75[#1]	1800[#1]		25[#1]	230[#1]
NEPM (2013) ESL - Commercial & Industrial (Coarse)										215		170	1700	3300		75	165	135				180								
NEPM (2013) ESL - Commercial & Industrial (Fine)													2500	6600		95	185	135				95								
LocCode	**Sampled_Date-Time**	**SampleCode**	**Field_ID**																											
VB_SB07	13/08/2014	ES1417873001	VB_SB07_0.3	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	<5	6	<0.1	<2	7
VB_SB07	13/08/2014	ES1417873002	VB_SB07_0.6	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	8	<5	<5	<0.1	<2	<5
VB_SB08	13/08/2014	ES1417873003	VB_SB08_0.2	<10	50	13,800	370	14,200	<10	<10	630	630	13,800	110	14,500	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5
VB_SB08	13/08/2014	ES1417873004	VB_SB08_0.7	<10	<50	140	<100	140	<10	<10	<50	<50	200	<100	200	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	8	9	5	<0.1	<2	9
VB_SB09	13/08/2014	ES1417873005	VB_SB09_0.2	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5
VB_SB09	13/08/2014	ES1417873006	VB_SB09_1.5	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	13	<1	21	<5	<5	<0.1	<2	<5
VB_SB10	13/08/2014	ES1417873007	VB_SB10_0.3	<10	60	1880	1160	3100	<10	<10	120	120	2800	330	3250	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	7	5	<0.1	4	23
VB_SB10	13/08/2014	ES1417873008	VB_SB10_1.0	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	<5	<5	<0.1	<2	<5
VB_SB11	12/08/2014	ES1417873009	VB_SB11_0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VB_SB11	12/08/2014	ES1417873010	VB_SB11_0.7	<10	<50	1060	1410	2470	<10	<10	<50	<50	2320	380	2700	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	3	<5	<5	<0.1	<2	6
VB_SB11	12/08/2014	ES1417873011	VB_SB11_1.1	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	17	<5	<5	<0.1	10	7
VB_SB12	12/08/2014	ES1417873012	VB_SB12_0.3	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	8	4	24	353	0.6	7	46
VB_SB12	12/08/2014	ES1417873013	VB_SB12_0.8	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	9	<5	<5	0.1	<2	10
VB_SB13	12/08/2014	ES1417873014	VB_SB13_0.2	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	6	<5	<0.1	3	14
VB_SB13	12/08/2014	ES1417873015	VB_SB13_1.0	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	14	<5	<5	<0.1	<2	<5
VB_SB17	12/08/2014	ES1417873016	VB_SB17_0.3	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	10	6	<0.1	10	38
VB_SB17	12/08/2014	ES1417873017	VB_SB17_1.4	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	7	<1	14	<5	7	<0.1	<2	<5
VB_SB19	13/08/2014	ES1417873018	VB_SB19_0.3	<10	<50	190	110	300	<10	<10	<50	<50	270	<100	270	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	35	13	15	<0.1	9	389
VB_SB19	13/08/2014	ES1417873019	VB_SB19_1.5	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	7	<5	<5	<0.1	<2	<5
VB_SB20	12/08/2014	ES1417873020	VB_SB20_0.4	<10	<50	<100	<100	<50	<10	<10	<50	<50	110	<100	110	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	9	15	7	<0.1	6	32
VB_SB20	12/08/2014	ES1417873021	VB_SB20_0.9	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	<5	<5	<0.1	<2	<5
VB_SB21	12/08/2014	ES1417873022	VB_SB21_0.4	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	7	<5	<5	<0.1	<2	8
VB_SB21	12/08/2014	ES1417873023	VB_SB21_1.0	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	<5	<5	<0.1	<2	<5
VB_SB22	12/08/2014	ES1417873024	VB_SB22_0.3	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	<5	<5	<0.1	<2	<5
VB_SB22	12/08/2014	ES1417873025	D01_120814_SM	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	7	5	20	<0.1	<2	7
VB_SB22	12/08/2014	ES1417873026	VB_SB22_1.4	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	18	14	<5	<0.1	<2	<5
VB_SB25	13/08/2014	ES1417873027	VB_SB25_0.1	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	8	26	17	0.1	7	83
VB_SB25	13/08/2014	ES1417873028	D01_130814_SM	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	12	18	17	0.1	9	73
VB_SB25	13/08/2014	ES1417873029	T01_130814_SM	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	9	27	20	0.2	8	77
VB_SB25	13/08/2014	ES1417873030	VB_SB25_0.6	<10	<50	130	<100	130	<10	<10	<50	<50	180	<100	180	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	6	10	7	<0.1	5	28
VB_SB26	13/08/2014	ES1417873031	VB_SB26_0.2	<10	<50	150	320	470	<10	<10	<50	<50	350	270	620	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	35	29	33	<0.1	20	266
VB_SB27	13/08/2014	ES1417873032	VB_SB27_0.1	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	134	10	6	<0.1	4	34
VB_SB27	13/08/2014	ES1417873033	VB_SB27_1.0	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	11	16	<5	<0.1	6	17

Statistical Summary

Number of Results	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
Number of Detects	0	2	7	5	7	0	0	2	2	8	4	8	0	0	0	0	0	0	0	2	1	30	16	15	5	14	20		
Minimum Concentration	<10	<50	<100	<100	<50	<10	<10	<50	<50	<100	<100	<50	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<5	<1	<2	<5	<5	<0.1	<2	<5		
Minimum Detect	ND	50	130	110	130	ND	ND	120	120	110	110	110	ND	ND	ND	ND	ND	ND	ND	7	8	3	5	5	0.1	3	6		
Maximum Concentration	<10	60	13800	1410	14200	<10	<10	630	630	13800	380	14500	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	13	8	134	29	353	0.6	20	389		
Maximum Detect	ND	60	13800	1410	14200	ND	ND	630	630	13800	380	14500	ND	ND	ND	ND	ND	ND	ND	13	8	134	29	353	0.6	20	389		
Average Concentration	5	27	581	148	670	5	5	47	47	663	78	701	0.1	0.25	0.25	0.1	0.25	0.25	0.25	3	0.73	14	8.7	18	0.077	3.9	38		
Median Concentration	5	25	50	50	25	5	5	25	25	50	50	25	0.1	0.25	0.25	0.1	0.25	0.25	0.25	2.5	0.5	7.5	3.75	2.5	0.05	1	7.5		
Standard Deviation	0	7.5	2439	309	2561	0	0	108	108	2475	83	2621	0	0	0	0	0	0	0	2	1.3	23	8.3	62	0.1	4.3	81		
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2		
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2		

Comments

#1 NEPM (2013) Ecological Investigation Level
#2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vapour Intrusion
#3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vapour Intrusion
#4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour Intrusion
#5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
#6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
#7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for Vapour Intrusion
#8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for Vapour Intrusion
#9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for Vapour Intrusion
#10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vapour Intrusion
#11 ASC NEPM (2013) Health Screening Level for Asbestos in Soil - FA and AF (Friable Asbestos)
#12 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industrial
#13 US EPA (2009) Residential screening levels for soil

PAH

LocCode	Sampled_Date-Time	SampleCode	Field_ID	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	Carcinogenic PAHs (as B(a)P TEQ (LOR))	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND														NL#9									
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND														NL#8									
Human Health - Intrusive - Vapour Intrusion 0-<2m														NL#3									
Human Health - Intrusive - Direct Contact														29000#5									
Human Health - Direct Contact - HIL-D														11000#6								4000#12	40#12
NEPM (2013) EIL - Commercial/Industrial (Aged)														370#1									
NEPM (2013) ESL - Commercial & Industrial (Coarse)								1.4															
NEPM (2013) ESL - Commercial & Industrial (Fine)								1.4															
VB_SB07	13/08/2014	ES1417873001	VB_SB07_0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB07	13/08/2014	ES1417873002	VB_SB07_0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB08	13/08/2014	ES1417873003	VB_SB08_0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB08	13/08/2014	ES1417873004	VB_SB08_0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB09	13/08/2014	ES1417873005	VB_SB09_0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB09	13/08/2014	ES1417873006	VB_SB09_1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB10	13/08/2014	ES1417873007	VB_SB10_0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB10	13/08/2014	ES1417873008	VB_SB10_1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB11	12/08/2014	ES1417873009	VB_SB11_0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VB_SB11	12/08/2014	ES1417873010	VB_SB11_0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB11	12/08/2014	ES1417873011	VB_SB11_1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB12	12/08/2014	ES1417873012	VB_SB12_0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB12	12/08/2014	ES1417873013	VB_SB12_0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB13	12/08/2014	ES1417873014	VB_SB13_0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB13	12/08/2014	ES1417873015	VB_SB13_1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB17	12/08/2014	ES1417873016	VB_SB17_0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB17	12/08/2014	ES1417873017	VB_SB17_1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB19	13/08/2014	ES1417873018	VB_SB19_0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB19	13/08/2014	ES1417873019	VB_SB19_1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB20	12/08/2014	ES1417873020	VB_SB20_0.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB20	12/08/2014	ES1417873021	VB_SB20_0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB21	12/08/2014	ES1417873022	VB_SB21_0.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB21	12/08/2014	ES1417873023	VB_SB21_1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB22	12/08/2014	ES1417873024	VB_SB22_0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB22	12/08/2014	ES1417873025	D01_120814_SM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB22	12/08/2014	ES1417873026	VB_SB22_1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB25	13/08/2014	ES1417873027	VB_SB25_0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB25	13/08/2014	ES1417873028	D01_130814_SM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB25	13/08/2014	ES1417873029	T01_130814_SM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB25	13/08/2014	ES1417873030	VB_SB25_0.6	<0.5	<0.5	<0.5	0.7	0.6	0.6	<0.5	<0.5	1	1.3	<0.5	0.7	<0.5	1	<0.5	<0.5	1.4	2.1	7.1	0.7
VB_SB26	13/08/2014	ES1417873031	VB_SB26_0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB27	13/08/2014	ES1417873032	VB_SB27_0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VB_SB27	13/08/2014	ES1417873033	VB_SB27_1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Chlorinated Hydrocarbons

LocCode	Sampled_Date-Time	SampleCode	Field_ID	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND																																
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND																																
Human Health - Intrusive - Vapour Intrusion 0-<2m																																
Human Health - Intrusive - Direct Contact																																
Human Health - Direct Contact - HIL-D																																
NEPM (2013) EIL - Commercial/Industrial (Aged)																																
NEPM (2013) ESL - Commercial & Industrial (Coarse)																																
NEPM (2013) ESL - Commercial & Industrial (Fine)																																
VB_SB07	13/08/2014	ES1417873001	VB_SB07_0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
VB_SB07	13/08/2014	ES1417873002	VB_SB07_0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VB_SB08	13/08/2014	ES1417873003	VB_SB08_0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
VB_SB08	13/08/2014	ES1417873004	VB_SB08_0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VB_SB09	13/08/2014	ES1417873005	VB_SB09_0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
VB_SB09	13/08/2014	ES1417873006	VB_SB09_1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VB_SB10	13/08/2014	ES1417873007	VB_SB10_0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VB_SB10	13/08/2014	ES1417873008	VB_SB10_1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
VB_SB11	12/08/2014	ES1417873009	VB_SB11_0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VB_SB11	12/08/2014	ES1417873010	VB_SB11_0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
VB_SB11	12/08/2014	ES1417873011	VB_SB11_1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VB_SB12	12/08/2014	ES1417873012	VB_SB12_0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
VB_SB12	12/08/2014	ES1417873013	VB_SB12_0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VB_SB13	12/08/2014	ES1417873014	VB_SB13_0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
VB_SB13	12/08/2014	ES1417873015	VB_SB13_1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VB_SB17	12/08/2014	ES1417873016	VB_SB17_0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VB_SB17	12/08/2014	ES1417873017	VB_SB17_1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VB_SB19	13/08/2014	ES1417873018	VB_SB19_0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
VB_SB19	13/08/2014	ES1417873019	VB_SB19_1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VB_SB20	12/08/2014	ES1417873020	VB_SB20_0.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
VB_SB20	12/08/2014	ES1417873021	VB_SB20_0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VB_SB21	12/08/2014	ES1417873022	VB_SB21_0.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
VB_SB21	12/08/2014	ES1417873023	VB_SB21_1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VB_SB22	12/08/2014	ES1417873024	VB_SB22_0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
VB_SB22	12/08/2014	ES1417873025	D01_120814_SM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
VB_SB22	12/08/2014	ES1417873026	VB_SB22_1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VB_SB25	13/08/2014	ES1417873027	VB_SB25_0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
VB_SB25	13/08/2014	ES1417873028	D01_130814_SM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
VB_SB25	13/08/2014	ES1417873029	T01_130814_SM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
VB_SB25	13/08/2014	ES1417873030	VB_SB25_0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VB_SB26	13/08/2014	ES1417873031	VB_SB26_0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
VB_SB27	13/08/2014	ES1417873032	VB_SB27_0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
VB_SB27	13/08/2014	ES1417873033	VB_SB27_1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Statistical Summary

Statistic	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Carcinogenic PAHs (as B(a)P TEQ (half LOR))	Carcinogenic PAHs (as B(a)P TEQ (LOR))	Naphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Carcinogenic PAHs (as BaP TEQ)
Number of Results	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
Number of Detects	0	0	0	1	1	1	0	0	32	32	0	1	0	1	0	0	1	1	1	1
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Minimum Detect	ND	ND	ND	0.7	0.6	0.6	ND	ND	0.6	1.2	ND	0.7	ND	1	ND	ND	1.4	2.1	7.1	0.7
Maximum Concentration	<0.5	<0.5	<0.5	0.7	0.6	0.6	<0.5	<0.5	1	1.3	<0.5	0.7	<0.5	1	<0.5	<0.5	1.4	2.1	7.1	0.7
Maximum Detect	ND	ND	ND	0.7	0.6	0.6	ND	ND	1	1.3	ND	0.7	ND	1	ND	ND	1.4	2.1	7.1	0.7
Average Concentration	0.25	0.25	0.25	0.26	0.26	0.26	0.25	0.25	0.61	1.2	0.25	0.26	0.25	0.27	0.25	0.25	0.29	0.31	0.46	0.26
Median Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.6	1.2	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation	0	0	0	0.08	0.062	0.062	0	0	0.071	0.018	0	0.08	0	0.13	0	0	0.2	0.33	1.2	0.08
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Statistic	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride
Number of Results	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	2.5	0.25	2.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	2.5
Median Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	2.5	0.25	2.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	2.5
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments

#1 NEPM (2013) Ecological Investigation Level
#2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vap
#3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vap
#4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour
#5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
#6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
#7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for V
#8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for V
#9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for V
#10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vap
#11 ASC NEPM (2013) Health Screening Level for Asbestos in Soil - FA and AF (I
#12 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industria
#13 US EPA (2009) Residential screening levels for soil

			VOCs			MAH									Halogenated Benzenes										Halogenated Hydrocarbons					Solvents					Polychlorinated Biphenyls	PFOS/PFOA			
			cis-1,4-Dichloro-2-butene	Pentachloroethane	trans-1,4-Dichloro-2-butene	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Vinyl acetate	PCBs (Sum of total)	6:2 Fluorotelomer Sulfonate (62 FtS)	Perfluorooctanoate	PFOS	8:2 Fluorotelomer sulfonate
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	5	0.5	5	5	5	5	0.5	5	0.1	0.005	0.0005	0.0005	0.001
Human Health - HSL-D - Vapour Intrusion 0-<1m SAND																																							
Human Health - HSL-D - Vapour Intrusion 1-<2m SAND																																							
Human Health - Intrusive - Vapour Intrusion 0-<2m																																							
Human Health - Intrusive - Direct Contact																																							
Human Health - Direct Contact - HIL-D																																				7[#12]			
NEPM (2013) EIL - Commercial/Industrial (Aged)																																					16[#13]		6[#13]	
NEPM (2013) ESL - Commercial & Industrial (Coarse)																																							
NEPM (2013) ESL - Commercial & Industrial (Fine)																																							
LocCode	**Sampled_Date-Time**	**SampleCode**	**Field_ID**																																					
VB_SB07	13/08/2014	ES1417873001	VB_SB07_0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<0.5	<5	<5	<5	<5	<0.5	<5	<0.1	<0.005	<0.0005	<0.0005	<0.001
VB_SB07	13/08/2014	ES1417873002	VB_SB07_0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.005	<0.0005	<0.0005	<0.001
VB_SB08	13/08/2014	ES1417873003	VB_SB08_0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<0.5	<5	<5	<5	<5	<0.5	<5	<0.1	<0.005	<0.0005	<0.0005	<0.001
VB_SB08	13/08/2014	ES1417873004	VB_SB08_0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.005	<0.0005	<0.0005	<0.001
VB_SB09	13/08/2014	ES1417873005	VB_SB09_0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<0.5	<5	<5	<5	<5	<0.5	<5	<0.1	<0.005	<0.0005	<0.0005	<0.001
VB_SB09	13/08/2014	ES1417873006	VB_SB09_1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.005	<0.0005	0.0015	<0.001
VB_SB10	13/08/2014	ES1417873007	VB_SB10_0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.005	<0.0005	0.0051	<0.001
VB_SB10	13/08/2014	ES1417873008	VB_SB10_1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<0.5	<5	<5	<5	<5	<0.5	<5	<0.1	<0.005	<0.0005	<0.0005	<0.001
VB_SB11	12/08/2014	ES1417873009	VB_SB11_0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VB_SB11	12/08/2014	ES1417873010	VB_SB11_0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<0.5	<5	<5	<5	<5	<0.5	<5	<0.1	<0.005	<0.0005	0.0035	<0.001
VB_SB11	12/08/2014	ES1417873011	VB_SB11_1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.005	<0.0005	<0.0005	<0.001
VB_SB12	12/08/2014	ES1417873012	VB_SB12_0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<0.5	<5	<5	<5	<5	<0.5	<5	<0.1	<0.005	<0.0005	<0.0005	<0.001
VB_SB12	12/08/2014	ES1417873013	VB_SB12_0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.005	<0.0005	<0.0005	<0.001
VB_SB13	12/08/2014	ES1417873014	VB_SB13_0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<0.5	<5	<5	<5	<5	<0.5	<5	<0.1	<0.005	<0.0005	<0.0005	<0.001
VB_SB13	12/08/2014	ES1417873015	VB_SB13_1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.005	<0.0005	<0.0005	<0.001
VB_SB17	12/08/2014	ES1417873016	VB_SB17_0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.005	<0.0005	<0.0005	<0.001
VB_SB17	12/08/2014	ES1417873017	VB_SB17_1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-
VB_SB19	13/08/2014	ES1417873018	VB_SB19_0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<0.5	<5	<5	<5	<5	<0.5	<5	<0.1	<0.005	<0.0005	<0.0005	<0.001
VB_SB19	13/08/2014	ES1417873019	VB_SB19_1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-
VB_SB20	12/08/2014	ES1417873020	VB_SB20_0.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<0.5	<5	<5	<5	<5	<0.5	<5	<0.1	<0.005	<0.0005	<0.0005	<0.001
VB_SB20	12/08/2014	ES1417873021	VB_SB20_0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-
VB_SB21	12/08/2014	ES1417873022	VB_SB21_0.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<0.5	<5	<5	<5	<5	<0.5	<5	<0.1	<0.005	<0.0005	<0.0005	<0.001
VB_SB21	12/08/2014	ES1417873023	VB_SB21_1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-
VB_SB22	12/08/2014	ES1417873024	VB_SB22_0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<0.5	<5	<5	<5	<5	<0.5	<5	<0.1	<0.005	<0.0005	<0.0005	<0.001
VB_SB22	12/08/2014	ES1417873025	D01_120814_SM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<0.5	<5	<5	<5	<5	<0.5	<5	<0.1	<0.005	<0.0005	<0.0005	<0.001
VB_SB22	12/08/2014	ES1417873026	VB_SB22_1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-
VB_SB25	13/08/2014	ES1417873027	VB_SB25_0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<0.5	<5	<5	<5	<5	<0.5	<5	<0.1	<0.005	<0.0005	0.0006	<0.001
VB_SB25	13/08/2014	ES1417873028	D01_130814_SM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<0.5	<5	<5	<5	<5	<0.5	<5	<0.1	<0.005	<0.0005	0.0007	<0.001
VB_SB25	13/08/2014	ES1417873029	T01_130814_SM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<0.5	<5	<5	<5	<5	<0.5	<5	<0.1	<0.005	<0.0005	0.0008	<0.001
VB_SB25	13/08/2014	ES1417873030	VB_SB25_0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-
VB_SB26	13/08/2014	ES1417873031	VB_SB26_0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<0.5	<5	<5	<5	<5	<0.5	<5	<0.1	<0.005	<0.0005	0.0019	<0.001
VB_SB27	13/08/2014	ES1417873032	VB_SB27_0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<0.5	<5	<5	<5	<5	<0.5	<5	<0.1	<0.005	<0.0005	<0.0005	<0.001
VB_SB27	13/08/2014	ES1417873033	VB_SB27_1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-
Statistical Summary																																							
Number of Results			17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	32	25	25	25	25
Number of Detects			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0
Minimum Concentration			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<0.5	<5	<5	<5	<5	<0.5	<5	<0.1	<0.005	<0.0005	<0.0005	<0.001
Minimum Detect			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0006	ND
Maximum Concentration			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<0.5	<5	<5	<5	<5	<0.5	<5	<0.1	<0.005	<0.0005	0.0051	<0.001
Maximum Detect			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0051	ND
Average Concentration			0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	2.5	2.5	0.25	2.5	2.5	2.5	2.5	0.25	2.5	0.05	0.0025	0.00025	0.00074	0.0005
Median Concentration			0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	2.5	2.5	0.25	2.5	2.5	2.5	2.5	0.25	2.5	0.05	0.0025	0.00025	0.00025	0.0005
Standard Deviation			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0012	0
Number of Guideline Exceedances			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments

#1 NEPM (2013) Ecological Investigation Level
#2 CRC Care (2011) Intrusive Maintenance Workers, 2 to <4m, Sand Soils for Vap
#3 CRC Care (2011) Intrusive Maintenance Workers, 0 to <2m, Sand Soils for Vap
#4 CRC Care (2011) Intrusive Maintenance Workers, +4 m, Sand Soils for Vapour
#5 CRC Care (2011) Intrusive Maintenance Workers for Direct Contact
#6 CRC Care (2011) HSL-D (Commercial/Industrial) for Direct Contact
#7 ASC NEPM (2013) HSL-D (Commercial/Industrial) 2 to <4m, Sand Soils for V
#8 ASC NEPM (2013) HSL-D (Commercial/Industrial) 1 to <2m, Sand Soils for V
#9 ASC NEPM (2013) HSL-D (Commercial/Industrial) 0 to <1m, Sand Soils for V
#10 ASC NEPM (2013) HSL-D (Commercial/Industrial) +4 m, Sand Soils for Vap
#11 ASC NEPM (2013) Health Screening Level for Asbestos in Soil - FA and AF (I
#12 ASC NEPM (2013) Health Investigation Level (HIL-D) Commercial/Industri
#13 US EPA (2009) Residential screening levels for soil

Table 2. Soil Summary - Asbestos
Vales Point Power Station
Project Symphony - 0237747

					Asbestos				
					Weight of Sample	Asbestos Dectected	Asbestos fibres	Asbestos Type	Friable Asbestos
					g		g/kg		g
EQL					0.01	Yes/No	0.001	Am, Ch, Cr	0.002
Human Health - Asbestos							0.001[#1]		
LocCode	**Sampled_Date-Time**	**Field_ID**	**x_coord**	**y_coord**					
VB_SB07	13/08/2014	VB_SB07_0.3	364064	6329951	432	Yes	<0.001	Am	<0.002
VB_SB08	13/08/2014	VB_SB08_0.2	364049	6329939	589	No	<0.001	-	<0.002
VB_SB09	13/08/2014	VB_SB09_0.2	364026	6329920	422	No	<0.001	-	<0.002
VB_SB10	13/08/2014	VB_SB10_0.3	363993	6329898	534	No	<0.001	-	<0.002
VB_SB11	12/08/2014	VB_SB11_0.3	364117	6329887	297	No	<0.001	-	<0.002
VB_SB12	12/08/2014	VB_SB12_0.3	364132	6329932	662	No	<0.001	-	<0.002
VB_SB13	12/08/2014	VB_SB13_0.2	364166	6329943	644	Yes	0.002	Ch + Am	0.014
VB_SB17	12/08/2014	VB_SB17_0.3	364025	6329861	381	No	<0.001	-	<0.002
VB_SB19	13/08/2014	VB_SB19_0.3	364081	6329893	605	Yes	0.001	Ch + Am	0.006
VB_SB20	12/08/2014	VB_SB20_0.4	364114	6329922	709	No	<0.001	-	<0.002
VB_SB21	12/08/2014	VB_SB21_0.4	364167	6329961	338	No	<0.001	-	<0.002
VB_SB22	12/08/2014	VB_SB22_0.3	364176	6329936	295	No	<0.001	-	<0.002
VB_SB25	13/08/2014	VB_SB25_0.1	364083	6329781	621	No	<0.001	-	<0.002
VB_SB26	13/08/2014	VB_SB26_0.2	364121	6329833	350	No	<0.001	-	<0.002
VB_SB27	13/08/2014	VB_SB27_0.1	364149	6329827	625	No	<0.001	-	<0.002

Statistical Summary

Number of Results	15	0	15	12	15
Number of Detects	15	0	2	3	2
Minimum Concentration	295	99999	<0.001	99999	<0.002
Minimum Detect	295	ND	0.001	ND	0.006
Maximum Concentration	709	0	0.002	0	0.014
Maximum Detect	709	ND	0.002	ND	0.014
Average Concentration	500		0.00063		0.0022
Median Concentration	534		0.0005		0.001
Standard Deviation	146		0.0004		0.0035
Number of Guideline Exceedances	0	0	2	0	0
Number of Guideline Exceedances(Detects Only)	0	0	2	0	0

Comments

#1 ASC NEPM (2013) Health Screening Level for Asbestos in Soil - FA and AF (Friable Asbestos)

Annex C

Borelogs

Annex D

Field Documentation

Annex E

QA/QC

Annex F

Photolog

Annex G

Laboratory Certificates

Annex H

UCL Calculations

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