coffey environments
SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE

PHASE 2 ENVIRONMENTAL SITE ASSESSMENT
ALL SEASONS SALAMANDER SHORES HOTEL
147 SOLDIERS POINT ROAD, SOLDIERS POINT

Prepared for:

Salamander Shores Hotel Pty Ltd
c/- Sake Development
Suite 11, 340 Darling Street
BALMAIN NSW 2041

Report Date: 13 April 2010
Project Ref: ENVIWARA00284AB

Written/Submitted by:

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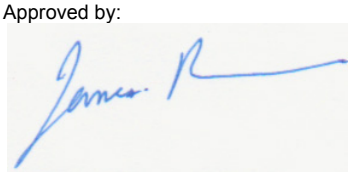

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Business Manager - Newcastle

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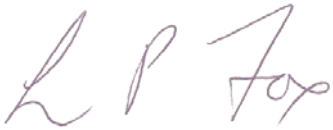

Laurie Fox
Associate Environmental Geologist

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50 YEARS AN EXTRAORDINARY JOURNEY

13 April 2010

Salamander Shores Hotel Pty Ltd
c/- Sake Development
Suite 11, 340 Darling Street
BALMAIN NSW 2041

Attention: Sarah Kelly

Dear Sarah

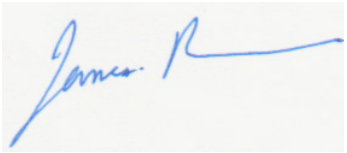
RE: PROPOSED HOTEL REDEVELOPMENT
ALL SEASONS SALAMANDER SHORES HOTEL
PHASE 2 ENVIRONMENTAL SITE ASSESSMENT

Coffey Environments Pty Ltd (Coffey) is pleased to present the findings of our Phase 2 Environmental Site Assessment for the above site.

We draw you attention to the enclosed sheet entitled ''*Important Information about Your Coffey Environmental Report*', which should be read in conjunction with the report.

We trust that our report meets with your requirements. If you have any questions regarding this matter please contact the undersigned in our Warabrook Office.

For and on behalf of Coffey Environments Australia Pty Ltd



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ABBREVIATIONS

AEC	Area of Environmental Concern
AST	Aboveground Storage Tank
C6-C36	Hydrocarbon chainlength fraction
Bgs	below ground surface
BH	Borehole
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
COC	Contaminant of Concern
ESA	Environmental Site Assessment
mg/kg	milligrams per kilogram
NATA	National Association of Testing Authorities
NSW EPA	Environment Protection Authority of New South Wales
NSW DEC	Department of Environment and Conservation of New South Wales
OCP	Organochlorine Pesticide
OPP	Organophosphorous Pesticide
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PID	Photoionisation Detector
Ppm	parts per million
QA	Quality Assurance
QC	Quality Control
RPD	Relative Percent Difference
TPH	Total Petroleum Hydrocarbon

EXECUTIVE SUMMARY

Coffey Environments Pty Ltd was commissioned by Sake Development on behalf of Salamander Shores Hotel Pty Ltd to conduct a Phase 2 Environmental Site Assessment (ESA) for the proposed redevelopment of the All Seasons Salamander Shores Hotel located at 147 Soldiers Point Road, Soldiers Point NSW

Coffey understands that the proposed development will consist of construction of a four storey accommodation building, underground (basement) parking areas and residential apartments. The objectives of the Phase 2 ESA were to make an assessment of the contamination status of the site, and to provide recommendations for further investigations, management and/or remediation (if required).

To achieve the objective, the following scope of work was undertaken:

- A brief review of previous investigations conducted at the site;
- Field investigations including soil sampling from 10 locations with a hand auger;
- Laboratory analysis of selected soil samples; and
- Data assessment and preparation of this Phase 2 ESA report.

A review of the previous Phase 1 ESA conducted by Coffey revealed five areas of environmental concern, relating to fill on site, storage areas (general storage and pool chemical storage) and the maintenance shed/fuel storage areas. The 10 boreholes were drilled to target these AECs, and also to provide spatial coverage across the site. A borehole could not be drilled by hand methods near the maintenance shed due to the existing pavements in and around the shed.

Selected soil samples were submitted for laboratory analysis for a number of contaminants of concern, including heavy metals, hydrocarbons, pesticides, asbestos and chloride. The laboratory results were assessed against the criteria relevant to the site redevelopment (residential with minimal access to soils). The assessment indicated that contaminant concentrations were either below laboratory reporting limits or the adopted investigation levels. Asbestos was not detected in the samples analysed, and a maximum chloride concentration of 63mg/kg was recorded.

Based on the laboratory results, the likelihood for significant contamination to be present at the site is considered to be low, and further investigations (including management or remediation) are not required.

1 INTRODUCTION

1.1 General

This report presents the findings of a Phase 2 Environmental Site Assessment (ESA) undertaken by Coffey Environments Pty Ltd (Coffey) for the All Seasons Salamander Shores Hotel (the site). The site is located at 147 Soldiers Point Road, Soldiers Point NSW. The site location is shown in Figure 1.

The work was commissioned by Sake Development in response to a proposal from Coffey (Reference ENVIWARA00284AB-P01 dated 17 February 2010). It is understood that the Phase 2 ESA will be submitted as part of Sake Development's response to the Department of Planning queries regarding the proposed redevelopment of the site.

It is understood that the proposed redevelopment will consist of construction of a four storey hotel with approximately 180 guest rooms (including residential apartments), associated amenities (pool, gym, bars etc) and underground (basement) parking. It is also understood that 4 five-storey apartment blocks are proposed, each consisting of approximately 20 apartments.

This report has been written in accordance with the relevant sections of the NSW EPA (1997) *Guidelines of Consultants Reporting on Contaminated Sites*. This report must be read in conjunction with the attached sheet titled "*Important Information about your Coffey Environmental Report"*, which can be found at the end of this report.

1.2 Objectives

The objectives of the Phase 2 ESA were to:

- Make an assessment of the soil contamination status of the site through sampling and laboratory testing; and
- Assess the need for further investigations, management and/or remediation.

1.3 Scope of Work

To achieve the objectives, the following scope of work was undertaken:

- A brief review of previous investigations conducted at the site;
- Field investigations including soil sampling from 10 locations with a hand auger;
- Laboratory analysis of selected soil samples; and
- Data assessment and preparation of this Phase 2 ESA report.

2 SITE INFORMATION

2.1 Site Identification

The site is located at 147 Soldiers Point Road, Soldiers Point NSW and is identified as Lot 31 DP 529002, within the Parish of Tomaree and the County of Gloucester. The location of the site is shown in Figure 1, and a site layout is presented in Figure 2. The site has an approximate area of 12,304m^2 and is situated in the local government area of Port Stephens Council.

2.2 Site Description

A Coffey Environmental Scientist visited the site on 26 February 2010 for the Phase 2 ESA. Photographs of the site are included in Appendix A and site features are shown in Figure 2. Observations made during the site visit are summarised below:

- The existing hotel consisted of a four-storey accommodation building in the central portion of the site, and a bitumen and gravel carpark in the western section of the site (Photographs 1 and 8);
- The north-western section of the site is characterised by a bitumen carpark and a bar (Photograph 2);
- Garden beds were located around the accommodation building and carpark. Two groundwater monitoring wells were observed in and near the carpark (Photograph 3);
- An elevated concrete carpark was located adjacent to the south-western section of the accommodation building (Photograph 4);
- An undercover maintenance shed is located at the southern end of the accommodation building. The floor of the maintenance shed was observed to be concrete, with no visible cracks or staining (Photograph 5);
- The central section of the site was the highest point of the site, with an access road leading from the carpark in the western section of the site to the accommodation building (Photograph 6);
- A liquefied petroleum gas (LPG) aboveground storage tank (AST) is located in the south-western corner of the site. The LPG AST is situated on brackets and is raised off the ground (Photograph 7);
- A water tank/pumping system is located in the south-western corner of the site (Photograph 9);
- The eastern side of the site is defined by a number of garden beds along the accommodation building, as well as a covered outdoor seating area (Photograph 10);
- The north-eastern section of the site consisted of a two-tiered outdoor seating area and restaurant for the hotel (Photograph 11);
- An aboveground swimming pool is located on the eastern side of the accommodation building. The swimming pool is raised approximately three metres higher than the eastern side of the site shown in Photograph 10;
- The accommodation building and carparks appear to have been constructed on cut and fill platforms of the site.

2.3 Current Surrounding Landuse

The surrounding landuse consists of the following:

- The publicly accessible foreshore of Salamander Bay to the east;
- Residential and remnant bushland to the north and south; and
- Soldiers Point Road and the Soldiers Point Holiday Park to the west.

The general area around the site consists of a mixture of vacant land, remnant bushland, low-density residential properties and commercial businesses.

2.4 Regional Geology

A review of the Newcastle 1:100,000 Geological Series Sheet indicates that the site is underlain by Quaternary sediments, typically containing gravels, sands, silts, clays, “coffee rock” and marine and freshwater deposits. During field activities, rocks similar to the Carboniferous Nerong Volcanics (comprising toscanite, dacite, andesite, ignimbite, agglomerate, conglomerate, sandstone, and siltstone) were observed to outcrop on the site. Additionally, the site is elevated above the surrounding landscape, and as such it is likely that the majority of the site is positioned on an inlier of the Nerong Volcanics, surrounded by younger Quaternary sediments.

2.5 Acid Sulfate Soils

Reference to the Acid Sulfate Soils (ASS) Risk Map for Port Stephens indicates the site is located in an area where there is no know occurrence of acid sulfate soil materials. The map also indicates that the landform is dominated by bedrock slopes, elevated Pleistocene and Holocene dunes and elevated alluvial plains.

2.6 Hydrogeology

Previous investigations undertaken by Coffey at the site indicated that groundwater was likely to be encountered at depths ranging from approximately 1m to approximately 5m below the ground surface (bgs). Perched groundwater may be present on low permeability soils above the bedrock. Regional groundwater would be expected to flow in an easterly direction towards Salamander Bay.

A search, at the request of Coffey, was conducted by the Department of Water and Energy (DWE) to identify licensed water wells within a 1 km radius of the site. The search indicated that the nearest registered groundwater bore is located approximately 0.5km to the west of the site and is used as a monitoring bore. The water bearing zone of this bore was recorded at 0.8-6.2m bgs.

2.7 Topography and Drainage

Regional topography in the vicinity of the site is typified by an elongated peninsular (Soldiers Point) extending into Port Stephens approximately 600m wide and 3km long with a transition of residual slightly undulating terrain situated to the west of the area and near shore low lying aeolian dunes and estuarine tidal flats toward the east.

Reference to the 1:25,000 Topographic Map of Port Stephens indicates that the site is positioned on the northern side a prominent low rounded residual knoll/hill with surface relief ranging from approximately RL20m to RL6m (AHD).

Drainage at the site is assessed to occur predominantly by infiltration into the sand subsoil with some minor overland flow over paved surfaces directed to dedicated storm water drainage structures over the site. Vegetation across the site comprises maintained lawns and gardens, with some stands of trees up to 10m height.

3 REVIEW OF PREVIOUS ASSESSMENTS

Previous assessments conducted at the site included a Phase 1 ESA and a geotechnical assessment, both carried out by Coffey. Summaries of these assessments are included in the following sections.

3.1 Phase 1 ESA (Coffey, 2009)

A Phase 1 ESA for the site was conducted by Coffey in 2009 (Reference ENVIWARA00284AA-R01 dated 2 March 2009). The assessment included a desktop study of regional topography, geology and hydrogeology, a review of site history from local government records, NSW EPA notices, historical titles and aerial photographs, and a site walkover to identify potential areas of concern.

The following is a summary of the site history based on the review conducted by Coffey:

- An examination of the planning certificate under Section 149 (2) and (5) of the Environmental Planning and Assessment Act, 1979, states that the land to which the certificate relates is not a current investigation or remediation site, and not subject to an investigation or remediation order, which was confirmed by reference to the register of notices issued under the Contaminated Land Management Act (1997);
- A search of the NSW WorkCover Dangerous Goods Records indicated that above-ground LPG tanks have been present on site since at least 1976;
- Title Search records indicate that prior to its purchase and use as a commercial property, the site was formerly under the ownership at one time by Port Stephens Council, the Commonwealth of Australia, or the farming Cromarty Family; and
- Observations from selected historic aerial photographs indicate that prior to at least 1963 the site was undeveloped, and by 1976 part of the current hotel development had been constructed. Up to at least 1963 land use surrounding the site was dominated by horticulture and residential developments, in combination with remnant bushland. Since 1963, residential and commercial developments have become more widely distributed surrounding the site, with a noted reduction of remnant bushland cessation of horticultural land use by 1983.

At the time of the site walkover, the site was operating as the All Seasons Salamander Shores Hotel. The site was identified to be elevated between 5-10m above the surrounding landscape adjacent to the hotel grounds. Onsite buildings comprised predominantly the main hotel building which forms a U-shaped building, and was positioned immediately adjacent to part of the southern and eastern boundaries of the site, cutting across diagonally to the central-northern boundary. The remainder of the site was comprised of dining and recreational areas, car parking facilities and gardens. Within the north-eastern corner of the site, associated with recreational and dining faculties, modifications to the ground surface were identified by the presence of three (3) tier-levels, indicative of cut and fill processes. Additionally the lowest tier was raised above the level of an adjacent public-access road immediately to the north of the site. Maintenance sheds and fuel storage areas were observed in areas of elevated car parking; present on large concrete slabs that were observed to be in good condition.

The report identified five Areas of Environmental Concern (AECs) relating to the use of fill materials across the site, car parking and pavements, storage areas, the pool chemical storage area and the maintenance shed. The report concluded that there was potential for contamination to exist on the site and a Phase 2 ESA was recommended to assess potential soil/groundwater contamination at the site.

3.2 Geotechnical Assessment (Coffey, 2009)

A geotechnical assessment for the site was conducted by Coffey in 2009 (Reference GEOTWARA20848AA-AB dated 24 March 2009). The assessment included drilling of seven hand auger boreholes across the site (to refusal depths ranging from approximately 0.25m to 1m bgs), drilling and rock coring of two boreholes with a drilling rig (to a maximum depth of approximately 7m bgs), installation of groundwater monitoring wells in the two deep boreholes, logging of subsurface conditions encountered, laboratory testing of soils, and provided geotechnical advice for the proposed development including slope stability, site classification and foundation conditions.

The subsurface conditions encountered during the drilling included fill overlying aeolian sands, residual clays and weathered rock. Groundwater was observed in the two monitoring wells at depths ranging from approximately 1.1m bgs to 2.6m bgs.

Based on the subsurface conditions encountered and the laboratory testing conducted, Coffey concluded that shallow footings comprising strip and pad footings were likely to be founded in the rock. Coffey also concluded that the site had a low risk of slope instability, and that retaining walls should be designed for surcharge loading from slopes, other retaining walls, structures and other existing/future improvements in the vicinity of the proposed structures.

4 POTENTIAL AREAS OF ENVIRONMENTAL CONCERN AND CHEMICALS OF CONCERN

The potential areas of AECs and chemicals of concern (COCs) identified based on the results of the Phase 1 ESA are outlined below in Table 1.

TABLE 1 – SUMMARY OF POTENTIAL AREAS AND CHEMICALS OF ENVIRONMENTAL CONCERN

AEC	POTENTIAL CONTAMINATING ACTIVITY	COC	LIKELIHOOD OF CONTAMINATION
1. Fill material use across site	Importation of fill material of unknown quality used across the site for levelling purposes.	Heavy metals TPH, BTEX, PAH, OCP, OPP, PCB, and asbestos	Low/Medium
2. Car Parking Area	Along with potential use of fill, the degradation of the car park pavement provides a preferential pathway for contaminant entry into underlying substrates	Heavy metals TPH, BTEX, PAH, OCP, OPP, PCB, and asbestos	Low/Medium
3.Storage Area	Potential storage of contaminated materials, and/or the weathering and leaching of contaminants from stored materials or items	Heavy metals TPH, BTEX, PAH, PCB, and asbestos	Low/Medium
4.Pool Chemical Storage	Spills relating to the storage of pool chemicals, and petroleum products used on pool filtration system. Weathering of metal components associated with pool filtration system,	Heavy metals, TPH, BTEX, PCB, Chloride	Low/Medium
5.Maintenance and Fuel Storage Area	Storage of potential contaminated materials, and oils and fuels.	Heavy metals TPH, BTEX, PAH, OCP, OPP, and PCB	Low

NOTES:

** = It is important to note that this is not an assessment of the financial risk associated with the AEC in the event contamination is detected, but a qualitative assessment of the probability of contamination being detected at the potential AEC.*

Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc; BTEX - Benzene, Toluene, Ethylbenzene and Xylenes; TPH - Total Petroleum Hydrocarbons; PAH - Polycyclic Aromatic Hydrocarbons; OCP - Organochlorine Pesticides; PCB – Polychlorinated Biphenyls; OPP – Organophosphorus Pesticides

5 ASSESSMENT CRITERIA

5.1 Soil Investigation Levels

The investigation levels for soil were established based on the following references:

- NSW DEC Guidelines for the NSW Auditor Scheme (Second Edition) (DEC, 2006);
- NSW EPA, Guidelines for Assessing Service Station Sites, (NSW EPA, 1994);
- National Environmental Protection Council (NEPC) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM) (NEPC, 1999).

The NSW DEC (2006) and NEPC (1999) present health based investigation levels for different land uses (eg. industrial / commercial, residential, recreational etc.) as well as provisional phytotoxicity based investigation levels.

The proposed land use is a hotel redevelopment which includes residential apartments and will likely incorporate garden beds and landscaped areas. Therefore the health-based investigation levels for *residential landuse with gardens and accessible soil* (Column 2 of Appendix II in DEC 2006) have been adopted as the investigation levels.

The NSW DEC (2006) Guidelines do not provide investigation levels for volatile petroleum hydrocarbon compounds. The NSW EPA (1994) Guidelines for Assessing Service Station Sites provide an indication of acceptable threshold levels for cleanup of total petroleum hydrocarbons (TPH) compounds at service station sites to be reused for sensitive land uses. For semi-volatile petroleum hydrocarbons (C16 – C35 and >C35) investigation levels are provided in the NSW DEC (2006) guidelines, however, these are based on the NEPC 1999 health-based investigation levels, which require the laboratory analysis to unequivocally differentiate between aromatic and aliphatic compounds. Therefore, the investigation levels provided in the NSW EPA (1994) guidelines have been adopted in this assessment.

The NSW DEC (2006) guidelines state that there are currently no national or NSW DEC endorsed guidelines relating to human health or environmental investigation of material containing asbestos on sites. Site Auditors must exercise their judgement when assessing if a site is suitable for a specific use in the light of evidence that asbestos may be a chemical of concern. Enhealth (2005) *Guidelines for Asbestos in the Non-Occupational Environment* provides some guidance on assessing and managing asbestos in soil although does not provide a threshold concentration or investigation level for asbestos. For this site, Coffey Environments propose to adopt conservative criteria for asbestos (both fibrous and cemented fragments) of 'no detectable asbestos present in surface soils'.

The relevant soil investigation levels are summarised in Table LR1.

6 SAMPLING AND ANALYSIS PLAN

The site sampling and analysis plan was designed to target the main AECs identified in the Phase 1 ESA. The total area of the site is approximately 12,304m^2. The NSW EPA (1995) Sampling Design Guidelines recommends about 25 sampling locations for a site of this area, subject to site history and the location of the AECs. This is based on detecting a circular hotspot of about 28.9m in diameter with 95% confidence. For the purposes of this assessment, 10 sampling locations (EHA1-10) were selected to assess the potential for contamination to exist at the site, targeting the identified AECs.

The 10 sampling locations were assessed by hand augered boreholes. The boreholes were positioned to provide spatial coverage across the site yet target the main AECs identified. The review of the previous Phase 1 ESA and the site observations indicated that the main AECs were fill materials across the site (including in carparks), storage areas, pool chemical areas, and the maintenance shed and LPG AST. The borehole locations are shown on Figure 2, and were positioned at the following locations:

- EHA1 in the carpark area;
- EHA2 next to the LPG AST;
- EHA3 next to the pool area; and
- EHA4-10 across the remainder of the site to assess general site conditions.

Due to the prevailing surface pavement next to the maintenance shed (bitumen roadway) and the concrete floor inside the shed, a borehole could not be drilled next to the shed with the hand auger.

7 FIELD AND LABORATORY PROGRAMME

7.1 Soil Sampling

Field work for the investigation was undertaken on 26 February 2010 by a Coffey Environmental Scientist. Ten boreholes (EHA1-EHA10) were drilled in locations targeting the AECs identified on the site, as well as spatially across the site to assess general site conditions. The approximate locations of the boreholes are shown on Figure 2.

The boreholes were drilled to the depth of hand auger refusal (a maximum depth of approximately 0.5m bgs). Refusal in each of the boreholes occurred in extremely weathered bedrock.

Environmental soil samples were collected from the surface of the boreholes, then at changes in lithology. The samples were collected directly from the hand auger, which was decontaminated between samples. A clean pair of disposable gloves was used for each discrete sample.

The soil samples were divided into two subsamples. The first subsamples were placed into 250mL laboratory supplied glass jars for laboratory analysis. The second subsamples were placed into zip-lock plastic bags for headspace screening and asbestos analysis. Each sample was placed directly into an ice-chilled esky and remained chilled during transportation to the laboratory.

7.2 Field Quality Assurance/Quality Control

Sampling activities were undertaken in accordance with Coffey's Standard Operating procedures (SOPs), which are based on industry accepted practice.

One duplicate sample was collected for every 10 primary samples collected. One triplicate sample was collected for every 20 samples collected. A rinsate (wash blank) sample was collected at the end of the fieldwork to assess decontamination procedures.

7.3 Laboratory Analysis

The primary and duplicate samples were dispatched to the NATA-accredited SGS laboratory in Alexandria, NSW. The triplicate sample selected for analysis was dispatched to the NATA-accredited MGT laboratory in Oakleigh, VIC. The samples were dispatched to the laboratory under chain of custody conditions.

In accordance with Coffey's proposal, the samples were analysed for the following:

- Heavy Metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn) – 19 samples;
- Total Petroleum Hydrocarbons (TPH) – 6 samples;
- Benzene, Toluene, Ethylbenzene, Xylene (BTEX) – 6 samples;
- Polynuclear Aromatic Hydrocarbons (PAH) – 19 samples;
- Asbestos – 10 samples;
- Organochlorine Pesticides (OCP) – 6 samples;
- Polychlorinated Biphenyls (PCB) – 6 samples;

- Organophosphorus Pesticides (OPP) – 6 samples; and
- Chloride – 3 samples.

Samples were selected for analysis based on the AEC and associated COCs.

8 RESULTS

8.1 Subsurface Conditions

Borehole logs and explanation sheets are included in Appendix B. The subsurface conditions encountered are summarised below in Tables 3 and 4.

TABLE 3 – SUMMARY OF SUBSURFACE SOIL TYPES

UNIT	SOIL TYPE	DESCRIPTION
1A	FILL (Roadbase)	Gravelly sand and sandy gravel, fine to medium grained sand, brown and grey, fine to coarse grained gravel
1B	FILL (Garden bed)	Silty sand, fine to medium grained sand, dark brown with some woodchips at the surface
2	TOPSOIL	Silty sand, fine to medium grained, dark brown
3	COLLUVIUM	Sand and silty sand, fine to medium grained, brown and dark brown
4	EXTREMELY WEATHERED BEDROCK (Rhyodacite and Siltstone)	Sand and gravel, fine to medium grained sand, pale grey and brown, with some low plasticity clay

8.2 PID Results

A Photoionisation Detector (PID) was used to screen the samples for volatile compounds. The results of the screening ranged from 0.1ppm to 1.1ppm and are included in Appendix C.

8.3 Quality Assurance/Quality Control Results and Data Usability

Samples were received by SGS and MGT within the recommended holding times. A data validation report is included in Appendix D. Copies of the Chain of Custody documentation are included in Appendix E.

Table LR2 presents the relative percentage differences (RPDs) between the primary sample and the duplicate and triplicate samples analysed. Table LR3 presents the results of the laboratory analysis performed on the rinsate (wash blank) sample.

A review of the Coffey quality assurance/quality control (QA/QC) indicates that RPDs were generally within the acceptable range of 0 to 50% with the exception for total xylenes between EHA20.0-0.1 and duplicate sample QC1 (67%), and for chloride between EHA7 0.0-0.1 and duplicate sample QC3 (97%). These RPD exceedances are considered to be attributed to the low concentrations detected.

The rinsate sample indicated that concentrations of heavy metals, TPH, BTEX and PAH were not detected above the laboratory detection limits.

The laboratory internal QA/QC reports indicated that the appropriate laboratory quality assurance/quality control procedures and rates were undertaken for contamination studies, and that:

- Surrogate, matrix spike and laboratory control sample recoveries were within the acceptable range of 70 to 130%; and
- Method blanks were free of contamination and duplicate RPDs were within the acceptable ranges.

The field and laboratory QA/QC assessment indicates that the data obtained for the contamination assessment is reliable and usable.

8.4 Laboratory Results

The laboratory results were assessed against the investigation levels described in Section 5.2. Soil analytical results are summarised in Tables LR1. The laboratory analytical reports are included in Appendix E. The results indicated that:

- Concentrations of heavy metals, TPH, BTEX, PAH, OCP, OPP and PCB were either not detected, or were recorded below the adopted investigation levels;
- Asbestos was not detected in the samples analysed; and
- A maximum chloride concentration of 63mg/kg was recorded in sample EHA3 0.0-0.1.

9 DISCUSSION

Based on a review of the previous Phase 1 ESA conducted by Coffey at the site, five AECs were identified relating to fill of unknown origin used to level the site and as roadbase for the carparks, storage areas on the site, the pool chemical storage area and the maintenance shed/fuel storage areas.

Ten hand augered boreholes were drilled across the site to assess potential soil contamination. Boreholes EHA1-3 were drilled targeting the AECs identified on the site. Boreholes EHA4- 10 were drilled across the remainder of the site to assess general site conditions. Due to the pavement inside (concrete) and adjacent (bitumen) to the maintenance shed, a borehole could not be drilled by hand next to this AEC.

Selected soil samples were analysed for a number of COCs, including heavy metals, hydrocarbons, pesticides, chloride and asbestos. The results were compared to adopted soil investigation levels for Column 2 residential landuse. The laboratory results revealed that concentrations of heavy metals, hydrocarbons and pesticides were either not detected above laboratory detection limits, or were recorded below the adopted investigation levels. Asbestos was not detected in the samples analysed and a maximum chloride concentration of 63mg/kg was recorded. This concentration is considered to be indicative of background concentrations.

The laboratory results indicated there was a low likelihood for significant contamination to be present at the site.

10 CONCLUSION

The All Seasons Salamander Shores Hotel is situated on an elongated peninsular (Soldiers Point) extending into Port Stephens. The hotel currently consists of a multi-storey accommodation building, bar, pool, landscaped areas and a carpark. It is understood that the proposed redevelopment of the hotel will consist of construction of a new four storey accommodation building, underground (basement) parking and residential apartments.

A review of the previous Phase 1 ESA conducted by Coffey revealed five areas of environmental concern, relating to fill on site, storage areas (general storage and pool chemical storage) and the maintenance shed/fuel storage areas. The 10 boreholes were drilled to target these AECs, and also to provide spatial coverage across the site. A borehole could not be drilled by hand methods near the maintenance shed due to the existing pavements in and around the shed.

Selected soil samples were submitted for laboratory analysis for a number of contaminants of concern, including heavy metals, hydrocarbons, pesticides, asbestos and chloride. The laboratory results were assessed against the criteria relevant to the site redevelopment (residential with minimal access to soils). The assessment indicated that contaminant concentrations were either below laboratory reporting limits or the adopted investigation levels. Asbestos was not detected in the samples analysed, and a maximum chloride concentration of 63mg/kg was recorded.

Based on the laboratory results, the likelihood for significant contamination to be present at the site is considered to be low, and further investigations (including management or remediation) are not required.

11 LIMITATIONS

The findings within this report are the result of discrete/specific sampling practices used in accordance with normal practices and standards. To the best of our knowledge they represent a reasonable interpretation of the general conditions of the site. Under no circumstances, however, can it be considered that these findings represent the actual state of the site at all points.

It is the nature of contaminated site investigations that the degree of variability in site conditions cannot be known completely and no sampling and analysis program can eliminate all uncertainty concerning the condition of the site. Professional judgement must be exercised in the collection and interpretation of the data.

The investigations undertaken were limited by access constraints and are considered to provide an assessment of the likely contamination conditions at the locations sampled.

In preparing this report, current guidelines for assessment and management of contaminated land were followed. This work has been conducted in good faith in accordance with Coffey's understanding of the client's brief and general accepted practice for environmental consulting.

This report was prepared for Sake Development with the objective of assessing the presence of contamination on the site that could potentially impact on the proposed hotel redevelopment. No warranty, expressed or implied, is made as to the information and professional advice included in this report. The report is not intended for other parties or other uses. Anyone using this document does so at their own risk and should satisfy themselves concerning its applicability and, where necessary, should seek expert advice in relation to the particular situation.

This report does not cover hazardous building materials issues. Information within the report including borehole logs should not be used for geotechnical investigation purposes.

12 REFERENCES

Coffey Environments (2009) Phase 1 Environmental Site Assessment, All Seasons Salamander Shores Hotel, Soldiers Point NSW, Reference ENVIWARA00284AA-R01 dated 2 March 2009.

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NSW EPA (1997) Guidelines for Consultants Reporting on Contaminated Sites. ISBN 0 7310 3892 4.

NSW DEC (2006) Guidelines for the NSW Site Auditor Scheme. ISBNo0-7313 0177 3.

Soil Conservation Service of NSW (1995) Port Stephens Acid Sulfate Soil Risk Map, Edition 1.

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SPECIALISTS IN LIVING AND WORKING PLACES

Important information about your **Coffey** Environmental Report

Uncertainties as to what lies below the ground on potentially contaminated sites can lead to remediation costs blow outs, reduction in the value of the land and to delays in the redevelopment of land. These uncertainties are an inherent part of dealing with land contamination. The following notes have been prepared by Coffey to help you interpret and understand the limitations of your report.

Your report has been written for a specific purpose

Your report has been developed on the basis of a specific purpose as understood by Coffey and applies only to the site or area investigated. For example, the purpose of your report may be:

- To assess the environmental effects of an on-going operation.
- To provide due diligence on behalf of a property vendor.
- To provide due diligence on behalf of a property purchaser.
- To provide information related to redevelopment of the site due to a proposed change in use, for example, industrial use to a residential use.
- To assess the existing baseline environmental, and sometimes geological and hydrological conditions or constraints of a site prior to an activity which may alter the sites environmental, geological or hydrological condition.

For each purpose, a specific approach to the assessment of potential soil and groundwater contamination is required. In most cases, a key objective is to identify, and if possible, quantify risks that both recognised and unrecognised contamination pose to the proposed activity. Such risks may be both financial (for example, clean up costs or limitations to the site use) and physical (for example, potential health risks to users of the site or the general public).

Scope of Investigations

The work was conducted, and the report has been prepared, in response to specific instructions from the client to whom this report is addressed, within practical time and budgetary constraints, and in reliance on certain data and information made available to Coffey. The analyses, evaluations, opinions and conclusions presented in this report are based on those instructions, requirements, data or information, and they could change if such instructions etc. are in fact inaccurate or incomplete.

Subsurface conditions can change

Subsurface conditions are created by natural processes and the activity of man and may change with time. For example, groundwater levels can vary with time, fill may be placed on a site and pollutants may migrate with time. Because a report is based on conditions which existed at the time of the subsurface exploration, decisions should not be based on a report whose adequacy may have been affected by time. Consult Coffey to be advised how time may have impacted on the project and/or on the property.

Interpretation of factual data

Environmental site assessments identify actual subsurface conditions only at those points where samples are taken and when they are taken. Data derived from indirect field measurements and sometimes other reports on the site are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact with respect to the report purpose and recommended actions. Actual conditions may differ from those inferred to exist, because no professional, no matter how well qualified, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. For this reason, parties involved with land acquisition, management and/or redevelopment should retain the services of Coffey through the development and use of the site to identify variances, conduct additional tests if required, and recommend solutions to unexpected conditions or other problems encountered on site.

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SPECIALISTS IN LIVING AND WORKING PLACES

Important information about your **Coffey** Environmental Report

Your report will only give preliminary recommendations

Your report is based on the assumption that the site conditions as revealed through selective point sampling are indicative of actual conditions throughout an area. This assumption cannot be substantiated until project implementation has commenced and therefore your report recommendations can only be regarded as preliminary. Only Coffey, who prepared the report, is fully familiar with the background information needed to assess whether or not the report's recommendations are valid and whether or not changes should be considered with redevelopment or on-going use of the site. If another party undertakes the implementation of the recommendations of this report there is a risk that the report will be misinterpreted and Coffey cannot be held responsible for such misinterpretation.

Your report is prepared for specific purposes and persons

To avoid misuse of the information contained in your report it is recommended that you confer with Coffey before passing your report on to another party who may not be familiar with the background and the purpose of the report. In particular, a due diligence report for a property vendor may not be suitable for satisfying the needs of a purchaser. Your report should not be applied for any purpose other than that originally specified at the time the report was issued.

Interpretation by other professionals

Costly problems can occur when other professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, retain Coffey to work with other professionals who are affected by the report. Have Coffey explain the report implications to professionals affected by them and then review plans and specifications produced to see how they have incorporated the report findings.

Data should not be separated from the report

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, laboratory data, drawings, etc. are customarily included in our reports and are developed by scientists, engineers or geologists based on their interpretation of field logs (assembled by field personnel), field testing and laboratory evaluation of field samples. This information should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

Contact Coffey for additional assistance

Coffey is familiar with a variety of techniques and approaches that can be used to help reduce risks for all parties to land development and land use. It is common that not all approaches will be necessarily dealt with in your environmental site assessment report due to concepts proposed at that time. As a project progresses through planning and design toward construction and/or maintenance, speak with Coffey to develop alternative approaches to problems that may be of genuine benefit both in time and cost.

Responsibility

Environmental reporting relies on interpretation of factual information based on judgement and opinion and has a level of uncertainty attached to it, which is far less exact than other design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. To help prevent this problem, a number of clauses have been developed for use in contracts, reports and other documents. Responsibility clauses do not transfer appropriate liabilities from Coffey to other parties but are included to identify where Coffey's responsibilities begin and end. Their use is intended to help all parties involved to recognise their individual responsibilities. Read all documents from Coffey closely and do not hesitate to ask any questions you may have.

72510 / 07-06

Tables

Phase 2 Environmental Site Assessment
All Seasons Salamander Shores Hotel, Soldiers Point

Table LR1 - Summary of Soil Laboratory Results

All results in mg/kg

Sample ID	HEALTH-BASED INVESTIGATION LEVELS	PHYTOTOXICITY INVESTIGATION LEVELS	LABORATORY DETECTION LIMIT	EHA1	EHA1	EHA2	EHA3	EHA3	EHA4	EHA4	EHA5	EHA5	EHA6	EHA6
Depth (m)				0.0-0.1	0.2-0.3	0.0-0.1	0.0-0.1	0.3-0.4	0.0-0.1	0.3-0.4	0.0-0.1	0.3-0.4	0.0-0.1	0.2-0.3
Date of Sampling				26/2/10	26/2/10	26/2/10	26/2/10	26/2/10	26/2/10	26/2/10	26/2/10	26/2/10	26/2/10	26/2/10
Metals														
Arsenic	400 [1]	20 [3]	3	<3	<3	4	4	4	<3	<3	<3	6	<3	<3
Cadmium	80 [1]	3 [3]	0.3	<0.3	<0.3	<0.3	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium	400 [1]	400 [3]	0.3	1.8	1.7	3.7	8.2	3.4	1.9	2.4	3.1	2.4	2.7	3.2
Copper	4000 [1]	100 [3]	0.5	3.1	2.7	13	54	45	6.4	7.1	8.3	7.3	4.5	8.8
Lead	1200 [1]	600 [3]	1	5	4	14	15	16	8	11	57	64	2	3
Nickel	2400 [1]	60 [3]	0.5	0.8	0.8	1.8	2.4	2.1	0.9	1.3	2.1	1.8	0.94	1.4
Zinc	28000 [1]	200 [3]	0.5	18	14	97	130	89	23	19	46	25	19	31
Mercury	60 [1]	1 [3]	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Petroleum Hydrocarbons														
C6 - C9 Fraction	65 [2]		20	<20	<20	<20	-	-	<20	<20	-	-	-	-
C10 - C14 Fraction			20	<20	<20	<20	-	-	<20	<20	-	-	-	-
C15 - C28 Fraction			50	<50	<50	<50	-	-	<50	<50	-	-	-	-
C29 - C36 Fraction			50	<50	<50	<50	-	-	<50	<50	-	-	-	-
Total C10-C36	1000 [2]			<20	<20	<20	-	-	<20	<20	-	-	-	-
BTEX														
Benzene	1 [2]		0.1	<0.1	<0.1	<0.1	-	-	<0.1	<0.1	-	-	-	-
Toluene	1.4 [2]		0.1	<0.1	<0.1	<0.1	-	-	<0.1	<0.1	-	-	-	-
Ethylbenzene	3.1 [2]		0.1	<0.1	<0.1	0.2	-	-	<0.1	<0.1	-	-	-	-
Total Xylene	14 [2]		0.3	0.4	<0.3	1	-	-	<0.3	<0.3	-	-	-	-
Polynuclear Aromatic Hydrocarbons														
Benzo(a)pyrene	4 [1]		0.05	<0.05	<0.05	0.07	0.16	0.24	<0.05	<0.05	0.11	0.11	<0.05	<0.05
Total PAHs	80 [1]		1.7	<1.7	<1.7	1.78	2.25	3.02	<1.7	<1.7	2.32	2.23	<1.7	<1.7
Organochlorine Pesticides														
Aldrin & dieldrin	40 [1]		0.1	-	-	<0.1	-	-	<0.1	<0.1	<0.1	-	-	-
DDT+DDE+DDD	800 [1]		0.1	-	-	<0.1	-	-	<0.1	<0.1	<0.1	-	-	-
Heptachlor	40 [1]		0.1	-	-	<0.1	-	-	<0.1	<0.1	<0.1	-	-	-
Chlordane	200 [1]		0.1	-	-	<0.1	-	-	<0.1	<0.1	<0.1	-	-	-
Organophosphorus Pesticides														
Total OPPs			0.2	-	-	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-
Polychlorinated Biphenyls														
Total PCBs	40 [1]		0.9	-	-	<0.9	-	-	<0.9	<0.9	<0.9	-	-	-
Chloride			0.25	-	-	-	63	41	-	-	-	-	-	-
Asbestos	Not detected		detection	Not detected	-	Not detected	Not detected	-	Not detected	-	Not detected	-	Not detected	-

Notes:

Result Concentration exceeds adopted health-based investigation levels

Result Concentration exceeds adopted phytotoxicity investigation levels

- Not Analysed

[1] NSW DEC (2006) Guidelines for the NSW Site Auditor Scheme (2nd Edition) - Appendix II, Column 2 (residential with minimal access to soil)

[2] Based on NSW EPA (1994) Guidelines for Assessing Service Station Sites

[3] NSW DEC (2006) Guidelines for the NSW Site Auditor Scheme (2nd Edition) - Appendix II, Column 5 (provisional phytotoxicity levels)

Table LR1 - Summary of Soil Laboratory Results

All results in mg/kg

Sample ID	HEALTH-BASED INVESTIGATION LEVELS	PHYTOTOXICITY INVESTIGATION LEVELS	LABORATORY DETECTION LIMIT	EHA7	EHA7	EHA8	EHA8	EHA9	EHA9	EHA10	EHA10
Depth (m)				0.0-0.1	0.2-0.3	0.0-0.1	0.4-0.5	0.0-0.1	0.3-0.4	0.0-0.1	0.2-0.3
Date of Sampling				26/2/10	26/2/10	26/2/10	26/2/10	26/2/10	26/2/10	26/2/10	26/2/10
Metals											
Arsenic	400 [1]	20 [3]	3	<3	<3	<3	<3	4	4	<3	<3
Cadmium	80 [1]	3 [3]	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium	400 [1]	400 [3]	0.3	2.7	3.1	2.4	3.6	9	8.2	1.5	1.4
Copper	4000 [1]	100 [3]	0.5	14	18	7.9	15	15	18	0.8	<0.5
Lead	1200 [1]	600 [3]	1	3	5	3	4	10	10	1	<1
Nickel	2400 [1]	60 [3]	0.5	1.4	1.7	1.7	2	3.6	3.9	<0.5	<0.5
Zinc	28000 [1]	200 [3]	0.5	46	54	49	96	180	160	5.9	3.2
Mercury	60 [1]	1 [3]	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Petroleum Hydrocarbons											
C6 - C9 Fraction	65 [2]		20	-	-	<20	-	-	-	-	-
C10 - C14 Fraction			20	-	-	<20	-	-	-	-	-
C15 - C28 Fraction			50	-	-	<50	-	-	-	-	-
C29 - C36 Fraction			50	-	-	<50	-	-	-	-	-
Total C10-C36	1000 [2]			-	-	<20	-	-	-	-	-
BTEX											
Benzene	1 [2]		0.1	-	-	<0.1	-	-	-	-	-
Toluene	1.4 [2]		0.1	-	-	<0.1	-	-	-	-	-
Ethylbenzene	3.1 [2]		0.1	-	-	<0.1	-	-	-	-	-
Total Xylene	14 [2]		0.3	-	-	<0.3	-	-	-	-	-
Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene	4 [1]		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total PAHs	80 [1]		1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
Organochlorine Pesticides											
Aldrin & dieldrin	40 [1]		0.1	-	-	-	-	<0.1	-	<0.1	-
DDT+DDE+DDD	800 [1]		0.1	-	-	-	-	<0.1	-	<0.1	-
Heptachlor	40 [1]		0.1	-	-	-	-	<0.1	-	<0.1	-
Chlordane	200 [1]		0.1	-	-	-	-	<0.1	-	<0.1	-
Organophosphorus Pesticides											
Total OPPs			0.2	-	-	-	-	<0.2	-	<0.2	-
Polychlorinated Biphenyls											
Total PCBs	40 [1]		0.9	-	-	-	-	<0.9	-	<0.9	-
Chloride			0.25	46	-	-	-	-	-	-	-
Asbestos	Not detected		detection	Not detected	-	Not detected	-	Not detected	-	Not detected	-

Notes:

Result Concentration exceeds adopted health-based investigation levels

Result Concentration exceeds adopted phytotoxicity investigation levels

- Not Analysed

[1] NSW DEC (2006) Guidelines for the NSW Site Auditor Scheme (2nd Edition) - Appendix II, Column 2 (residential with minimal access to soil)

[2] Based on NSW EPA (1994) Guidelines for Assessing Service Station Sites

[3] NSW DEC (2006) Guidelines for the NSW Site Auditor Scheme (2nd Edition) - Appendix II, Column 5 (provisional phytotoxicity levels)

Table LR2 - Summary of Duplicate and Triplicate Sample Results

All results in mg/kg

Sample ID	EHA2	QC1 (Duplicate of EHA2 0.0-0.1)	RPD%	EHA7	QC3 (Duplicate of EHA7 0.0-0.1)	RPD%	EHA7	QC3A (Triplicate of EHA7 0.0-0.1)	RPD%
Depth (m)	0.0-0.1			0.0-0.1			0.0-0.1		
Date of Sampling	26/2/10	26/2/10		26/2/10	26/2/10		26/2/10	26/2/10	
Laboratory	SGS	SGS		SGS	SGS		SGS	MGT	
Metals									
Arsenic	4	4	0%	<3	<3	NC	<3	2.9	NC
Cadmium	<0.3	<0.3	NC	<0.3	<0.3	NC	<0.3	<0.5	NC
Chromium	3.7	3.6	3%	2.7	2.6	4%	2.7	<5	NC
Copper	13	13	0%	14	12	15%	14	11	24%
Lead	14	15	7%	3	3	0%	3	<5	NC
Nickel	1.8	1.7	6%	1.4	1.5	7%	1.4	<5	NC
Zinc	97	96	1%	46	48	4%	46	35	27%
Mercury	<0.05	<0.05	NC	<0.05	<0.05	NC	<0.05	<0.1	NC
Total Petroleum Hydrocarbons									
C6 - C9 Fraction	<20	<20	NC	-	-	-	-	-	-
C10 - C14 Fraction	<20	<20	NC	-	-	-	-	-	-
C15 - C28 Fraction	<50	58	NC	-	-	-	-	-	-
C29 - C36 Fraction	<50	96	NC	-	-	-	-	-	-
Total C10-C36	<20	154	NC	-	-	-	-	-	-
BTEX									
Benzene	<0.1	<0.1	NC	-	-	-	-	-	-
Toluene	<0.1	<0.1	NC	-	-	-	-	-	-
Ethylbenzene	0.2	0.2	0%	-	-	-	-	-	-
Total Xylene	1	2	**67%**	-	-	-	-	-	-
Polynuclear Aromatic Hydrocarbons									
Benzo(a)pyrene	0.07	0.05	33%	<0.05	<0.05	NC	<0.05	<0.1	NC
Total PAHs	1.78	<1.7	NC	<1.7	<1.7	NC	<1.7	<0.1	NC
Organochlorine Pesticides									
Aldrin & dieldrin	<0.1	<0.1	NC	-	-	-	-	-	-
DDT+DDE+DDD	<0.1	<0.1	NC	-	-	-	-	-	-
Heptachlor	<0.1	<0.1	NC	-	-	-	-	-	-
Chlordane	<0.1	<0.1	NC	-	-	-	-	-	-
Organophosphorus Pesticides									
Total OPPs	<0.2	<0.2	NC	-	-	-	-	-	-
Polychlorinated Biphenyls									
Total PCBs	<0.9	<0.9	NC	-	-	-	-	-	-
Chloride	-	-	-	46	16	**97%**	46	32	36%

Notes:

RPD	RPD exceeds control limit of 50%
NC	RPD not calculated either the primary or duplicate samples (or both) did not produce results
-	Not Analysed

Table LR3 - Summary of Wash Blank Results

All results in µg/L

Sample ID	QCA
Sample Type	Wash Blank
Date of Sampling	26/2/10
Metals	
Arsenic	<1
Cadmium	<0.1
Chromium	<1
Copper	<1
Lead	1
Nickel	<1
Zinc	6
Mercury	<0.5
Total Petroleum Hydrocarbons	
C6 - C9 Fraction	<40
C10 - C14 Fraction	<100
C15 - C28 Fraction	<200
C29 - C36 Fraction	<200
Total C10-C36	<100
BTEX	
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
Total Xylenes	<1.5
Polycyclic Aromatic Hydrocarbons	
Benzo(a)pyrene	<0.5
Total PAHs	<9

Figures

Phase 2 Environmental Site Assessment
All Seasons Salamander Shores Hotel, Soldiers Point

drawn	**NLS**	coffey environments SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE	client:	**SAKE DEVELOPMENT PTY LTD**
approved	DCH		project:	**PROPOSED HOTEL REDEVELOPMENT SALAMANDER SHORES 147 SOLDIERS POINT ROAD, SOLDIERS POINT**
date	05-03-10		title:	**SITE LOCATION MAP**
scale	**NTS**		project no: **ENVIWARA00284AB**	figure no: **FIGURE 1**
original size	**A4**			

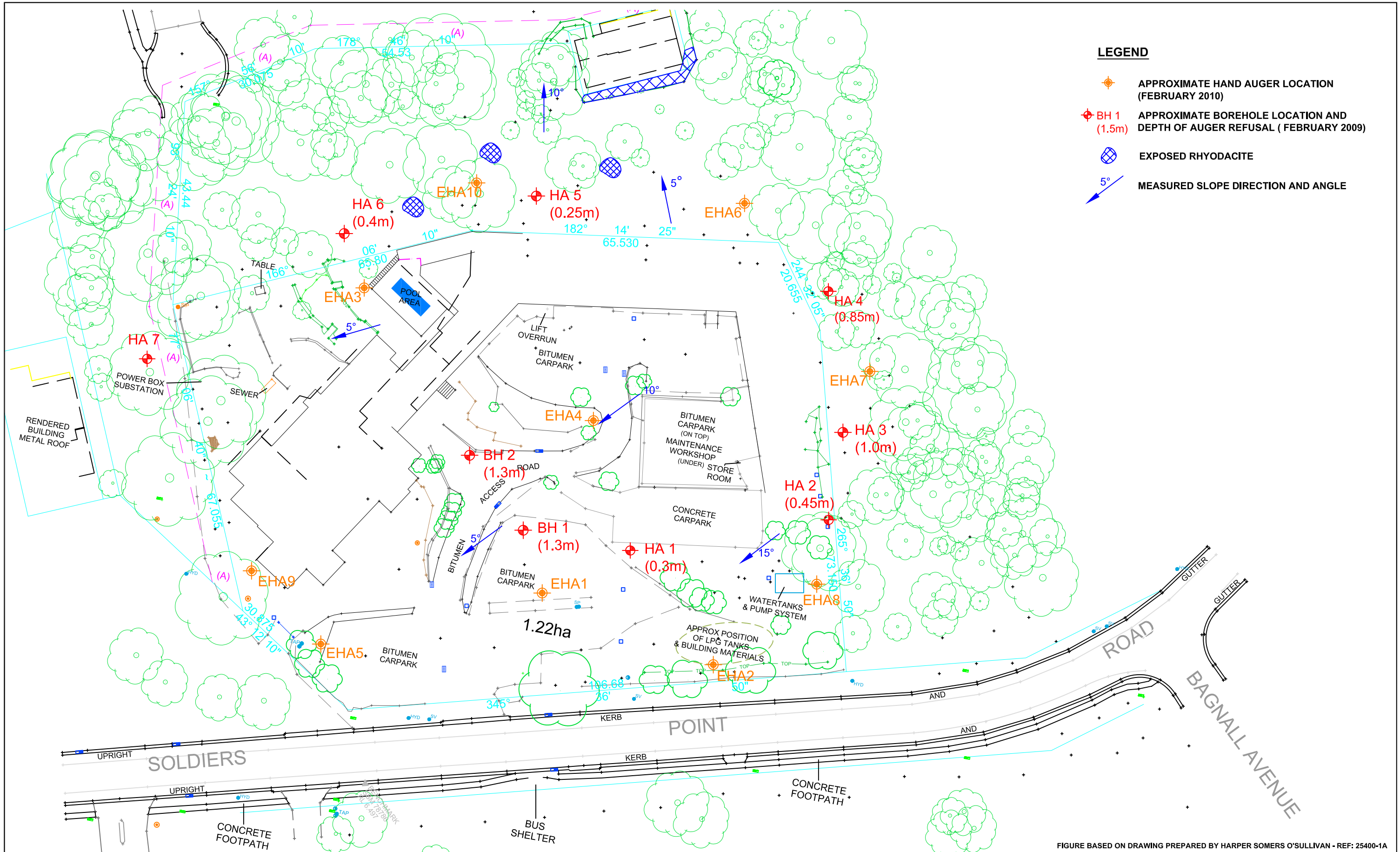

FIGURE BASED ON DRAWING PREPARED BY HARPER SOMERS O'SULLIVAN - REF: 25400-1A

revision	description	drawn	approved	date

0 7.5 15 30 45

Horizontal Scale (metres)

drawn	NLS
approved	DCH
date	04-03-2010
scale	1:750
original size	A3

coffey environments
SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE

client: SAKE DEVELOPMENT PTY LTD

project: PROPOSED HOTEL REDEVELOPMENT
SALAMANDER SHORES
147 SOLDIERS POINT ROAD, SOLDIERS POINT

title: APPROXIMATE BOREHOLE LOCATION PLAN

project no: ENVIWARA00284AB

figure no: FIGURE 2

Appendix A
Site Photographs

Phase 2 Environmental Site Assessment
All Seasons Salamander Shores Hotel, Soldiers Point

Photograph 1: The accommodation building and main carpark area of the Salamander shores Hotel, looking east from Soldiers Point Road.

Photograph 2: The bitumen carpark in the north-western corner of the site

		coffey environments SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE	client:	**SAKE DEVELOPMENT**
			project:	**PROPOSED HOTEL REDEVELOPMENT ALL SEASONS SALAMANDER SHORES HOTEL PHASE 2 ENVIRONMENTAL SITE ASSESSMENT**
Date of photographs	**26/02/2010**		title:	**SITE PHOTOGRAPHS**
			project no:	**ENVIWARA00284AB**

Photograph 3: Looking near the central portion of the main accommodation area of the hotel. Note the groundwater monitoring well (the circular object in front of the stone wall); one of two monitoring wells at the site.

Photograph 4: A concrete carpark area located adjacent to the south-western section of the accommodation building.

		coffey environments SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE	client:	**SAKE DEVELOPMENT**
			project:	**PROPOSED HOTEL REDEVELOPMENT ALL SEASONS SALAMANDER SHORES HOTEL PHASE 2 ENVIRONMENTAL SITE ASSESSMENT**
Date of photographs	**26/02/2010**		title:	**SITE PHOTOGRAPHS**
			project no:	**ENVIWARA00284AB**

Photograph 5: The maintenance shed located at the southern end of the accommodation building. The floor of the maintenance shed consisted of concrete with no visible staining or cracks.

Photograph 6: Looking west towards the main part of the accommodation building (eastern side of site). This is the highest portion of the site.

		coffey environments SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE	client:	**SAKE DEVELOPMENT**
			project:	**PROPOSED HOTEL REDEVELOPMENT ALL SEASONS SALAMANDER SHORES HOTEL PHASE 2 ENVIRONMENTAL SITE ASSESSMENT**
Date of photographs	**26/02/2010**			
			title:	**SITE PHOTOGRAPHS**
			project no: **ENVIWARA00284AB**	

Photograph 7: The LPG AST located in the south-western section of the site.

Photograph 8: Overview of the carpark areas of the hotel (western section of the site).

		coffey environments SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE	client:	**SAKE DEVELOPMENT**
			project:	**PROPOSED HOTEL REDEVELOPMENT ALL SEASONS SALAMANDER SHORES HOTEL PHASE 2 ENVIRONMENTAL SITE ASSESSMENT**
Date of photographs	**26/02/2010**		title:	**SITE PHOTOGRAPHS**
			project no:	**ENVIWARA00284AB**

Photo site.

Photograph 10: Looking north along the eastern boundary of the site. This section is defined by a number of garden beds and a covered outdoor seating area.

		coffey environments SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE	client:	**SAKE DEVELOPMENT**
			project:	**PROPOSED HOTEL REDEVELOPMENT ALL SEASONS SALAMANDER SHORES HOTEL PHASE 2 ENVIRONMENTAL SITE ASSESSMENT**
Date of photographs	**26/02/2010**			
			title:	**SITE PHOTOGRAPHS**
			project no: **ENVIWARA00284AB**	

Photograph 11: The outdoor seating area in the north-eastern corner of the site.

		coffey environments SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE	client:	**SAKE DEVELOPMENT**
			project:	**PROPOSED HOTEL REDEVELOPMENT ALL SEASONS SALAMANDER SHORES HOTEL PHASE 2 ENVIRONMENTAL SITE ASSESSMENT**
Date of photographs	**26/02/2010**			
			title:	**SITE PHOTOGRAPHS**
			project no: **ENVIWARA00284AB**	

Appendix B
Borehole Logs and Explanation Sheets

Phase 2 Environmental Site Assessment
All Seasons Salamander Shores Hotel, Soldiers Point

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Soil Description Explanation Sheet (1 of 2)

DEFINITION:

In engineering terms soil includes every type of uncemented or partially cemented inorganic or organic material found in the ground. In practice, if the material can be remoulded or disintegrated by hand in its field condition or in water it is described as a soil. Other materials are described using rock description terms.

CLASSIFICATION SYMBOL & SOIL NAME

Soils are described in accordance with the Unified Soil Classification (UCS) as shown in the table on Sheet 2.

PARTICLE SIZE DESCRIPTIVE TERMS

NAME	SUBDIVISION	SIZE
Boulders		>200 mm
Cobbles		63 mm to 200 mm
Gravel	coarse	20 mm to 63 mm
	medium	6 mm to 20 mm
	fine	2.36 mm to 6 mm
Sand	coarse	600 μm to 2.36 mm
	medium	200 μm to 600 μm
	fine	75 μm to 200 μm

MOISTURE CONDITION

Dry Looks and feels dry. Cohesive and cemented soils are hard, friable or powdery. Uncemented granular soils run freely through hands.

Moist Soil feels cool and darkened in colour. Cohesive soils can be moulded. Granular soils tend to cohere.

Wet As for moist but with free water forming on hands when handled.

CONSISTENCY OF COHESIVE SOILS

TERM	UNDRAINED STRENGTH s_u (kPa)	FIELD GUIDE
Very Soft	<12	A finger can be pushed well into the soil with little effort.
Soft	12 - 25	A finger can be pushed into the soil to about 25mm depth.
Firm	25 - 50	The soil can be indented about 5mm with the thumb, but not penetrated.
Stiff	50 - 100	The surface of the soil can be indented with the thumb, but not penetrated.
Very Stiff	100 - 200	The surface of the soil can be marked, but not indented with thumb pressure.
Hard	>200	The surface of the soil can be marked only with the thumbnail.
Friable	–	Crumbles or powders when scraped by thumbnail.

DENSITY OF GRANULAR SOILS

TERM	DENSITY INDEX (%)
Very loose	Less than 15
Loose	15 - 35
Medium Dense	35 - 65
Dense	65 - 85
Very Dense	Greater than 85

MINOR COMPONENTS

TERM	ASSESSMENT GUIDE	PROPORTION OF MINOR COMPONENT IN:
Trace of	Presence just detectable by feel or eye, but soil properties little or no different to general properties of primary component.	Coarse grained soils: <5% Fine grained soils: <15%
With some	Presence easily detected by feel or eye, soil properties little different to general properties of primary component.	Coarse grained soils: 5 - 12% Fine grained soils: 15 - 30%

SOIL STRUCTURE

ZONING		CEMENTING	
Layers	Continuous across exposure or sample.	Weakly cemented	Easily broken up by hand in air or water.
Lenses	Discontinuous layers of lenticular shape.	Moderately cemented	Effort is required to break up the soil by hand in air or water.
Pockets	Irregular inclusions of different material.		

GEOLOGICAL ORIGIN

WEATHERED IN PLACE SOILS

Extremely weathered material — Structure and fabric of parent rock visible.

Residual soil — Structure and fabric of parent rock not visible.

TRANSPORTED SOILS

Aeolian soil — Deposited by wind.

Alluvial soil — Deposited by streams and rivers.

Colluvial soil — Deposited on slopes (transported downslope by gravity).

Fill — Man made deposit. Fill may be significantly more variable between tested locations than naturally occurring soils.

Lacustrine soil — Deposited by lakes.

Marine soil — Deposited in ocean basins, bays, beaches and estuaries.

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Soil Description Explanation Sheet (2 of 2)

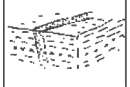
SOIL CLASSIFICATION INCLUDING IDENTIFICATION AND DESCRIPTION

FIELD IDENTIFICATION PROCEDURES (Excluding particles larger than 60 mm and basing fractions on estimated mass)							USC	PRIMARY NAME
COARSE GRAIINED SOILS More than 50% of materials less than 63 mm is larger than 0.075 mm	(A 0.075 mm particle is about the smallest particle visible to the naked eye)	GRAVELS More than half of coarse fraction is larger than 2.0 mm	CLEAN GRAVELS (Little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes.			GW	GRAVEL
				Predominantly one size or a range of sizes with more intermediate sizes missing.			GP	GRAVEL
			GRAVELS WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML below)			GM	SILTY GRAVEL
				Plastic fines (for identification procedures see CL below)			GC	CLAYEY GRAVEL
		SANDS More than half of coarse fraction is smaller than 2.0 mm	CLEAN SANDS (Little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate sizes			SW	SAND
				Predominantly one size or a range of sizes with some intermediate sizes missing.			SP	SAND
			SANDS WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML below).			SM	SILTY SAND
				Plastic fines (for identification procedures see CL below).			SC	CLAYEY SAND
FINE GRAINED SOILS More than 50% of material less than 63 mm is smaller than 0.075 mm			IDENTIFICATION PROCEDURES ON FRACTIONS <0.2 mm.					
		SILTS & CLAYS Liquid limit less than 50	**DRY STRENGTH**	**DILATANCY**	**TOUGHNESS**			
			None to Low	Quick to slow	None		ML	SILT
			Medium to High	None	Medium		CL	CLAY
			Low to medium	Slow to very slow	Low		OL	ORGANIC SILT
		SILTS & CLAYS Liquid limit greater than 50	Low to medium	Slow to very slow	Low to medium		MH	SILT
			High	None	High		CH	CLAY
			Medium to High	None	Low to medium		OH	ORGANIC CLAY
HIGHLY ORGANIC SOILS			Readily identified by colour, odour, spongy feel and frequently by fibrous texture.				Pt	PEAT

• Low plasticity – Liquid Limit W_L less than 35%. • Medium plasticity – W_L between 35% and 50%.

COMMON DEFECTS IN SOIL

TERM	DEFINITION	DIAGRAM
PARTING	A surface or crack across which the soil has little or no tensile strength. Parallel or sub parallel to layering (eg bedding). May be open or closed.	
JOINT	A surface or crack across which the soil has little or no tensile strength but which is not parallel or sub parallel to layering. May be open or closed. The term 'fissure' may be used for irregular joints <0.2 m in length.	
SHEARED ZONE	Zone in clayey soil with roughly parallel near planar, curved or undulating boundaries containing closely spaced, smooth or slickensided, curved intersecting joints which divide the mass into lenticular or wedge shaped blocks.	
SHEARED SURFACE	A near planar curved or undulating, smooth, polished or slickensided surface in clayey soil. The polished or slickensided surface indicates that movement (in many cases very little) has occurred along the defect.	

TERM	DEFINITION	DIAGRAM
SOFTENED ZONE	A zone in clayey soil, usually adjacent to a defect in which the soil has a higher moisture content than elsewhere.	
TUBE	Tubular cavity. May occur singly or as one of a large number of separate or inter-connected tubes. Walls often coated with clay or strengthened by denser packing of grains. May contain organic matter	
TUBE CAST	Roughly cylindrical elongated body of soil different from the soil mass in which it occurs. In some cases the soil which makes up the tube cast is cemented.	
INFILLED SEAM	Sheet or wall like body of soil substance or mass with roughly planar to irregular near parallel boundaries which cuts through a soil mass. Formed by infilling of open joints.	

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Rock Description Explanation Sheet (1 of 2)

The descriptive terms used by Coffey are given below. They are broadly consistent with Australian Standard AS1726-1993.

DEFINITIONS: Rock substance, defect and mass are defined as follows:

Rock Substance	In engineering terms roch substance is any naturally occurring aggregate of minerals and organic material which cannot be disintegrated or remoulded by hand in air or water. Other material is described using soil descriptive terms. Effectively homogenous material, may be isotropic or anisotropic.
Defect	Discontinuity or break in the continuity of a substance or substances.
Mass	Any body of material which is not effectively homogeneous. It can consist of two or more substances without defects, or one or more substances with one or more defects.

SUBSTANCE DESCRIPTIVE TERMS:

ROCK NAME	Simple rock names are used rather than precise geological classification.
PARTICLE SIZE	Grain size terms for sandstone are:
Coarse grained	Mainly 0.6mm to 2mm
Medium grained	Mainly 0.2mm to 0.6mm
Fine grained	Mainly 0.06mm (just visible) to 0.2mm
FABRIC	Terms for layering of penetrative fabric (eg. bedding, cleavage etc.) are:
Massive	No layering or penetrative fabric.
Indistinct	Layering or fabric just visible. Little effect on properties.
Distinct	Layering or fabric is easily visible. Rock breaks more easily parallel to layering of fabric.

CLASSIFICATION OF WEATHERING PRODUCTS

Term	Abbreviation	Definition
Residual Soil	**RS**	Soil derived from the weathering of rock; the mass structure and substance fabric are no longer evident; there is a large change in volume but the soil has not been significantly transported.
Extremely Weathered Material	**XW**	Material is weathered to such an extent that it has soil properties, ie, it either disintegrates or can be remoulded in water. Original rock fabric still visible.
Highly Weathered Rock	**HW**	Rock strength is changed by weathering. The whole of the rock substance is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable. Some minerals are decomposed to clay minerals. Porosity may be increased by leaching or may be decreased due to the deposition of minerals in pores.
Moderately Weathered Rock	**MW**	The whole of the rock substance is discoloured, usually by iron staining or bleaching , to the extent that the colour of the fresh rock is no longer recognisable.
Slightly Weathered Rock	**SW**	Rock substance affected by weathering to the extent that partial staining or partial discolouration of the rock substance (usually by limonite) has taken place. The colour and texture of the fresh rock is recognisable; strength properties are essentially those of the fresh rock substance.
Fresh Rock	**FR**	Rock substance unaffected by weathering.

Notes on Weathering:

1. AS1726 suggests the term "Distinctly Weathered" (DW) to cover the range of substance weathering conditions between XW and SW. For projects where it is not practical to delineate between HW and MW or it is judged that there is no advantage in making such a distinction. DW may be used with the definition given in AS1726.
2. Where physical and chemical changes were caused by hot gasses and liquids associated with igneous rocks, the term "altered" may be substituted for "weathering" to give the abbreviations XA, HA, MA, SA and DA.

ROCK SUBSTANCE STRENGTH TERMS

Term	Abbrev-iation	Point Load Index, $I_{s(50)}$ (MPa)	Field Guide
Very Low	**VL**	Less than 0.1	Material crumbles under firm blows with sharp end of pick; can be peeled with a knife; pieces up to 30mm thick can be broken by finger pressure.
Low	**L**	0.1 to 0.3	Easily scored with a knife; indentations 1mm to 3mm show with firm bows of a pick point; has a dull sound under hammer. Pieces of core 150mm long by 50mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
Medium	**M**	0.3 to 1.0	Readily scored with a knife; a piece of core 150mm long by 50mm diameter can be broken by hand with difficulty.
High	**H**	1 to 3	A piece of core 150mm long by 50mm can not be broken by hand but can be broken by a pick with a single firm blow; rock rings under hammer.
Very High	**VH**	3 to 10	Hand specimen breaks after more than one blow of a pick; rock rings under hammer.
Extremely High	**EH**	More than 10	Specimen requires many blows with geological pick to break; rock rings under hammer.

Notes on Rock Substance Strength:

1. In anisotropic rocks the field guide to strength applies to the strength perpendicular to the anisotropy. High strength anisotropic rocks may break readily parallel to the planar anisotropy.
2. The term "extremely low" is not used as a rock substance strength term. While the term is used in AS1726-1993, the field guide therein makes it clear that materials in that strength range are soils in engineering terms.
3. The unconfined compressive strength for isotropic rocks (and anisotropic rocks which fall across the planar anisotropy) is typically 10 to 25 times the point load index $I_{s(50)}$. The ratio may vary for different rock types. Lower strength rocks often have lower ratios than higher strength rocks.

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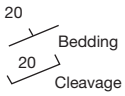
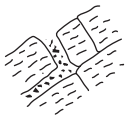
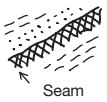
Rock Description Explanation Sheet (2 of 2)

COMMON DEFECTS IN ROCK MASSES Term	Definition	Diagram	Map Symbol	Graphic Log (Note 1)
Parting	A surface or crack across which the rock has little or no tensile strength. Parallel or sub parallel to layering (eg bedding) or a planar anisotropy in the rock substance (eg, cleavage). May be open or closed.			
Joint	A surface or crack across which the rock has little or no tensile strength. but which is not parallel or sub parallel to layering or planar anisotropy in the rock substance. May be open or closed.			
Sheared Zone (Note 3)	Zone of rock substance with roughly parallel near planar, curved or undulating boundaries cut by closely spaced joints, sheared surfaces or other defects. Some of the defects are usually curved and intersect to divide the mass into lenticular or wedge shaped blocks.			
Sheared Surface (Note 3)	A near planar, curved or undulating surface which is usually smooth, polished or slickensided.			
Crushed Seam (Note 3)	Seam with roughly parallel almost planar boundaries, composed of disoriented, usually angular fragments of the host rock substance which may be more weathered than the host rock. The seam has soil properties.			
Infilled Seam	Seam of soil substance usually with distinct roughly parallel boundaries formed by the migration of soil into an open cavity or joint, infilled seams less than 1mm thick may be described as veneer or coating on joint surface.			
Extremely Weathered Seam	Seam of soil substance, often with gradational boundaries. Formad by weathering of the rock substance in place.			

DEFECT SHAPE TERMS	
Planar	The defect does not vary in orientation
Curved	The defect has a gradual change in orientation
Undulating	The defect has a wavy surface
Stepped	The defect has one or more well defined steps
Irregular	The defect has many sharp changes of orientation

Note: The assessment of defect shape is partly influenced by the scale of the observation.

ROUGHNESS TERMS	
Slickensided	Grooved or striated surface, usually polished
Polished	Shiny smooth surface
Smooth	Smooth to touch. Few or no surface irregularities
Rough	Many small surface irregularities (amplitude generally less than 1mm). Feels like fine to coarse sand paper.
Very Rough	Many large surface irregularities (amplitude generally more than 1mm). Feels like, or coarser than very coarse sand paper.

COATING TERMS	
Clean	No visible coating
Stained	No visible coating but surfaces are discoloured
Veneer	A visible coating of soil or mineral, too thin to measure; may be patchy
Coating	A visible coating up to 1mm thick. Thicker soil material is usually described using appropriate defect terms (eg, infilled seam). Thicker rock strength material is usually described as a vein.

BLOCK SHAPE TERMS	
Blocky	Approximately equidimensional
Tabular	Thickness much less than length or width
Columnar	Height much greate than cross section

Notes on Defects:

1. Usually borehole logs show the true dip of defects and face sketches and sections the apparent dip.
2. Partings and joints are not usually shown on the graphic log unless considered significant.
3. Sheared zones, sheared surfaces and crushed seams are faults in geological terms.

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Engineering Log - Borehole

Borehole No.	**EHA 1**
Sheet	1 of 1
Office Job No.:	**ENVIWARA00284AB**
Client:	**SAKE DEVELOPMENT**
Date started:	**26.2.2010**
Principal:	
Date completed:	**26.2.2010**
Project:	**ALL SEASONS SALAMANDER SHORES HOTEL**
Logged by:	**DCH**
Borehole Location:	**REFER TO FIGURE 2**
Checked by:	

drill model and mounting: Hand Auger | Easting: | slope: -90° | R.L. Surface: Not Measured

hole diameter: 100 mm | Northing | bearing: | datum:

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer kPa 100 200 300 400	structure and additional observations
HA		N	None Observed	E				SP	**FILL:** Gravelly SAND, fine to medium grained, pale grey / brown, gravel fine to coarse grained.	D			FILL (ROAD BASE)
				E				SP	**SAND:** fine to medium grained, brown, some gravel fine to coarse grained (siltstone gravel).				EXTREMELY WEATHERED BEDROCK
						0.5			Terminated due to refusal on bedrock. Borehole EHA 1 terminated at 0.4m				
						1.0							
						1.5							
						2.0							

BOREHOLE 00284AB.GPJ COFFEY.GDT 5.3.10

Form GEO 5.3 Issue 3 Rev.2

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support

M mud N nil

C casing

penetration

1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Borehole

Borehole No.	**EHA 2**
Sheet	1 of 1
Office Job No.:	**ENVIWARA00284AB**
Client:	**SAKE DEVELOPMENT**
Date started:	**26.2.2010**
Principal:	
Date completed:	**26.2.2010**
Project:	**ALL SEASONS SALAMANDER SHORES HOTEL**
Logged by:	**DCH**
Borehole Location:	**REFER TO FIGURE 2**
Checked by:	

drill model and mounting: Hand Auger | Easting: | slope: -90° | R.L. Surface: Not Measured

hole diameter: 100 mm | Northing | bearing: | datum:

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer kPa 100 200 300 400	structure and additional observations
HA		N	None Observed	E				GP	**FILL:** Sandy GRAVEL, fine to medium grained, dark brown, sand fine to medium grained.	D			FILL (ROAD BASE)
								SM	**Silty SAND:** fine to medium grained, dark brown, some coarse rhyodacite gravel.				EXTREMELY WEATHERED RHYODACITE
				E					Terminated due to refusal on rhyodacite. Borehole EHA 2 terminated at 0.3m				
						0.5							
						1.0							
						1.5							
						2.0							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support: M mud, C casing, N nil

penetration: 1 2 3 4 — no resistance ranging to refusal

water: 10/1/98 water level on date shown; water inflow; water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description: based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Engineering Log - Borehole

Borehole No.	**EHA 3**
Sheet	1 of 1
Office Job No.:	**ENVIWARA00284AB**
Client:	**SAKE DEVELOPMENT**
Date started:	**26.2.2010**
Principal:	
Date completed:	**26.2.2010**
Project:	**ALL SEASONS SALAMANDER SHORES HOTEL**
Logged by:	**DCH**
Borehole Location:	**REFER TO FIGURE 2**
Checked by:	

drill model and mounting: Hand Auger | Easting: | slope: -90° | R.L. Surface: Not Measured

hole diameter: 100 mm | Northing | bearing: | datum:

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa (100 200 300 400)	structure and additional observations
HA		N	None Observed	E				SP	**FILL:** Silty SAND, fine to medium grained, dark brown, some woodchips at surface.	D			FILL (GARDEN BED)
				E					Large rhyodacite boulder encountered at 0.5m.				
						0.5			Terminated due to refusal on rhyodacite boulder. Borehole EHA 3 terminated at 0.5m				
						1.0							
						1.5							
						2.0							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support: M mud, C casing, N nil

penetration: 1 2 3 4 — no resistance ranging to refusal

water: 10/1/98 water level on date shown; water inflow; water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

BOREHOLE 00284AB.GPJ COFFEY.GDT 5.3.10

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Engineering Log - Borehole

Borehole No.	**EHA 4**
Sheet	1 of 1
Office Job No.:	**ENVIWARA00284AB**
Date started:	**26.2.2010**
Date completed:	**26.2.2010**
Logged by:	**DCH**
Checked by:	

Client: ***SAKE DEVELOPMENT***

Principal:

Project: ***ALL SEASONS SALAMANDER SHORES HOTEL***

Borehole Location: ***REFER TO FIGURE 2***

drill model and mounting: Hand Auger | Easting: | slope: -90° | R.L. Surface: Not Measured

hole diameter: 100 mm | Northing | bearing: | datum:

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer kPa 100 200 300 400	structure and additional observations
HA		N	None Observed	E				SM	**TOPSOIL:** Silty SAND, fine to medium grained, dark brown.	D			TOPSOIL
				E		0.5		SC	**Clayey SAND:** fine to medium grained, pale grey / brown, clay low plasticity, some rhyodacite gravels.				EXTREMELY WEATHERED RHYODACITE
									Terminated due to refusal in bedrock. Borehole EHA 4 terminated at 0.5m				
						1.0							
						1.5							
						2.0							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support: M mud, C casing, N nil

penetration: 1 2 3 4 — no resistance ranging to refusal

water: 10/1/98 water level on date shown; water inflow; water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	**EHA 5**
Sheet	1 of 1
Office Job No.:	**ENVIWARA00284AB**
Client:	**SAKE DEVELOPMENT**
Date started:	**26.2.2010**
Principal:	
Date completed:	**26.2.2010**
Project:	**ALL SEASONS SALAMANDER SHORES HOTEL**
Logged by:	**DCH**
Borehole Location:	**REFER TO FIGURE 2**
Checked by:	

drill model and mounting: Hand Auger | Easting: | slope: -90° | R.L. Surface: Not Measured

hole diameter: 100 mm | Northing | bearing: | datum:

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer kPa 100 200 300 400	structure and additional observations
HA		N	None Observed	E				SM	**TOPSOIL:** Silty SAND, fine to medium grained, dark brown.	D			TOPSOIL
				E				SP	**Gravelly SAND:** fine to medium grained, pale grey / brown, fine to coarse grained siltstone gravel.				EXTREMELY WEATHERED SILTSTONE
						0.5			Borehole EHA 5 terminated at 0.4m				
						1.0							
						1.5							
						2.0							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support: M mud, C casing, N nil

penetration: 1 2 3 4 — no resistance ranging to refusal

water: 10/1/98 water level on date shown; water inflow; water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description: based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	**EHA 6**
Sheet	1 of 1
Office Job No.:	**ENVIWARA00284AB**
Client:	**SAKE DEVELOPMENT**
Date started:	**26.2.2010**
Principal:	
Date completed:	**26.2.2010**
Project:	**ALL SEASONS SALAMANDER SHORES HOTEL**
Logged by:	**DCH**
Borehole Location:	**REFER TO FIGURE 2**
Checked by:	

drill model and mounting: Hand Auger | Easting: | slope: -90° | R.L. Surface: Not Measured

hole diameter: 100 mm | Northing | bearing: | datum:

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer kPa 100 200 300 400	structure and additional observations
HA		N	None Observed	E				SM	**TOPSOIL:** Silty SAND, fine to medium grained, dark brown.	D			TOPSOIL
				E		0.5		SC	**Clayey SAND:** fine to medium grained, orange / dark brown, clay low plasticity, some fine to coarse grained rhyodacite gravels.				EXTREMELY WEATHERED RHYODACITE
						1.0			Terminated due to refusal in bedrock. Borehole EHA 6 terminated at 0.5m				
						1.5							
						2.0							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support: M mud, C casing, N nil

penetration: 1 2 3 4 — no resistance ranging to refusal

water: 10/1/98 water level on date shown; water inflow; water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	**EHA 7**
Sheet	1 of 1
Office Job No.:	**ENVIWARA00284AB**
Client:	**SAKE DEVELOPMENT**
Date started:	**26.2.2010**
Principal:	
Date completed:	**26.2.2010**
Project:	**ALL SEASONS SALAMANDER SHORES HOTEL**
Logged by:	**DCH**
Borehole Location:	**REFER TO FIGURE 2**
Checked by:	

drill model and mounting: Hand Auger | Easting: | slope: -90° | R.L. Surface: Not Measured

hole diameter: 100 mm | Northing | bearing: | datum:

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer kPa 100 200 300 400	structure and additional observations
HA		N	None Observed	E				SP	**SAND:** fine to medium grained, brown.	D			COLLUVIUM
				E				SC	**Clayey SAND:** fine to medium grained, orange / grey, clay low plasticity, some fine to coarse grained rhyodacite gravels.				EXTREMELY WEATHERED RHYODACITE
						0.5			Terminated due to refusal in bedrock. Borehole EHA 7 terminated at 0.5m				
						1.0							
						1.5							
						2.0							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support: M mud, C casing, N nil

penetration 1 2 3 4: no resistance ranging to refusal

water: 10/1/98 water level on date shown; water inflow; water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	**EHA 8**
Sheet	1 of 1
Office Job No.:	**ENVIWARA00284AB**
Client:	**SAKE DEVELOPMENT**
Date started:	**26.2.2010**
Principal:	
Date completed:	**26.2.2010**
Project:	**ALL SEASONS SALAMANDER SHORES HOTEL**
Logged by:	**DCH**
Borehole Location:	**REFER TO FIGURE 2**
Checked by:	

drill model and mounting: Hand Auger | Easting: | slope: -90° | R.L. Surface: Not Measured

hole diameter: 100 mm | Northing | bearing: | datum:

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer kPa 100 200 300 400	structure and additional observations
HA		N	None Observed	E				SM	**Silty SAND:** fine to medium grained, dark brown, some fine grained (ash?) particles at surface.	D			COLLUVIUM
				E		0.5		GP	**Gravelly SAND:** fine to medium grained, dark grey / brown, fine to coarse grained rhyodacite gravel.				EXTREMELY WEATHERED RHYODACITE
									Terminated due to refusal in bedrock. Borehole EHA 8 terminated at 0.5m				
						1.0							
						1.5							
						2.0							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support: M mud, C casing, N nil

penetration: 1 2 3 4 — no resistance ranging to refusal

water: 10/1/98 water level on date shown; water inflow; water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	**EHA 9**
Sheet	1 of 1
Office Job No.:	**ENVIWARA00284AB**
Client:	**SAKE DEVELOPMENT**
Date started:	**26.2.2010**
Principal:	
Date completed:	**26.2.2010**
Project:	**ALL SEASONS SALAMANDER SHORES HOTEL**
Logged by:	**DCH**
Borehole Location:	**REFER TO FIGURE 2**
Checked by:	

drill model and mounting: Hand Auger | Easting: | slope: -90° | R.L. Surface: Not Measured

hole diameter: 100 mm | Northing | bearing: | datum:

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer kPa (100 200 300 400)	structure and additional observations
HA		N	None Observed	E				SP	**FILL:** Gravelly SAND, fine to medium grained, brown / grey, gravel fine to coarse grained.	D			FILL (ROAD BASE)
				E				GP	**Sandy GRAVEL:** fine to coarse grained siltstone gravel, pale grey, sand fine to medium grained.				EXTREMELY WEATHERED SILTSTONE
						0.5			Terminated due to refusal in bedrock. Borehole EHA 9 terminated at 0.4m				
						1.0							
						1.5							
						2.0							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support: M mud, C casing, N nil

penetration: 1 2 3 4 — no resistance ranging to refusal

water: 10/1/98 water level on date shown; water inflow; water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	**EHA10**
Sheet	1 of 1
Office Job No.:	**ENVIWARA00284AB**
Client:	**SAKE DEVELOPMENT**
Date started:	**26.2.2010**
Principal:	
Date completed:	**26.2.2010**
Project:	**ALL SEASONS SALAMANDER SHORES HOTEL**
Logged by:	**DCH**
Borehole Location:	**REFER TO FIGURE 2**
Checked by:	

drill model and mounting: Hand Auger | Easting: | slope: -90° | R.L. Surface: Not Measured

hole diameter: 100 mm | Northing | bearing: | datum:

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer kPa 100 200 300 400	structure and additional observations
HA		N	None Observed	E				SM	**TOPSOIL:** Silty SAND, fine to medium grained, dark brown.	D			TOPSOIL
				E				SP	**Gravelly SAND:** fine to medium grained, dark brown / orange, fine to coarse grained rhyodacite gravel.				EXTREMELY WEATHERED RHYODACITE
						0.5			Terminated due to refusal in bedrock. Borehole EHA10 terminated at 0.5m				
						1.0							
						1.5							
						2.0							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support: M mud, C casing, N nil

penetration: 1 2 3 4 — no resistance ranging to refusal

water: 10/1/98 water level on date shown; water inflow; water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Appendix C
PID Results

Phase 2 Environmental Site Assessment
All Seasons Salamander Shores Hotel, Soldiers Point

coffey environments

job no: ***ENVIWARA00284AB***

sheet 1 of 2

Photolonisation Detector (PID) Results

client:	***Sake Development***	office:	***Warabrook***
principal:	***Salamander Shores Hotel***	date:	***26 February 2010***
project:	***Phase 2 Environmental Site Assessment***	by:	***DCH***
location:	***147 Soldiers Point Road, Soldiers Point***	checked by:	
PID serial number:	***MINIRAE 2000 (SN: 110-002708)***	lamp voltage:	***10.6eV***

PID Calibration Record

Date / Time of Calibration: _____26/2/10_____ Calibration gas: 100 ppm ISOBUTYLENE

☑ Zero Calibration (0.0ppm) Actual _____0.0_____ppm ☑ Span Calibration (__100__ppm) Actual Reading _____100____ppm

Calibrated by: _DCH_____

SAMPLE ID	DEPTH	DURATION (mins)	BACKGROUND READING (ppm)	MAXIMUM READING (ppm)	LAST READING (ppm)	NOTES
EHA1	0.0-0.1	1	0.0	0.8	0.6	
EHA1	0.2-0.3	1	0.0	0.6	0.4	
EHA2	0.0-0.1	1	0.0	0.8	0.7	
EHA2	0.2-0.3	1	0.0	0.5	0.1	
EHA3	0.0-0.1	1	0.0	0.7	0.1	
EHA3	0.3-0.4	1	0.0	0.5	0.3	
EHA4	0.0-0.1	1	0.0	0.9	0.4	
EHA4	0.3-0.4	1	0.0	0.4	0.2	
EHA5	0.0-0.1	1	0.0	0.6	0.4	
EHA5	0.3-0.4	1	0.0	0.9	0.8	
EHA6	0.0-0.1	1	0.0	0.3	0.1	
EHA6	0.2-0.3	1	0.0	0.2	0.1	
EHA7	0.0-0.1	1	0.0	1.3	1.1	
EHA7	0.2-0.3	1	0.0	0.9	0.7	
EHA8	0.0-0.1	1	0.0	0.6	0.4	
EHA8	0.4-0.5	1	0.0	0.9	0.3	
EHA9	0.0-0.1	1	0.0	0.4	0.3	

coffey environments

job no: ***ENVIWARA00284AB***

sheet 2 of 2

Photolonisation Detector (PID) Results

client:	***Sake Development***	office:	***Warabrook***
principal:	***Salamander Shores Hotel***	date:	***26 February 2010***
project:	***Phase 2 Environmental Site Assessment***	by:	***DCH***
location:	***147 Soldiers Point Road, Soldiers Point***	checked by:	
PID serial number:	***MINIRAE 2000 (SN: 110-002708)***	lamp voltage:	***10.6eV***

PID Calibration Record

Date / Time of Calibration: _____26/2/10_____ Calibration gas: 100 ppm ISOBUTYLENE

☑ Zero Calibration (0.0ppm) Actual _____0.0_____ppm ☑ Span Calibration (__100__ppm) Actual Reading _____100____ppm

Calibrated by: _DCH_____

SAMPLE ID	DEPTH	DURATION (mins)	BACKGROUND READING (ppm)	MAXIMUM READING (ppm)	LAST READING (ppm)	NOTES
EHA9	0.3-0.4	1	0.0	0.4	0.2	
EHA10	0.0-0.1	1	0.0	0.5	0.2	
EHA10	0.2-0.3	1	0.0	0.3	0.1	

Appendix D
Data Validation Report

Phase 2 Environmental Site Assessment
All Seasons Salamander Shores Hotel, Soldiers Point

DATA COMPLETENESS

Field Considerations

	Yes / No	Comment
Were all critical locations sampled?	Yes	
Were all critical depths sampled?	Yes	
Were the SOPs appropriate and complied with?	Yes	
Was the sampler adequately experienced?	Yes	
Was the field documentation complete?	Yes	
Is a copy of the signed chain of custody form for each batch of samples included?	Yes	

Laboratory Considerations

	Yes / No	Comment
Were all critical samples analysed according to sampling plan?	Yes	
Were analytes analysed as per sampling plan?	Yes	
Were the laboratory methods appropriate?	Yes	
Were the laboratory methods adopted NATA endorsed?	Yes	
Was the NATA Seal on the laboratory reports?	Yes	
Were the laboratory reports signed by an authorised person?	Yes	
Were the laboratory PQLs below the criteria?	Yes	

Was sample documentation complete?	Yes	
Were sample holding times complied with?	Yes	

COMPLETENESS CONCLUSION

	Yes / No	Comment
Was data adequately complete?	Yes	

DATA COMPARABILITY

Field considerations

	Yes / No	Comment
Was there more than one sampling round?	No	Only one sampling round was conducted
Were the same sampling methodology and SOPs used for all sampling?	Yes	Only one sampling round was conducted
Was all sampling undertaken by the same sampler?	Yes	
Were sample containers, preservation, filtering the same?	Yes	
Could climatic conditions (temperature, rainfall, wind) have influenced data comparability?	No	Only soil samples were taken – these are unlikely to have been affected by climatic conditions.
Were the same types of samples collected (filtered, size fractions etc) for each media?	Yes	

Laboratory Considerations

	Yes / No	Comment
Were the same analytical methods used (including clean up)?	Yes	
Were the PQLs the same?	No	Different PQLs were used between SGS (the primary laboratory) and MGT (the secondary laboratory)
Were the same laboratories used?	No	SGS was the primary laboratory and MGT was the secondary laboratory
Were the units reported the same?	Yes	

COMPARABILITY CONCLUSION

	Yes / No	Comment
Was data adequately comparable?	Yes	

DATA REPRESENTATIVENESS

Field Considerations

	Yes / No	Comment
Was appropriate media sampled?	Yes	
Was media identified sampled?	Yes	
Were the samples properly and adequately preserved? This includes keeping the samples chilled, where applicable.	Yes	
Were the samples in proper custody between the field and reaching the laboratory?	Yes	
Were the samples received by the laboratory in good condition?	No	One sample (EHA2 0.2-0.3) was received broken at the laboratory

Laboratory Considerations

	Yes / No	Comment
Were all samples analysed according to SAQP?	NA	There was no SAQP for this assessment.

REPRESENTATIVENESS CONCLUSION

	Yes / No	Comment
Was data adequately representative?	Yes	

DATA PRECISION AND ACCURACY

Field considerations

	Yes / No	Comment
Were the SOPs appropriate and complied with?	Yes	Based on available Coffey Environments Standard Operating Procedures.

Laboratory Considerations for Soil

	Metals	TPH	BTEX	PAH	OCP	PCB	OPP	Chloride	Asbestos
Primary	19	6	6	19	6	6	6	3	10
Field QA/QC									
Intralab Dup	2, 11%	1, 17%	1, 17%	2, 11%	1, 17%	1, 17%	1, 17%	1, 33%	0
Interlab Dup	1, 5%	0	0	1, 5%	0	0	0	1, 33%	0
Trip Spike	NA	NA	0	NA	NA	NA	NA	NA	NA
Trip Blank	NA	NA	0	NA	NA	NA	NA	NA	NA
Wash Blanks	1	1	1	1	0	0	0	0	NA
LAB QA/QC									
Lab Blanks	3	2	2	3	1	1	1	2	0
Lab Dups	1	1	0	2	1	1	1	0	0
Matrix Spikes	1	1	1	2	1	1	0	1	0
Lab Control	1	3	0	1	0	0	5	2	0
Surrogate	0	0	2	8	1	1	2	0	0

	Yes / No	Comment
Field QA/QC		
Were an adequate number of field duplicates analysed?	Yes	
Were the RPDs of the field duplicates within control limits?	No	Two soil duplicates had RPDs exceeding the control limit (50%) for total xylenes and chloride.
Were an adequate number of trip blanks analysed?	No	No trip blanks were analysed for the sampling
Were the trip blanks free of contaminants	NA	
Were an adequate number of trip spikes analysed?	No	No trip spikes were analysed for the sampling
Were the trip spikes recoveries within control limits?	NA	
Were an adequate number of wash blanks analysed?	Yes	
Were the wash blanks free of contaminants?	Yes	
Lab QA/QC		
Were an adequate number of laboratory blank samples analysed?	Yes	
Were the blanks free of contaminants?	Yes	
Were an adequate number of laboratory matrix spikes and laboratory control samples analysed?	Yes	
Were an adequate number of surrogate spike samples analysed?	Yes	
Were the spikes recoveries within control limits?	Yes	

Were an adequate number of laboratory duplicates analysed?	Yes	
Were the laboratory duplicate RPDs within control limits?	Yes	

PRECISION AND ACCURACY CONCLUSION

	Yes / No	Comment
Was soil data adequately precise?	Yes	
Was soil data adequately accurate?	Yes	
Was water data adequately precise?	NA	
Was water data adequately accurate?	NA	

Table D1: Laboratory Methodologies (SGS) - Soil

Analysis	Method Based On	NATA Registered
TPH C6-C9/BTEX	Based on USEPA 5030B and 8260B	Yes
TPH C10-C36	SGS method SEO-020	Yes
PAH	SGS method SEO-030	Yes
Metals	SGS method SEM-010	Yes
OCP	Based on USEPA 8080/8082	Yes
OPP	Based on USEPA 8080/8082	Yes
PCB	Based on USEPA 8080/8082	Yes
Chloride	Based on APHA 4110B	Yes
Asbestos	SGS method AN602	Yes

Table D2: Holding Times (SGS) - Soil

Soil Analysis	Holding Time	Maximum Time Between Sampling and Extraction	Holding Times Met
TPH C6-C9/BTEX	14 days	6 days	Yes
TPH C10-C36	14 days	6 days	Yes
PAH	14 days	6 days	Yes
Metals	6 months	10 days	Yes
OCP	14 days	6 days	Yes
OPP	14 days	6 days	Yes
PCB	14 days	6 days	Yes
Chloride	14 days	6 days	Yes
Asbestos	NA		

Table D3: Laboratory Methodologies (MGT) - Soil

Analysis	Method Based On	NATA Registered
PAH	Based on USEPA 8270C	Yes
Metals	Based on USEPA 6020 (USEPA 7470/71 for Mercury)	Yes
Chloride	Based on APHA 4500-Cl	Yes

Table D4: Holding Times (MGT) - Soil

Soil Analysis	Holding Time	Maximum Time Between Sampling and Extraction	Holding Times Met
PAH	14 days	4 days	Yes
Metals	6 months	4 days	Yes
Chloride	14 days	4 days	Yes

Appendix E
Laboratory Reports and Chain of Custody Documentation

Phase 2 Environmental Site Assessment
All Seasons Salamander Shores Hotel, Soldiers Point

ANALYTICAL REPORT

8 March 2010

Coffey Environments Pty Ltd
Lot 101, 19 Warabrook Blvd
Warabrook
NSW 2304

Attention: **James McMahon**

Your Reference: ENVIWARA00284AB

Our Reference: SE76267 Samples: 24 Soils, 1 Water
Received: 02/03/2010

Preliminary Report Sent: Not Issued

These samples were analysed in accordance with your written instructions.

For and on Behalf of:
SGS ENVIRONMENTAL SERVICES

Client Services:	Simon Matthews	Simon.Matthews@sgs.com
Sample Receipt:	Angela Mamalicos	AU.SampleReceipt.Sydney@sgs.com
Laboratory Manager:	Edward Ibrahim	Edward.Ibrahim@sgs.com

Results Approved and/or Authorised by:

Dong Liang
Quality Manager

Ravee Sivasubramaniam
Asbestos Signatory

Ly Kim Ha
Organics Signatory

Huong Crawford
Metals Signatory

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BTEX in Soil Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-1 EHA1_0.0-0.1 Soil 26/02/2010	SE76267-2 EHA1_0.2-0.3 Soil 26/02/2010	SE76267-3 EHA2_0.0-0.1 Soil 26/02/2010	SE76267-7 EHA4_0.0-0.1 Soil 26/02/2010	SE76267-8 EHA4_0.3-0.4 Soil 26/02/2010
Date Extracted (BTEX)		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
Date Analysed (BTEX)		6/03/2010	6/03/2010	6/03/2010	6/03/2010	6/03/2010
Benzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Total Xylenes	mg/kg	0.4	<0.3	1.0	<0.3	<0.3
BTEX Surrogate (%)	%	73	84	83	83	78

BTEX in Soil Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-15 EHA8_0.0-0.1 Soil 26/02/2010	SE76267-21 QC1 Soil 26/02/2010
Date Extracted (BTEX)		4/03/2010	4/03/2010
Date Analysed (BTEX)		6/03/2010	6/03/2010
Benzene	mg/kg	<0.1	<0.1
Toluene	mg/kg	<0.1	<0.1
Ethylbenzene	mg/kg	<0.1	0.2
Total Xylenes	mg/kg	<0.3	2.0
BTEX Surrogate (%)	%	86	84

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TRH in soil with C6-C9 by P/T Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-1 EHA1_0.0-0.1 Soil 26/02/2010	SE76267-2 EHA1_0.2-0.3 Soil 26/02/2010	SE76267-3 EHA2_0.0-0.1 Soil 26/02/2010	SE76267-7 EHA4_0.0-0.1 Soil 26/02/2010	SE76267-8 EHA4_0.3-0.4 Soil 26/02/2010
Date Extracted (TRH C6-C9 PT)		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
Date Analysed (TRH C6-C9 PT)		6/03/2010	6/03/2010	6/03/2010	6/03/2010	6/03/2010
TRH C_6 - C_9 P&T	mg/kg	<20	<20	<20	<20	<20
Date Extracted (TRH C10-C36)		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
Date Analysed (TRH C10-C36)		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
TRH C_{10} - C_{14}	mg/kg	<20	<20	<20	<20	<20
TRH C_{15} - C_{28}	mg/kg	<50	<50	<50	<50	<50
TRH C_{29} - C_{36}	mg/kg	<50	<50	<50	<50	<50

TRH in soil with C6-C9 by P/T Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-15 EHA8_0.0-0.1 Soil 26/02/2010	SE76267-21 QC1 Soil 26/02/2010
Date Extracted (TRH C6-C9 PT)		4/03/2010	4/03/2010
Date Analysed (TRH C6-C9 PT)		6/03/2010	6/03/2010
TRH C_6 - C_9 P&T	mg/kg	<20	<20
Date Extracted (TRH C10-C36)		4/03/2010	4/03/2010
Date Analysed (TRH C10-C36)		4/03/2010	4/03/2010
TRH C_{10} - C_{14}	mg/kg	<20	<20
TRH C_{15} - C_{28}	mg/kg	<50	58
TRH C_{29} - C_{36}	mg/kg	<50	96

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PAHs in Soil Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-1 EHA1_0.0-0.1 Soil 26/02/2010	SE76267-2 EHA1_0.2-0.3 Soil 26/02/2010	SE76267-3 EHA2_0.0-0.1 Soil 26/02/2010	SE76267-5 EHA3_0.0-0.1 Soil 26/02/2010	SE76267-6 EHA3_0.3-0.4 Soil 26/02/2010
Date Extracted		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
Date Analysed		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
Naphthalene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
2-Methylnaphthalene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
1-Methylnaphthalene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	<0.10	<0.10	0.11	0.17	0.28
Pyrene	mg/kg	<0.10	<0.10	0.10	0.16	0.26
Benzo[*a*]anthracene	mg/kg	<0.10	<0.10	<0.10	0.15	0.24
Chrysene	mg/kg	<0.10	<0.10	<0.10	0.16	0.26
Benzo[*b,k*]fluoranthene	mg/kg	<0.20	<0.20	<0.20	0.31	0.47
Benzo[*a*]pyrene	mg/kg	<0.05	<0.05	0.07	0.16	0.24
Indeno[*123-cd*]pyrene	mg/kg	<0.10	<0.10	<0.10	0.11	0.17
Dibenzo[*ah*]anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[*ghi*]perylene	mg/kg	<0.10	<0.10	<0.10	0.13	0.20
Total PAHs (sum)	mg/kg	<1.7	<1.7	<1.78	<2.25	<3.02
Nitrobenzene-d5	%	70	77	77	73	80
2-Fluorobiphenyl	%	71	72	74	73	71
p -Terphenyl-*d14*	%	72	79	95	74	79

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PAHs in Soil Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-7 EHA4_0.0-0.1 Soil 26/02/2010	SE76267-8 EHA4_0.3-0.4 Soil 26/02/2010	SE76267-9 EHA5_0.0-0.1 Soil 26/02/2010	SE76267-10 EHA5_0.3-0.4 Soil 26/02/2010	SE76267-11 EHA6_0.0-0.1 Soil 26/02/2010
Date Extracted		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
Date Analysed		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
Naphthalene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
2-Methylnaphthalene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
1-Methylnaphthalene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	<0.10	<0.10	0.31	0.25	<0.10
Pyrene	mg/kg	<0.10	<0.10	0.28	0.23	<0.10
Benzo[*a*]anthracene	mg/kg	<0.10	<0.10	0.10	0.10	<0.10
Chrysene	mg/kg	<0.10	<0.10	0.14	0.15	<0.10
Benzo[*b,k*]fluoranthene	mg/kg	<0.20	<0.20	0.26	0.25	<0.20
Benzo[*a*]pyrene	mg/kg	<0.05	<0.05	0.11	0.11	<0.05
Indeno[*123-cd*]pyrene	mg/kg	<0.10	<0.10	<0.10	0.11	<0.10
Dibenzo[*ah*]anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[*ghi*]perylene	mg/kg	<0.10	<0.10	0.12	0.13	<0.10
Total PAHs (sum)	mg/kg	<1.7	<1.7	<2.32	<2.23	<1.7
Nitrobenzene-d5	%	82	79	82	78	80
2-Fluorobiphenyl	%	75	70	74	72	72
p -Terphenyl-*d14*	%	93	70	86	80	81

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PAHs in Soil Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-12 EHA6_0.2-0.3 Soil 26/02/2010	SE76267-13 EHA7_0.0-0.1 Soil 26/02/2010	SE76267-14 EHA7_0.2-0.3 Soil 26/02/2010	SE76267-15 EHA8_0.0-0.1 Soil 26/02/2010	SE76267-16 EHA8_0.4-0.5 Soil 26/02/2010
Date Extracted		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
Date Analysed		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
Naphthalene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
2-Methylnaphthalene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
1-Methylnaphthalene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Pyrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[*a*]anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Chrysene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[*b,k*]fluoranthene	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo[*a*]pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno[*123-cd*]pyrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Dibenzo[*ah*]anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[*ghi*]perylene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Total PAHs (sum)	mg/kg	<1.7	<1.7	<1.7	<1.7	<1.7
Nitrobenzene-d5	%	78	78	86	87	83
2-Fluorobiphenyl	%	70	71	77	76	76
p -Terphenyl-*d14*	%	82	78	87	86	85

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PAHs in Soil Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ----------	SE76267-17 EHA9_0.0-0.1 Soil 26/02/2010	SE76267-18 EHA9_0.3-0.4 Soil 26/02/2010	SE76267-19 EHA10_0.0-0.1 Soil 26/02/2010	SE76267-20 EHA10_0.2-0.3 Soil 26/02/2010	SE76267-21 QC1 Soil 26/02/2010
Date Extracted		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
Date Analysed		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
Naphthalene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
2-Methylnaphthalene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
1-Methylnaphthalene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Pyrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[*a*]anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Chrysene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[*b,k*]fluoranthene	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo[*a*]pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	0.05
Indeno[*123-cd*]pyrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Dibenzo[*ah*]anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[*ghi*]perylene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Total PAHs (sum)	mg/kg	<1.7	<1.7	<1.7	<1.7	<1.7
Nitrobenzene-d5	%	86	87	71	87	80
2-Fluorobiphenyl	%	83	76	82	77	80
p -Terphenyl-*d14*	%	85	87	79	88	87

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PAHs in Soil Our Reference: Your Reference Sample Matrix Date Sampled	UNITS --- ---	SE76267-24 QC3 Soil 26/02/2010
Date Extracted		4/03/2010
Date Analysed		4/03/2010
Naphthalene	mg/kg	<0.10
2-Methylnaphthalene	mg/kg	<0.10
1-Methylnaphthalene	mg/kg	<0.10
Acenaphthylene	mg/kg	<0.10
Acenaphthene	mg/kg	<0.10
Fluorene	mg/kg	<0.10
Phenanthrene	mg/kg	<0.10
Anthracene	mg/kg	<0.10
Fluoranthene	mg/kg	<0.10
Pyrene	mg/kg	<0.10
Benzo[*a*]anthracene	mg/kg	<0.10
Chrysene	mg/kg	<0.10
Benzo[*b,k*]fluoranthene	mg/kg	<0.20
Benzo[*a*]pyrene	mg/kg	<0.05
Indeno[*123-cd*]pyrene	mg/kg	<0.10
Dibenzo[*ah*]anthracene	mg/kg	<0.10
Benzo[*ghi*]perylene	mg/kg	<0.10
Total PAHs (sum)	mg/kg	<1.7
Nitrobenzene-d5	%	91
2-Fluorobiphenyl	%	85
p -Terphenyl-*d14*	%	107

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OC Pesticides in Soil Our Reference:	UNITS	SE76267-3	SE76267-7	SE76267-8	SE76267-9	SE76267-17
Your Reference	----------	EHA2_0.0-0.1	EHA4_0.0-0.1	EHA4_0.3-0.4	EHA5_0.0-0.1	EHA9_0.0-0.1
Sample Matrix	----------	Soil	Soil	Soil	Soil	Soil
Date Sampled		26/02/2010	26/02/2010	26/02/2010	26/02/2010	26/02/2010
Date Extracted		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
Date Analysed		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC (Lindane)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
o,p-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-Endosulfan	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
cis-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
p,p-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
o,p-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
o,p-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-Endosulfan	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
p,p-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
p,p-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,5,6-Tetrachloro-m-xylene *(Surrogate*	%	91	95	88	81	84

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OC Pesticides in Soil Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-19 EHA10_0.0-0.1 Soil 26/02/2010	SE76267-21 QC1 Soil 26/02/2010
Date Extracted		4/03/2010	4/03/2010
Date Analysed		4/03/2010	4/03/2010
HCB	mg/kg	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1
gamma-BHC (Lindane)	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
o,p-DDE	mg/kg	<0.1	<0.1
alpha-Endosulfan	mg/kg	<0.1	<0.1
trans-Chlordane	mg/kg	<0.1	<0.1
cis-Chlordane	mg/kg	<0.1	<0.1
trans-Nonachlor	mg/kg	<0.1	<0.1
p,p-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
o,p-DDD	mg/kg	<0.1	<0.1
o,p-DDT	mg/kg	<0.1	<0.1
beta-Endosulfan	mg/kg	<0.1	<0.1
p,p-DDD	mg/kg	<0.1	<0.1
p,p-DDT	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Endrin Ketone	mg/kg	<0.1	<0.1
2,4,5,6-Tetrachloro-m-xylene *(Surrogate*	%	84	90

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OP Pesticides in Soil by GCMS Our Reference:	UNITS	SE76267-3	SE76267-7	SE76267-8	SE76267-9	SE76267-17
Your Reference	----------	EHA2_0.0-0.1	EHA4_0.0-0.1	EHA4_0.3-0.4	EHA5_0.0-0.1	EHA9_0.0-0.1
Sample Matrix	----------	Soil	Soil	Soil	Soil	Soil
Date Sampled		26/02/2010	26/02/2010	26/02/2010	26/02/2010	26/02/2010
Date Extracted		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
Date Analysed		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
Dichlorvos	mg/kg	<1	<1	<1	<1	<1
Dimethoate	mg/kg	<1	<1	<1	<1	<1
Diazinon	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorpyrifos-ethyl	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Bromofos-ethyl	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20
2-fluorobiphenyl (Surr)	%	99	96	87	91	92
d14-p-Terphenyl (Surr)	%	87	88	76	87	84

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OP Pesticides in Soil by GCMS Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	 SE76267-19 EHA10_0.0-0.1 Soil 26/02/2010	 SE76267-21 QC1 Soil 26/02/2010
Date Extracted		4/03/2010	4/03/2010
Date Analysed		4/03/2010	4/03/2010
Dichlorvos	mg/kg	<1	<1
Dimethoate	mg/kg	<1	<1
Diazinon	mg/kg	<0.5	<0.5
Fenitrothion	mg/kg	<0.2	<0.2
Malathion	mg/kg	<0.20	<0.20
Chlorpyrifos-ethyl	mg/kg	<0.2	<0.2
Parathion-ethyl	mg/kg	<0.2	<0.2
Bromofos-ethyl	mg/kg	<0.2	<0.2
Methidathion	mg/kg	<0.5	<0.5
Ethion	mg/kg	<0.2	<0.2
Azinphos-methyl	mg/kg	<0.20	<0.20
2-fluorobiphenyl (Surr)	%	88	97
d14-p-Terphenyl (Surr)	%	76	89

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PCBs in Soil Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-3 EHA2_0.0-0.1 Soil 26/02/2010	SE76267-7 EHA4_0.0-0.1 Soil 26/02/2010	SE76267-8 EHA4_0.3-0.4 Soil 26/02/2010	SE76267-9 EHA5_0.0-0.1 Soil 26/02/2010	SE76267-17 EHA9_0.0-0.1 Soil 26/02/2010
Date Extracted		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
Date Analysed		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1262	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1268	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Positive PCB	mg/kg	<0.90	<0.90	<0.90	<0.90	<0.90
PCB_Surrogate 1	%	91	95	88	81	84

PCBs in Soil Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-19 EHA10_0.0-0.1 Soil 26/02/2010	SE76267-21 QC1 Soil 26/02/2010
Date Extracted		4/03/2010	4/03/2010
Date Analysed		4/03/2010	4/03/2010
Arochlor 1016	mg/kg	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1
Arochlor 1262	mg/kg	<0.1	<0.1
Arochlor 1268	mg/kg	<0.1	<0.1
Total Positive PCB	mg/kg	<0.90	<0.90
PCB_Surrogate 1	%	84	90

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Anions in soil Our Reference:	UNITS	SE76267-5	SE76267-6	SE76267-13	SE76267-24
Your Reference	----------	EHA3_0.0-0.1	EHA3_0.3-0.4	EHA7_0.0-0.1	QC3
Sample Matrix	----------	Soil	Soil	Soil	Soil
Date Sampled		26/02/2010	26/02/2010	26/02/2010	26/02/2010
Date Extracted		4/03/2010	4/03/2010	4/03/2010	4/03/2010
Date Analysed		4/03/2010	4/03/2010	4/03/2010	4/03/2010
Chloride, Cl 1:5 soil:water	mg/kg	63	41	46	16

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Metals in Soil by ICP-OES Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-1 EHA1_0.0-0.1 Soil 26/02/2010	SE76267-2 EHA1_0.2-0.3 Soil 26/02/2010	SE76267-3 EHA2_0.0-0.1 Soil 26/02/2010	SE76267-5 EHA3_0.0-0.1 Soil 26/02/2010	SE76267-6 EHA3_0.3-0.4 Soil 26/02/2010
Date Extracted (Metals)		8/03/2010	8/03/2010	8/03/2010	8/03/2010	8/03/2010
Date Analysed (Metals)		8/03/2010	8/03/2010	8/03/2010	8/03/2010	8/03/2010
Arsenic	mg/kg	<3	<3	4	4	4
Cadmium	mg/kg	<0.3	<0.3	<0.3	0.3	<0.3
Chromium	mg/kg	1.8	1.7	3.7	8.2	3.4
Copper	mg/kg	3.1	2.7	13	54	45
Lead	mg/kg	5	4	14	15	16
Nickel	mg/kg	0.8	0.8	1.8	2.4	2.1
Zinc	mg/kg	18	14	97	130	89

Metals in Soil by ICP-OES Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-7 EHA4_0.0-0.1 Soil 26/02/2010	SE76267-8 EHA4_0.3-0.4 Soil 26/02/2010	SE76267-9 EHA5_0.0-0.1 Soil 26/02/2010	SE76267-10 EHA5_0.3-0.4 Soil 26/02/2010	SE76267-11 EHA6_0.0-0.1 Soil 26/02/2010
Date Extracted (Metals)		8/03/2010	8/03/2010	8/03/2010	8/03/2010	8/03/2010
Date Analysed (Metals)		8/03/2010	8/03/2010	8/03/2010	8/03/2010	8/03/2010
Arsenic	mg/kg	<3	<3	<3	6	<3
Cadmium	mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium	mg/kg	1.9	2.4	3.1	2.4	2.7
Copper	mg/kg	6.4	7.1	8.3	7.3	4.5
Lead	mg/kg	8	11	57	64	2
Nickel	mg/kg	0.9	1.3	2.1	1.8	0.94
Zinc	mg/kg	23	19	46	25	19

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Metals in Soil by ICP-OES Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-12 EHA6_0.2-0.3 Soil 26/02/2010	SE76267-13 EHA7_0.0-0.1 Soil 26/02/2010	SE76267-14 EHA7_0.2-0.3 Soil 26/02/2010	SE76267-15 EHA8_0.0-0.1 Soil 26/02/2010	SE76267-16 EHA8_0.4-0.5 Soil 26/02/2010
Date Extracted (Metals)		8/03/2010	8/03/2010	8/03/2010	8/03/2010	8/03/2010
Date Analysed (Metals)		8/03/2010	8/03/2010	8/03/2010	8/03/2010	8/03/2010
Arsenic	mg/kg	<3	<3	<3	<3	<3
Cadmium	mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium	mg/kg	3.2	2.7	3.1	2.4	3.6
Copper	mg/kg	8.8	14	18	7.9	15
Lead	mg/kg	3	3	5	3	4
Nickel	mg/kg	1.4	1.4	1.7	1.7	2.0
Zinc	mg/kg	31	46	54	49	96

Metals in Soil by ICP-OES Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-17 EHA9_0.0-0.1 Soil 26/02/2010	SE76267-18 EHA9_0.3-0.4 Soil 26/02/2010	SE76267-19 EHA10_0.0-0.1 Soil 26/02/2010	SE76267-20 EHA10_0.2-0.3 Soil 26/02/2010	SE76267-21 QC1 Soil 26/02/2010
Date Extracted (Metals)		8/03/2010	8/03/2010	8/03/2010	8/03/2010	8/03/2010
Date Analysed (Metals)		8/03/2010	8/03/2010	8/03/2010	8/03/2010	8/03/2010
Arsenic	mg/kg	4	4	<3	<3	4
Cadmium	mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium	mg/kg	9.0	8.2	1.5	1.4	3.6
Copper	mg/kg	15	18	0.8	<0.5	13
Lead	mg/kg	10	10	1	<1	15
Nickel	mg/kg	3.6	3.9	<0.5	<0.5	1.7
Zinc	mg/kg	180	160	5.9	3.2	96

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Metals in Soil by ICP-OES Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-24 QC3 Soil 26/02/2010
Date Extracted (Metals)		8/03/2010
Date Analysed (Metals)		8/03/2010
Arsenic	mg/kg	<3
Cadmium	mg/kg	<0.3
Chromium	mg/kg	2.6
Copper	mg/kg	12
Lead	mg/kg	3
Nickel	mg/kg	1.5
Zinc	mg/kg	48

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Mercury Cold Vapor/Hg Analyser Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-1 EHA1_0.0-0.1 Soil 26/02/2010	SE76267-2 EHA1_0.2-0.3 Soil 26/02/2010	SE76267-3 EHA2_0.0-0.1 Soil 26/02/2010	SE76267-5 EHA3_0.0-0.1 Soil 26/02/2010	SE76267-6 EHA3_0.3-0.4 Soil 26/02/2010
Date Extracted (Mercury)		8/03/2010	8/03/2010	8/03/2010	8/03/2010	8/03/2010
Date Analysed (Mercury)		8/03/2010	8/03/2010	8/03/2010	8/03/2010	8/03/2010
Mercury	mg/kg	<0.05	<0.05	<0.05	0.06	<0.05

Mercury Cold Vapor/Hg Analyser Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-7 EHA4_0.0-0.1 Soil 26/02/2010	SE76267-8 EHA4_0.3-0.4 Soil 26/02/2010	SE76267-9 EHA5_0.0-0.1 Soil 26/02/2010	SE76267-10 EHA5_0.3-0.4 Soil 26/02/2010	SE76267-11 EHA6_0.0-0.1 Soil 26/02/2010
Date Extracted (Mercury)		8/03/2010	8/03/2010	8/03/2010	8/03/2010	8/03/2010
Date Analysed (Mercury)		8/03/2010	8/03/2010	8/03/2010	8/03/2010	8/03/2010
Mercury	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Mercury Cold Vapor/Hg Analyser Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-12 EHA6_0.2-0.3 Soil 26/02/2010	SE76267-13 EHA7_0.0-0.1 Soil 26/02/2010	SE76267-14 EHA7_0.2-0.3 Soil 26/02/2010	SE76267-15 EHA8_0.0-0.1 Soil 26/02/2010	SE76267-16 EHA8_0.4-0.5 Soil 26/02/2010
Date Extracted (Mercury)		8/03/2010	8/03/2010	8/03/2010	8/03/2010	8/03/2010
Date Analysed (Mercury)		8/03/2010	8/03/2010	8/03/2010	8/03/2010	8/03/2010
Mercury	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Mercury Cold Vapor/Hg Analyser Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-17 EHA9_0.0-0.1 Soil 26/02/2010	SE76267-18 EHA9_0.3-0.4 Soil 26/02/2010	SE76267-19 EHA10_0.0-0.1 Soil 26/02/2010	SE76267-20 EHA10_0.2-0.3 Soil 26/02/2010	SE76267-21 QC1 Soil 26/02/2010
Date Extracted (Mercury)		8/03/2010	8/03/2010	8/03/2010	8/03/2010	8/03/2010
Date Analysed (Mercury)		8/03/2010	8/03/2010	8/03/2010	8/03/2010	8/03/2010
Mercury	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

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Mercury Cold Vapor/Hg Analyser Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-24 QC3 Soil 26/02/2010
Date Extracted (Mercury)		8/03/2010
Date Analysed (Mercury)		8/03/2010
Mercury	mg/kg	<0.05

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Asbestos ID in soil Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-1 EHA1_0.0-0.1 Soil 26/02/2010	SE76267-3 EHA2_0.0-0.1 Soil 26/02/2010	SE76267-5 EHA3_0.0-0.1 Soil 26/02/2010	SE76267-7 EHA4_0.0-0.1 Soil 26/02/2010	SE76267-9 EHA5_0.0-0.1 Soil 26/02/2010
Date Analysed		5/03/2010	5/03/2010	5/03/2010	5/03/2010	5/03/2010
Sample Description		33g Sand,soil,plant matter	98g Sand,soil,plant matter	27g Sand,soil,plant matter	56g Sand,soil,plant matter	34g Sand,soil,plant matter
Asbestos ID in soil	-	No asbestos detected Organic fibres detected*	No asbestos detected Organic fibres detected*	No asbestos detected Organic fibres detected*	No asbestos detected Organic fibres detected*	No asbestos detected Organic fibres detected*

Asbestos ID in soil Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-11 EHA6_0.0-0.1 Soil 26/02/2010	SE76267-13 EHA7_0.0-0.1 Soil 26/02/2010	SE76267-15 EHA8_0.0-0.1 Soil 26/02/2010	SE76267-17 EHA9_0.0-0.1 Soil 26/02/2010	SE76267-19 EHA10_0.0-0.1 Soil 26/02/2010
Date Analysed		5/03/2010	5/03/2010	5/03/2010	5/03/2010	5/03/2010
Sample Description		68g Sand,soil,plant matter	90g Sand,soil,plant matter	128g Sand,soil,plant matter	64g sand,soil,rocks	99g sand,plant matter
Asbestos ID in soil	-	No asbestos detected Organic fibres detected*	No asbestos detected Organic fibres detected*	No asbestos detected Organic fibres detected*	No asbestos detected Organic fibres detected*	No asbestos detected Organic fibres detected*

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BTEX in Water (µg/L) Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	 SE76267-25 QCA Water 26/02/2010
Date Extracted (BTEX)		4/03/2010
Date Analysed (BTEX)		4/03/2010
Benzene	µg/L	<0.5
Toluene	µg/L	<0.5
Ethylbenzene	µg/L	<0.5
Total Xylenes	µg/L	<1.5
Surrogate	%	81

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TRH in water with C6-C9 by P/T Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-25 QCA Water 26/02/2010
Date Extracted (TRH C6-C9 PT)		4/03/2010
Date Analysed (TRH C6-C9 PT)		4/03/2010
TPH C6-C9 P&T	µg/L	<40
Date Extracted (TRH C10-C36)		4/03/2010
Date Analysed (TRH C10-C36)		4/03/2010
TRH C_{10} - C_{14}	µg/L	<100
TRH C_{15} - C_{28}	µg/L	<200
TRH C_{29} - C_{36}	µg/L	<200

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PAHs in Water Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-25 QCA Water 26/02/2010
Date Extracted		4/03/2010
Date Analysed		4/03/2010
Naphthalene	µg/L	<0.50
2-Methylnaphthalene	µg/L	<0.5
1-Methylnaphthalene	µg/L	<0.5
Acenaphthylene	µg/L	<0.50
Acenaphthene	µg/L	<0.50
Fluorene	µg/L	<0.50
Phenanthrene	µg/L	<0.50
Anthracene	µg/L	<0.50
Fluoranthene	µg/L	<0.50
Pyrene	µg/L	<0.50
Benzo[*a*]anthracene	µg/L	<0.50
Chrysene	µg/L	<0.50
Benzo[*b,k*]fluoranthene	µg/L	<1.0
Benzo[*a*]pyrene	µg/L	<0.50
Indeno[*123-cd*]pyrene	µg/L	<0.50
Dibenzo[*ah*]anthracene	µg/L	<0.50
Benzo[*ghi*]perylene	µg/L	<0.50
Total PAHs	µg/L	<9
Nitrobenzene-d5	%	74
2-Fluorobiphenyl	%	79
p -Terphenyl-*d14*	%	93

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Trace HM (ICP-MS)-Dissolved Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-25 QCA Water 26/02/2010
Date Extracted (Metals-ICPMS)		3/03/2010
Date Analysed (Metals-ICPMS)		3/03/2010
Arsenic	µg/L	<1
Cadmium	µg/L	<0.1
Chromium	µg/L	<1
Copper	µg/L	<1
Lead	µg/L	1
Nickel	µg/L	<1
Zinc	µg/L	6

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Mercury Cold Vapor/Hg Analyser Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	 SE76267-25 QCA Water 26/02/2010
Date Extracted (Mercury)		5/03/2010
Date Analysed (Mercury)		5/03/2010
Mercury (Dissolved)	mg/L	<0.0005

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Moisture Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-1 EHA1_0.0-0.1 Soil 26/02/2010	SE76267-2 EHA1_0.2-0.3 Soil 26/02/2010	SE76267-3 EHA2_0.0-0.1 Soil 26/02/2010	SE76267-5 EHA3_0.0-0.1 Soil 26/02/2010	SE76267-6 EHA3_0.3-0.4 Soil 26/02/2010
Date Analysed (moisture)		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
Moisture	%	11	8	7	27	19

Moisture Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-7 EHA4_0.0-0.1 Soil 26/02/2010	SE76267-8 EHA4_0.3-0.4 Soil 26/02/2010	SE76267-9 EHA5_0.0-0.1 Soil 26/02/2010	SE76267-10 EHA5_0.3-0.4 Soil 26/02/2010	SE76267-11 EHA6_0.0-0.1 Soil 26/02/2010
Date Analysed (moisture)		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
Moisture	%	15	17	9	5	13

Moisture Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-12 EHA6_0.2-0.3 Soil 26/02/2010	SE76267-13 EHA7_0.0-0.1 Soil 26/02/2010	SE76267-14 EHA7_0.2-0.3 Soil 26/02/2010	SE76267-15 EHA8_0.0-0.1 Soil 26/02/2010	SE76267-16 EHA8_0.4-0.5 Soil 26/02/2010
Date Analysed (moisture)		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
Moisture	%	11	12	15	7	9

Moisture Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	SE76267-17 EHA9_0.0-0.1 Soil 26/02/2010	SE76267-18 EHA9_0.3-0.4 Soil 26/02/2010	SE76267-19 EHA10_0.0-0.1 Soil 26/02/2010	SE76267-20 EHA10_0.2-0.3 Soil 26/02/2010	SE76267-21 QC1 Soil 26/02/2010
Date Analysed (moisture)		4/03/2010	4/03/2010	4/03/2010	4/03/2010	4/03/2010
Moisture	%	12	12	5	4	7

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Moisture Our Reference:	UNITS	SE76267-24
Your Reference	----------	QC3
Sample Matrix	----------	Soil
Date Sampled		26/02/2010
Date Analysed (moisture)		4/03/2010
Moisture	%	9

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Method ID	Methodology Summary
SEO-018	BTEX / C6-C9 Hydrocarbons - Soil samples are extracted with methanol, purged and concentrated by a purge and trap apparatus, and then analysed using GC/MS technique. Water samples undergo the same analysis without the extraction step. Based on USEPA 5030B and 8260B.
SEO-020	Total Recoverable Hydrocarbons - determined by solvent extraction with dichloromethane / acetone for soils and dichloromethane for waters, followed by instrumentation analysis using GC/FID. Where applicable Solid Phase Extraction Manifold technique is used for aliphatic / aromatic fractionation.
SEO-030	Polynuclear Aromatic Hydrocarbons - determined by solvent extraction with dichloromethane / acetone for soils and dichloromethane for waters, followed by instrumentation analysis using GC/MS SIM mode.
SEO-005	OC/OP/PCB - Determination of a suite of Organchlorine Pesticides, Chlorinated Organo-phosphorus Pesticides and Polychlorinated Biphenyls (PCB's) by liquid-liquid extraction using dichloromethane for waters, or mechanical extraction using acetone / hexane for soils, followed by instrumentation analysis using GC/ECD. Based on USEPA 8081/8082.
AN420	Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates, and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD/FID technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
SEI-038	Anions - a range of anions are determined by Ion Chromatography, in accordance with APHA 21st Edition, 4110B.
SEM-010	Determination of elements by ICP-OES following appropriate sample preparation / digestion process. Based on USEPA 6010C / APHA 21st Edition, 3120B.
SEM-005	Mercury - determined by Cold-Vapour AAS following appropriate sample preparation or digestion process. Based on APHA 21st Edition, 3112B.
AN602	Analysed using in house method AN602 - Qualitative identification of Asbestos Fibres, Synthetic Mineral Fibres and Organic Fibres in bulk samples (including building materials and soils) using Polarised Light Microscopy and Dispersion Staining Techniques. Our NATA Accreditation does not currently cover the identification of Synthetic Mineral Fibres and Organic Fibres, however, according to new NATA requirements, the reporting of these fibres is compulsory if detected.
AN318	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.
AN002	Preparation of soils, sediments and sludges undergo analysis by either air drying, compositing, subsampling and 1:5 soil water extraction where required. Moisture content is determined by drying the sample at 105 ± 5°C.

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QUALITY CONTROL BTEX in Soil	UNITS	LOR	METHOD	Blank
Date Extracted (BTEX)				4/03/2010
Date Analysed (BTEX)				6/03/2010
Benzene	mg/kg	0.1	SEO-018	<0.1
Toluene	mg/kg	0.1	SEO-018	<0.1
Ethylbenzene	mg/kg	0.1	SEO-018	<0.1
Total Xylenes	mg/kg	0.3	SEO-018	<0.3
BTEX Surrogate (%)	%	0	SEO-018	93

QUALITY CONTROL TRH in soil with C6-C9 by P/T	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (TRH C6-C9 PT)				4/03/2010	SE76267-3	4/03/2010 || [N/T]	[NR]	[NR]
Date Analysed (TRH C6-C9 PT)				6/03/2010	SE76267-3	6/03/2010 || [N/T]	[NR]	[NR]
TRH C_6 - C_9 P&T	mg/kg	20	SEO-018	<20	SE76267-3	<20 || [N/T]	[NR]	[NR]
Date Extracted (TRH C10-C36)				4/03/2010	SE76267-3	4/03/2010 || 4/03/2010	LCS	4/03/2010
Date Analysed (TRH C10-C36)				4/03/2010	SE76267-3	4/03/2010 || 4/03/2010	LCS	4/03/2010
TRH C_{10} - C_{14}	mg/kg	20	SEO-020	<20	SE76267-3	<20 || <20	LCS	85%
TRH C_{15} - C_{28}	mg/kg	50	SEO-020	<50	SE76267-3	<50 || <50	LCS	79%
TRH C_{29} - C_{36}	mg/kg	50	SEO-020	<50	SE76267-3	<50 || <50	LCS	72%

QUALITY CONTROL PAHs in Soil	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				4/03/2010	SE76267-14	4/03/2010 || 4/03/2010	SE76267-1	4/03/2010
Date Analysed				4/03/2010	SE76267-14	4/03/2010 || 4/03/2010	SE76267-1	4/03/2010
Naphthalene	mg/kg	0.1	SEO-030	<0.10	SE76267-14	<0.10 || <0.10	SE76267-1	97%
2-Methylnaphthalene	mg/kg	0.1	SEO-030	<0.10	SE76267-14	<0.10 || <0.10	[NR]	[NR]
1-Methylnaphthalene	mg/kg	0.1	SEO-030	<0.10	SE76267-14	<0.10 || <0.10	[NR]	[NR]
Acenaphthylene	mg/kg	0.1	SEO-030	<0.10	SE76267-14	<0.10 || <0.10	SE76267-1	95%
Acenaphthene	mg/kg	0.1	SEO-030	<0.10	SE76267-14	<0.10 || <0.10	SE76267-1	112%

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QUALITY CONTROL PAHs in Soil	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Fluorene	mg/kg	0.1	SEO-030	<0.10	SE76267-14	<0.10 || <0.10	[NR]	[NR]
Phenanthrene	mg/kg	0.1	SEO-030	<0.10	SE76267-14	<0.10 || <0.10	SE76267-1	98%
Anthracene	mg/kg	0.1	SEO-030	<0.10	SE76267-14	<0.10 || <0.10	SE76267-1	105%
Fluoranthene	mg/kg	0.1	SEO-030	<0.10	SE76267-14	<0.10 || <0.10	SE76267-1	101%
Pyrene	mg/kg	0.1	SEO-030	<0.10	SE76267-14	<0.10 || <0.10	SE76267-1	105%
Benzo[*a*]anthracene	mg/kg	0.1	SEO-030	<0.10	SE76267-14	<0.10 || <0.10	[NR]	[NR]
Chrysene	mg/kg	0.1	SEO-030	<0.10	SE76267-14	<0.10 || <0.10	[NR]	[NR]
Benzo[*b,k*]fluoranthene	mg/kg	0.2	SEO-030	<0.20	SE76267-14	<0.20 || <0.20	[NR]	[NR]
Benzo[*a*]pyrene	mg/kg	0.05	SEO-030	<0.05	SE76267-14	<0.05 || <0.05	SE76267-1	93%
Indeno[*123-cd*]pyrene	mg/kg	0.1	SEO-030	<0.10	SE76267-14	<0.10 || <0.10	[NR]	[NR]
Dibenzo[*ah*]anthracene	mg/kg	0.1	SEO-030	<0.10	SE76267-14	<0.10 || <0.10	[NR]	[NR]
Benzo[*ghi*]perylene	mg/kg	0.1	SEO-030	<0.10	SE76267-14	<0.10 || <0.10	[NR]	[NR]
Total PAHs (sum)	mg/kg	1.75	SEO-030	<1.7	SE76267-14	<1.7 || <1.7	[NR]	[NR]
Nitrobenzene-d5	%	0	SEO-030	73	SE76267-14	86 || 89 || RPD: 3	SE76267-1	71%
2-Fluorobiphenyl	%	0	SEO-030	72	SE76267-14	77 || 80 || RPD: 4	SE76267-1	74%
p -Terphenyl-*d* 14	%	0	SEO-030	80	SE76267-14	87 || 91 || RPD: 4	SE76267-1	74%

QUALITY CONTROL OC Pesticides in Soil	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				4/03/2010	SE76267-7	4/03/2010 || 4/03/2010	SE76267-8	4/03/2010
Date Analysed				4/03/2010	SE76267-7	4/03/2010 || 4/03/2010	SE76267-8	4/03/2010
HCB	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
gamma-BHC (Lindane)	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
Heptachlor	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	SE76267-8	132%

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QUALITY CONTROL OC Pesticides in Soil	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Aldrin	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	SE76267-8	135%
beta-BHC	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
delta-BHC	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	SE76267-8	125%
Heptachlor Epoxide	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
o,p-DDE	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
alpha-Endosulfan	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
trans-Chlordane	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
cis-Chlordane	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
trans-Nonachlor	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
p,p-DDE	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
Dieldrin	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	SE76267-8	124%
Endrin	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	SE76267-8	136%
o,p-DDD	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
o,p-DDT	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
beta-Endosulfan	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
p,p-DDD	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
p,p-DDT	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	SE76267-8	110%
Endosulfan Sulphate	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
Methoxychlor	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
Endrin Ketone	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
2,4,5,6-Tetrachloro-m-xylene *(Surrogate*	%	0	SEO-005	99	SE76267-7	95 || 89 || RPD: 7	SE76267-8	64%

QUALITY CONTROL OP Pesticides in Soil by GCMS	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				04/03/10	SE76267-3	4/03/2010 || 4/03/2010	LCS	05/03/10
Date Analysed				04/03/10	SE76267-3	4/03/2010 || 4/03/2010	LCS	05/03/10
Dichlorvos	mg/kg	1	AN420	<1	SE76267-3	<1 || <1	LCS	87%
Dimethoate	mg/kg	1	AN420	<1	SE76267-3	<1 || <1	[NR]	[NR]
Diazinon	mg/kg	0.5	AN420	<0.5	SE76267-3	<0.5 || <0.5	LCS	75%
Fenitrothion	mg/kg	0.2	AN420	<0.2	SE76267-3	<0.2 || <0.2	[NR]	[NR]
Malathion	mg/kg	0.2	AN420	<0.20	SE76267-3	<0.20 || <0.20	[NR]	[NR]
Chlorpyrifos-ethyl	mg/kg	0.2	AN420	<0.2	SE76267-3	<0.2 || <0.2	LCS	85%
Parathion-ethyl	mg/kg	0.2	AN420	<0.2	SE76267-3	<0.2 || <0.2	[NR]	[NR]
Bromofos-ethyl	mg/kg	0.2	AN420	<0.2	SE76267-3	<0.2 || <0.2	[NR]	[NR]
Methidathion	mg/kg	0.5	AN420	<0.5	SE76267-3	<0.5 || <0.5	[NR]	[NR]

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QUALITY CONTROL OP Pesticides in Soil by GCMS	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Ethion	mg/kg	0.2	AN420	<0.2	SE76267-3	<0.2 || <0.2	LCS	91%
Azinphos-methyl	mg/kg	0.2	AN420	<0.20	SE76267-3	<0.20 || <0.20	LCS	69%
2-fluorobiphenyl (Surr)	%	0	AN420	103	SE76267-3	99 || 86 || RPD: 14	LCS	92%
d14-p-Terphenyl (Surr)	%	0	AN420	91	SE76267-3	87 || 89 || RPD: 2	LCS	79%

QUALITY CONTROL PCBs in Soil	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				4/03/2010	SE76267-7	4/03/2010 || 4/03/2010	SE76267-9	4/03/2010
Date Analysed				4/03/2010	SE76267-7	4/03/2010 || 4/03/2010	SE76267-9	4/03/2010
Arochlor 1016	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
Arochlor 1221	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
Arochlor 1260	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	SE76267-9	81%
Arochlor 1262	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
Arochlor 1268	mg/kg	0.1	SEO-005	<0.1	SE76267-7	<0.1 || <0.1	[NR]	[NR]
Total Positive PCB	mg/kg	0.9	SEO-005	<0.90	SE76267-7	<0.90 || <0.90	[NR]	[NR]
PCB_Surrogate 1	%	0	SEO-005	99	SE76267-7	95 || 89 || RPD: 7	SE76267-9	88%

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QUALITY CONTROL Anions in soil	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				04/03/10	[NT]	[NT]	LCS	04/03/10
Date Analysed				04/03/10	[NT]	[NT]	LCS	04/03/10
Chloride, Cl 1:5 soil:water	mg/kg	0.25	SEI-038	<0.2	[NT]	[NT]	LCS	100%

QUALITY CONTROL Metals in Soil by ICP-OES	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (Metals)				8/03/2010	SE76267-1	8/03/2010 || 8/03/2010	SE76267-2	8/03/2010
Date Analysed (Metals)				8/03/2010	SE76267-1	8/03/2010 || 8/03/2010	SE76267-2	8/03/2010
Arsenic	mg/kg	3	SEM-010	<3	SE76267-1	<3 || <3	SE76267-2	70%
Cadmium	mg/kg	0.3	SEM-010	<0.3	SE76267-1	<0.3 || <0.3	SE76267-2	73%
Chromium	mg/kg	0.3	SEM-010	<0.3	SE76267-1	1.8 || 1.9 || RPD: 5	SE76267-2	74%
Copper	mg/kg	0.5	SEM-010	<0.5	SE76267-1	3.1 || 3.8 || RPD: 20	SE76267-2	75%
Lead	mg/kg	1	SEM-010	<1	SE76267-1	5 || 6 || RPD: 18	SE76267-2	98%
Nickel	mg/kg	0.5	SEM-010	<0.5	SE76267-1	0.8 || 1.1 || RPD: 32	SE76267-2	71%
Zinc	mg/kg	0.5	SEM-010	<0.5	SE76267-1	18 || 21 || RPD: 15	SE76267-2	75%

QUALITY CONTROL Mercury Cold Vapor/Hg Analyser	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (Mercury)				8/03/2010	SE76267-1	8/03/2010 || 8/03/2010	LCS	8/03/2010
Date Analysed (Mercury)				8/03/2010	SE76267-1	8/03/2010 || 8/03/2010	LCS	8/03/2010
Mercury	mg/kg	0.05	SEM-005	<0.05	SE76267-1	<0.05 || <0.05	LCS	114%

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QUALITY CONTROL Asbestos ID in soil	UNITS	LOR	METHOD	Blank
Date Analysed				[NT]

QUALITY CONTROL BTEX in Water (µg/L)	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (BTEX)				4/03/2010	[NT]	[NT]	LCS	4/03/2010
Date Analysed (BTEX)				4/03/2010	[NT]	[NT]	LCS	4/03/2010
Benzene	µg/L	0.5	SEO-018	<0.5	[NT]	[NT]	LCS	103%
Toluene	µg/L	0.5	SEO-018	<0.5	[NT]	[NT]	LCS	104%
Ethylbenzene	µg/L	0.5	SEO-018	<0.5	[NT]	[NT]	LCS	104%
Total Xylenes	µg/L	1.5	SEO-018	<1.5	[NT]	[NT]	LCS	103%
Surrogate	%	0	SEO-018	125	[NT]	[NT]	LCS	74%

QUALITY CONTROL TRH in water with C6-C9 by P/T	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (TRH C6-C9 PT)				4/03/2010	[NT]	[NT]	LCS	4/03/2010
Date Analysed (TRH C6-C9 PT)				4/03/2010	[NT]	[NT]	LCS	4/03/2010
TPH C6-C9 P&T	µg/L	40	SEO-018	<40	[NT]	[NT]	LCS	99%
Date Extracted (TRH C10-C36)				4/03/2010	[NT]	[NT]	LCS	4/03/2010
Date Analysed (TRH C10-C36)				4/03/2010	[NT]	[NT]	LCS	4/03/2010
TRH C_{10} - C_{14}	µg/L	100	SEO-020	<100	[NT]	[NT]	LCS	80%
TRH C_{15} - C_{28}	µg/L	200	SEO-020	<200	[NT]	[NT]	LCS	81%
TRH C_{29} - C_{36}	µg/L	200	SEO-020	<200	[NT]	[NT]	LCS	79%

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QUALITY CONTROL PAHs in Water	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				4/03/2010	[NT]	[NT]	LCS	4/03/2010
Date Analysed				4/03/2010	[NT]	[NT]	LCS	4/03/2010
Naphthalene	µg/L	0.5	SEO-030	<0.50	[NT]	[NT]	LCS	97%
2-Methylnaphthalene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	[NR]	[NR]
1-Methylnaphthalene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	[NR]	[NR]
Acenaphthylene	µg/L	0.5	SEO-030	<0.50	[NT]	[NT]	LCS	109%
Acenaphthene	µg/L	0.5	SEO-030	<0.50	[NT]	[NT]	LCS	119%
Fluorene	µg/L	0.5	SEO-030	<0.50	[NT]	[NT]	[NR]	[NR]
Phenanthrene	µg/L	0.5	SEO-030	<0.50	[NT]	[NT]	LCS	113%
Anthracene	µg/L	0.5	SEO-030	<0.50	[NT]	[NT]	LCS	117%
Fluoranthene	µg/L	0.5	SEO-030	<0.50	[NT]	[NT]	LCS	121%
Pyrene	µg/L	0.5	SEO-030	<0.50	[NT]	[NT]	LCS	120%
Benzo[*a*]anthracene	µg/L	0.5	SEO-030	<0.50	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	0.5	SEO-030	<0.50	[NT]	[NT]	[NR]	[NR]
Benzo[*b,k*]fluoranthene	µg/L	1	SEO-030	<1.0	[NT]	[NT]	[NR]	[NR]
Benzo[*a*]pyrene	µg/L	0.5	SEO-030	<0.50	[NT]	[NT]	LCS	102%
Indeno[*123-cd*]pyrene	µg/L	0.5	SEO-030	<0.50	[NT]	[NT]	[NR]	[NR]
Dibenzo[*ah*]anthracene	µg/L	0.5	SEO-030	<0.50	[NT]	[NT]	[NR]	[NR]
Benzo[*ghi*]perylene	µg/L	0.5	SEO-030	<0.50	[NT]	[NT]	[NR]	[NR]
Total PAHs	µg/L	9	SEO-030	<9	[NT]	[NT]	[NR]	[NR]
Nitrobenzene-d5	%	0	SEO-030	86	[NT]	[NT]	LCS	111%
2-Fluorobiphenyl	%	0	SEO-030	76	[NT]	[NT]	LCS	99%
p -Terphenyl-*d*14	%	0	SEO-030	98	[NT]	[NT]	LCS	105%

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QUALITY CONTROL Trace HM (ICP-MS)-Dissolved	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (Metals-ICPMS)				3/03/2010	[NT]	[NT]	LCS	3/03/2010
Date Analysed (Metals-ICPMS)				3/03/2010	[NT]	[NT]	LCS	3/03/2010
Arsenic	µg/L	1	AN318	<1	[NT]	[NT]	LCS	110%
Cadmium	µg/L	0.1	AN318	<0.1	[NT]	[NT]	LCS	96%
Chromium	µg/L	1	AN318	<1	[NT]	[NT]	LCS	99%
Copper	µg/L	1	AN318	<1	[NT]	[NT]	LCS	100%
Lead	µg/L	1	AN318	<1	[NT]	[NT]	LCS	91%
Nickel	µg/L	1	AN318	<1	[NT]	[NT]	LCS	101%
Zinc	µg/L	1	AN318	<1	[NT]	[NT]	LCS	98%

QUALITY CONTROL Mercury Cold Vapor/Hg Analyser	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (Mercury)				5/03/2010	[NT]	[NT]	LCS	5/03/2010
Date Analysed (Mercury)				5/03/2010	[NT]	[NT]	LCS	5/03/2010
Mercury (Dissolved)	mg/L	0.0005	SEM-005	<0.0005	[NT]	[NT]	LCS	101%

QUALITY CONTROL Hold sample-**NO test** required	UNITS	LOR	METHOD	Blank
Sample on HOLD		[NT]		[NT]

QUALITY CONTROL Moisture	UNITS	LOR	METHOD	Blank
Date Analysed (moisture)				[NT]
Moisture	%	1	AN002	<1

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QUALITY CONTROL BTEX in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (BTEX)		SE76267-1	4/03/2010 || 4/03/2010	SE76267-2	4/03/2010
Date Analysed (BTEX)		SE76267-1	6/03/2010 || 6/03/2010	SE76267-2	6/03/2010
Benzene	mg/kg	SE76267-1	<0.1 || <0.1	SE76267-2	69%
Toluene	mg/kg	SE76267-1	<0.1 || <0.1	SE76267-2	79%
Ethylbenzene	mg/kg	SE76267-1	<0.1 || <0.1	SE76267-2	79%
Total Xylenes	mg/kg	SE76267-1	0.4 || 0.5 || RPD: 22	SE76267-2	92%
BTEX Surrogate (%)	%	SE76267-1	73 || 77 || RPD: 5	SE76267-2	90%

QUALITY CONTROL TRH in soil with C6-C9 by P/T	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (TRH C6-C9 PT)		SE76267-1	4/03/2010 || 4/03/2010	SE76267-2	4/03/2010
Date Analysed (TRH C6-C9 PT)		SE76267-1	6/03/2010 || 6/03/2010	SE76267-2	6/03/2010
TRH C_6 - C_9 P&T	mg/kg	SE76267-1	<20 || <20	SE76267-2	90%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted		SE76267-24	4/03/2010 || 4/03/2010
Date Analysed		SE76267-24	4/03/2010 || 4/03/2010
Naphthalene	mg/kg	SE76267-24	<0.10 || <0.10
2-Methylnaphthalene	mg/kg	SE76267-24	<0.10 || <0.10
1-Methylnaphthalene	mg/kg	SE76267-24	<0.10 || <0.10
Acenaphthylene	mg/kg	SE76267-24	<0.10 || <0.10
Acenaphthene	mg/kg	SE76267-24	<0.10 || <0.10
Fluorene	mg/kg	SE76267-24	<0.10 || <0.10
Phenanthrene	mg/kg	SE76267-24	<0.10 || <0.10

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QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Anthracene	mg/kg	SE76267-24	<0.10 || <0.10
Fluoranthene	mg/kg	SE76267-24	<0.10 || <0.10
Pyrene	mg/kg	SE76267-24	<0.10 || <0.10
Benzo[*a*]anthracene	mg/kg	SE76267-24	<0.10 || <0.10
Chrysene	mg/kg	SE76267-24	<0.10 || <0.10
Benzo[*b,k*]fluoranthene	mg/kg	SE76267-24	<0.20 || <0.20
Benzo[*a*]pyrene	mg/kg	SE76267-24	<0.05 || <0.05
Indeno[*123-cd*]pyrene	mg/kg	SE76267-24	<0.10 || <0.10
Dibenzo[*ah*]anthracene	mg/kg	SE76267-24	<0.10 || <0.10
Benzo[*ghi*]perylene	mg/kg	SE76267-24	<0.10 || <0.10
Total PAHs (sum)	mg/kg	SE76267-24	<1.7 || <1.7
Nitrobenzene-d5	%	SE76267-24	91 || 98 || RPD: 7
2-Fluorobiphenyl	%	SE76267-24	85 || 91 || RPD: 7
p -Terphenyl-*d14*	%	SE76267-24	107 || 109 || RPD: 2

QUALITY CONTROL Metals in Soil by ICP-OES	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted (Metals)		SE76267-11	8/03/2010 || 8/03/2010
Date Analysed (Metals)		SE76267-11	8/03/2010 || 8/03/2010
Arsenic	mg/kg	SE76267-11	<3 || <3
Cadmium	mg/kg	SE76267-11	<0.3 || <0.3
Chromium	mg/kg	SE76267-11	2.7 || 2.4 || RPD: 12
Copper	mg/kg	SE76267-11	4.5 || 5.7 || RPD: 24

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QUALITY CONTROL Metals in Soil by ICP-OES	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Lead	mg/kg	SE76267-11	2 || 3 || RPD: 40
Nickel	mg/kg	SE76267-11	0.94 || 0.91 || RPD: 3
Zinc	mg/kg	SE76267-11	19 || 22 || RPD: 15

QUALITY CONTROL Mercury Cold Vapor/Hg Analyser	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted (Mercury)		SE76267-11	8/03/2010 || 8/03/2010
Date Analysed (Mercury)		SE76267-11	8/03/2010 || 8/03/2010
Mercury	mg/kg	SE76267-11	<0.05 || <0.05

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted		SE76267-3	4/03/2010 || 4/03/2010
Date Analysed		SE76267-3	4/03/2010 || 4/03/2010
Naphthalene	mg/kg	SE76267-3	<0.10 || <0.10
2-Methylnaphthalene	mg/kg	SE76267-3	<0.10 || <0.10
1-Methylnaphthalene	mg/kg	SE76267-3	<0.10 || <0.10
Acenaphthylene	mg/kg	SE76267-3	<0.10 || <0.10
Acenaphthene	mg/kg	SE76267-3	<0.10 || <0.10
Fluorene	mg/kg	SE76267-3	<0.10 || <0.10
Phenanthrene	mg/kg	SE76267-3	<0.10 || <0.10
Anthracene	mg/kg	SE76267-3	<0.10 || <0.10
Fluoranthene	mg/kg	SE76267-3	0.11 || 0.11 || RPD: 0
Pyrene	mg/kg	SE76267-3	0.10 || 0.10 || RPD: 0
Benzo[*a*]anthracene	mg/kg	SE76267-3	<0.10 || <0.10
Chrysene	mg/kg	SE76267-3	<0.10 || <0.10
Benzo[*b,k*]fluoranthene	mg/kg	SE76267-3	<0.20 || 0.20
Benzo[*a*]pyrene	mg/kg	SE76267-3	0.07 || 0.09 || RPD: 25
Indeno[*123-cd*]pyrene	mg/kg	SE76267-3	<0.10 || <0.10

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QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Dibenzo[*ah*]anthracene	mg/kg	SE76267-3	<0.10 || <0.10
Benzo[*ghi*]perylene	mg/kg	SE76267-3	<0.10 || 0.10
Total PAHs (sum)	mg/kg	SE76267-3	<1.78 || <1.80
Nitrobenzene-d5	%	SE76267-3	77 || 80 || RPD: 4
2-Fluorobiphenyl	%	SE76267-3	74 || 73 || RPD: 1
p -Terphenyl-*d14*	%	SE76267-3	95 || 90 || RPD: 5

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Result Codes

[INS]	:	Insufficient Sample for this test	[RPD]	:	Relative Percentage Difference
[NR]	:	Not Requested	*	:	Not part of NATA Accreditation
[NT]	:	Not tested	[N/A]	:	Not Applicable

Report Comments

Sampled by the client

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos-containing bulk materials using polarised light microscopy.
This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

No respirable fibres detected using trace analysis technique.
Asbestos analysed by Approved Identifier Ravee Sivasubramaniam.
Samples analysed as received. Solid samples expressed on a dry weight basis.
Date Organics extraction commenced:
NATA Corporate Accreditation No. 2562, Site No 4354
Note: Test results are not corrected for recovery (excluding Air-toxics and Dioxins/Furans*)
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Quality Control Protocol

Method Blank: An analyte free matrix to which all reagents are added in the same volume or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. A method blank is prepared every 20 samples.
Duplicate: A separate portion of a sample being analysed that is treated the same as the other samples in the batch. One duplicate is processed at least every 10 samples.
Surrogate Spike: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are added to samples before extraction to monitor extraction efficiency and percent recovery in each sample.
Internal Standard: Added to all samples requiring analysis for organics (where relevant) or metals by ICP after the extraction/digestion process; the compounds/elements serve to give a standard of retention time and/or response, which is invariant from run-to-run with the instruments.
Laboratory Control Sample: A known matrix spiked with compound(s) representative of the target analytes. It is used to document laboratory performance. When the results of the matrix spike analysis indicates a potential problem due to the sample matrix itself, the LCS results are used to verify that the laboratory can perform the analysis in a clean matrix.
Matrix Spike: An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Quality Acceptance Criteria

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-09.pdf

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CERTIFICATE OF ANALYSIS

Coffey Environments Pty Ltd Newcastle
Lot 101, 19 Warabrook Boulevard
Warabrook
New South Wales 2304
Site: ENVIWARA00284AB

Report Number: 260177-A-V1 Page 1 of 6
Order Number:
Date Received: Mar 02, 2010
Date Sampled: Feb 26, 2010
Date Reported: Mar 10, 2010
Contact: James McMahon

Methods

- USEPA 8270C Polycyclic Aromatic Hydrocarbons
- USEPA 6020 Heavy Metals & USEPA 7470/71 Mercury
- APHA 4500-Cl (Cl by Discrete Analyser)
- Method 102 - ANZECC - % Moisture

Comments

Notes

Authorised

Report Number: 260177-A-V1

Michael Wright
Senior Principal Chemist
NATA Signatory

Dan Thompson
Laboratory Manager NSW

Onur Mehmet
Client Manager
NATA Signatory

GLOSSARY OF TERMS

UNITS

mg/kg	milligrams per Kilogram	**mg/l**	milligrams per litre
ug/l	micrograms per litre	**ppm**	Parts per million
ppb	Parts per billion	**%**	Percentage
org/100ml	Organisms per 100 millilitres	**NTU**	Units

TERMS

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environment Protection Authority
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice

QC - ACCEPTANCE CRITERIA

RPD Duplicates	Results <10 times the LOR : No Limit Results between 10-20 times LOR : RPD must lie between 0-50% Results >20 times LOR : RPD must lie between 0-20%
LCS Recoveries	Recoveries must lie between 70-130% - Phenols 30-130%
CRM Recoveries	Recoveries must lie between 70-130% - Phenols 30-130%
Method Blanks	Not to exceed LOR
SPIKE Recoveries	Recoveries must lie between 70-130% - Phenols 30-130%
Surrogate Recoveries	Recoveries must lie between 50-150% - Phenols 20-130%

GENERAL COMMENTS

1. All results in this report supersede any previously corresponded results.
2. All soil results are reported on a dry basis.
3. Samples are analysed on an as received basis.

QC DATA GENERAL COMMENTS

1. Where a result is reported as a less than (<), higher than the nominated LOR this is due to either Matrix Interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Orgaonchlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
7. Polychlorinated Biphenyls are spiked only using Arochlor 1260 in Matrix Spikes and LCS's.
8. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
9. Duplicate RPD's are calculated from raw analytical data thus it is possible to have two two sets of data below the LOR with a positive RPD - eg: LOR 0.1, Result A = <0.1 (raw data is 0.02) & Result B = <0.1 (raw data is 0.03) resulting in a RPD of 40% calculated from the raw data.

REPORT SPECIFIC NOTES

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Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
Warabrook
New South Wales 2304

Order No.:
Report #: 260177
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: Mar 2, 2010 12:00
Due: Mar 9, 2010 01:39
Priority: 5 Day
Contact name: James McMahon

Client Job No.: ENVIWARA00284AB

mgt Client Manager: Onur Mehmet

Sample Detail					% Moisture	Arsenic	Cadmium	Chloride	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Polycyclic Aromatic Hydrocarbons
Laboratory where analysis is conducted															
Melbourne Laboratory - NATA Site #1254								X				X			
Sydney Laboratory - NATA Site #18217					X	X	X		X	X	X		X	X	X
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**											
QC3A	Feb 26, 2010		Soil	S10-MA00859	X	X	X	X	X	X	X	X	X	X	X

Coffey Environments Pty Ltd Newcastle Lot 101, 19 Warabrook Boulevard Warabrook New South Wales 2304	Client Sample ID Lab Number Matrix Sample Date		QC3A T10-MA00859 Soil Feb 26, 2010
Analysis Type	**LOR**	**Units**	
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.1	mg/kg	< 0.1
Acenaphthylene	0.1	mg/kg	< 0.1
Anthracene	0.1	mg/kg	< 0.1
Benz(a)anthracene	0.1	mg/kg	< 0.1
Benzo(a)pyrene	0.1	mg/kg	< 0.1
Benzo(b)fluoranthene	0.1	mg/kg	< 0.1
Benzo(g.h.i)perylene	0.1	mg/kg	< 0.1
Benzo(k)fluoranthene	0.1	mg/kg	< 0.1
Chrysene	0.1	mg/kg	< 0.1
Dibenz(a.h)anthracene	0.1	mg/kg	< 0.1
Fluoranthene	0.1	mg/kg	< 0.1
Fluorene	0.1	mg/kg	< 0.1
Indeno(1.2.3-cd)pyrene	0.1	mg/kg	< 0.1
Naphthalene	0.1	mg/kg	< 0.1
Phenanthrene	0.1	mg/kg	< 0.1
Pyrene	0.1	mg/kg	< 0.1
Total PAH	0.1	mg/kg	< 0.1
p-Terphenyl-d14 (surr.)	1	%	84
2-Fluorobiphenyl (surr.)	1	%	96
% Moisture	0.1	%	4.0
Chloride	5	mg/kg	32
Heavy Metals			
Arsenic	2.0	mg/kg	2.9
Cadmium	0.5	mg/kg	< 0.5
Chromium	5	mg/kg	< 5
Copper	5	mg/kg	11
Lead	5	mg/kg	< 5
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	< 5

COMMENTS:

Coffey Environments Pty Ltd Newcastle **Lot 101, 19 Warabrook Boulevard** **Warabrook** **New South Wales 2304**	**Client Sample ID**		**QC3A**
	Lab Number		**T10-MA00859**
	Matrix		**Soil**
	Sample Date		**Feb 26, 2010**
Analysis Type	**LOR**	**Units**	
Zinc	5	mg/kg	35

COMMENTS:

Coffey Environments Pty Ltd Newcastle **Lot 101, 19 Warabrook Boulevard** **Warabrook** **New South Wales 2304**	**Client Sample ID**	**QC3A**	**QC3A**	**RPD**	**SPIKE**	**LCS**	**Method blank**
	Lab Number	**10-MA00859**	**10-MA00859**	**10-MA00859**	**10-MA00859**	**Batch**	**Batch**
	QA Description		**Duplicate**	**Duplicate % RPD**	**Spike % Recovery**	**% Recovery**	
	Matrix	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**
	Sample Date	**Feb 26, 2010**	**Feb 26, 2010**	**Feb 26, 2010**	**Feb 26, 2010**	**Feb 26, 2010**	**Feb 26, 2010**
Analysis Type	**Units**			% RPD	% Recovery	% Recovery	mg/kg
Chloride		-	-	3.0	98	123	< 5
Polycyclic Aromatic Hydrocarbons							
Acenaphthene		< 0.1	< 0.1	< 1	106	90	< 0.1
Acenaphthylene		< 0.1	< 0.1	< 1	105	90	< 0.1
Anthracene		< 0.1	< 0.1	< 1	103	104	< 0.1
Benz(a)anthracene		< 0.1	< 0.1	< 1	84	96	< 0.1
Benzo(a)pyrene		< 0.1	< 0.1	< 1	104	105	< 0.1
Benzo(b)fluoranthene		< 0.1	< 0.1	< 1	86	90	< 0.1
Benzo(g.h.i)perylene		< 0.1	< 0.1	< 1	99	102	< 0.1
Benzo(k)fluoranthene		< 0.1	< 0.1	< 1	106	116	< 0.1
Chrysene		< 0.1	< 0.1	< 1	101	106	< 0.1
Dibenz(a.h)anthracene		< 0.1	< 0.1	< 1	87	98	< 0.1
Fluoranthene		< 0.1	0.2	200	105	109	< 0.1
Fluorene		< 0.1	< 0.1	< 1	104	99	< 0.1
Indeno(1.2.3-cd)pyrene		< 0.1	< 0.1	< 1	86	96	< 0.1
Naphthalene		< 0.1	< 0.1	< 1	106	85	< 0.1
Phenanthrene		< 0.1	0.2	200	102	103	< 0.1
Pyrene		< 0.1	0.2	200	106	108	< 0.1
Heavy Metals		Batch	Batch	Batch	Batch		
Arsenic		-	-	55	84	104	< 2
Cadmium		-	-	< 1	89	114	< 0.5
Chromium		-	-	43	76	114	< 5
Copper		-	-	5.2	109	113	< 5
Lead		-	-	31	106	113	< 5
Mercury		-	-	< 1	74	99	< 0.1
Nickel		-	-	11	76	120	< 5
Zinc		-	-	13	112	114	< 5

COMMENTS:

coffey

Chain of Custody

No: 34612

Laboratory Quotation / Order No: COFFEY

Job No: ENVIWARA 00284AB

Sheet 1 of 2

Dispatch to: (Address & Phone No.) SGS ENVIRONMENTAL UNIT 16, 33 MADDOX ST ALEXANDRIA NSW 2015	Sampled by: DAMIEN HENDRICKX	Consigning Officer: DAMIEN HENDRICKX Date Dispatched: 1/3/10
Attention: SAMPLE RECEIPT	Project Manager: (report results to) JAMES McMAHON	Courier Service: TNT Consignment Note No:

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	1/3/10	4:30pm		2/3	8:30

Comments	Sample Matrix	Container Type and Preservative	Sample No.		Date Sampled	Analyses Required: PAHs	TPHs	MAHs = BTEX	Metals: 8	Asbestos	ocp/PCB/opp	Chloride	Sample Condition on Receipt
	SOIL	GLASS/PLASTIC+ICE	1 EHA1	0.0-0.1	26/2/10	✓	✓	✓	✓	✓		✓	
			2 "	0.2-0.3		✓	✓	✓	✓				
			3 EHA2	0.0-0.1		✓	✓	✓	✓	✓	✓		
			4 "	0.2-0.3		✓	✓	✓	✓				
			5 EHA3	0.0-0.1		✓			✓	✓		✓	
			6 "	0.3-0.4		✓			✓			✓	
			7 EHA4	0.0-0.1		✓	✓	✓	✓	✓	✓		
			8 "	0.3-0.4		✓	✓	✓	✓		✓		
			9 EHA5	0.0-0.1		✓			✓	✓	✓		
			10 "	0.3-0.4		✓			✓				
			11 EHA6	0.0-0.1		✓			✓	✓			
			12 "	0.2-0.3		✓			✓				
			13 EHA7	0.0-0.1		✓			✓	✓		✓	
			14 "	0.2-0.3		✓			✓				
			15 EHA8	0.0-0.1		✓	✓	✓	✓	✓			
			16 "	0.4-0.5		✓			✓				

SGS 2/3/10 8:30 Samples Intact ☑ Yes ☐ No Cooler Pack ☑ Yes ☐ No Temperature on Receipt 4 °C Storage Location S 28.7-8, W 124, 7626 7 ADJ

Special Laboratory Instructions:

Detection Limits:

Turnaround Required:

JOB NUMBER MUST BE REFERENCED ON ALL SUBSEQUENT PAGES

Copies: WHITE: Sign on release YELLOW: If dispatched to interstate Lab, Lab to sign on receipt and fax back to Coffey. BLUE: To be returned with results.

coffey

Chain of Custody

No: 34613

Laboratory Quotation / Order No: COFFEY

Job No: ENVIWARA 00284AB

Sheet 2 of 2

Dispatch to: (Address & Phone No.) SGS ENVIRONMENTAL UNIT 16, 33 MADDOX ST ALEXANDRIA NSW 2015

Sampled by: DAMIEN HENDRICKX

Consigning Officer: DAMIEN HENDRICKX

Date Dispatched: 1/3/10

Attention: SAMPLE RECEIPT

Project Manager: (report results to) JAMES MCMAHON

Courier Service: TNT

Consignment Note No:

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	1/3/10	4:30pm		2/3	8.30

Comments	Sample Matrix	Container Type and Preservative		Sample No.	Date Sampled	Analyses Required: PAHs	TPHs	MAHs - BTEX	Metals: 8	Asbestos	OCP/PCB/org	Chloride	Sample Condition on Receipt
	SOIL	GLASS/PLASTIC+ICE	17	EHA9 0.0-0.1	26/2/10	/			/	/	/		
			18	" 0.3-0.4		/			/				
			19	EHA10 0.0-0.1		/			/	/	/		
			20	" 0.2-0.3		/			/				
	SOIL	GLASS+ICE	21	QC1	26/2/10	/	/	/	/		/		
			22	QC1A									
			23	QC2									
			24	QC3		/			/			/	
				QC3A		/			/		[redacted]	/	Send to MCT for analysis
	WATER	AMBER JAR, 2x VIALS, 1x plastic	25	QCA	26/2/10	/	/	/	/				

Special Laboratory Instructions:

Detection Limits:

Turnaround Required:

JOB NUMBER MUST BE REFERENCED ON ALL SUBSEQUENT PAGES

Copies: WHITE: Sign on release. YELLOW: If dispatched to interstate Lab. Lab to sign on receipt and fax back to Coffey. BLUE: To be returned with results.