

Tarrawonga Coal Project

Environmental  
Assessment

APPENDIX Q

LAND CONTAMINATION  
ASSESSMENT

REPORT

# Tarrawonga Coal Project

## Land Contamination Assessment

Prepared for: Whitehaven Coal Mining Pty Ltd  
Document No.: 11-719-R-001  
Date: 19/08/2011

# DISTRIBUTION

## *Tarrowonga Coal Project Land Contamination Assessment*

19/08/2011

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# 1 INTRODUCTION

The Tarrawonga Coal Mine is an open cut mining operation located approximately 15 kilometres (km) north-east of Boggabri and 42 km north-northwest of Gunnedah in New South Wales (NSW) (Figure 1). Tarrawonga Coal Pty Ltd (TCPL) is the owner and operator of the Tarrawonga Coal Mine, which is a joint venture between Whitehaven Coal Mining Pty Ltd (Whitehaven) (70% interest) and Boggabri Coal Pty Ltd (a wholly owned subsidiary of Idemitsu Australia Resources Pty Ltd) (30% interest). The Tarrawonga Coal Mine commenced operations in 2006 and currently produces up to approximately 2 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal.

The Tarrawonga Coal Project (the Project) would involve the continuation and extension of open cut mining operations at the Tarrawonga Coal Mine and would facilitate a ROM coal production rate of up to 3 Mtpa. The proposed life of the Project is 17 years, commencing 1 January 2013.

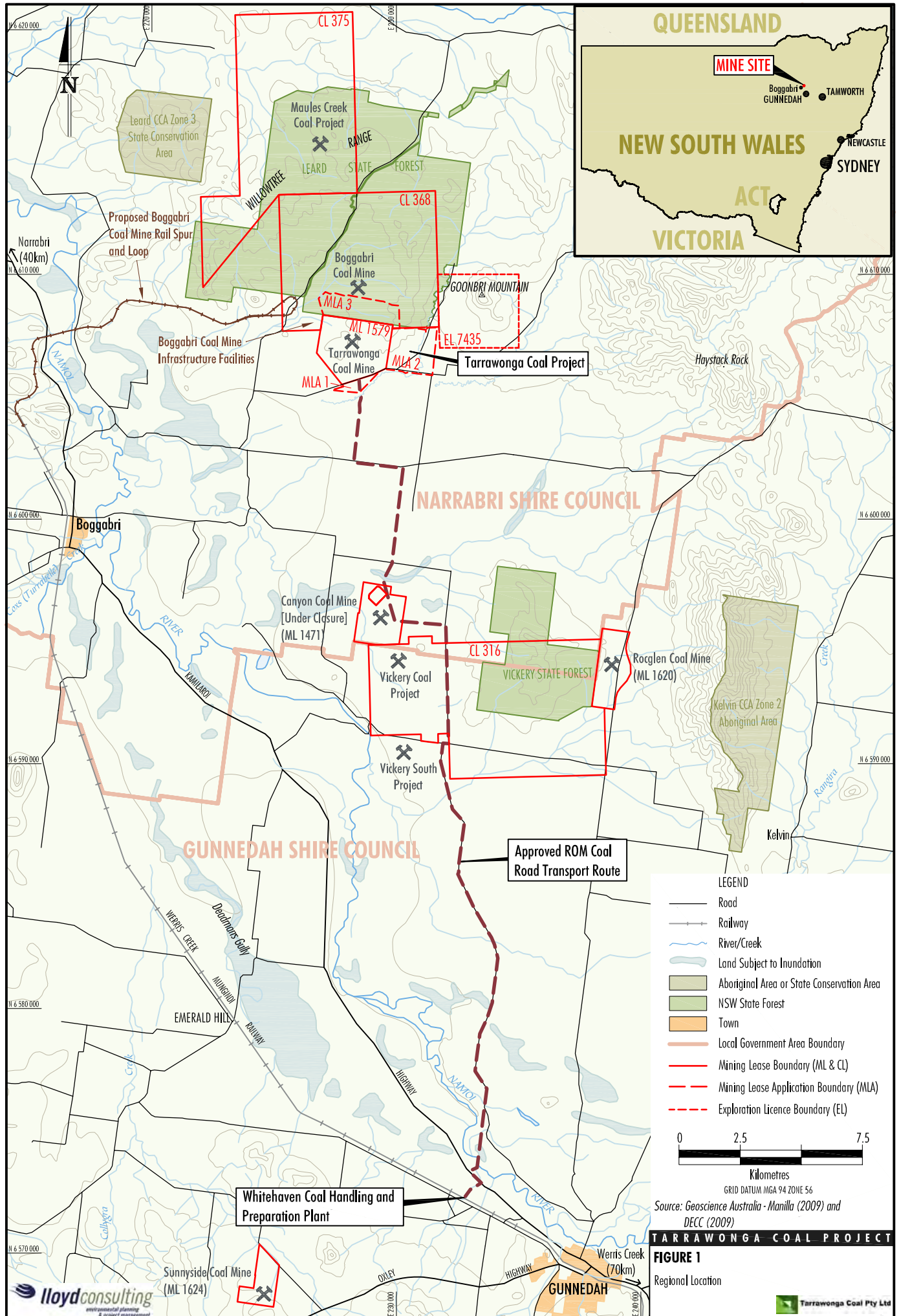
The approximate extent of the existing and approved surface development (including open cut, mine waste rock emplacement, soil stockpiles and infrastructure areas) at the Tarrawonga Coal Mine are shown on Figure 2.

A detailed description of the Project is provided in Section 2 of the Main Report of the Environmental Assessment (EA).

This Land Contamination Assessment has been prepared for the area within Mining Lease Application (MLA) 1 and MLA 2 (the Site) (Figure 2) prior to the change in land use as part of the Project. The MLA 3 area has not been assessed in this study as it is located in existing Coal Lease (CL) 368 (i.e. existing coal mining land use) and therefore no change of use would occur as a result of the Project. The Land Contamination Assessment consists of a Stage 1 – Preliminary Investigation and a Stage 2 – Detailed Investigation of the Site.

## 1.1 Objectives and Scope of Works

The objectives of the Stage 1 – Preliminary Investigation were to identify any past or present potentially contaminating activities, provide a preliminary assessment of any contamination and, if required, provide a basis for a more detailed investigation (i.e. Stage 2 – Detailed Investigation).



**QUEENSLAND**



**MINE SITE**

**NEW SOUTH WALES**

**ACT**

**VICTORIA**

**NARRABRI SHIRE COUNCIL**

**GUNNEDAH SHIRE COUNCIL**

**Approved ROM Coal Road Transport Route**

**LEGEND**

- Road
- +— Railway
- ~ River/Creek
- Land Subject to Inundation
- Aboriginal Area or State Conservation Area
- NSW State Forest
- Town
- Local Government Area Boundary
- Mining Lease Boundary (ML & CL)
- Mining Lease Application Boundary (MLA)
- Exploration Licence Boundary (EL)



GRID DATUM MGA 94 ZONE 56

Source: Geoscience Australia - Manilla (2009) and DECC (2009)

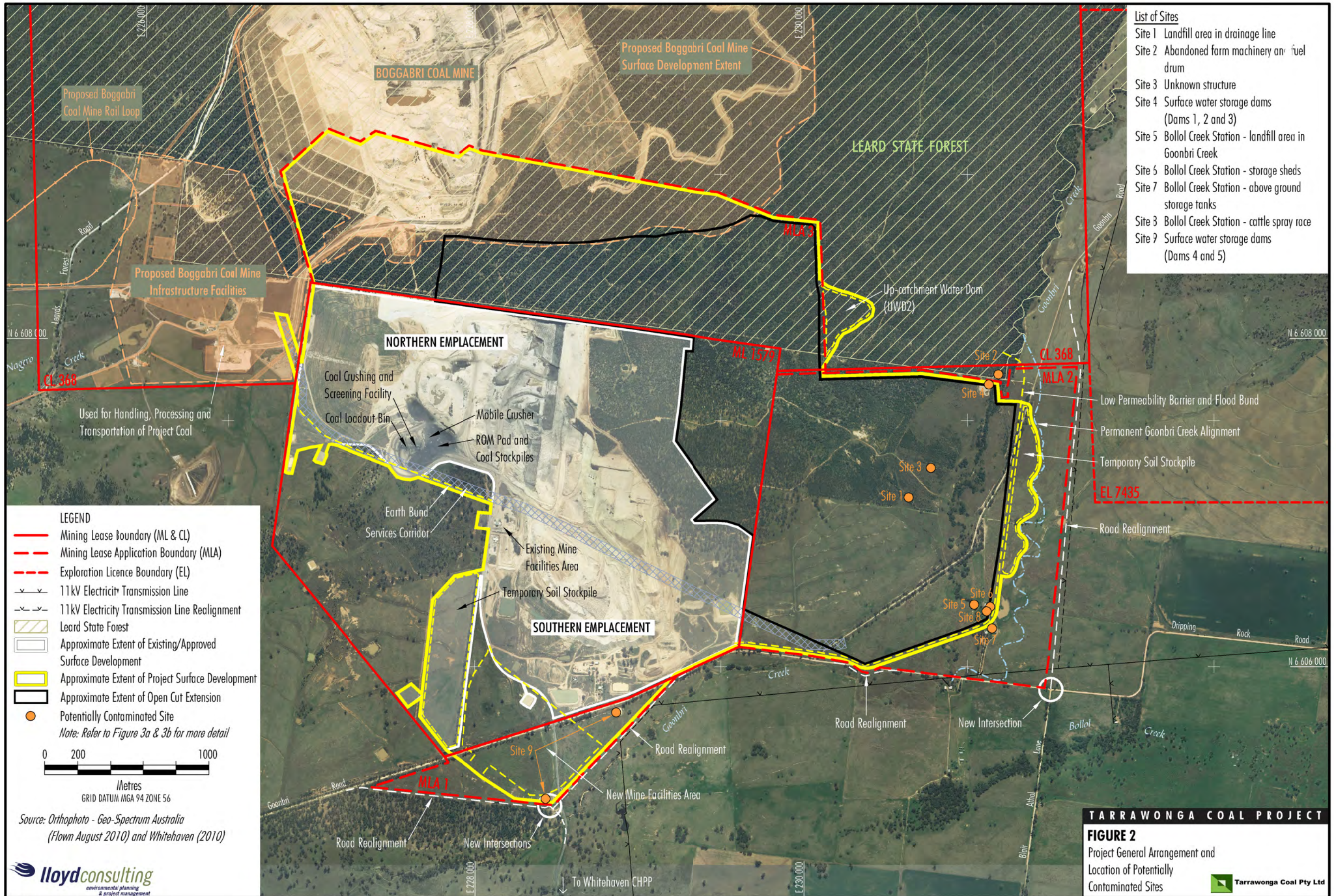
**TARRAWONGA COAL PROJECT**

**FIGURE 1**

Regional Location







- List of Sites**
- Site 1 Landfill area in drainage line
  - Site 2 Abandoned farm machinery and fuel drum
  - Site 3 Unknown structure
  - Site 4 Surface water storage dams (Dams 1, 2 and 3)
  - Site 5 Bollol Creek Station - landfill area in Goonbri Creek
  - Site 6 Bollol Creek Station - storage sheds
  - Site 7 Bollol Creek Station - above ground storage tanks
  - Site 8 Bollol Creek Station - cattle spray race
  - Site 9 Surface water storage dams (Dams 4 and 5)

- LEGEND**
- Mining Lease Boundary (ML & CL)
  - - - Mining Lease Application Boundary (MLA)
  - - - - - Exploration Licence Boundary (EL)
  - 11kV Electricity Transmission Line
  - 11kV Electricity Transmission Line Realignment
  - Leard State Forest
  - Approximate Extent of Existing/Approved Surface Development
  - Approximate Extent of Project Surface Development
  - Approximate Extent of Open Cut Extension
  - Potentially Contaminated Site
- Note: Refer to Figure 3a & 3b for more detail*



Metres

GRID DATUM MGA 94 ZONE 56

Source: Orthophoto - Geo-Spectrum Australia (Flown August 2010) and Whitehaven (2010)



**TARRAWONGA COAL PROJECT**

**FIGURE 2**

Project General Arrangement and Location of Potentially Contaminated Sites



The scope of work conducted for the Stage 1 – Preliminary Investigation is as follows:

- A review of the Site’s environmental setting, history and records in order to identify potentially contaminating historical activities (both on-site and off-site). This comprised:
  - a review of available historical aerial photographs to identify use and development of the Site and adjacent sites over time;
  - a review of Narrabri Shire Council Planning Certificates; and
  - a review of available geology and hydrogeology information for the area.
- An initial site inspection to identify potentially contaminated areas.
- Preliminary sampling and analysis of potentially contaminated areas.
- Review of laboratory documentation.
- Reporting of results and undergoing a quality assurance (QA) and quality control (QC) review.
- Identification of contaminated areas where further investigation is recommended (i.e. Stage 2 – Detailed Investigation).

The objectives of the Stage 2 – Detailed Investigation were to define the nature, extent and degree of contamination; to assess potential risk posed by contaminants to health and the environment; and to obtain sufficient information to develop a Remediation Management Plan (RMP).

The scope of work conducted for the Stage 2 – Detailed Investigation is as follows:

- Sampling and analysis of areas that were identified as contaminated during the Stage 1 – Preliminary Investigation to delineate the extent of the contamination both laterally and vertically.
- Review of laboratory documentation.
- Reporting of results and undergoing a QA and QC review.
- Preparation of a RMP for areas where management measures are required.

## 1.2 Methodology

The Land Contamination Assessment was undertaken in general accordance with the following guidance documents:

- *Managing Land Contamination, Planning Guidelines SEPP 55 – Remediation of Land* (Department of Urban Affairs and Planning [DUAP]/Environmental Protection Authority [EPA], 1998).
- *National Environment Protection Council Schedule B(2) – Guideline on Data Collection, Sample Design and Reporting* (National Environment Protection (Assessment of Site Contamination) Measure [NEPM], 1999a).

## 1.3 Report Structure

The report has been structured in the following way:

- Section 1:** outlines the Project background and the assessment scope works;
- Section 2:** provides a Site description;
- Section 3:** presents the Site history;
- Section 4:** details the Stage 1 – Preliminary Investigation;
- Section 5:** provides details of the Stage 1 soil and surface water sampling and analysis;
- Section 6:** details the Stage 2 – Detailed Investigation;
- Section 7:** discusses quality assurance and quality control measures;
- Section 8:** presents the RMP for the Site;
- Section 9:** offers concluding comments and recommendations; and
- Section 10:** provides references.

The Narrabri Shire Council Planning Certificates are included in **Appendix A**, borelogs are included in **Appendix B**, Dial Before You Dig details are in **Appendix C**, historical photographs are provided in **Appendix D**, calibration certificates are provided in **Appendix E**, soil and surface water analysis results are included in **Appendix F**, laboratory documents are provided in **Appendix G**, and Relative Percent Difference (RPD) calculations are included in **Appendix H**.

# 2 STAGE 1 - SITE DESCRIPTION

This section provides a description of the Site. A more detailed description of the Project area (including the Site) is provided in Section 4 of the Main Report of the EA.

## 2.1 Site Details

The Project is located approximately 15 km north-east of Boggabri and 42 km north-northwest of Gunnedah. The Site consists of the MLA 1 and MLA 2 areas which are located on the southern and eastern extents of the Project area (Figure 2).

The MLA 1 component of the Site is bordered by Goonbri Road to the north and consists of mainly cleared agricultural land (Figure 2). The MLA 2 component of the Site is bordered by the Leard State Forest to the north and the existing Tarrawonga Coal Mine to the west. This section of the Site consists of cleared agricultural land with the exception of the vegetated north-western corner. Goonbri Road and Goonbri Creek traverse the MLA 2 area from north to south (Figure 2). Farm buildings (Bollol Creek Station) are also located in the south-eastern section of MLA 2.

The Site is located wholly within the Narrabri Local Government Area on land zoned Zone 1 (a) (General Rural) under the Narrabri Local Environment Plan. Further detail on the zoning of the Project area (including the Site) is provided in Section 6 of the Main Report of the EA.

All land within the Site is wholly owned by Whitehaven.

## 2.2 Land Use Activities

The dominant land use at the Site is agricultural activities including grazing and some cropping. Other land uses include farm buildings (Bollol Creek Station), public roads and vegetated areas.

Planning Certificates were obtained from the Narrabri Shire Council (**Appendix A**). The Planning Certificates indicated that the Narrabri Shire Council has no record that the land on the Site is significantly contaminated land.

## 2.3 Regional Geology

The Gunnedah Basin forms the central part of the Permo-Triassic Sydney-Gunnedah-Bowen Basin system which extends along the eastern margin of Australia. The Project is located in the Gunnedah Basin, which contains sedimentary rocks, including coal measures, of the Permian-Triassic age. A north-south-trending ridge of Early Permian volcanic rocks, the Boggabri Ridge, splits the Gunnedah Basin into the Maules Creek sub-basin to the east, and the Mullaley sub-basin on the western side of the Boggabri Ridge.

The Site is located towards the western side of the Maules Creek sub-basin. The Maules Creek Formation contains a multi seam coal resource which directly overlies the Boggabri Volcanics. Coal seam thickness in the area ranges from 0.3 metres (m) up to 4.5 m but generally averages 1.5 m. The coal seams generally strike in a north-south direction and dip to the east (Department of Primary Industries, 2009).

## 2.4 Site Geology

Forested areas in the north of the Site contained brown, humic material underlain by clay and silt. The observed Site surface in the cleared areas consisted of silt underlain by clay. Deeper layers (at approximately 1.5 m) revealed a layer of alluvial sand and river rocks (see Borelogs in **Appendix B**).

## 2.5 Site Topography

The topography comprises a series of rolling hills up to an elevation of approximately 370 m Australian Height Datum (AHD). MLA 1 encompasses the floodplains of Goonbri Creek and Bollol Creek to the south and east, and has elevations of between approximately 270 to 280 m AHD. These floodplains are the Central Mixed Soil Floodplain as defined in *Namoi Catchment Water Study Independent Expert Phase 2 Report* (Schlumberger Water Services, 2011). The MLA 2 component of the Site contains gently undulating land that slopes eastwards, and has elevations of between approximately 280 to 370 m AHD.

## 2.6 Regional Hydrogeology

Within the Project area, the coal seams have sufficient permeability to be regarded as aquifers but the groundwater within the seams is not used for consumptive use (Heritage Computing, 2011).

The Project area is bordered by alluvial sediments which are associated with the Bollol Creek, Goonbri Creek and Nagero Creek drainages. These sediments are part of the upper Namoi Alluvium and their groundwaters lie within the Namoi Valley (Keepit Dam to Gin's Leap) Groundwater Source, also known as the Upper Namoi Zone 4 water source. The Bollol Creek, Goonbri Creek and Nagero Creek embayments have alluvial thicknesses in the order of 30 m maximum (McNeilage, 2006). On the floodplain between Bollol Creek and Driggle Draggie Creek farther south, the alluvium is generally 40 to 70 m thick (Heritage Computing, 2011).

A separate assessment of potential impacts of the Project on groundwater resources (including identification of groundwater users) has been conducted and is included as part of the EA (Appendix A in the EA).

## 2.7 Surface Waters

The Site is situated approximately 12 km east of the Namoi River in the foothills of the Willowtree Range. Further downstream, the Namoi River flows north and west in the Barwon-Darling River system west of Walgett.

The main local drainages in the vicinity of the Project are Nagero Creek, Bollol Creek and Goonbri Creek and these creeks drain west to the Namoi River. All of these creeks are highly ephemeral, respond quickly to rainfall and flow for relatively short periods after rainfall (Gilbert & Associates, 2011).

A separate assessment of potential impacts of the Project on surface water resources (including identification of surface water users) has been conducted and is included as part of the EA (Appendix B in the EA).

## 2.8 Underground Utilities Search

An underground utility search, using the dial before you dig (DBYD) database, was undertaken for the Site. The DBYD search indicated that Narrabri Shire Council has no records of a water supply line located on the Site. Also, Essential Energy records indicated that there were no underground cables, pipes, earths or wires. The search indicated the presence of above ground Telstra cables. Results of the DBYD database search are included in **Appendix C**.

# 3 STAGE 1 - SITE HISTORY

## 3.1 Historical Aerial Photograph Review

Historical aerial photographs were obtained from NSW Department of Lands, copies of which are provided in **Appendix D**. Information obtained from the review of these photographs is provided in **Table 3-1**.

Table 3-1 Historical Aerial Review

Photograph Details	Observations	
	On-Site	Surrounding Land
<p><b>Date: 22/4/1956</b>  <b>Run No: 3</b>  <b>Photo No: 317</b></p>	<p>The densely vegetated portion in the north of the Site is the Leard State Forest. The remainder of the Site is sparsely vegetated except for clumps of trees along the western side and towards the middle. A road traverses the lower part of the site in a south-west to north-easterly direction.</p>	<p>North: The southern edge of the Leard State Forest.            South, East: Mostly cleared land with sparse vegetation.            West: Areas of denser vegetation in the north west with mostly cleared land in south west.</p>
<p><b>Date: 5/6/1966</b>  <b>Run No: 4B</b>  <b>Photo No: 1456</b></p>	<p>No significant change. Dam in lower north-eastern corner and mid upper north eastern section.            North western corner has a small creek that traverses the Site.</p>	<p>No significant change except for more obvious cropping activity in some areas.</p>
<p><b>Date: 22/5/1975</b>  <b>Run No: 3</b>  <b>Photo No: 2312</b></p>	<p>Similar to 1966 with no significant change evident.</p>	<p>North: Area to the south of the Leard State Forest (and to the north of the site) has been cleared.            South, East, West: No significant changes</p>
<p><b>Date: 6/3/1986</b>  <b>Run No: 3</b>  <b>Photo No: 3491</b></p>	<p>Well defined cropping activity on southern portion of site.</p>	<p>North: Leard State Forest, cropping/clearing activity            South, East, West: cleared undulating land, sparse vegetation, increased cropping activity</p>
<p><b>Date: 8/2010</b>  <b>Geo-Spectrum Australia</b></p>	<p>Northern portion of the Site more densely vegetated.            Surrounding roads more clearly defined.            North western corner has a small creek that traverses the site. One dam is present to the east of the creek line, with a smaller dam forming south of the dam. The third dam is not present, however there is evidence of excavation occurring in the third dam area. A dirt road from the area leading to the Tarrawonga Coal Mine is present.</p>	<p>North: Mining activity within Leard State Forest            South, East: Grazing or cropping activity            West: Mining activity associated with the Tarrawonga Coal Mine.</p>

# 4 STAGE 1 - SITE INVESTIGATIONS

## 4.1 On-site Observations

Lloyd Consulting senior personnel undertook inspections of the Site on 14 and 15 June 2011 and 14 July 2011. The section of the MLA 2 area west of Goonbri Road was inspected on 14 and 15 June 2011 (the other areas of the Site were not inspected during this inspection due to access problems). The other areas of the Site (i.e. MLA 1 area and the eastern section of MLA 2) were inspected during the second inspection on 14 July 2011.

The purpose of these site inspections was to confirm the Site history details and to identify potentially contaminated areas. The potentially contaminated areas identified during these site inspections are listed below (Figure 2):

- Site 1 – Landfill area in drainage line.
- Site 2 – Abandoned farm machinery and fuel drum.
- Site 3 – Unknown structure (possibly a sheep dip area or storage shed).
- Site 4 – Surface water storage dams (Dams 1, 2 and 3).
- Site 5 – Bollol Creek Station – landfill area in Goonbri Creek.
- Site 6 – Bollol Creek Station – storage sheds.
- Site 7 – Bollol Creek Station – above ground storage tanks.
- Site 8 – Bollol Creek Station – cattle spray race.
- Site 9 – Surface water storage dams (Dams 4 and 5).

More detail on each of these potentially contaminated areas is provided below.

### Site 1 - Landfill Area in Drainage Line

Landfilling was observed to have been occurring at a small ephemeral drainage line (Figure 2) containing a large amount of fill material (Photos 1, 2 and 3).

A number of wastes were observed including old farm machinery such as tractors, ploughs, disused bottles, half buried car batteries, wire, wire mesh, oil drums, empty chemical and fuel storage containers and general refuse. Some localised discolouration of soils (fuel oil or diesel) was also observed.



The horizontal extent of the landfilling appeared to be approximately 200 m, however as some items appeared to be half buried in the creek sediment, the vertical extent of the landfilling was unknown.



**Photo 1** – Disused chemical storage containers and lead batteries in landfilling area



**Photo 2** – General refuse and storage containers in landfilling area



**Photo 3** – General refuse in landfilling area

Site 2 – Abandoned Farm Machinery and Fuel Drum

There were a number of areas containing old machinery and parts, including an abandoned tractor, as well as abandoned fuel storage containers (Photos 4 and 5). Some localised discolouration of soils (fuel oil or diesel) was observed at these locations (Photo 5).



**Photo 4** – Abandoned tractor



**Photo 5** – Stained ground next to fuel tank of the abandoned tractor

#### Site 3 – Unknown Structure

A structure which consisted of wooden poles and wire was present nearby to the ephemeral drainage line located in MLA 2 (Figure 2). It appeared that the structure may have once been an old storage shed or possible sheep dipping area (Photo 6).



**Photo 6** – Wooden structure that may have once been a storage shed or sheep dipping area

#### Site 4 – Surface Water Storage Dams

The three surface water storage dams identified in the MLA 2 area (Figure 2) had varying water quality, one dam was green in colour with the other two dams brown (Photos 7 and 8).



**Photo 7** – Dam 2 with green coloured water



**Photo 8** – Dam 3 with brown coloured water that appeared to be turbid

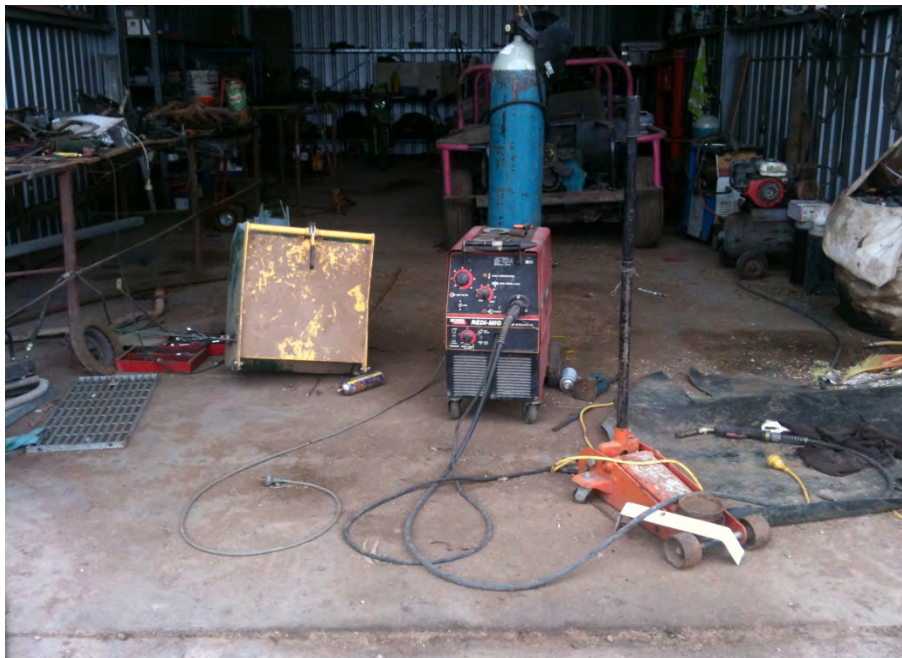
### Site 5 – Bollol Creek Station – Landfill Area in Goonbri Creek

Bollol Creek Station is located to the south-east of Goonbri Road (Figure 2). Landfilling was observed to have been occurring at Goonbri Creek near Bollol Creek Station (Figure 2). A number of empty 44 gallon drums and concrete were observed. No other visible sources of contamination were observed.

### Site 6 – Bollol Creek Station – Storage Sheds

Bollol Creek Station contains a number of storage sheds (Figure 2). The chemical storage shed contained sealed concrete surface which appeared to be in good condition (Photo 9).

There was an unbunded engine oil storage area adjacent to the shed, where obvious spilling (engine oil) had occurred. Some localised soil discolouration had resulted adjacent to the storage sheds (Photo 10).



**Photo 9** – Inside the chemical storage shed



**Photo 10** – Engine oil spill area

Site 7 – Bollol Creek Station – Above Ground Storage Tanks

Three above ground fuel storage tanks (Figure 2) and a portable storage tank (designed to sit on the back of a ute) were identified on Site at Bollol Creek Station. The area was unbunded and the fuel was labelled as diesel and unleaded (Photos 11 and 12).



**Photo 11** – Diesel storage tank on the left and unleaded storage tank on the right



**Photo 12** – Diesel storage tank and a portable storage tank

#### Site 8 – Bollol Creek Station – Cattle Spray Race

Bollol Creek Station contained a cattle spray race (Figure 2). The cattle spray race appeared to be operational at the time of assessment and was in good condition with a metal chemical capture bund. A slight odour was detected during the inspection.

#### Site 9 – Surface Water Storage Dams

The two dams located in the south-western section of the Site (MLA 1) were inspected, and are located down gradient from the current Tarrawonga Coal Mine activities (Figure 2). Both dams appeared to be in good condition and the water appeared clear.

## 4.2 Potential Contamination

The site history review and site inspections identified nine potentially contaminated sites that required further investigation (Section 4.1). The possible sources of contamination at each of these sites are identified in **Table 4-1**.

Details of the further investigations conducted at each of these sites are provided in Section 5.

**Table 4-1 Possible Sources of Contamination**

<b>Site Number</b>	<b>Potential Source of Contamination</b>	<b>Potential Contaminants</b>
<b>Site 1</b>	<b>Landfill Area in Drainage Line</b>	Hydrocarbons (namely TPH, BTEX and PAH) and metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury)
<b>Site 2</b>	<b>Abandoned Farm Machinery and Fuel Drum</b>	Hydrocarbons (namely TPH, BTEX and PAH) and metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury)
<b>Site 3</b>	<b>Unknown Structure</b>	Hydrocarbons (namely TPH, BTEX and PAH), pesticides and metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury)
<b>Site 4</b>	<b>Surface Water Storage Dams (Dams 1, 2 and 3)</b>	Pesticides and metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury)
<b>Site 5</b>	<b>Bollol Creek Station – Landfill Area in Goonbri Creek</b>	Hydrocarbons (namely TPH and BTEX) and metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury)
<b>Site 6</b>	<b>Bollol Creek Station – Storage Sheds</b>	Hydrocarbons (namely TPH and BTEX) and metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury)
<b>Site 7</b>	<b>Bollol Creek Station – Above Ground Storage Tanks</b>	Hydrocarbons (namely TPH and BTEX) and metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury)
<b>Site 8</b>	<b>Bollol Creek Station – Cattle Spray Race</b>	Pesticides and metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury)
<b>Site 9</b>	<b>Surface Water Storage Dams (Dams 4 and 5)</b>	Pesticides and metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury)

**Notes:**

TPH	Total Petroleum Hydrocarbon
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
PAH	Polycyclic Aromatic Hydrocarbon



# 5 STAGE 1 - SOIL AND SURFACE WATER INVESTIGATIONS

## 5.1 Soil Investigation Program

### 5.1.1 Sampling Program

The Stage 1 – Preliminary Investigation sampling program was undertaken on 15 June 2011 and 14 July 2011. Figures 3a and 3b show the sampling locations. **Table 5-1** summarises the sampling and analysis program.

Table 5-1 Summary of Soil Sampling and Analysis Program

Site	Number of Samples Analysed	Description	Analytes <sup>1</sup>
Site 1 Landfill Area in Drainage Line	7 (Borehole [BH] 1 – BH5)	<ul style="list-style-type: none"> <li>▪ Samples collected within the top 1 m of soil</li> <li>▪ BH1 – located upstream from the landfilling activities.</li> <li>▪ BH2 and BH3 – located at lead batteries.</li> <li>▪ BH4 – located downstream of the landfilling</li> <li>▪ BH5 – located at fuel storage drums.</li> </ul>	<ul style="list-style-type: none"> <li>▪ pH (1:5 soil water)</li> <li>▪ Metals (As, Cd, Cr, Cu, Ni, Pb, Zn and Hg)</li> <li>▪ TPH/PAH/BTEX</li> </ul>
Site 2 Abandoned Farm Machinery and Fuel Drum	1 + duplicate (BH8)	<ul style="list-style-type: none"> <li>▪ Sample collected at surface.</li> <li>▪ BH8 – collected at abandoned tractor.</li> </ul>	<ul style="list-style-type: none"> <li>▪ pH (1:5 soil water)</li> <li>▪ Metals (As, Cd, Cr, Cu, Ni, Pb, Zn and Hg)</li> <li>▪ TPH/PAH/BTEX</li> </ul>
Site 3 Unknown Structure	2 (BH6 and BH7)	<ul style="list-style-type: none"> <li>▪ Samples collected at surface.</li> <li>▪ BH6 and BH7 – collected at unknown structure.</li> </ul>	<ul style="list-style-type: none"> <li>▪ pH (1:5 soil water)</li> <li>▪ Metals (As, Cd, Cr, Cu, Ni, Pb, Zn and Hg)</li> <li>▪ TPH/PAH/BTEX</li> <li>▪ OC/OPs</li> </ul>
Site 4 Surface Water Storage Dams (Dams 1, 2 and 3)	1 (BH9)	<ul style="list-style-type: none"> <li>▪ Sample collected at surface.</li> <li>▪ BH9 – collected at surface water storage dams.</li> </ul>	<ul style="list-style-type: none"> <li>▪ pH (1:5 soil water)</li> <li>▪ Metals (As, Cd, Cr, Cu, Ni, Pb, Zn and Hg)</li> <li>▪ OC/OPs</li> </ul>
Site 5 Bollol Creek Station – Landfill area in Goonbri Creek	1 (Test Pit [TP] 4)	<ul style="list-style-type: none"> <li>▪ Sample collected at surface.</li> </ul>	<ul style="list-style-type: none"> <li>▪ pH (1:5 soil water)</li> <li>▪ Metals (As, Cd, Cr, Cu, Ni, Pb, Zn and Hg)</li> <li>▪ TPH/BTEX</li> </ul>

Table 5-1 Summary of Soil Sampling and Analysis Program (cont)

Site	Number of Samples Analysed	Description	Analytes
Site 6 Bollol Creek Station – Storage Sheds	1 (TP5)	<ul style="list-style-type: none"> <li>Sample collected by auger to a depth of 1 m.</li> </ul>	<ul style="list-style-type: none"> <li>Metals (As, Cd, Cr, Cu, Ni, Pb, Zn and Hg)</li> <li>TPH/BTEX</li> </ul>
Site 7 Bollol Creek Station – Above Ground Storage Tanks	4 (TP6 and BH1-1)	<ul style="list-style-type: none"> <li>Samples collected by auger to a depth of 1.5 m.</li> <li>Four of the nine samples collected were submitted for analysis.</li> <li>Additional bore hole (BH1-1) was completed to determine extent of contamination only.</li> </ul>	<ul style="list-style-type: none"> <li>Metals (As, Cd, Cr, Cu, Ni, Pb, Zn and Hg)</li> <li>TPH/BTEX</li> </ul>
Site 8 Bollol Creek Station – Cattle Spray Race	1 (BH2-1)	<ul style="list-style-type: none"> <li>Samples collected at 0.2 m and 0.5 m.</li> <li>BH2-1 – collected at exit gate.</li> </ul>	<ul style="list-style-type: none"> <li>Metals (As, Cd, Cr, Cu, Ni, Pb, Zn and Hg)</li> <li>OC/OPs</li> </ul>
Site 9 Surface Water Storage Dams (Dams 4 and 5)	-	-	-
Background	1 (BH10)	<ul style="list-style-type: none"> <li>Sample collected at surface with trowel.</li> <li>BH10 – collected in vegetated area.</li> </ul>	<ul style="list-style-type: none"> <li>pH (1:5 soil water)</li> <li>Metals (As, Cd, Cr, Cu, Ni, Pb, Zn and Hg)</li> <li>OC/OPs</li> </ul>

Notes:

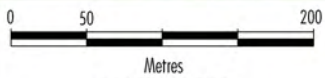
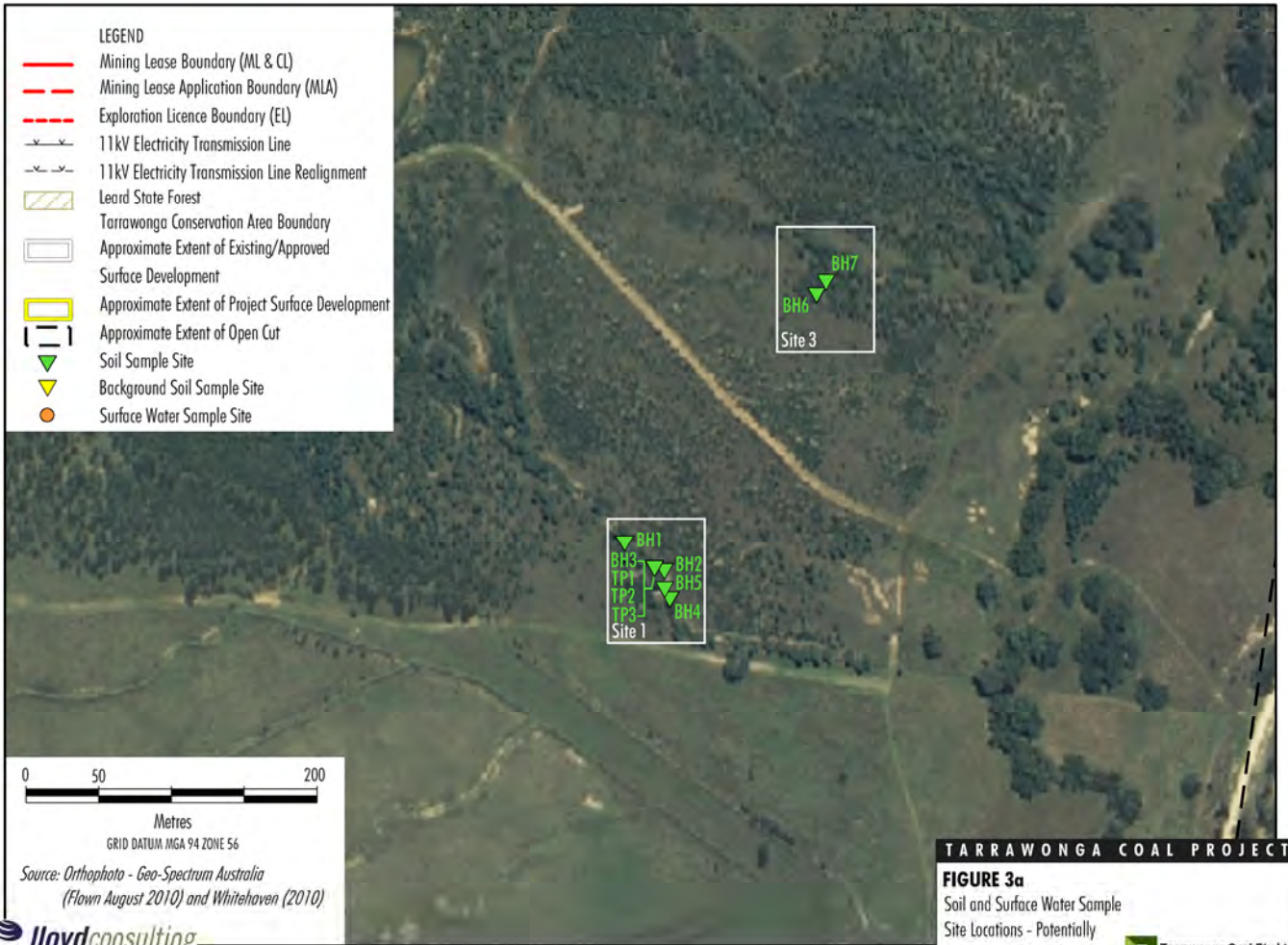
<sup>1</sup> Not all samples were analysed for all analytes listed.

OC/OPs Organochlorine Pesticides and Organophosphorous Pesticides

AS = Arsenic, Cd = Cadmium, Cr = Chromium, Cu = Copper, Ni = Nickel, Pb = Lead, Zn = Zinc and Hg = Mercury



- LEGEND**
- Mining Lease Boundary (ML & CL)
  - - - Mining Lease Application Boundary (MLA)
  - · - · Exploration Licence Boundary (EL)
  - - - 11KV Electricity Transmission Line
  - · - · 11KV Electricity Transmission Line Realignment
  - / / / Leard State Forest
  - Tarrawonga Conservation Area Boundary
  - Approximate Extent of Existing/Approved Surface Development
  - Approximate Extent of Project Surface Development
  - Approximate Extent of Open Cut
  - ▼ Soil Sample Site
  - ▼ Background Soil Sample Site
  - Surface Water Sample Site



Metres

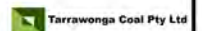
GRID DATUM MGA 94 ZONE 56

Source: Orthophoto - Geo-Spectrum Australia  
(Flown August 2010) and Whitehaven (2010)



**TARRAWONGA COAL PROJECT**

**FIGURE 3a**  
Soil and Surface Water Sample  
Site Locations - Potentially  
Contaminated Sites 1 to 4





### 5.1.2 Sampling Procedures

Soil sampling was undertaken in accordance with the principles described in Australian Standard (AS) 4482.1-2005 *Guide to the investigation and sampling of sites with potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds* and AS 4482.2-1999 *Guide to the sampling and investigation of potentially contaminated soil Part 2: Volatile substances*.

Due to the Site geology, all soil samples were collected using a hand auger or stainless steel trowel.

Samples were selected from each soil investigation area for laboratory analysis such that they target the maximum impact indicated by known historical land-uses (i.e. surface soils); and attempted to achieve the inferred lateral extent of impact. Samples were collected on a judgemental basis.

Samples were collected directly from the flight of the hand auger by hand with disposable nitrile gloves. New nitrile gloves were used for each sample collected to avoid cross contamination. A solution of Decon 90 was used to decontaminate the hollow flight augers and the stainless steel trowel in between collecting each sample. All samples were stored and kept in an ice packed esky and transported to a National Association of Testing Authorities (NATA) Accredited laboratory for analysis. Duplicate samples were collected and analysed at a rate of one per twenty samples collected. Soil profiles were logged during sampling.

Upon the completion of the investigation all potentially contaminated areas were backfilled and the Site was returned to its previous condition.

Surface samples were collected from each potentially contaminated area. Samples collected at each location were submitted for laboratory analysis and included one QC duplicate sample, collected and analysed for QC purposes. In addition, one rinsate sample was collected from the sampling equipment and submitted for metals analysis only.

Determination of the analytes selected for laboratory analysis was dependant on the potentially contaminated area (judgemental) and results from the use of a Photoionisation Detector (PID). The PID measured the levels of gas contained in a sample and was used as an indicator for samples to have Total Petroleum Hydrocarbon (TPH), Benzene, Toluene, Ethylbenzene and Xylene (BTEX) and Polycyclic Aromatic Hydrocarbon (PAH) analysis conducted. All calibration certificates for equipment used on Site are included in **Appendix E**.

### 5.1.3 Assessment Criteria

The proposed use for the Site is for mining and mining-related activities. The nature of the activities requires the majority of the Site to be excavated. The primary site investigation criteria is the Health-based Investigation Level for commercial/industrial land use (HIL-F) as outlined in NEPM's (1999b) *Schedule B (7a) Guideline on Health-Based Investigation Levels*. In addition, the Health-based Investigation Level for open space land use (HIL-E) will be used as the entire Site would be excavated.

Where criteria were not available in the above guidelines, the following assessment criteria were used:

- *Regional Screening Levels – Industrial Use* (United States Environmental Protection Agency Region 9 [USEPA], 2011) ; and
- *Guidelines for Assessing Service Station Sites* (Office of Environment and Heritage [OEH], 2011).

**Table 5-2** displays the adopted site assessment criteria for the Site.

Table 5-2 Soil Site Assessment Criteria

Parameter	Site Assessment Criteria			
	NEPM		USEPA	OEH <sup>4</sup>
	HIL-E <sup>1</sup>	HIL-F <sup>2</sup>	Industrial <sup>3</sup>	
<b>Petroleum Hydrocarbons</b>				
C <sub>6</sub> -C <sub>9</sub>	-	-	-	65
C <sub>10</sub> -C <sub>36</sub>	-	-	-	1,000
<b>BTEX</b>				
Benzene	-	-	-	1
Toluene	-	-	-	130
<b>PAH</b>				
Total PAH	40	100	-	-
Benzo(a)Pyrene	2	5	-	-
<b>Organochlorine Pesticides (OCs)</b>				
Aldrin + Dieldrin	20	50	-	-
Chlordane	100	250	-	-
Heptachlor	20	50	-	-
DDt + DDD +DDE	-	-	-	-
<b>Organophosphorous Pesticides (OPs)</b>				
Dichlorvos	-	-	5.9	-
Demeton-S-methyl	-	-	25	-

Table 5-2 Soil Site Assessment Criteria (cont)

Parameter	Site Assessment Criteria			
	NEPM		USEPA	OEH <sup>4</sup>
	HIL-E <sup>1</sup>	HIL-F <sup>2</sup>	Industrial <sup>3</sup>	HIL-E <sup>1</sup>
Dimethoate	-	-	120	-
Diazinon	-	-	430	-
Chlorpyrifos-methyl	-	-	6,200	-
Malthion	-	-	12,000	-
Chloropyrifos	-	-	1,800	-
Parathion	-	-	3,700	-
Pirimphos-ethyl	-	-	6,200	-
Fenamiphos	-	-	150	-
Ethion	-	-	310	-
<b>Metals</b>				
Arsenic	200	500	-	-
Cadmium	40	100	-	-
Chromium (III)	24%	60%	-	-
Chromium (VI)	200	500	-	-
Copper	2,000	5,000	-	-
Mercury	30	75	-	-
Lead	600	1,500	-	-
Nickel	600	3,000	-	-
Zinc	14,000	35,000	-	-

<sup>1</sup> NEPM (1999b) HIL-E.

<sup>2</sup> NEPM (1999b) HIL-F.

<sup>3</sup> USEPA (2011).

<sup>4</sup> OEH (2011).

Note: All parameters are in milligram per kilogram (mg/kg).

### 5.1.4 Analysis Results

A summary of the soil samples submitted for analysis, the minimum and maximum concentrations reported and the samples that exceeded the adopted site assessment criteria are provided in **Table 5-3**. Analysis results are provided in full in **Appendix F**.

Table 5-3 Summary of Soil Analysis Results

Number of Samples Submitted	Analyte	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	Samples Exceeding Site Assessment Criteria <sup>1</sup>
20	Arsenic	<5	7	None
20	Cadmium	<1	4	None
20	Chromium	8	26	None
20	Copper	<5	14	None
20	Lead	6	2,720	Site 1 (BH3 [0.5] & BH3 [0.2])
20	Nickel	4	15	None
20	Mercury	<0.1	0.1	None
20	Zinc	6	1,430	None
5	Total Organophosphorous Pesticides	<0.05	<0.2	None
5	Total Organochlorine Pesticides	<0.05	<0.2	None
12	TPH C <sub>6</sub> -C <sub>9</sub>	<10	<10	None
12	TPH C <sub>10</sub> -C <sub>36</sub>	<50	1,170	Site 1 (BH3 [0.2])
14	BTEX	<0.2	<0.2	None
8	PAH	<0.5	<0.5	None

<sup>1</sup> Refer to Table 5-2. Notes:

mg/kg = milligram per kilogram

Lead concentrations at Site 1 were detected above NEPM (1996b) HIL-E and HIL-F guidelines at the surface (BH3 [0.2]) and at depth (BH3 [0.5]). Lead batteries were observed in close proximity to BH3 (see Photo 1). The elevated concentrations of TPH at BH3 were the heavier TPH fraction (TPH C<sub>10</sub> – C<sub>36</sub>) and indicated the presence of a hydrocarbon fuel such as diesel. BTEX and PAHs were not present within samples collected at any of the sites. **Table 5-4** provides a summary of exceedances of the site assessment criteria.



Table 5-4 Summary of Soil Site Assessment Criteria Exceedances

Analyte	Site Assessment Criteria (mg/kg)	Location	Sample	Concentration (mg/kg)
Lead	600 <sup>1</sup>	Site 1	BH3 (0.5)	2,720
	1,500 <sup>2</sup>		BH3 (0.2)	1,500
TPH C <sub>10</sub> -C <sub>36</sub>	1,000 <sup>3</sup>		BH3 (0.2)	1,170

<sup>1</sup> NEPM (1999b) HIL-E.

<sup>2</sup> NEPM (1999b) HIL-F.

<sup>3</sup> OEH (2011).

## 5.2 Surface Water Investigation Program

### 5.2.1 Sampling Program

The Stage 1 – Preliminary Investigation sampling program was undertaken on the 14 and 15 June 2011 and 14 July 2011. Samples were taken at Sites 4 and 9 (Figures 3a and 3b).

**Table 5-5** summarises the sampling and analysis program.

### 5.2.2 Sampling Procedures

Samples were collected in accordance with AS/NZS 5667.4-1998: *Water quality - Sampling Part 4: Guidance on sampling from lakes, natural and man-made*. All samples were collected from the surface by placing a sample collection bottle upside down into the water body and rotating the bottle at approximately 0.2 m below the surface to collect the water sample. All sampling equipment was disposable so no decontamination procedures were necessary.

Table 5-5 Summary of Surface Water Sampling and Analysis Program

Site	Number of Samples Analysed	Description	Analytes
Site 4 Surface Water Storage Dams (Dams 1, 2 and 3)	3 (D1 – D3)	<ul style="list-style-type: none"> <li>▪ D1 – collected from Dam 1.</li> <li>▪ D2 – collected from Dam 2.</li> <li>▪ D3 – collected from Dam 3.</li> </ul>	<ul style="list-style-type: none"> <li>▪ pH</li> <li>▪ EC</li> <li>▪ DO</li> <li>▪ TDS</li> <li>▪ Total Metals (As, Cd, Cr, Cu, Ni, Pb, Zn and Hg)</li> <li>▪ OC/OPs (D2 only)</li> </ul>
Site 9 Surface Water Storage Dams (Dams 4 and 5)	2 + duplicate at D4 (D4 – D5)	<ul style="list-style-type: none"> <li>▪ D4 – collected from Dam 4.</li> <li>▪ D5 – collected from Dam 5.</li> </ul>	<ul style="list-style-type: none"> <li>▪ pH</li> <li>▪ EC</li> <li>▪ DO</li> <li>▪ TDS</li> <li>▪ Alkalinity</li> <li>▪ Chloride, Sulfate and Major Cations (Ca, Mg, Na, K)</li> <li>▪ Filtered metals (As, Cd, Cr, Cu, Ni, Pb, Zn and Hg)</li> <li>▪ Nitrite and Nitrate</li> <li>▪ Total Nitrogen</li> <li>▪ OC/OPs</li> </ul>

Notes:

EC Electrical Conductivity

DO Dissolved Oxygen

TDS Total Dissolved Solids

Ca = Calcium, Mg = Magnesium, Na = Sodium, K = Potassium

### 5.2.3 Assessment Criteria

The adopted site assessment criteria for surface waters is the Australian and New Zealand *Guidelines for Fresh and Marine Water Quality Ecosystems Fresh Water (90% protection level)* (Australian and New Zealand Environment and Conservation Council [ANZECC] and Agriculture and Resource Management Council of Australia and New Zealand [ARMCANZ],2000) and is summarised in **Table 5-6**. These guidelines provide trigger values for protection of species in both fresh and marine waters.

Table 5-6 Surface Water Site Assessment Criteria

Analytes	Site Assessment Criteria (mg/L)
<b>ANZECC and ARMCANZ (Freshwater 90% Protection)<sup>1</sup></b>	
<b>Metals</b>	
Arsenic (V)	0.042
Cadmium	0.0004
Chromium (VI)	0.006
Copper	0.0018
Mercury	0.0019
Lead	0.0056
Nickel	0.013
Zinc	0.015
<b>Organochlorine Pesticides (OCs)</b>	
Aldrin	-
Chlordane	0.00014
DDE	-
DDT	0.00002
Dicofol	-
Dieldrin	-
Endosulfan	0.0006

<sup>1</sup> ANZECC and ARMCANZ (2000) *Ecosystems Fresh Water (90% protection level)*.

Note:

mg/L = milligrams per litre

## 5.2.4 Analysis Results

A summary of the water samples submitted for analysis, the minimum and maximum concentrations reported and the samples that exceeded the adopted site assessment criteria are provided in **Table 5-7**. Analysis results are provided in full in **Appendix F**.

Table 5-7 Summary of Surface Water Analysis Results

Number of samples submitted	Analyte	Minimum Concentration (mg/L)	Maximum Concentration (mg/L)	Samples exceeding Site Assessment Criteria <sup>1</sup>
3	Arsenic	0.002	0.010	None
3	Filtered Arsenic	<0.001	0.001	None
3	Cadmium	<0.0001	<0.0001	None
3	Filtered Cadmium	<0.0001	<0.0001	None
3	Chromium	0.004	0.016	Site 4 (D2, D3)
3	Filtered Chromium	<0.001	0.001	None
3	Copper	0.006	0.009	Site 4 (D1, D2, D3)
3	Filtered Copper	0.002	0.003	Site 9 (D4, D5)
3	Lead	0.004	0.012	Site 3 (D2, D3)
3	Filtered Lead	<0.001	<0.001	None
3	Mercury	<0.0001	<0.0001	None
3	Filtered Mercury	<0.0001	<0.0001	None
3	Nickel	0.005	0.018	Site 4 (D3)
3	Filtered Nickel	0.002	0.003	None
3	Zinc	0.012	0.035	Site 4 (D2, D3)
3	Filtered Zinc	<0.005	<0.005	None
3	Organophosphorous Pesticides	<0.5	<2	None
3	Organochlorine Pesticides	<0.5	<2	None
5	Total Nitrogen	1.1	4.7	None
5	Nitrite & Nitrate	0.27	0.46	None
5	Total Kjeldahl Nitrogen	0.8	4.6	None

<sup>1</sup> Refer to Table 5-6.

Concentrations of total chromium, total copper, total lead, total nickel, total zinc and filtered copper were detected above the site assessment criteria. Total copper exceeded the site assessment criteria in samples from all dams. **Table 5-8** provides a summary of exceedances.

**Table 5-8 Summary of Surface Water Site Assessment Criteria Exceedances**

Analyte	Site Assessment Criteria (mg/L) <sup>1</sup>	Location	Sample	Concentration (mg/L)
Chromium	0.006	Site 4	D2	0.007
			D3	0.016
Copper	0.0018	Site 4	D1	0.006
			D2	0.006
			D3	0.009
Filtered Copper	0.0018	Site 9	D4	0.003
			D5	0.002
Lead	0.0056	Site 4	D2	0.006
			D3	0.012
Nickel	0.013	Site 4	D3	0.018
Zinc	0.015	Site 4	D2	0.021
			D3	0.035

<sup>1</sup> Refer to Table 5-6.

# 6 STAGE 2 – DETAILED INVESTIGATION

The objective of the Stage 2 – Detailed Investigation is to delineate laterally and vertically the extent of contamination identified during the Stage 1 – Preliminary Investigation (Sections 4 and 5) and develop a RMP for the Site.

## 6.1 Summary of Identified Site Contamination

The following areas of contamination were identified during the Stage 1 – Preliminary Investigation:

- Site 1 (Landfill in Drainage Line) – elevated levels of lead and TPH C<sub>10</sub> – C<sub>28</sub>.
- Site 4 (Surface Water Storage Dams) – elevated levels of heavy metals.
- Site 9 (Surface Water Storage Dams) – elevated levels of filtered copper.

Additional investigations were conducted to delineate laterally and vertically the extent of contamination at Site 1 and to identify potential sources of contamination at Sites 4 and 9.

## 6.2 Soil Fieldworks Program

### 6.2.1 Sampling Program

The Stage 2 - Detailed Investigation was undertaken on the 14 July 2011. Figures 3a and 3b show the soil sampling locations.

BH3 at Site 1 identified as containing elevated lead and TPH C<sub>10</sub> – C<sub>28</sub> was excavated to a maximum depth of 2 m and width of 2 m in order to delineate the lateral and vertical extent of contamination. A total of eleven samples were collected from the impacted area with three samples (TP1 to TP3) and one duplicate submitted for laboratory analysis.

### 6.2.2 Sampling Procedures

The sampling procedures outlined in Section 5.2.2 were used again for the Stage 2 – Detailed Investigation.

### 6.2.3 Laboratory Analysis

All soil samples analysed displayed results below the site assessment criteria. All samples analysed for TPH fractions displayed non-detects. **Table 6-1** summarises the results. Analysis results are provided in full in **Appendix F**.

Based on these results, the contamination identified during the Stage 1 – Preliminary Investigation is confined within 2 m of the BH3.

Table 6-1 Summary of Stage 2 Soil Analysis Results

Number of Samples Submitted	Analyte	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	Samples Exceeding Site Assessment Criteria <sup>1</sup>
4	Arsenic	<5	5	None
4	Cadmium	<1	<1	None
4	Chromium	8	10	None
4	Copper	<5	6	None
4	Lead	11	74	None
4	Nickel	5	6	None
4	Mercury	<0.1	<0.1	None
4	Zinc	18	104	None
4	TPH C <sub>6</sub> -C <sub>9</sub>	<10	<10	None
4	TPH C <sub>10</sub> -C <sub>36</sub>	<50	<50	None
4	BTEX	<0.2	<0.5	None

<sup>1</sup> Refer to Table 5-2.

## 6.3 Surface Water Fieldworks Program

### 6.3.1 Sampling Program

The Stage 1 – Preliminary Investigation sampling program was undertaken on the 14 and 15 June 2011 and 14 July 2011. Samples were taken at Sites 4 and 9 (Figures 3a and 3b). **Table 5-5** summarises the sampling and analysis program.

The Stage 2 – Detailed Investigation sampling program was undertaken on the 14 July 2011. Samples were taken at Site 4 (Figure 3a). The sampling program comprised:

- *In-situ* water monitoring at Dams 1, 2 and 3 for DO, EC, pH, and TDS.
- One sample was collected from Dams 1, 2 and 3 and analysed for filtered metals<sup>1</sup>, major cations and anions, and total nitrogen.
- One duplicate sample was collected for QC purposes.

### 6.3.2 Sampling Procedures

Samples were collected in accordance with AS/NZS 5667:4-1998: *Water quality – Sampling Part 4: Guidance on sampling from lakes, natural and man-made*. All samples were collected from the surface by placing a sample collection bottle upside down into the water body and rotating the bottle at approximately 0.2 m below the surface to collect the water sample.

Surface water samples were collected on 14 July 2011 from Site 4 using Disposable Millipore Filters and a hand pump. All of the three surface water samples were submitted to a NATA accredited laboratory and analysed for filtered metals. Field parameters were recorded using a TPS 90 FLMV water quality meter. All calibration certificates for equipment used on site are included in **Appendix E**.

All sampling equipment was disposable so no decontamination procedures were necessary.

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1 The initial screening analysis of water samples for Dams 1, 2 and 3 were undertaken on unfiltered samples and this indicated elevated levels of metals, therefore sampling and analysis on filtered samples was conducted in Stage 2.



### 6.3.3 In-situ Water Monitoring

The results from the surface water *in-situ* sampling are displayed in **Table 6-2**.

**Table 6-2 In-situ Surface Water Monitoring Results**

Sample	pH	Electrical Conductivity @ 25°C (µS/cm)	Total Dissolved Solids (ppm)	Dissolved Oxygen (mg/L)	Temperature (°C)	Observations
D1	6.49	114.7	62.3	4.20	9.3	Colloidal, green slime on edge
D2	7.69	189.7	105.7	9.12	10.4	Green colloidal
D3	7.04	359.0	200.0	8.35	9.5	Colloidal, dark, browner than previous visit

Notes:

µS/cm microSiemens per centimetre

ppm parts per million

The pH of the surface water samples ranged from 6.49 to 7.69 and EC ranged from 114.7 to 359.0 µS/cm. Dissolved oxygen levels in all surface water storage dams were acceptable.

### 6.3.4 Laboratory Analysis

A summary of the surface water samples submitted for analysis, the minimum and maximum concentrations reported and the samples that exceeded the adopted site assessment criteria are provided in **Table 6-3**. Analysis results are provided in full in **Appendix F**.

Following sampling and analysis of the surface water, the three dams (D1, D2 and D3) displayed exceedances of the site assessment criteria (**Table 6-4**) for filtered cadmium and copper. The cadmium exceedance is equal to the site assessment criteria. The source of the contamination in these surface water samples is unknown as there were no obvious sources of contamination observed nearby the surface water storage dams. It should be noted that the recorded concentrations were below the ANZECC and ARMCANZ (2000) stock watering guidelines.

Table 6-3 Summary of Stage 2 Surface Water Analysis Results

Number of samples submitted	Analyte	Minimum Concentration (mg/L)	Maximum Concentration (mg/L)	Samples exceeding criteria
3	Filtered Arsenic	0.001	0.008	None
3	Filtered Cadmium	<0.0001	0.0004	Site 4 (D3)
3	Filtered Chromium	<0.001	0.001	None
3	Filtered Copper	0.003	0.005	Site 4 (D1, D2, D3)
3	Filtered Lead	<0.001	<0.001	None
3	Filtered Nickel	0.002	0.003	None
3	Filtered Zinc	<0.005	0.008	None

Table 6-4 Summary of Surface Water Site Assessment Criteria Exceedances

Analyte	Site Assessment Criteria <sup>1</sup>	Location	Sample	Concentration mg/L
Filtered Cadmium	0.0004	Site 4	D3	0.0004
Filtered Copper	0.0018	Site 4	D1	0.004
			D2	0.005
			D3	0.003

<sup>1</sup> Refer to Table 4-6.

# 7 QUALITY ASSURANCE AND QUALITY CONTROL

## 7.1 Data Quality Objectives

The data quality objectives of the investigation were to obtain sufficient data to allow a high quality environmental assessment to be made of:

- The likelihood of impacted soil quality at the Site;
- The risks posed to the environment;
- The adequacy and completeness of all information available to be used in making decisions on remediation; and
- The requirements for any further investigative works.

The evaluation criteria adopted by the investigation are summarised below in **Table 7-1**.

**Table 7-1 Evaluation Criteria**

Protocol	Description
Documentation completeness	Completion of field calibration records, chain of custody documentation, laboratory test certificates from NATA accredited laboratories.
Data completeness	Targeted sampling in accordance with NSW DUAP/EPA's (1998) <i>Managing Land Contamination, Planning Guidelines SEPP 55 Remediation of Land</i> for potential contaminants of concern at all areas of environmental concern.
Data comparability	Use of appropriate techniques for the sampling, storage and transportation of samples. Use of NATA certified laboratory using NEPM procedures.
Data representation	Good sampling coverage of main areas of environmental concern at the site, and selection of representative samples.
Precision and accuracy for sampling and analysis	Use properly trained and qualified field personnel. Blind field duplicates to be collected at a minimum rate of 1 in 20. RPD's to be less than 30% for inorganic and 50% for organic analyses. Achieve laboratory QC criteria.

## 7.2 Field Quality Assurance and Quality Control

The QA and QC protocols used during the fieldwork for the assessment are shown in **Table 7-2**.

Table 7-2 QA/QC Protocols

Protocol	Description
Sampling team	Site personnel will comprise of professionally qualified environmental scientists and engineers trained in conducting site contamination investigations.
QA/QC system	All fieldwork will be conducted in accordance with an approved Lloyd Consulting Field Work Plan.
Chain of Custody forms	All samples will be logged and transferred under appropriately completed Chain of Custody Forms.
Preservation	All samples will be sent to and received at the laboratory in appropriately preserved containers, with preservation including packing samples with ice packs in eskies.
Blind Field Duplicates	<p>Blind field duplicates will be prepared in accordance with procedures given in Section 8 of AS 4482.1-2005 <i>Guide to the investigation and sampling of sites with potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds</i>. The frequency of duplicate testing will be at least 20% for all soil samples.</p> <p>Blind duplicates are split field samples, which are both sent to the laboratory for individual analyses. The accepted RPD for non-volatiles is 30% and 50% for volatiles. These samples are analysed to assess the field methods.</p>

## 7.3 Laboratory Quality Assurance and Quality Control

Soil and water samples collected from the Site were sent to the ALS Laboratory in Sydney which was NATA accredited for the specified analysis. The data validation process and overall QA/QC procedures used to assess the effectiveness of the overall analytical process and to assess the use of data is outlined in **Table 7-3**.

Table 7-3 Laboratory QA/QC

Protocol	Description
Holding Times	Holding times are the maximum permissible elapsed time in days from the collection of the sample to its extraction and/or analysis.
Reagent Blanks	The reagent blank sample is a laboratory prepared sample containing the reagents used to prepare the sample for final analysis. The purpose of this procedure is to identify contamination in the reagent materials and assess potential bias in the sample analysis due to contaminated reagents. The QC criteria are no detectable contamination in the reagents.
Laboratory Duplicates	Laboratory duplicates are field samples that are split in the laboratory and subsequently analysed a number of times in the same batch. These subsamples are selected by the laboratory to assess the accuracy and precision of the analytical method.  ALS Laboratories undertakes QA/QC procedures such as calibration standards, laboratory control samples, surrogates, reference materials, sample duplicates and matrix spikes. The QC criteria are 50% RPD.
Matrix Spikes/Matrix Spike Duplicates (MS/MSD)	MS/MSDs are field samples to which a predetermined stock solution of known concentration has been added. The samples are then analysed for recovery of the known addition. Recoveries should be within the stated laboratory control limits of 70 to 130% and duplicates should have RPDs of less than 50%.

### 7.3.1 Laboratory and Field Duplicates

Precision is a measure of the ability to reproduce results, and is assessed on the basis of agreement between a set of replicate results obtained from duplicate analyses. The precision of a set of duplicates can be measured as RPD, and is calculated from the following equation:

$$RPD = \left[ \frac{X1 - X2}{\left( \frac{X1 + X2}{2} \right)} \right] \times 100$$

where: X1 is the first duplicate value  
X2 is the second duplicate value

## 7.4 Data Quality Objective Completion

A summary of the Data Quality Objectives are provided in **Table 7-4**.

**Table 7-4 Data Quality Objectives Completion**

Data Quality Objectives	Description	Achieved
Documentation Completeness	<p>ALS QA/QC procedures such as calibration standards, laboratory control samples, surrogates, reference materials, sample duplicates and matrix spikes are included in <b>Appendix G</b>.</p> <p>All necessary documentation has been provided by the laboratory following analysis including Chain of Custody forms, Certificate of Analysis, and QC Report(s) and included within <b>Appendix G</b>.</p>	✓
Data Completeness	<p>Targeted sampling was undertaken within those areas of concern at the site in accordance with the relevant NSW DUAP/EPA's (1998) <i>Managing Land Contamination, Planning Guidelines SEPP 55 – Remediation of Land</i> for potential contaminants of concern.</p>	✓
Data Comparability	<p>All sampling was undertaken in accordance with the NSW DUAP/EPA's (1998) <i>Managing Land Contamination, Planning Guidelines SEPP 55 – Remediation of Land</i>. Samples were stored in an Esky packed with ice, transported to the laboratory and extracted/analysed within the necessary holding times.</p> <p>ALS is a NATA certified laboratory using NEPM procedures (Schedule B(3)).</p>	✗ (refer Section 7.5)
Data Representativeness	<p>Appropriate sampling coverage at the site undertaken. Representative samples were also collected.</p>	✓
Precision and accuracy for sampling and analysis	<p>Properly trained and qualified field personnel were used to undertake the Land Contamination Assessment. Blind field duplicates were collected at a minimum rate of 1 per 20 samples. RPD's to be less than 30% for inorganic and 50% for organic analyses. (RPD Calculations table is available in <b>Appendix H</b>)</p> <p>Achieve laboratory QC criteria.</p>	✗ (refer Section 7.5)

## 7.5 Discussion of Data Quality Objective Completion

### 7.5.1 Laboratory Documentation

All soil samples were received and analysed within laboratory holding times. All surface water samples apart from DO and pH in all three samples were received within laboratory holding times. The DO and pH results will not be discussed in this report and are indicative of environmental conditions only and are not to be relied upon.

Surrogate recovery limits for copper and chromium were greater than the upper control limits, therefore the copper and chromium results reported in the laboratory documentation may be an overestimate. All other laboratory data quality objectives were met.

### 7.5.2 Rinsate Sample

The rinsate sample collected during the soil investigations on the 14 June 2011 identified copper within the rinsate sample (0.001 mg/L). This result would indicate that there may have been some cross contamination of copper during soil sample collection. As all soil samples collected had copper results below the adopted criteria, the copper result from this rinsate sample is unlikely to affect the results in the report.

### 7.5.3 RPDs

As part of the Stage 1 – Preliminary Investigation there were three exceedances of the RPD criteria. Copper had the highest RPD of 200%, however due to the low levels of copper identified in the sample, the results are considered to be suitable for reporting purposes. TPH fractions C<sub>15</sub>-C<sub>28</sub> and C<sub>10</sub>-C<sub>36</sub> RPD results were equal to the criteria (50% for organics) with the differences in results more than likely due to either the heterogeneity of the soil or volatilisation of the sample in the laboratory.

As part of the Stage 2 – Detailed Investigation there were two exceedances of the RPD criteria (zinc and lead), however due to the heterogeneity of the soil at the Site, the results are considered to be suitable for reporting purposes.

There were no exceedances of the RPD criteria for surface waters.

RPD results can be viewed in **Appendix H**.

# 8 REMEDIATION MANAGEMENT PLAN

## 8.1 Objectives

There are three objectives of the RMP:

- 1) To provide a remediation strategy for the Site that ensures remediation works are conducted in a manner that protects human health and the environment.
- 2) To ensure that, once remediated, the Site is suitable for its intended end use (i.e. that is the Project).
- 3) To ensure ongoing protection of human health and the environment post remediation.

The objectives of the RMP would be achieved by removing soils and refuse from landfilling to a licensed landfill facility and ensuring surface water from the surface water storage areas are appropriately disposed of.

## 8.2 Identified Areas of Contamination

The following areas were identified as potentially contaminated:

- Site 1 (Landfill Area in Drainage Line) – elevated levels of lead and TPH C<sub>10</sub>– C<sub>28</sub> and other landfill material. The Stage 2 – Detailed Investigations determined that the lead and hydrocarbon contamination was restricted to an area of approximately 4 square metres (m<sup>2</sup>) to 2 m deep. General refuse was observed along approximately 200 m length of the drainage line.
- Site 2 (Abandoned Farm Machinery and Fuel Drum) – surface staining where abandoned tractor was located. Although no exceedances of the site assessment criteria were recorded, it is recommended that the area containing soil discolouration be remediated.
- Site 4 (Surface Water Storage Dams) – elevated levels of heavy metals. Filtered copper and cadmium concentrations recorded above the site assessment criteria.
- Site 6 (Bollol Creek Station – Storage Sheds) – surface staining in engine oil storage area. Although no exceedances of the site assessment criteria were recorded, it is recommended that the area containing surface staining be remediated.



## 8.3 Environmental Guidelines

Relevant environmental guidelines to the RMP include:

- Guidelines issued under Schedule B of the NEPM (1999);
- AS 4482.1-2005 *Guide to the investigation and sampling of sites with potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds*;
- AS 4482.2-1999 *Guide to the sampling and investigation of potentially contaminated soil Part 2: Volatile substances*;
- *Guidelines for Assessing Service Station Sites (OEH, 2011)*; and
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality, *Ecosystems Fresh Water (90% protection level)* (ANZECC and ARMCANZ, 2000).

## 8.4 Site Contamination Remediation Strategies

The Site would require removal of solid waste for recycling/landfill disposal as well as excavation and landfill disposal of contaminated (lead) soil with validation of remaining soil (**Table 8-1**). Surface waters located in the surface water storage dams (Dams 1, 2 and 3) are to be managed in a way to minimise impact to the environment.

Table 8-1 Remediation Strategy

Site Area	Contaminant Source and Type	In situ Volume (m <sup>3</sup> )	Remediation Method	Control Measures
Site 1 (Landfill Area in Drainage Line)	Lead and TPH	8	Excavate to a depth of 2 m in a 2 m <sup>2</sup> grid.  Validate underlying soils	General control measures (dust suppression, Site Safety Plan, Sediment Control Plan, etc.)  Soils removed to be placed immediately into trucks prior to transport to an appropriately licensed landfill (no stockpiling at the Project)
Site 1 (Landfill Area in Drainage Line)	Various refuse including lead batteries, oil containers, fuel containers, wire, concrete, etc.	~ 1,000	Separate items into general refuse and other items as per landfill requirements  Validate underlying soils (if required)	General control measures (dust suppression, Site Safety Plan, Sediment Control Plan, etc.)  Supervision by suitably qualified person of removal of refuse to ensure any unexpected contamination can be controlled.

Table 8-1 Remediation Strategy (cont)

Site Area	Contaminant Source and Type	In situ volume (m <sup>3</sup> )	Remediation Method	Control Measures
Site 2 (Abandoned farm machinery and fuel drum)	TPH	0.5	Excavate to 0.5 m in a 1 m <sup>2</sup> grid  Validate underlying soils	General control measures (dust suppression, Site Safety Plan, Sediment Control Plan, etc.)  Soils removed to be placed immediately into trucks prior to transport to an appropriately licensed landfill (no stockpiling at the Project)
Site 4 (Surface Water Storage Dams)	Copper and Cadmium	Unknown	Water can be used for dust suppressants at the Project or disposed of at a licensed facility.	Water from surface water storage dams used for dust suppressants must be done so in a way to avoid runoff to any nearby waterways.
Site 6 (Bollol Creek Station - Storage Sheds)	TPH	1	Excavate to 0.5 m in a 2 m <sup>2</sup> grid  Validate underlying soils	General control measures (dust suppression, Site Safety Plan, Sediment Control Plan, etc.)  Soils removed to be placed immediately into trucks prior to transport to an appropriately licensed landfill (no stockpiling at the Project)

Notes:

m<sup>3</sup> cubic metres

## 8.5 Remediation Criteria

The Site Acceptance Criteria adopted for validation of the soils at the Site is listed in **Table 8-2**. The Site Acceptance Criteria have been selected considering the HIL-F (NEPM, 1996).

HIL-F are the NEPM guideline levels for commercial and industrial settings with limited exposure of the land user to the soil surface. The HIL-F exposure setting has been applied in view of the future use of the Site being the Project.

Table 8-2 Site Acceptance Criteria

Analyte	Site Acceptance Criteria (mg/kg)
C <sub>6</sub> -C <sub>9</sub>	65
C <sub>10</sub> -C <sub>36</sub>	1,000
Arsenic	500
Cadmium	100
Chromium (III)	60%
Chromium (VI)	500
Copper	5,000
Mercury	75
Lead	1,500
Nickel	3,000
Zinc	35,000

## 8.6 Remediation Program

All disposal and remediation operations must be supervised by a suitably qualified and experienced person.

A summary of responsibilities on Site for the suitably qualified person are:

- Implementation and maintenance of the RMP, including on Site monitoring of remediation activities, auditing contractor compliance with the RMP and associated documentation;
- Supervision including marking out of areas identified as requiring remediation in the RMP;
- Maintenance of a Materials Tracking Register, including audits of the Civil Contractor's soil tracking system; and
- Inspection and validation sampling of excavated surfaces and characterisation sampling of stockpiles (if required).

### 8.6.1 General Environmental Controls

Throughout the remediation of the Site control measures would be maintained. Specific control measures to be in place are to include:

- Environmental induction for all Site staff; and
- An implementation strategy will be required to control emissions to air (including dust); water quality; noise; pests; erosion and sediment controls; emergency planning and response; and occupational health and safety.

### 8.6.2 Offsite Disposal of Contaminated Soils

Remediation of the Site would require movement of soil off-site for disposal. All soils requiring disposal are to be placed immediately into trucks and not stockpiled at the Site. It is anticipated that the soils would be disposed of at an appropriately licensed landfill and would require a soil disposal permit. A Material Tracking Register will be maintained by the Civil Contractor to track all soil material removed from the Site.

### 8.6.3 Unexpected Contamination

In the event that unexpected contamination is uncovered during remediation, work in that area would cease immediately and the area made safe. The unexpected contamination would be assessed by a suitably qualified person and remediation strategies put in place to manage this contamination if necessary after approval by the appropriate authority.

### 8.6.4 Validation Sampling

Validation sampling for soil at the Site (when necessary) will be as per **Table 8-1**. Assessment data will assist in the validation of the soils at the Site.

### 8.6.5 Quality Assurance / Quality Control

A field QA/QC program would be conducted in accordance with the NEPM guidelines to measure the precision of the field/laboratory analyses and to determine the accuracy of the primary laboratory's analyses.

Duplicate soil samples would be collected and analysed by the primary laboratory at a minimum rate of 1 per 20 primary samples.

All analysis would be conducted by a NATA accredited laboratory.

## 8.7 Health and Safety

All works would be conducted in accordance with a Whitehaven Health and Safety System. All contractors would be inducted and made aware of the system and any other requirements prior to commencement of any activities on Site.

## 8.8 Reporting Requirements

Within 60 days of the completion of all remediation and validation works, a report detailing works for the Site must be prepared.

The report would include but not be limited to the documentation of the remediation works and validation program activities and an evaluation of the results against the remediation criteria and would include the results of any further excavation and/or validation.

The report would also include the results of the QA/QC program, Chain of Custody documentation and Sample Receipt Advices for all samples collected and copies of documentation validating the appropriate handling, disposal and treatment of any contaminated soil, materials and water.

# 9 CONCLUSIONS AND RECOMMENDATIONS

The Project is located approximately 15 km north-east of Boggabri and 42 km north-northwest of Gunnedah. The Site consists of the MLA 1 and MLA 2 areas which are located on the southern and eastern extents of the Project area (Figure 2).

The MLA 1 component of the Site is bordered by Goonbri Road to the north and consists of mainly cleared agricultural land (Figure 2). The MLA 2 component of the Site is bordered by the Leard State Forest to the north and the existing Tarrawonga Coal Mine to the west. This section of the Site consists of cleared agricultural land with the exception of the vegetated north-western corner. Goonbri Road and Goonbri Creek traverse the MLA 2 area from north to south (Figure 2). Farm buildings (Bollol Creek Station) are also located in the this section of the Site.

A Stage 1 – Preliminary Investigation and Stage 2 – Detailed Investigation have been undertaken for the Site. The results of site history review and site inspections (14 and 15 June and 14 July 2011) identified the following potentially contaminated areas at the Site:

- Site 1 (Landfill Area in Drainage Line) – elevated levels of lead and TPH C<sub>10</sub>– C<sub>28</sub> and other landfill material. The Stage 2 – Detailed Investigation determined that the lead and hydrocarbon contamination was restricted to an area of approximately 4 m<sup>2</sup> to 2 m deep. General refuse was observed along approximately 200 m length of the drainage line.
- Site 2 (Abandoned Farm Machinery and Fuel Drum) – surface staining where abandoned tractor was located. Although no exceedances of the site assessment criteria were recorded, it is recommended that the area containing soil discolouration be remediated.
- Site 4 (Surface Water Storage Dams) – elevated levels of heavy metals. Filtered copper and cadmium concentrations recorded above the site assessment criteria.
- Site 6 (Bollol Creek Station – Storage Sheds) – surface staining in engine oil storage area. Although no exceedances of the site assessment criteria were recorded, it is recommended that the area containing surface staining be remediated.

There were three exceedances of the site assessment criteria for the soils analysed (lead 2,720 mg/kg, 1,500 mg/kg and TPH C<sub>10</sub>-C<sub>36</sub> 1,170 mg/kg). These were located within the surface material located at Site 1 where landfilling had been identified (BH1 and BH3). Subsequent sampling within the area as part of the Stage 2 – Detailed Investigation delineated the contamination laterally and vertically, with the contamination being observed to be present within the surface material only.

There were a number of exceedances of the surface water in three of the surface water storage dams sampled (D1, D2 and D3). Results from the Stage 2 – Detailed Investigation surface water investigations indicated that filtered concentrations were below the site assessment criteria except for copper and cadmium. There was a minor exceedance for filtered cadmium and filtered copper levels exceeded the site assessment criteria at all the dams.

A RMP has been developed based on the results of the Site assessment works (Section 8).

On the basis of the above, and with the implementation of the proposed management measures (Section 8), it is considered that the Site is suitable for the land use change to the development of the Project.

# 10 REFERENCES

Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*.

Department of Urban Affairs and Planning/Environment Protection Authority (1998) *Managing Land Contamination, Planning Guidelines SEPP 55 – Remediation of Land*.

Department of Primary Industries (2009) *Gunnedah Coalfield (North) Regional Geology (Map)*.

Gilbert & Associates Pty Ltd (2011) *Tarrawonga Coal Project Surface Water Assessment*.

Heritage Computing (2011) *Tarrawonga Coal Project Groundwater Assessment*.

McNeilage, C (2006) *Upper Namoi Groundwater Flow Model: Model Development and Calibration*. NSW Department of Natural Resources, draft report.

Office of Environment and Heritage (2011) *Guidelines for Assessing Service Station Sites*.

National Environment Protection (Assessment of Site Contamination) Measure (1999a) *Schedule B(2) – Guideline on Data Collection, Sample Design and Reporting*.

National Environment Protection (Assessment of Site Contamination) Measure (1999b) *Schedule B (7a) Guideline on Health – Based Investigation Levels*.

Schlumberger Water Services (2011) *Namoi Catchment Water Study Independent Expert Phase 2 Report*.

United States Environmental Protection Agency Region 9 (2011) *Regional Screening Levels – Industrial Use*.



# APPENDIX A

## S149 PLANNING CERTIFICATES



PO Box 261  
NARRABRI NSW 2390

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Website: www.narrabri.nsw.gov.au

## PLANNING CERTIFICATE

Issued under Section 149(2)  
*Environmental Planning and Assessment Act 1979*

### Applicant

Resource Strategies Pty Ltd  
Level 3  
24 McDougall Street  
MILTON QLD 4064

Applicant Reference:

### Administration

Amount Paid: \$40  
Receipt No.: 146268  
Receipt Date: 1 June 2011  
(DD NA)

Certificate Number: **467/2011**

### Description of Land

375 Goonbri Road, Boggabri  
Lot 1 DP 970060  
Assessment Number: 01870-00000000-000

### Owner

Whitehaven Coal Mining Limited

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

### 1 Names of relevant planning instruments and DCPs

- a. *The name of each environmental planning instrument that applies to the carrying out of development on the land:*

Local Environmental Plan (LEP)

***Narrabri Local Environmental Plan 1992***

Regional Environmental Plan (REP)

Nil

State Environmental Planning Policy (SEPP)

- **SEPP No.1 – Development Standards**
- **SEPP No. 4 – Development without Consent & Miscellaneous Exempt and Complying Development**
- **SEPP No. 6 – Number of Storeys in a Building**
- **SEPP No. 21 – Caravan Parks**
- **SEPP No. 22 – Shops and Commercial Premises**
- **SEPP No. 30 – Intensive Agriculture**
- **SEPP No. 33 – Hazardous and Offensive Development**
- **SEPP No. 36 – Manufactured Home Estates**
- **SEPP No. 44 – Koala Habitat Protection**
- **SEPP No. 50 – Canal Estate Development**
- **SEPP No. 55 – Remediation of Land**
- **SEPP No. 62 – Sustainable Aquaculture**
- **SEPP No. 64 – Advertising and Signage**
- **SEPP No. 65 – Design Quality of Residential Flat Development**
- **SEPP (Housing for Seniors or People with a Disability) 2004**
- **SEPP (Building Sustainability Index: BASIX) 2004**
- **SEPP (Major Development) 2005**
- **SEPP (Mining, Petroleum Production and Extractive Industries) 2007**
- **SEPP (Temporary Structures) 2007**
- **SEPP (Infrastructure) 2007**
- **SEPP (Rural Lands) 2008**
- **SEPP (Exempt and Complying Development Codes) 2008**
- **SEPP (Affordable Rental Housing) 2009**

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

**Nil**

c. *The name of each development control plan that applies to the carrying out of development on the land:*

- **DCP Exempt and Complying Development**
- **DCP Landfill Development**
- **DCP Notification Policy**
- **DCP Outdoor Advertising**
- **DCP Parking Code**
- **DCP Subdivision Code**
- **DCP Transportable Homes**
- **DCP Water Supply to Buildings**
- **DCP Drainage to Buildings**
- **DCP Building Line**
- **DCP Encroachment onto Public Roads**
- **DCP Building near Sewer and Stormwater mains**

**Note:** In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

## **2 Zoning and land use under relevant LEPs**

*For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):*

- (a) *the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Area") or by reference to a number (such as "Zone No 2 (a)"),*

### **1 (a) (General Rural) Zone.**

- (b) *the purposes for which the instrument provides that development may be carried out within the zone without the need for development consent,*

**Agriculture (other than ancillary dwellings and intensive livestock keeping establishments); forestry (other than ancillary dwellings and pine plantations); rural levees.**

- (c) *the purposes for which the instrument provides that development may not be carried out within the zone except with development consent,*

### **Any purpose other than a purpose included in item 2 or 4.**

- (d) *the purposes for which the instrument provides that development is prohibited within the zone,*

**Motor showrooms; residential flat buildings; shops (other than general stores not exceeding 100 square metres in gross floor area).**

- (e) *whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed,*

### **100 hectares or more (Clause 17 of the LEP).**

**Note:** There are other provisions within the LEP where a dwelling may be permissible subject to consent on smaller allotments.

- (f) *whether the land includes or comprises critical habitat,*

### **The land does not include or comprise a critical habitat.**

- (g) *whether the land is in a conservation area (however described),*

### **The land is not within a conservation area.**

- (h) *whether an item of environmental heritage (however described) is situated on the land.*

### **There is not an item of environmental heritage situated on the land.**

### **3 Complying Development**

*Whether or not the land is land on which complying development may be carried out under each of the codes for complying development in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.*

**Yes**

*If complying development may not be carried out on that land because of one or more of the requirements under clause 1.19 of that Policy, why it may not be carried out.*

- **Not Applicable**

### **4 Coastal protection**

*Whether or not the land is affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that the council has been so notified by the Department of Public Works.*

**Not applicable.**

### **5 Mine subsidence**

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

**The land isn't proclaimed to be in a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.**

### **6 Road widening and road realignment**

The land isn't affected by any road widening or road realignment under:

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

### **7 Council and other public authority policies on hazard risk restrictions**

The land isn't affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

## **7A Flood related development controls information**

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

**No**

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

**No**

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

## **8 Land reserved for acquisition**

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

**Nil**

## **9 Contributions plans**

*The name of each contributions plan applying to the land.*

**Narrabri Section 94 Contributions Plan**

## **10 (Repealed)**

## **11 Bush fire prone land**

**None of the subject land is identified as being bushfire prone land.**

## **12 Property vegetation plans**

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

**There isnt a property vegetation plan under the *Native Vegetation Act 2002* applicable to the land.**

**Note:** This advice is based on information provided by the relevant Catchment Management Authority.

### **13 Orders under Trees (Disputes Between Neighbours) Act 2006**

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

**An order has not been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land**

**Note:** This advice is based on information provided to the Council.

### **14 Directions under Part 3A**

There has been no directions by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

### **15 Site compatibility certificates and conditions for seniors housing**

There is no current site compatibility certificate (of which the council is aware), issued under clause 25 of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* in respect of proposed development on the land

There has been no development consent granted by Council for Housing for Seniors or People with a Disability on the land.

### **16 Site compatibility certificates for infrastructure**

There is no valid site compatibility certificate (of which the council is aware), issued under clause 19 of *State Environmental Planning Policy (Infrastructure) 2007* in respect of proposed development on the land.

### **17 Site compatibility certificates and conditions for affordable rental housing**

There is no current site compatibility certificate (affordable rental housing) of which the council is aware, in respect of proposed development on the land.

There has been no development consent granted by Council for affordable rental housing on the land.

### **Contaminated Land Management Act 1997**

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

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

**Council has no record that the land is significantly contaminated land at the date or the issue of this certificate.**

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

**Council has no record that the land is subject to a management order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an approved voluntary management proposal within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an ongoing maintenance order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of a site audit statement within the meaning of that Act at the date of the issue of this certificate.**

### **Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009**

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

**Council is not aware of any exemption under section 23 or authorization under section 24 of the Act.**

Nicholas Wilton  
**Manager Planning and Development Services**

**Date of Certificate:** 6 June 2011





PO Box 261  
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Website: www.narrabri.nsw.gov.au

## PLANNING CERTIFICATE

Issued under Section 149(2)  
*Environmental Planning and Assessment Act 1979*

### Applicant

Resource Strategies Pty Ltd  
Level 3  
25 McDougall Street  
MILTON QLD 4064

Applicant Reference:

### Administration

Amount Paid: \$40  
Receipt No.: 146268  
Receipt Date: 1 June 2011  
(DD NA)

Certificate Number: **468/2011**

### Description of Land

469 Goonbri Road, Boggabri  
Lot 6 DP 754940  
Assessment Number: 01870-00000000-000

### Owner

Whitehaven Coal Mining Limited

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

### 1 Names of relevant planning instruments and DCPs

- a. *The name of each environmental planning instrument that applies to the carrying out of development on the land:*

Local Environmental Plan (LEP)

***Narrabri Local Environmental Plan 1992***

Regional Environmental Plan (REP)

Nil

State Environmental Planning Policy (SEPP)

- **SEPP No.1 – Development Standards**
- **SEPP No. 4 – Development without Consent & Miscellaneous Exempt and Complying Development**
- **SEPP No. 6 – Number of Storeys in a Building**
- **SEPP No. 21 – Caravan Parks**
- **SEPP No. 22 – Shops and Commercial Premises**
- **SEPP No. 30 – Intensive Agriculture**
- **SEPP No. 33 – Hazardous and Offensive Development**
- **SEPP No. 36 – Manufactured Home Estates**
- **SEPP No. 44 – Koala Habitat Protection**
- **SEPP No. 50 – Canal Estate Development**
- **SEPP No. 55 – Remediation of Land**
- **SEPP No. 62 – Sustainable Aquaculture**
- **SEPP No. 64 – Advertising and Signage**
- **SEPP No. 65 – Design Quality of Residential Flat Development**
- **SEPP (Housing for Seniors or People with a Disability) 2004**
- **SEPP (Building Sustainability Index: BASIX) 2004**
- **SEPP (Major Development) 2005**
- **SEPP (Mining, Petroleum Production and Extractive Industries) 2007**
- **SEPP (Temporary Structures) 2007**
- **SEPP (Infrastructure) 2007**
- **SEPP (Rural Lands) 2008**
- **SEPP (Exempt and Complying Development Codes) 2008**
- **SEPP (Affordable Rental Housing) 2009**

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

**Nil**

c. *The name of each development control plan that applies to the carrying out of development on the land:*

- **DCP Exempt and Complying Development**
- **DCP Landfill Development**
- **DCP Notification Policy**
- **DCP Outdoor Advertising**
- **DCP Parking Code**
- **DCP Subdivision Code**
- **DCP Transportable Homes**
- **DCP Water Supply to Buildings**
- **DCP Drainage to Buildings**
- **DCP Building Line**
- **DCP Encroachment onto Public Roads**
- **DCP Building near Sewer and Stormwater mains**

**Note:** In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

## **2 Zoning and land use under relevant LEPs**

*For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):*

- (a) *the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Area") or by reference to a number (such as "Zone No 2 (a)"),*

### **1 (a) (General Rural) Zone.**

- (b) *the purposes for which the instrument provides that development may be carried out within the zone without the need for development consent,*

**Agriculture (other than ancillary dwellings and intensive livestock keeping establishments); forestry (other than ancillary dwellings and pine plantations); rural levees.**

- (c) *the purposes for which the instrument provides that development may not be carried out within the zone except with development consent,*

### **Any purpose other than a purpose included in item 2 or 4.**

- (d) *the purposes for which the instrument provides that development is prohibited within the zone,*

**Motor showrooms; residential flat buildings; shops (other than general stores not exceeding 100 square metres in gross floor area).**

- (e) *whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed,*

### **100 hectares or more (Clause 17 of the LEP).**

**Note:** There are other provisions within the LEP where a dwelling may be permissible subject to consent on smaller allotments.

- (f) *whether the land includes or comprises critical habitat,*

### **The land does not include or comprise a critical habitat.**

- (g) *whether the land is in a conservation area (however described),*

### **The land is not within a conservation area.**

- (h) *whether an item of environmental heritage (however described) is situated on the land.*

### **There is not an item of environmental heritage situated on the land.**

### **3 Complying Development**

*Whether or not the land is land on which complying development may be carried out under each of the codes for complying development in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.*

**Yes**

*If complying development may not be carried out on that land because of one or more of the requirements under clause 1.19 of that Policy, why it may not be carried out.*

- **Not Applicable**

### **4 Coastal protection**

*Whether or not the land is affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that the council has been so notified by the Department of Public Works.*

**Not applicable.**

### **5 Mine subsidence**

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

**The land isn't proclaimed to be in a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.**

### **6 Road widening and road realignment**

The land isn't affected by any road widening or road realignment under:

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

### **7 Council and other public authority policies on hazard risk restrictions**

The land isn't affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

## **7A Flood related development controls information**

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

**No**

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

**No**

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

## **8 Land reserved for acquisition**

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

**Nil**

## **9 Contributions plans**

*The name of each contributions plan applying to the land.*

**Narrabri Section 94 Contributions Plan**

## **10 (Repealed)**

## **11 Bush fire prone land**

**None of the subject land is identified as being bushfire prone land.**

## **12 Property vegetation plans**

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

**There isnt a property vegetation plan under the *Native Vegetation Act 2002* applicable to the land.**

**Note:** This advice is based on information provided by the relevant Catchment Management Authority.

### **13 Orders under Trees (Disputes Between Neighbours) Act 2006**

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

**An order has not been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land**

**Note:** This advice is based on information provided to the Council.

### **14 Directions under Part 3A**

There has been no directions by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

### **15 Site compatibility certificates and conditions for seniors housing**

There is no current site compatibility certificate (of which the council is aware), issued under clause 25 of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* in respect of proposed development on the land

There has been no development consent granted by Council for Housing for Seniors or People with a Disability on the land.

### **16 Site compatibility certificates for infrastructure**

There is no valid site compatibility certificate (of which the council is aware), issued under clause 19 of *State Environmental Planning Policy (Infrastructure) 2007* in respect of proposed development on the land.

### **17 Site compatibility certificates and conditions for affordable rental housing**

There is no current site compatibility certificate (affordable rental housing) of which the council is aware, in respect of proposed development on the land.

There has been no development consent granted by Council for affordable rental housing on the land.

### **Contaminated Land Management Act 1997**

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

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

**Council has no record that the land is significantly contaminated land at the date or the issue of this certificate.**

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

**Council has no record that the land is subject to a management order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an approved voluntary management proposal within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an ongoing maintenance order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of a site audit statement within the meaning of that Act at the date of the issue of this certificate.**

### **Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009**

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

**Council is not aware of any exemption under section 23 or authorization under section 24 of the Act.**

Nicholas Wilton  
**Manager Planning and Development Services**

**Date of Certificate:** 6 June 2011



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Website: www.narrabri.nsw.gov.au

## PLANNING CERTIFICATE

Issued under Section 149(2)  
*Environmental Planning and Assessment Act 1979*

### Applicant

Resource Strategies Pty Ltd  
Level 3  
26 McDougall Street  
MILTON QLD 4064

Applicant Reference:

### Administration

Amount Paid: \$40  
Receipt No.: 146268  
Receipt Date: 1 June 2011  
(DD NA)

Certificate Number: **469/2011**

### Description of Land

375 Goonbri Road, Boggabri  
Lot 11 DP 754940  
Assessment Number: 01870-00000000-000

### Owner

Whitehaven Coal Mining Limited

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

### 1 Names of relevant planning instruments and DCPs

- a. *The name of each environmental planning instrument that applies to the carrying out of development on the land:*

Local Environmental Plan (LEP)

***Narrabri Local Environmental Plan 1992***

Regional Environmental Plan (REP)

Nil



State Environmental Planning Policy (SEPP)

- **SEPP No.1 – Development Standards**
- **SEPP No. 4 – Development without Consent & Miscellaneous Exempt and Complying Development**
- **SEPP No. 6 – Number of Storeys in a Building**
- **SEPP No. 21 – Caravan Parks**
- **SEPP No. 22 – Shops and Commercial Premises**
- **SEPP No. 30 – Intensive Agriculture**
- **SEPP No. 33 – Hazardous and Offensive Development**
- **SEPP No. 36 – Manufactured Home Estates**
- **SEPP No. 44 – Koala Habitat Protection**
- **SEPP No. 50 – Canal Estate Development**
- **SEPP No. 55 – Remediation of Land**
- **SEPP No. 62 – Sustainable Aquaculture**
- **SEPP No. 64 – Advertising and Signage**
- **SEPP No. 65 – Design Quality of Residential Flat Development**
- **SEPP (Housing for Seniors or People with a Disability) 2004**
- **SEPP (Building Sustainability Index: BASIX) 2004**
- **SEPP (Major Development) 2005**
- **SEPP (Mining, Petroleum Production and Extractive Industries) 2007**
- **SEPP (Temporary Structures) 2007**
- **SEPP (Infrastructure) 2007**
- **SEPP (Rural Lands) 2008**
- **SEPP (Exempt and Complying Development Codes) 2008**
- **SEPP (Affordable Rental Housing) 2009**

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

**Nil**

c. *The name of each development control plan that applies to the carrying out of development on the land:*

- **DCP Exempt and Complying Development**
- **DCP Landfill Development**
- **DCP Notification Policy**
- **DCP Outdoor Advertising**
- **DCP Parking Code**
- **DCP Subdivision Code**
- **DCP Transportable Homes**
- **DCP Water Supply to Buildings**
- **DCP Drainage to Buildings**
- **DCP Building Line**
- **DCP Encroachment onto Public Roads**
- **DCP Building near Sewer and Stormwater mains**

**Note:** In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

## **2 Zoning and land use under relevant LEPs**

*For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):*

- (a) *the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Area") or by reference to a number (such as "Zone No 2 (a)"),*

### **1 (a) (General Rural) Zone.**

- (b) *the purposes for which the instrument provides that development may be carried out within the zone without the need for development consent,*

**Agriculture (other than ancillary dwellings and intensive livestock keeping establishments); forestry (other than ancillary dwellings and pine plantations); rural levees.**

- (c) *the purposes for which the instrument provides that development may not be carried out within the zone except with development consent,*

### **Any purpose other than a purpose included in item 2 or 4.**

- (d) *the purposes for which the instrument provides that development is prohibited within the zone,*

**Motor showrooms; residential flat buildings; shops (other than general stores not exceeding 100 square metres in gross floor area).**

- (e) *whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed,*

### **100 hectares or more (Clause 17 of the LEP).**

**Note:** There are other provisions within the LEP where a dwelling may be permissible subject to consent on smaller allotments.

- (f) *whether the land includes or comprises critical habitat,*

### **The land does not include or comprise a critical habitat.**

- (g) *whether the land is in a conservation area (however described),*

### **The land is not within a conservation area.**

- (h) *whether an item of environmental heritage (however described) is situated on the land.*

### **There is not an item of environmental heritage situated on the land.**

### **3 Complying Development**

*Whether or not the land is land on which complying development may be carried out under each of the codes for complying development in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.*

**No**

*If complying development may not be carried out on that land because of one or more of the requirements under clause 1.19 of that Policy, why it may not be carried out.*

- ***Bushfire Prone Land***

### **4 Coastal protection**

*Whether or not the land is affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that the council has been so notified by the Department of Public Works.*

**Not applicable.**

### **5 Mine subsidence**

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

**The land isn't proclaimed to be in a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.**

### **6 Road widening and road realignment**

The land isn't affected by any road widening or road realignment under:

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

### **7 Council and other public authority policies on hazard risk restrictions**

The land isn't affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

## **7A Flood related development controls information**

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

**No**

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

**No**

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

## **8 Land reserved for acquisition**

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

**Nil**

## **9 Contributions plans**

*The name of each contributions plan applying to the land.*

**Narrabri Section 94 Contributions Plan**

## **10 (Repealed)**

## **11 Bush fire prone land**

**Some of the subject land is identified as being bushfire prone land.**

## **12 Property vegetation plans**

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

**There isnt a property vegetation plan under the *Native Vegetation Act 2002* applicable to the land.**

**Note:** This advice is based on information provided by the relevant Catchment Management Authority.

### **13 Orders under Trees (Disputes Between Neighbours) Act 2006**

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

**An order has not been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land**

**Note:** This advice is based on information provided to the Council.

### **14 Directions under Part 3A**

There has been no directions by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

### **15 Site compatibility certificates and conditions for seniors housing**

There is no current site compatibility certificate (of which the council is aware), issued under clause 25 of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* in respect of proposed development on the land

There has been no development consent granted by Council for Housing for Seniors or People with a Disability on the land.

### **16 Site compatibility certificates for infrastructure**

There is no valid site compatibility certificate (of which the council is aware), issued under clause 19 of *State Environmental Planning Policy (Infrastructure) 2007* in respect of proposed development on the land.

### **17 Site compatibility certificates and conditions for affordable rental housing**

There is no current site compatibility certificate (affordable rental housing) of which the council is aware, in respect of proposed development on the land.

There has been no development consent granted by Council for affordable rental housing on the land.

### **Contaminated Land Management Act 1997**

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

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

**Council has no record that the land is significantly contaminated land at the date or the issue of this certificate.**

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

**Council has no record that the land is subject to a management order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an approved voluntary management proposal within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an ongoing maintenance order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of a site audit statement within the meaning of that Act at the date of the issue of this certificate.**

### **Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009**

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

**Council is not aware of any exemption under section 23 or authorization under section 24 of the Act.**

Nicholas Wilton  
**Manager Planning and Development Services**

**Date of Certificate:** 6 June 2011



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Website: www.narrabri.nsw.gov.au

## PLANNING CERTIFICATE

Issued under Section 149(2)  
*Environmental Planning and Assessment Act 1979*

### Applicant

Resource Strategies Pty Ltd  
Level 3  
27 McDougall Street  
MILTON QLD 4064

Applicant Reference:

### Administration

Amount Paid: \$40  
Receipt No.: 146268  
Receipt Date: 1 June 2011  
(DD NA)

Certificate Number: **470/2011**

### Description of Land

375 Goonbri Road, Boggabri  
Lot 15 DP 754940  
Assessment Number: 01870-00000000-000

### Owner

Whitehaven Coal Mining Limited

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

### 1 Names of relevant planning instruments and DCPs

- a. *The name of each environmental planning instrument that applies to the carrying out of development on the land:*

Local Environmental Plan (LEP)

***Narrabri Local Environmental Plan 1992***

Regional Environmental Plan (REP)

Nil

State Environmental Planning Policy (SEPP)

- **SEPP No.1 – Development Standards**
- **SEPP No. 4 – Development without Consent & Miscellaneous Exempt and Complying Development**
- **SEPP No. 6 – Number of Storeys in a Building**
- **SEPP No. 21 – Caravan Parks**
- **SEPP No. 22 – Shops and Commercial Premises**
- **SEPP No. 30 – Intensive Agriculture**
- **SEPP No. 33 – Hazardous and Offensive Development**
- **SEPP No. 36 – Manufactured Home Estates**
- **SEPP No. 44 – Koala Habitat Protection**
- **SEPP No. 50 – Canal Estate Development**
- **SEPP No. 55 – Remediation of Land**
- **SEPP No. 62 – Sustainable Aquaculture**
- **SEPP No. 64 – Advertising and Signage**
- **SEPP No. 65 – Design Quality of Residential Flat Development**
- **SEPP (Housing for Seniors or People with a Disability) 2004**
- **SEPP (Building Sustainability Index: BASIX) 2004**
- **SEPP (Major Development) 2005**
- **SEPP (Mining, Petroleum Production and Extractive Industries) 2007**
- **SEPP (Temporary Structures) 2007**
- **SEPP (Infrastructure) 2007**
- **SEPP (Rural Lands) 2008**
- **SEPP (Exempt and Complying Development Codes) 2008**
- **SEPP (Affordable Rental Housing) 2009**

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

**Nil**

c. *The name of each development control plan that applies to the carrying out of development on the land:*

- **DCP Exempt and Complying Development**
- **DCP Landfill Development**
- **DCP Notification Policy**
- **DCP Outdoor Advertising**
- **DCP Parking Code**
- **DCP Subdivision Code**
- **DCP Transportable Homes**
- **DCP Water Supply to Buildings**
- **DCP Drainage to Buildings**
- **DCP Building Line**
- **DCP Encroachment onto Public Roads**
- **DCP Building near Sewer and Stormwater mains**

**Note:** In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.



## **2 Zoning and land use under relevant LEPs**

*For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):*

- (a) *the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Area") or by reference to a number (such as "Zone No 2 (a)"),*

### **1 (a) (General Rural) Zone.**

- (b) *the purposes for which the instrument provides that development may be carried out within the zone without the need for development consent,*

**Agriculture (other than ancillary dwellings and intensive livestock keeping establishments); forestry (other than ancillary dwellings and pine plantations); rural levees.**

- (c) *the purposes for which the instrument provides that development may not be carried out within the zone except with development consent,*

### **Any purpose other than a purpose included in item 2 or 4.**

- (d) *the purposes for which the instrument provides that development is prohibited within the zone,*

**Motor showrooms; residential flat buildings; shops (other than general stores not exceeding 100 square metres in gross floor area).**

- (e) *whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed,*

### **100 hectares or more (Clause 17 of the LEP).**

**Note:** There are other provisions within the LEP where a dwelling may be permissible subject to consent on smaller allotments.

- (f) *whether the land includes or comprises critical habitat,*

### **The land does not include or comprise a critical habitat.**

- (g) *whether the land is in a conservation area (however described),*

### **The land is not within a conservation area.**

- (h) *whether an item of environmental heritage (however described) is situated on the land.*

### **There is not an item of environmental heritage situated on the land.**

### **3 Complying Development**

*Whether or not the land is land on which complying development may be carried out under each of the codes for complying development in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.*

**Yes**

*If complying development may not be carried out on that land because of one or more of the requirements under clause 1.19 of that Policy, why it may not be carried out.*

- **Not Applicable**

### **4 Coastal protection**

*Whether or not the land is affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that the council has been so notified by the Department of Public Works.*

**Not applicable.**

### **5 Mine subsidence**

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

**The land isn't proclaimed to be in a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.**

### **6 Road widening and road realignment**

The land isn't affected by any road widening or road realignment under:

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

### **7 Council and other public authority policies on hazard risk restrictions**

The land isn't affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

## **7A Flood related development controls information**

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

**No**

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

**No**

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

## **8 Land reserved for acquisition**

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

**Nil**

## **9 Contributions plans**

*The name of each contributions plan applying to the land.*

**Narrabri Section 94 Contributions Plan**

## **10 (Repealed)**

## **11 Bush fire prone land**

**None of the subject land is identified as being bushfire prone land.**

## **12 Property vegetation plans**

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

**There isnt a property vegetation plan under the *Native Vegetation Act 2002* applicable to the land.**

**Note:** This advice is based on information provided by the relevant Catchment Management Authority.

### **13 Orders under Trees (Disputes Between Neighbours) Act 2006**

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

**An order has not been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land**

**Note:** This advice is based on information provided to the Council.

### **14 Directions under Part 3A**

There has been no directions by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

### **15 Site compatibility certificates and conditions for seniors housing**

There is no current site compatibility certificate (of which the council is aware), issued under clause 25 of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* in respect of proposed development on the land

There has been no development consent granted by Council for Housing for Seniors or People with a Disability on the land.

### **16 Site compatibility certificates for infrastructure**

There is no valid site compatibility certificate (of which the council is aware), issued under clause 19 of *State Environmental Planning Policy (Infrastructure) 2007* in respect of proposed development on the land.

### **17 Site compatibility certificates and conditions for affordable rental housing**

There is no current site compatibility certificate (affordable rental housing) of which the council is aware, in respect of proposed development on the land.

There has been no development consent granted by Council for affordable rental housing on the land.

### **Contaminated Land Management Act 1997**

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

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

**Council has no record that the land is significantly contaminated land at the date or the issue of this certificate.**

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

**Council has no record that the land is subject to a management order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an approved voluntary management proposal within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an ongoing maintenance order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of a site audit statement within the meaning of that Act at the date of the issue of this certificate.**

### **Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009**

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

**Council is not aware of any exemption under section 23 or authorization under section 24 of the Act.**

Nicholas Wilton  
**Manager Planning and Development Services**

**Date of Certificate:** 6 June 2011



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Website: www.narrabri.nsw.gov.au

## PLANNING CERTIFICATE

Issued under Section 149(2)  
*Environmental Planning and Assessment Act 1979*

### Applicant

Resource Strategies Pty Ltd  
Level 3  
28 McDougall Street  
MILTON QLD 4064

Applicant Reference:

### Administration

Amount Paid: \$40  
Receipt No.: 146268  
Receipt Date: 1 June 2011  
(DD NA)

Certificate Number: **471/2011**

### Description of Land

469 Goonbri Road, Boggabri  
Lot 16 DP 754940  
Assessment Number: 01873-00000000-000

### Owner

Whitehaven Coal Mining Limited

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

### 1 Names of relevant planning instruments and DCPs

- a. *The name of each environmental planning instrument that applies to the carrying out of development on the land:*

Local Environmental Plan (LEP)

***Narrabri Local Environmental Plan 1992***

Regional Environmental Plan (REP)

Nil

State Environmental Planning Policy (SEPP)

- **SEPP No.1 – Development Standards**
- **SEPP No. 4 – Development without Consent & Miscellaneous Exempt and Complying Development**
- **SEPP No. 6 – Number of Storeys in a Building**
- **SEPP No. 21 – Caravan Parks**
- **SEPP No. 22 – Shops and Commercial Premises**
- **SEPP No. 30 – Intensive Agriculture**
- **SEPP No. 33 – Hazardous and Offensive Development**
- **SEPP No. 36 – Manufactured Home Estates**
- **SEPP No. 44 – Koala Habitat Protection**
- **SEPP No. 50 – Canal Estate Development**
- **SEPP No. 55 – Remediation of Land**
- **SEPP No. 62 – Sustainable Aquaculture**
- **SEPP No. 64 – Advertising and Signage**
- **SEPP No. 65 – Design Quality of Residential Flat Development**
- **SEPP (Housing for Seniors or People with a Disability) 2004**
- **SEPP (Building Sustainability Index: BASIX) 2004**
- **SEPP (Major Development) 2005**
- **SEPP (Mining, Petroleum Production and Extractive Industries) 2007**
- **SEPP (Temporary Structures) 2007**
- **SEPP (Infrastructure) 2007**
- **SEPP (Rural Lands) 2008**
- **SEPP (Exempt and Complying Development Codes) 2008**
- **SEPP (Affordable Rental Housing) 2009**

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

**Nil**

c. *The name of each development control plan that applies to the carrying out of development on the land:*

- **DCP Exempt and Complying Development**
- **DCP Landfill Development**
- **DCP Notification Policy**
- **DCP Outdoor Advertising**
- **DCP Parking Code**
- **DCP Subdivision Code**
- **DCP Transportable Homes**
- **DCP Water Supply to Buildings**
- **DCP Drainage to Buildings**
- **DCP Building Line**
- **DCP Encroachment onto Public Roads**
- **DCP Building near Sewer and Stormwater mains**

**Note:** In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

## **2 Zoning and land use under relevant LEPs**

*For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):*

- (a) *the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Area") or by reference to a number (such as "Zone No 2 (a)"),*

### **1 (a) (General Rural) Zone.**

- (b) *the purposes for which the instrument provides that development may be carried out within the zone without the need for development consent,*

**Agriculture (other than ancillary dwellings and intensive livestock keeping establishments); forestry (other than ancillary dwellings and pine plantations); rural levees.**

- (c) *the purposes for which the instrument provides that development may not be carried out within the zone except with development consent,*

### **Any purpose other than a purpose included in item 2 or 4.**

- (d) *the purposes for which the instrument provides that development is prohibited within the zone,*

**Motor showrooms; residential flat buildings; shops (other than general stores not exceeding 100 square metres in gross floor area).**

- (e) *whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed,*

### **100 hectares or more (Clause 17 of the LEP).**

**Note:** There are other provisions within the LEP where a dwelling may be permissible subject to consent on smaller allotments.

- (f) *whether the land includes or comprises critical habitat,*

### **The land does not include or comprise a critical habitat.**

- (g) *whether the land is in a conservation area (however described),*

### **The land is not within a conservation area.**

- (h) *whether an item of environmental heritage (however described) is situated on the land.*

### **There is not an item of environmental heritage situated on the land.**



### **3 Complying Development**

*Whether or not the land is land on which complying development may be carried out under each of the codes for complying development in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.*

**No**

*If complying development may not be carried out on that land because of one or more of the requirements under clause 1.19 of that Policy, why it may not be carried out.*

- ***Bushfire Prone Land***

### **4 Coastal protection**

*Whether or not the land is affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that the council has been so notified by the Department of Public Works.*

**Not applicable.**

### **5 Mine subsidence**

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

**The land isn't proclaimed to be in a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.**

### **6 Road widening and road realignment**

The land isn't affected by any road widening or road realignment under:

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

### **7 Council and other public authority policies on hazard risk restrictions**

The land isn't affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

## **7A Flood related development controls information**

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

**No**

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

**No**

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

## **8 Land reserved for acquisition**

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

**Nil**

## **9 Contributions plans**

*The name of each contributions plan applying to the land.*

**Narrabri Section 94 Contributions Plan**

## **10 (Repealed)**

## **11 Bush fire prone land**

**All of the subject land is identified as being bushfire prone land.**

## **12 Property vegetation plans**

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

**There isnt a property vegetation plan under the *Native Vegetation Act 2002* applicable to the land.**

**Note:** This advice is based on information provided by the relevant Catchment Management Authority.

### **13 Orders under Trees (Disputes Between Neighbours) Act 2006**

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

**An order has not been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land**

**Note:** This advice is based on information provided to the Council.

### **14 Directions under Part 3A**

There has been no directions by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

### **15 Site compatibility certificates and conditions for seniors housing**

There is no current site compatibility certificate (of which the council is aware), issued under clause 25 of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* in respect of proposed development on the land

There has been no development consent granted by Council for Housing for Seniors or People with a Disability on the land.

### **16 Site compatibility certificates for infrastructure**

There is no valid site compatibility certificate (of which the council is aware), issued under clause 19 of *State Environmental Planning Policy (Infrastructure) 2007* in respect of proposed development on the land.

### **17 Site compatibility certificates and conditions for affordable rental housing**

There is no current site compatibility certificate (affordable rental housing) of which the council is aware, in respect of proposed development on the land.

There has been no development consent granted by Council for affordable rental housing on the land.

### **Contaminated Land Management Act 1997**

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

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

**Council has no record that the land is significantly contaminated land at the date or the issue of this certificate.**

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

**Council has no record that the land is subject to a management order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an approved voluntary management proposal within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an ongoing maintenance order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of a site audit statement within the meaning of that Act at the date of the issue of this certificate.**

### **Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009**

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

**Council is not aware of any exemption under section 23 or authorization under section 24 of the Act.**

Nicholas Wilton  
**Manager Planning and Development Services**

**Date of Certificate:** 6 June 2011



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Website: www.narrabri.nsw.gov.au

## PLANNING CERTIFICATE

Issued under Section 149(2)  
*Environmental Planning and Assessment Act 1979*

### Applicant

Resource Strategies Pty Ltd  
Level 3  
29 McDougall Street  
MILTON QLD 4064

Applicant Reference:

### Administration

Amount Paid: \$40  
Receipt No.: 146268  
Receipt Date: 1 June 2011  
(DD NA)

Certificate Number: **472/2011**

### Description of Land

469 Goonbri Road, Boggabri  
Lot 26 DP 754940  
Assessment Number: 01870-00000000-000

### Owner

Whitehaven Coal Mining Limited

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

### 1 Names of relevant planning instruments and DCPs

- a. *The name of each environmental planning instrument that applies to the carrying out of development on the land:*

Local Environmental Plan (LEP)

***Narrabri Local Environmental Plan 1992***

Regional Environmental Plan (REP)

Nil

State Environmental Planning Policy (SEPP)

- **SEPP No.1 – Development Standards**
- **SEPP No. 4 – Development without Consent & Miscellaneous Exempt and Complying Development**
- **SEPP No. 6 – Number of Storeys in a Building**
- **SEPP No. 21 – Caravan Parks**
- **SEPP No. 22 – Shops and Commercial Premises**
- **SEPP No. 30 – Intensive Agriculture**
- **SEPP No. 33 – Hazardous and Offensive Development**
- **SEPP No. 36 – Manufactured Home Estates**
- **SEPP No. 44 – Koala Habitat Protection**
- **SEPP No. 50 – Canal Estate Development**
- **SEPP No. 55 – Remediation of Land**
- **SEPP No. 62 – Sustainable Aquaculture**
- **SEPP No. 64 – Advertising and Signage**
- **SEPP No. 65 – Design Quality of Residential Flat Development**
- **SEPP (Housing for Seniors or People with a Disability) 2004**
- **SEPP (Building Sustainability Index: BASIX) 2004**
- **SEPP (Major Development) 2005**
- **SEPP (Mining, Petroleum Production and Extractive Industries) 2007**
- **SEPP (Temporary Structures) 2007**
- **SEPP (Infrastructure) 2007**
- **SEPP (Rural Lands) 2008**
- **SEPP (Exempt and Complying Development Codes) 2008**
- **SEPP (Affordable Rental Housing) 2009**

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

**Nil**

c. *The name of each development control plan that applies to the carrying out of development on the land:*

- **DCP Exempt and Complying Development**
- **DCP Landfill Development**
- **DCP Notification Policy**
- **DCP Outdoor Advertising**
- **DCP Parking Code**
- **DCP Subdivision Code**
- **DCP Transportable Homes**
- **DCP Water Supply to Buildings**
- **DCP Drainage to Buildings**
- **DCP Building Line**
- **DCP Encroachment onto Public Roads**
- **DCP Building near Sewer and Stormwater mains**

**Note:** In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

## **2 Zoning and land use under relevant LEPs**

*For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):*

- (a) *the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Area") or by reference to a number (such as "Zone No 2 (a)"),*

### **1 (a) (General Rural) Zone.**

- (b) *the purposes for which the instrument provides that development may be carried out within the zone without the need for development consent,*

**Agriculture (other than ancillary dwellings and intensive livestock keeping establishments); forestry (other than ancillary dwellings and pine plantations); rural levees.**

- (c) *the purposes for which the instrument provides that development may not be carried out within the zone except with development consent,*

### **Any purpose other than a purpose included in item 2 or 4.**

- (d) *the purposes for which the instrument provides that development is prohibited within the zone,*

**Motor showrooms; residential flat buildings; shops (other than general stores not exceeding 100 square metres in gross floor area).**

- (e) *whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed,*

### **100 hectares or more (Clause 17 of the LEP).**

**Note:** There are other provisions within the LEP where a dwelling may be permissible subject to consent on smaller allotments.

- (f) *whether the land includes or comprises critical habitat,*

### **The land does not include or comprise a critical habitat.**

- (g) *whether the land is in a conservation area (however described),*

### **The land is not within a conservation area.**

- (h) *whether an item of environmental heritage (however described) is situated on the land.*

### **There is not an item of environmental heritage situated on the land.**

### **3 Complying Development**

*Whether or not the land is land on which complying development may be carried out under each of the codes for complying development in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.*

**Yes**

*If complying development may not be carried out on that land because of one or more of the requirements under clause 1.19 of that Policy, why it may not be carried out.*

- **Not Applicable**

### **4 Coastal protection**

*Whether or not the land is affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that the council has been so notified by the Department of Public Works.*

**Not applicable.**

### **5 Mine subsidence**

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

**The land isn't proclaimed to be in a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.**

### **6 Road widening and road realignment**

The land isn't affected by any road widening or road realignment under:

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

### **7 Council and other public authority policies on hazard risk restrictions**

The land isn't affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).



## **7A Flood related development controls information**

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

**No**

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

**No**

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

## **8 Land reserved for acquisition**

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

**Nil**

## **9 Contributions plans**

*The name of each contributions plan applying to the land.*

**Narrabri Section 94 Contributions Plan**

## **10 (Repealed)**

## **11 Bush fire prone land**

**None of the subject land is identified as being bushfire prone land.**

## **12 Property vegetation plans**

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

**There isnt a property vegetation plan under the *Native Vegetation Act 2002* applicable to the land.**

**Note:** This advice is based on information provided by the relevant Catchment Management Authority.

### **13 Orders under Trees (Disputes Between Neighbours) Act 2006**

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

**An order has not been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land**

**Note:** This advice is based on information provided to the Council.

### **14 Directions under Part 3A**

There has been no directions by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

### **15 Site compatibility certificates and conditions for seniors housing**

There is no current site compatibility certificate (of which the council is aware), issued under clause 25 of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* in respect of proposed development on the land

There has been no development consent granted by Council for Housing for Seniors or People with a Disability on the land.

### **16 Site compatibility certificates for infrastructure**

There is no valid site compatibility certificate (of which the council is aware), issued under clause 19 of *State Environmental Planning Policy (Infrastructure) 2007* in respect of proposed development on the land.

### **17 Site compatibility certificates and conditions for affordable rental housing**

There is no current site compatibility certificate (affordable rental housing) of which the council is aware, in respect of proposed development on the land.

There has been no development consent granted by Council for affordable rental housing on the land.

### **Contaminated Land Management Act 1997**

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

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

**Council has no record that the land is significantly contaminated land at the date or the issue of this certificate.**

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

**Council has no record that the land is subject to a management order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an approved voluntary management proposal within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an ongoing maintenance order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of a site audit statement within the meaning of that Act at the date of the issue of this certificate.**

### **Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009**

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

**Council is not aware of any exemption under section 23 or authorization under section 24 of the Act.**

Nicholas Wilton  
**Manager Planning and Development Services**

**Date of Certificate:** 6 June 2011



PO Box 261  
NARRABRI NSW 2390

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Facsimile: 02 67996888  
Email: council@narrabri.nsw.gov.au  
Website: www.narrabri.nsw.gov.au

## PLANNING CERTIFICATE

Issued under Section 149(2)  
*Environmental Planning and Assessment Act 1979*

### Applicant

Resource Strategies Pty Ltd  
Level 3  
30 McDougall Street  
MILTON QLD 4064

Applicant Reference:

### Administration

Amount Paid: \$40  
Receipt No.: 146268  
Receipt Date: 1 June 2011  
(DD NA)

Certificate Number: **473/2011**

### Description of Land

469 Goonbri Road, Boggabri  
Lot 29 DP 754940  
Assessment Number: 01870-00000000-000

### Owner

Whitehaven Coal Mining Limited

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

### 1 Names of relevant planning instruments and DCPs

- a. *The name of each environmental planning instrument that applies to the carrying out of development on the land:*

Local Environmental Plan (LEP)

***Narrabri Local Environmental Plan 1992***

Regional Environmental Plan (REP)

Nil

State Environmental Planning Policy (SEPP)

- **SEPP No.1 – Development Standards**
- **SEPP No. 4 – Development without Consent & Miscellaneous Exempt and Complying Development**
- **SEPP No. 6 – Number of Storeys in a Building**
- **SEPP No. 21 – Caravan Parks**
- **SEPP No. 22 – Shops and Commercial Premises**
- **SEPP No. 30 – Intensive Agriculture**
- **SEPP No. 33 – Hazardous and Offensive Development**
- **SEPP No. 36 – Manufactured Home Estates**
- **SEPP No. 44 – Koala Habitat Protection**
- **SEPP No. 50 – Canal Estate Development**
- **SEPP No. 55 – Remediation of Land**
- **SEPP No. 62 – Sustainable Aquaculture**
- **SEPP No. 64 – Advertising and Signage**
- **SEPP No. 65 – Design Quality of Residential Flat Development**
- **SEPP (Housing for Seniors or People with a Disability) 2004**
- **SEPP (Building Sustainability Index: BASIX) 2004**
- **SEPP (Major Development) 2005**
- **SEPP (Mining, Petroleum Production and Extractive Industries) 2007**
- **SEPP (Temporary Structures) 2007**
- **SEPP (Infrastructure) 2007**
- **SEPP (Rural Lands) 2008**
- **SEPP (Exempt and Complying Development Codes) 2008**
- **SEPP (Affordable Rental Housing) 2009**

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

**Nil**

c. *The name of each development control plan that applies to the carrying out of development on the land:*

- **DCP Exempt and Complying Development**
- **DCP Landfill Development**
- **DCP Notification Policy**
- **DCP Outdoor Advertising**
- **DCP Parking Code**
- **DCP Subdivision Code**
- **DCP Transportable Homes**
- **DCP Water Supply to Buildings**
- **DCP Drainage to Buildings**
- **DCP Building Line**
- **DCP Encroachment onto Public Roads**
- **DCP Building near Sewer and Stormwater mains**

**Note:** In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

## **2 Zoning and land use under relevant LEPs**

*For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):*

- (a) *the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Area") or by reference to a number (such as "Zone No 2 (a)"),*

### **1 (a) (General Rural) Zone.**

- (b) *the purposes for which the instrument provides that development may be carried out within the zone without the need for development consent,*

**Agriculture (other than ancillary dwellings and intensive livestock keeping establishments); forestry (other than ancillary dwellings and pine plantations); rural levees.**

- (c) *the purposes for which the instrument provides that development may not be carried out within the zone except with development consent,*

### **Any purpose other than a purpose included in item 2 or 4.**

- (d) *the purposes for which the instrument provides that development is prohibited within the zone,*

**Motor showrooms; residential flat buildings; shops (other than general stores not exceeding 100 square metres in gross floor area).**

- (e) *whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed,*

### **100 hectares or more (Clause 17 of the LEP).**

**Note:** There are other provisions within the LEP where a dwelling may be permissible subject to consent on smaller allotments.

- (f) *whether the land includes or comprises critical habitat,*

### **The land does not include or comprise a critical habitat.**

- (g) *whether the land is in a conservation area (however described),*

### **The land is not within a conservation area.**

- (h) *whether an item of environmental heritage (however described) is situated on the land.*

### **There is not an item of environmental heritage situated on the land.**

### **3 Complying Development**

*Whether or not the land is land on which complying development may be carried out under each of the codes for complying development in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.*

**No**

*If complying development may not be carried out on that land because of one or more of the requirements under clause 1.19 of that Policy, why it may not be carried out.*

- **Bushfire Prone Land**

### **4 Coastal protection**

*Whether or not the land is affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that the council has been so notified by the Department of Public Works.*

**Not applicable.**

### **5 Mine subsidence**

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

**The land isn't proclaimed to be in a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.**

### **6 Road widening and road realignment**

The land isn't affected by any road widening or road realignment under:

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

### **7 Council and other public authority policies on hazard risk restrictions**

The land isn't affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

## **7A Flood related development controls information**

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

**No**

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

**No**

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

## **8 Land reserved for acquisition**

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

**Nil**

## **9 Contributions plans**

*The name of each contributions plan applying to the land.*

**Narrabri Section 94 Contributions Plan**

## **10 (Repealed)**

## **11 Bush fire prone land**

**Some of the subject land is identified as being bushfire prone land.**

## **12 Property vegetation plans**

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

**There isnt a property vegetation plan under the *Native Vegetation Act 2002* applicable to the land.**

**Note:** This advice is based on information provided by the relevant Catchment Management Authority.



### **13 Orders under Trees (Disputes Between Neighbours) Act 2006**

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

**An order has not been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land**

**Note:** This advice is based on information provided to the Council.

### **14 Directions under Part 3A**

There has been no directions by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

### **15 Site compatibility certificates and conditions for seniors housing**

There is no current site compatibility certificate (of which the council is aware), issued under clause 25 of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* in respect of proposed development on the land

There has been no development consent granted by Council for Housing for Seniors or People with a Disability on the land.

### **16 Site compatibility certificates for infrastructure**

There is no valid site compatibility certificate (of which the council is aware), issued under clause 19 of *State Environmental Planning Policy (Infrastructure) 2007* in respect of proposed development on the land.

### **17 Site compatibility certificates and conditions for affordable rental housing**

There is no current site compatibility certificate (affordable rental housing) of which the council is aware, in respect of proposed development on the land.

There has been no development consent granted by Council for affordable rental housing on the land.

### **Contaminated Land Management Act 1997**

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

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

**Council has no record that the land is significantly contaminated land at the date or the issue of this certificate.**

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

**Council has no record that the land is subject to a management order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an approved voluntary management proposal within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an ongoing maintenance order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of a site audit statement within the meaning of that Act at the date of the issue of this certificate.**

### **Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009**

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

**Council is not aware of any exemption under section 23 or authorization under section 24 of the Act.**

Nicholas Wilton  
**Manager Planning and Development Services**

**Date of Certificate:** 6 June 2011



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Website: www.narrabri.nsw.gov.au

## PLANNING CERTIFICATE

Issued under Section 149(2)  
*Environmental Planning and Assessment Act 1979*

### Applicant

Resource Strategies Pty Ltd  
Level 3  
31 McDougall Street  
MILTON QLD 4064

Applicant Reference:

### Administration

Amount Paid: \$40  
Receipt No.: 146268  
Receipt Date: 1 June 2011  
(DD NA)

Certificate Number: **474/2011**

### Description of Land

5740 Rangari Road, Boggabri  
Lot A DP 367991  
Assessment Number: 00331-00000000-000

### Owner

David James Wellwood

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

### 1 Names of relevant planning instruments and DCPs

- a. *The name of each environmental planning instrument that applies to the carrying out of development on the land:*

Local Environmental Plan (LEP)

***Narrabri Local Environmental Plan 1992***

Regional Environmental Plan (REP)

Nil

State Environmental Planning Policy (SEPP)

- **SEPP No.1 – Development Standards**
- **SEPP No. 4 – Development without Consent & Miscellaneous Exempt and Complying Development**
- **SEPP No. 6 – Number of Storeys in a Building**
- **SEPP No. 21 – Caravan Parks**
- **SEPP No. 22 – Shops and Commercial Premises**
- **SEPP No. 30 – Intensive Agriculture**
- **SEPP No. 33 – Hazardous and Offensive Development**
- **SEPP No. 36 – Manufactured Home Estates**
- **SEPP No. 44 – Koala Habitat Protection**
- **SEPP No. 50 – Canal Estate Development**
- **SEPP No. 55 – Remediation of Land**
- **SEPP No. 62 – Sustainable Aquaculture**
- **SEPP No. 64 – Advertising and Signage**
- **SEPP No. 65 – Design Quality of Residential Flat Development**
- **SEPP (Housing for Seniors or People with a Disability) 2004**
- **SEPP (Building Sustainability Index: BASIX) 2004**
- **SEPP (Major Development) 2005**
- **SEPP (Mining, Petroleum Production and Extractive Industries) 2007**
- **SEPP (Temporary Structures) 2007**
- **SEPP (Infrastructure) 2007**
- **SEPP (Rural Lands) 2008**
- **SEPP (Exempt and Complying Development Codes) 2008**
- **SEPP (Affordable Rental Housing) 2009**

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

**Nil**

c. *The name of each development control plan that applies to the carrying out of development on the land:*

- **DCP Exempt and Complying Development**
- **DCP Landfill Development**
- **DCP Notification Policy**
- **DCP Outdoor Advertising**
- **DCP Parking Code**
- **DCP Subdivision Code**
- **DCP Transportable Homes**
- **DCP Water Supply to Buildings**
- **DCP Drainage to Buildings**
- **DCP Building Line**
- **DCP Encroachment onto Public Roads**
- **DCP Building near Sewer and Stormwater mains**

**Note:** In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

## **2 Zoning and land use under relevant LEPs**

*For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):*

- (a) *the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Area") or by reference to a number (such as "Zone No 2 (a)"),*

### **1 (a) (General Rural) Zone.**

- (b) *the purposes for which the instrument provides that development may be carried out within the zone without the need for development consent,*

**Agriculture (other than ancillary dwellings and intensive livestock keeping establishments); forestry (other than ancillary dwellings and pine plantations); rural levees.**

- (c) *the purposes for which the instrument provides that development may not be carried out within the zone except with development consent,*

### **Any purpose other than a purpose included in item 2 or 4.**

- (d) *the purposes for which the instrument provides that development is prohibited within the zone,*

**Motor showrooms; residential flat buildings; shops (other than general stores not exceeding 100 square metres in gross floor area).**

- (e) *whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed,*

### **100 hectares or more (Clause 17 of the LEP).**

**Note:** There are other provisions within the LEP where a dwelling may be permissible subject to consent on smaller allotments.

- (f) *whether the land includes or comprises critical habitat,*

### **The land does not include or comprise a critical habitat.**

- (g) *whether the land is in a conservation area (however described),*

### **The land is not within a conservation area.**

- (h) *whether an item of environmental heritage (however described) is situated on the land.*

### **There is not an item of environmental heritage situated on the land.**

### **3 Complying Development**

*Whether or not the land is land on which complying development may be carried out under each of the codes for complying development in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.*

**Yes**

*If complying development may not be carried out on that land because of one or more of the requirements under clause 1.19 of that Policy, why it may not be carried out.*

- **Not Applicable**

### **4 Coastal protection**

*Whether or not the land is affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that the council has been so notified by the Department of Public Works.*

**Not applicable.**

### **5 Mine subsidence**

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

**The land isn't proclaimed to be in a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.**

### **6 Road widening and road realignment**

The land isn't affected by any road widening or road realignment under:

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

### **7 Council and other public authority policies on hazard risk restrictions**

The land isn't affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

## **7A Flood related development controls information**

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

**No**

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

**No**

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

## **8 Land reserved for acquisition**

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

**Nil**

## **9 Contributions plans**

*The name of each contributions plan applying to the land.*

**Narrabri Section 94 Contributions Plan**

## **10 (Repealed)**

## **11 Bush fire prone land**

**None of the subject land is identified as being bushfire prone land.**

## **12 Property vegetation plans**

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

**There isnt a property vegetation plan under the *Native Vegetation Act 2002* applicable to the land.**

**Note:** This advice is based on information provided by the relevant Catchment Management Authority.

### **13 Orders under Trees (Disputes Between Neighbours) Act 2006**

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

**An order has not been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land**

**Note:** This advice is based on information provided to the Council.

### **14 Directions under Part 3A**

There has been no directions by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

### **15 Site compatibility certificates and conditions for seniors housing**

There is no current site compatibility certificate (of which the council is aware), issued under clause 25 of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* in respect of proposed development on the land

There has been no development consent granted by Council for Housing for Seniors or People with a Disability on the land.

### **16 Site compatibility certificates for infrastructure**

There is no valid site compatibility certificate (of which the council is aware), issued under clause 19 of *State Environmental Planning Policy (Infrastructure) 2007* in respect of proposed development on the land.

### **17 Site compatibility certificates and conditions for affordable rental housing**

There is no current site compatibility certificate (affordable rental housing) of which the council is aware, in respect of proposed development on the land.

There has been no development consent granted by Council for affordable rental housing on the land.

### **Contaminated Land Management Act 1997**

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

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

**Council has no record that the land is significantly contaminated land at the date or the issue of this certificate.**



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

**Council has no record that the land is subject to a management order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an approved voluntary management proposal within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an ongoing maintenance order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of a site audit statement within the meaning of that Act at the date of the issue of this certificate.**

### **Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009**

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

**Council is not aware of any exemption under section 23 or authorization under section 24 of the Act.**

Nicholas Wilton  
**Manager Planning and Development Services**

**Date of Certificate:** 6 June 2011



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Website: www.narrabri.nsw.gov.au

## PLANNING CERTIFICATE

Issued under Section 149(2)  
*Environmental Planning and Assessment Act 1979*

### Applicant

Resource Strategies Pty Ltd  
Level 3  
32 McDougall Street  
MILTON QLD 4064

Applicant Reference:

### Administration

Amount Paid: \$40  
Receipt No.: 146268  
Receipt Date: 1 June 2011  
(DD NA)

Certificate Number: **475/2011**

### Description of Land

6046 Rangari Road, Boggabri  
Lot 3 DP 1131282  
Assessment Number: 00339-00000000-000

### Owner

Robert Peter McGregor and Rhonda Daphne  
McGregor

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

### 1 Names of relevant planning instruments and DCPs

- a. *The name of each environmental planning instrument that applies to the carrying out of development on the land:*

Local Environmental Plan (LEP)

***Narrabri Local Environmental Plan 1992***

Regional Environmental Plan (REP)

Nil

State Environmental Planning Policy (SEPP)

- **SEPP No.1 – Development Standards**
- **SEPP No. 4 – Development without Consent & Miscellaneous Exempt and Complying Development**
- **SEPP No. 6 – Number of Storeys in a Building**
- **SEPP No. 21 – Caravan Parks**
- **SEPP No. 22 – Shops and Commercial Premises**
- **SEPP No. 30 – Intensive Agriculture**
- **SEPP No. 33 – Hazardous and Offensive Development**
- **SEPP No. 36 – Manufactured Home Estates**
- **SEPP No. 44 – Koala Habitat Protection**
- **SEPP No. 50 – Canal Estate Development**
- **SEPP No. 55 – Remediation of Land**
- **SEPP No. 62 – Sustainable Aquaculture**
- **SEPP No. 64 – Advertising and Signage**
- **SEPP No. 65 – Design Quality of Residential Flat Development**
- **SEPP (Housing for Seniors or People with a Disability) 2004**
- **SEPP (Building Sustainability Index: BASIX) 2004**
- **SEPP (Major Development) 2005**
- **SEPP (Mining, Petroleum Production and Extractive Industries) 2007**
- **SEPP (Temporary Structures) 2007**
- **SEPP (Infrastructure) 2007**
- **SEPP (Rural Lands) 2008**
- **SEPP (Exempt and Complying Development Codes) 2008**
- **SEPP (Affordable Rental Housing) 2009**

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

**Nil**

c. *The name of each development control plan that applies to the carrying out of development on the land:*

- **DCP Exempt and Complying Development**
- **DCP Landfill Development**
- **DCP Notification Policy**
- **DCP Outdoor Advertising**
- **DCP Parking Code**
- **DCP Subdivision Code**
- **DCP Transportable Homes**
- **DCP Water Supply to Buildings**
- **DCP Drainage to Buildings**
- **DCP Building Line**
- **DCP Encroachment onto Public Roads**
- **DCP Building near Sewer and Stormwater mains**

**Note:** In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

## **2 Zoning and land use under relevant LEPs**

*For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):*

- (a) *the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Area") or by reference to a number (such as "Zone No 2 (a)"),*

### **1 (a) (General Rural) Zone.**

- (b) *the purposes for which the instrument provides that development may be carried out within the zone without the need for development consent,*

**Agriculture (other than ancillary dwellings and intensive livestock keeping establishments); forestry (other than ancillary dwellings and pine plantations); rural levees.**

- (c) *the purposes for which the instrument provides that development may not be carried out within the zone except with development consent,*

### **Any purpose other than a purpose included in item 2 or 4.**

- (d) *the purposes for which the instrument provides that development is prohibited within the zone,*

**Motor showrooms; residential flat buildings; shops (other than general stores not exceeding 100 square metres in gross floor area).**

- (e) *whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed,*

### **100 hectares or more (Clause 17 of the LEP).**

**Note:** There are other provisions within the LEP where a dwelling may be permissible subject to consent on smaller allotments.

- (f) *whether the land includes or comprises critical habitat,*

### **The land does not include or comprise a critical habitat.**

- (g) *whether the land is in a conservation area (however described),*

### **The land is not within a conservation area.**

- (h) *whether an item of environmental heritage (however described) is situated on the land.*

### **There is not an item of environmental heritage situated on the land.**

### **3 Complying Development**

*Whether or not the land is land on which complying development may be carried out under each of the codes for complying development in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.*

**Yes**

*If complying development may not be carried out on that land because of one or more of the requirements under clause 1.19 of that Policy, why it may not be carried out.*

- **Not Applicable**

### **4 Coastal protection**

*Whether or not the land is affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that the council has been so notified by the Department of Public Works.*

**Not applicable.**

### **5 Mine subsidence**

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

**The land isn't proclaimed to be in a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.**

### **6 Road widening and road realignment**

The land isn't affected by any road widening or road realignment under:

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

### **7 Council and other public authority policies on hazard risk restrictions**

The land isn't affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

## **7A Flood related development controls information**

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

**No**

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

**No**

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

## **8 Land reserved for acquisition**

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

**Nil**

## **9 Contributions plans**

*The name of each contributions plan applying to the land.*

**Narrabri Section 94 Contributions Plan**

## **10 (Repealed)**

## **11 Bush fire prone land**

**None of the subject land is identified as being bushfire prone land.**

## **12 Property vegetation plans**

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

**There isnt a property vegetation plan under the *Native Vegetation Act 2002* applicable to the land.**

**Note:** This advice is based on information provided by the relevant Catchment Management Authority.

### **13 Orders under Trees (Disputes Between Neighbours) Act 2006**

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

**An order has not been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land**

**Note:** This advice is based on information provided to the Council.

### **14 Directions under Part 3A**

There has been no directions by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

### **15 Site compatibility certificates and conditions for seniors housing**

There is no current site compatibility certificate (of which the council is aware), issued under clause 25 of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* in respect of proposed development on the land

There has been no development consent granted by Council for Housing for Seniors or People with a Disability on the land.

### **16 Site compatibility certificates for infrastructure**

There is no valid site compatibility certificate (of which the council is aware), issued under clause 19 of *State Environmental Planning Policy (Infrastructure) 2007* in respect of proposed development on the land.

### **17 Site compatibility certificates and conditions for affordable rental housing**

There is no current site compatibility certificate (affordable rental housing) of which the council is aware, in respect of proposed development on the land.

There has been no development consent granted by Council for affordable rental housing on the land.

### **Contaminated Land Management Act 1997**

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

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

**Council has no record that the land is significantly contaminated land at the date or the issue of this certificate.**

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

**Council has no record that the land is subject to a management order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an approved voluntary management proposal within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an ongoing maintenance order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of a site audit statement within the meaning of that Act at the date of the issue of this certificate.**

### **Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009**

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

**Council is not aware of any exemption under section 23 or authorization under section 24 of the Act.**

Nicholas Wilton  
**Manager Planning and Development Services**

**Date of Certificate:** 6 June 2011





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Website: www.narrabri.nsw.gov.au

## PLANNING CERTIFICATE

Issued under Section 149(2)  
*Environmental Planning and Assessment Act 1979*

### Applicant

Resource Strategies Pty Ltd  
Level 3  
33 McDougall Street  
MILTON QLD 4064

Applicant Reference:

### Administration

Amount Paid: \$40  
Receipt No.: 146268  
Receipt Date: 1 June 2011  
(DD NA)

Certificate Number: **476/2011**

### Description of Land

6046 Rangari Road, Boggabri  
Lot 5 DP 1131282  
Assessment Number: 00339-00000000-000

### Owner

Robert Peter McGregor and Rhonda Daphne  
McGregor

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

### 1 Names of relevant planning instruments and DCPs

- a. *The name of each environmental planning instrument that applies to the carrying out of development on the land:*

Local Environmental Plan (LEP)

***Narrabri Local Environmental Plan 1992***

Regional Environmental Plan (REP)

Nil

State Environmental Planning Policy (SEPP)

- **SEPP No.1 – Development Standards**
- **SEPP No. 4 – Development without Consent & Miscellaneous Exempt and Complying Development**
- **SEPP No. 6 – Number of Storeys in a Building**
- **SEPP No. 21 – Caravan Parks**
- **SEPP No. 22 – Shops and Commercial Premises**
- **SEPP No. 30 – Intensive Agriculture**
- **SEPP No. 33 – Hazardous and Offensive Development**
- **SEPP No. 36 – Manufactured Home Estates**
- **SEPP No. 44 – Koala Habitat Protection**
- **SEPP No. 50 – Canal Estate Development**
- **SEPP No. 55 – Remediation of Land**
- **SEPP No. 62 – Sustainable Aquaculture**
- **SEPP No. 64 – Advertising and Signage**
- **SEPP No. 65 – Design Quality of Residential Flat Development**
- **SEPP (Housing for Seniors or People with a Disability) 2004**
- **SEPP (Building Sustainability Index: BASIX) 2004**
- **SEPP (Major Development) 2005**
- **SEPP (Mining, Petroleum Production and Extractive Industries) 2007**
- **SEPP (Temporary Structures) 2007**
- **SEPP (Infrastructure) 2007**
- **SEPP (Rural Lands) 2008**
- **SEPP (Exempt and Complying Development Codes) 2008**
- **SEPP (Affordable Rental Housing) 2009**

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

**Nil**

c. *The name of each development control plan that applies to the carrying out of development on the land:*

- **DCP Exempt and Complying Development**
- **DCP Landfill Development**
- **DCP Notification Policy**
- **DCP Outdoor Advertising**
- **DCP Parking Code**
- **DCP Subdivision Code**
- **DCP Transportable Homes**
- **DCP Water Supply to Buildings**
- **DCP Drainage to Buildings**
- **DCP Building Line**
- **DCP Encroachment onto Public Roads**
- **DCP Building near Sewer and Stormwater mains**

**Note:** In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

## **2 Zoning and land use under relevant LEPs**

*For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):*

- (a) *the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Area") or by reference to a number (such as "Zone No 2 (a)"),*

### **1 (a) (General Rural) Zone.**

- (b) *the purposes for which the instrument provides that development may be carried out within the zone without the need for development consent,*

**Agriculture (other than ancillary dwellings and intensive livestock keeping establishments); forestry (other than ancillary dwellings and pine plantations); rural levees.**

- (c) *the purposes for which the instrument provides that development may not be carried out within the zone except with development consent,*

### **Any purpose other than a purpose included in item 2 or 4.**

- (d) *the purposes for which the instrument provides that development is prohibited within the zone,*

**Motor showrooms; residential flat buildings; shops (other than general stores not exceeding 100 square metres in gross floor area).**

- (e) *whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed,*

### **100 hectares or more (Clause 17 of the LEP).**

**Note:** There are other provisions within the LEP where a dwelling may be permissible subject to consent on smaller allotments.

- (f) *whether the land includes or comprises critical habitat,*

### **The land does not include or comprise a critical habitat.**

- (g) *whether the land is in a conservation area (however described),*

### **The land is not within a conservation area.**

- (h) *whether an item of environmental heritage (however described) is situated on the land.*

### **There is not an item of environmental heritage situated on the land.**

### **3 Complying Development**

*Whether or not the land is land on which complying development may be carried out under each of the codes for complying development in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.*

**Yes**

*If complying development may not be carried out on that land because of one or more of the requirements under clause 1.19 of that Policy, why it may not be carried out.*

- **Not Applicable**

### **4 Coastal protection**

*Whether or not the land is affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that the council has been so notified by the Department of Public Works.*

**Not applicable.**

### **5 Mine subsidence**

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

**The land isn't proclaimed to be in a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.**

### **6 Road widening and road realignment**

The land isn't affected by any road widening or road realignment under:

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

### **7 Council and other public authority policies on hazard risk restrictions**

The land isn't affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

## **7A Flood related development controls information**

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

**No**

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

**No**

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

## **8 Land reserved for acquisition**

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

**Nil**

## **9 Contributions plans**

*The name of each contributions plan applying to the land.*

**Narrabri Section 94 Contributions Plan**

## **10 (Repealed)**

## **11 Bush fire prone land**

**None of the subject land is identified as being bushfire prone land.**

## **12 Property vegetation plans**

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

**There isnt a property vegetation plan under the *Native Vegetation Act 2002* applicable to the land.**

**Note:** This advice is based on information provided by the relevant Catchment Management Authority.

### **13 Orders under Trees (Disputes Between Neighbours) Act 2006**

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

**An order has not been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land**

**Note:** This advice is based on information provided to the Council.

### **14 Directions under Part 3A**

There has been no directions by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

### **15 Site compatibility certificates and conditions for seniors housing**

There is no current site compatibility certificate (of which the council is aware), issued under clause 25 of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* in respect of proposed development on the land

There has been no development consent granted by Council for Housing for Seniors or People with a Disability on the land.

### **16 Site compatibility certificates for infrastructure**

There is no valid site compatibility certificate (of which the council is aware), issued under clause 19 of *State Environmental Planning Policy (Infrastructure) 2007* in respect of proposed development on the land.

### **17 Site compatibility certificates and conditions for affordable rental housing**

There is no current site compatibility certificate (affordable rental housing) of which the council is aware, in respect of proposed development on the land.

There has been no development consent granted by Council for affordable rental housing on the land.

### **Contaminated Land Management Act 1997**

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

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

**Council has no record that the land is significantly contaminated land at the date or the issue of this certificate.**

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

**Council has no record that the land is subject to a management order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an approved voluntary management proposal within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an ongoing maintenance order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of a site audit statement within the meaning of that Act at the date of the issue of this certificate.**

### **Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009**

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

**Council is not aware of any exemption under section 23 or authorization under section 24 of the Act.**

Nicholas Wilton  
**Manager Planning and Development Services**

**Date of Certificate:** 6 June 2011



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Website: www.narrabri.nsw.gov.au

## PLANNING CERTIFICATE

Issued under Section 149(2)  
*Environmental Planning and Assessment Act 1979*

### Applicant

Resource Strategies Pty Ltd  
Level 3  
34 McDougall Street  
MILTON QLD 4064

Applicant Reference:

### Administration

Amount Paid: \$40  
Receipt No.: 146268  
Receipt Date: 1 June 2011  
(DD NA)

Certificate Number: **477/2011**

### Description of Land

386 Leards Forest Road, Boggabri  
Lot 83 DP 754953  
Assessment Number: 01873-00000000-000

### Owner

Boggabri Coal Pty Ltd

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

### 1 Names of relevant planning instruments and DCPs

- a. *The name of each environmental planning instrument that applies to the carrying out of development on the land:*

Local Environmental Plan (LEP)

***Narrabri Local Environmental Plan 1992***

Regional Environmental Plan (REP)

Nil



State Environmental Planning Policy (SEPP)

- **SEPP No.1 – Development Standards**
- **SEPP No. 4 – Development without Consent & Miscellaneous Exempt and Complying Development**
- **SEPP No. 6 – Number of Storeys in a Building**
- **SEPP No. 21 – Caravan Parks**
- **SEPP No. 22 – Shops and Commercial Premises**
- **SEPP No. 30 – Intensive Agriculture**
- **SEPP No. 33 – Hazardous and Offensive Development**
- **SEPP No. 36 – Manufactured Home Estates**
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- **SEPP No. 50 – Canal Estate Development**
- **SEPP No. 55 – Remediation of Land**
- **SEPP No. 62 – Sustainable Aquaculture**
- **SEPP No. 64 – Advertising and Signage**
- **SEPP No. 65 – Design Quality of Residential Flat Development**
- **SEPP (Housing for Seniors or People with a Disability) 2004**
- **SEPP (Building Sustainability Index: BASIX) 2004**
- **SEPP (Major Development) 2005**
- **SEPP (Mining, Petroleum Production and Extractive Industries) 2007**
- **SEPP (Temporary Structures) 2007**
- **SEPP (Infrastructure) 2007**
- **SEPP (Rural Lands) 2008**
- **SEPP (Exempt and Complying Development Codes) 2008**
- **SEPP (Affordable Rental Housing) 2009**

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

**Nil**

c. *The name of each development control plan that applies to the carrying out of development on the land:*

- **DCP Exempt and Complying Development**
- **DCP Landfill Development**
- **DCP Notification Policy**
- **DCP Outdoor Advertising**
- **DCP Parking Code**
- **DCP Subdivision Code**
- **DCP Transportable Homes**
- **DCP Water Supply to Buildings**
- **DCP Drainage to Buildings**
- **DCP Building Line**
- **DCP Encroachment onto Public Roads**
- **DCP Building near Sewer and Stormwater mains**

**Note:** In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

## **2 Zoning and land use under relevant LEPs**

*For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):*

- (a) *the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Area") or by reference to a number (such as "Zone No 2 (a)"),*

### **1 (a) (General Rural) Zone.**

- (b) *the purposes for which the instrument provides that development may be carried out within the zone without the need for development consent,*

**Agriculture (other than ancillary dwellings and intensive livestock keeping establishments); forestry (other than ancillary dwellings and pine plantations); rural levees.**

- (c) *the purposes for which the instrument provides that development may not be carried out within the zone except with development consent,*

### **Any purpose other than a purpose included in item 2 or 4.**

- (d) *the purposes for which the instrument provides that development is prohibited within the zone,*

**Motor showrooms; residential flat buildings; shops (other than general stores not exceeding 100 square metres in gross floor area).**

- (e) *whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed,*

### **100 hectares or more (Clause 17 of the LEP).**

**Note:** There are other provisions within the LEP where a dwelling may be permissible subject to consent on smaller allotments.

- (f) *whether the land includes or comprises critical habitat,*

### **The land does not include or comprise a critical habitat.**

- (g) *whether the land is in a conservation area (however described),*

### **The land is not within a conservation area.**

- (h) *whether an item of environmental heritage (however described) is situated on the land.*

### **There is not an item of environmental heritage situated on the land.**

### **3 Complying Development**

*Whether or not the land is land on which complying development may be carried out under each of the codes for complying development in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.*

**No**

*If complying development may not be carried out on that land because of one or more of the requirements under clause 1.19 of that Policy, why it may not be carried out.*

- **Bushfire Prone Land**

### **4 Coastal protection**

*Whether or not the land is affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that the council has been so notified by the Department of Public Works.*

**Not applicable.**

### **5 Mine subsidence**

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

**The land isn't proclaimed to be in a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.**

### **6 Road widening and road realignment**

The land isn't affected by any road widening or road realignment under:

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

### **7 Council and other public authority policies on hazard risk restrictions**

The land isn't affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

## **7A Flood related development controls information**

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

**No**

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

**No**

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

## **8 Land reserved for acquisition**

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

**Nil**

## **9 Contributions plans**

*The name of each contributions plan applying to the land.*

**Narrabri Section 94 Contributions Plan**

## **10 (Repealed)**

## **11 Bush fire prone land**

**All of the subject land is identified as being bushfire prone land.**

## **12 Property vegetation plans**

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

**There isnt a property vegetation plan under the *Native Vegetation Act 2002* applicable to the land.**

**Note:** This advice is based on information provided by the relevant Catchment Management Authority.

### **13 Orders under Trees (Disputes Between Neighbours) Act 2006**

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

**An order has not been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land**

**Note:** This advice is based on information provided to the Council.

### **14 Directions under Part 3A**

There has been no directions by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

### **15 Site compatibility certificates and conditions for seniors housing**

There is no current site compatibility certificate (of which the council is aware), issued under clause 25 of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* in respect of proposed development on the land

There has been no development consent granted by Council for Housing for Seniors or People with a Disability on the land.

### **16 Site compatibility certificates for infrastructure**

There is no valid site compatibility certificate (of which the council is aware), issued under clause 19 of *State Environmental Planning Policy (Infrastructure) 2007* in respect of proposed development on the land.

### **17 Site compatibility certificates and conditions for affordable rental housing**

There is no current site compatibility certificate (affordable rental housing) of which the council is aware, in respect of proposed development on the land.

There has been no development consent granted by Council for affordable rental housing on the land.

### **Contaminated Land Management Act 1997**

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

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

**Council has no record that the land is significantly contaminated land at the date or the issue of this certificate.**

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

**Council has no record that the land is subject to a management order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an approved voluntary management proposal within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an ongoing maintenance order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of a site audit statement within the meaning of that Act at the date of the issue of this certificate.**

### **Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009**

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

**Council is not aware of any exemption under section 23 or authorization under section 24 of the Act.**

Nicholas Wilton  
**Manager Planning and Development Services**

**Date of Certificate:** 6 June 2011



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## PLANNING CERTIFICATE

Issued under Section 149(2)  
*Environmental Planning and Assessment Act 1979*

### Applicant

Resource Strategies Pty Ltd  
Level 3  
35 McDougall Street  
MILTON QLD 4064

Applicant Reference:

### Administration

Amount Paid: \$40  
Receipt No.: 146268  
Receipt Date: 1 June 2011  
(DD NA)

Certificate Number: **478/2011**

### Description of Land

103 Dripping Rock Road, Boggabri  
Lot 80 DP 754953  
Assessment Number: 03059-30000000-000

### Owner

Whitehaven Coal Mining Pty Ltd

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

### 1 Names of relevant planning instruments and DCPs

- a. *The name of each environmental planning instrument that applies to the carrying out of development on the land:*

Local Environmental Plan (LEP)

***Narrabri Local Environmental Plan 1992***

Regional Environmental Plan (REP)

Nil

State Environmental Planning Policy (SEPP)

- **SEPP No.1 – Development Standards**
- **SEPP No. 4 – Development without Consent & Miscellaneous Exempt and Complying Development**
- **SEPP No. 6 – Number of Storeys in a Building**
- **SEPP No. 21 – Caravan Parks**
- **SEPP No. 22 – Shops and Commercial Premises**
- **SEPP No. 30 – Intensive Agriculture**
- **SEPP No. 33 – Hazardous and Offensive Development**
- **SEPP No. 36 – Manufactured Home Estates**
- **SEPP No. 44 – Koala Habitat Protection**
- **SEPP No. 50 – Canal Estate Development**
- **SEPP No. 55 – Remediation of Land**
- **SEPP No. 62 – Sustainable Aquaculture**
- **SEPP No. 64 – Advertising and Signage**
- **SEPP No. 65 – Design Quality of Residential Flat Development**
- **SEPP (Housing for Seniors or People with a Disability) 2004**
- **SEPP (Building Sustainability Index: BASIX) 2004**
- **SEPP (Major Development) 2005**
- **SEPP (Mining, Petroleum Production and Extractive Industries) 2007**
- **SEPP (Temporary Structures) 2007**
- **SEPP (Infrastructure) 2007**
- **SEPP (Rural Lands) 2008**
- **SEPP (Exempt and Complying Development Codes) 2008**
- **SEPP (Affordable Rental Housing) 2009**

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

**Nil**

c. *The name of each development control plan that applies to the carrying out of development on the land:*

- **DCP Exempt and Complying Development**
- **DCP Landfill Development**
- **DCP Notification Policy**
- **DCP Outdoor Advertising**
- **DCP Parking Code**
- **DCP Subdivision Code**
- **DCP Transportable Homes**
- **DCP Water Supply to Buildings**
- **DCP Drainage to Buildings**
- **DCP Building Line**
- **DCP Encroachment onto Public Roads**
- **DCP Building near Sewer and Stormwater mains**

**Note:** In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.



## **2 Zoning and land use under relevant LEPs**

*For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):*

- (a) *the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Area") or by reference to a number (such as "Zone No 2 (a)"),*

### **1 (a) (General Rural) Zone.**

- (b) *the purposes for which the instrument provides that development may be carried out within the zone without the need for development consent,*

**Agriculture (other than ancillary dwellings and intensive livestock keeping establishments); forestry (other than ancillary dwellings and pine plantations); rural levees.**

- (c) *the purposes for which the instrument provides that development may not be carried out within the zone except with development consent,*

### **Any purpose other than a purpose included in item 2 or 4.**

- (d) *the purposes for which the instrument provides that development is prohibited within the zone,*

**Motor showrooms; residential flat buildings; shops (other than general stores not exceeding 100 square metres in gross floor area).**

- (e) *whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed,*

### **100 hectares or more (Clause 17 of the LEP).**

**Note:** There are other provisions within the LEP where a dwelling may be permissible subject to consent on smaller allotments.

- (f) *whether the land includes or comprises critical habitat,*

### **The land does not include or comprise a critical habitat.**

- (g) *whether the land is in a conservation area (however described),*

### **The land is not within a conservation area.**

- (h) *whether an item of environmental heritage (however described) is situated on the land.*

### **There is not an item of environmental heritage situated on the land.**

### **3 Complying Development**

*Whether or not the land is land on which complying development may be carried out under each of the codes for complying development in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.*

**No**

*If complying development may not be carried out on that land because of one or more of the requirements under clause 1.19 of that Policy, why it may not be carried out.*

- **Bushfire Prone Land**

### **4 Coastal protection**

*Whether or not the land is affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that the council has been so notified by the Department of Public Works.*

**Not applicable.**

### **5 Mine subsidence**

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

**The land isn't proclaimed to be in a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.**

### **6 Road widening and road realignment**

The land isn't affected by any road widening or road realignment under:

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

### **7 Council and other public authority policies on hazard risk restrictions**

The land isn't affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

## **7A Flood related development controls information**

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

**No**

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

**No**

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

## **8 Land reserved for acquisition**

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

**Nil**

## **9 Contributions plans**

*The name of each contributions plan applying to the land.*

**Narrabri Section 94 Contributions Plan**

## **10 (Repealed)**

## **11 Bush fire prone land**

**Some of the subject land is identified as being bushfire prone land.**

## **12 Property vegetation plans**

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

**There isnt a property vegetation plan under the *Native Vegetation Act 2002* applicable to the land.**

**Note:** This advice is based on information provided by the relevant Catchment Management Authority.

### **13 Orders under Trees (Disputes Between Neighbours) Act 2006**

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

**An order has not been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land**

**Note:** This advice is based on information provided to the Council.

### **14 Directions under Part 3A**

There has been no directions by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

### **15 Site compatibility certificates and conditions for seniors housing**

There is no current site compatibility certificate (of which the council is aware), issued under clause 25 of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* in respect of proposed development on the land

There has been no development consent granted by Council for Housing for Seniors or People with a Disability on the land.

### **16 Site compatibility certificates for infrastructure**

There is no valid site compatibility certificate (of which the council is aware), issued under clause 19 of *State Environmental Planning Policy (Infrastructure) 2007* in respect of proposed development on the land.

### **17 Site compatibility certificates and conditions for affordable rental housing**

There is no current site compatibility certificate (affordable rental housing) of which the council is aware, in respect of proposed development on the land.

There has been no development consent granted by Council for affordable rental housing on the land.

### **Contaminated Land Management Act 1997**

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

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

**Council has no record that the land is significantly contaminated land at the date or the issue of this certificate.**

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

**Council has no record that the land is subject to a management order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an approved voluntary management proposal within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an ongoing maintenance order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of a site audit statement within the meaning of that Act at the date of the issue of this certificate.**

### **Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009**

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

**Council is not aware of any exemption under section 23 or authorization under section 24 of the Act.**

Nicholas Wilton  
**Manager Planning and Development Services**

**Date of Certificate:** 6 June 2011



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Website: www.narrabri.nsw.gov.au

## PLANNING CERTIFICATE

Issued under Section 149(2)  
*Environmental Planning and Assessment Act 1979*

### Applicant

Resource Strategies Pty Ltd  
Level 3  
36 McDougall Street  
MILTON QLD 4064

Applicant Reference:

### Administration

Amount Paid: \$40  
Receipt No.: 146268  
Receipt Date: 1 June 2011  
(DD NA)

Certificate Number: **479/2011**

### Description of Land

94 Dripping Rock Road, Boggabri  
Lot 18 DP 754953  
Assessment Number: 03055-20000000-000

### Owner

Whitehaven Coal Mining Pty Ltd

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

### 1 Names of relevant planning instruments and DCPs

- a. *The name of each environmental planning instrument that applies to the carrying out of development on the land:*

Local Environmental Plan (LEP)

***Narrabri Local Environmental Plan 1992***

Regional Environmental Plan (REP)

Nil

State Environmental Planning Policy (SEPP)

- **SEPP No.1 – Development Standards**
- **SEPP No. 4 – Development without Consent & Miscellaneous Exempt and Complying Development**
- **SEPP No. 6 – Number of Storeys in a Building**
- **SEPP No. 21 – Caravan Parks**
- **SEPP No. 22 – Shops and Commercial Premises**
- **SEPP No. 30 – Intensive Agriculture**
- **SEPP No. 33 – Hazardous and Offensive Development**
- **SEPP No. 36 – Manufactured Home Estates**
- **SEPP No. 44 – Koala Habitat Protection**
- **SEPP No. 50 – Canal Estate Development**
- **SEPP No. 55 – Remediation of Land**
- **SEPP No. 62 – Sustainable Aquaculture**
- **SEPP No. 64 – Advertising and Signage**
- **SEPP No. 65 – Design Quality of Residential Flat Development**
- **SEPP (Housing for Seniors or People with a Disability) 2004**
- **SEPP (Building Sustainability Index: BASIX) 2004**
- **SEPP (Major Development) 2005**
- **SEPP (Mining, Petroleum Production and Extractive Industries) 2007**
- **SEPP (Temporary Structures) 2007**
- **SEPP (Infrastructure) 2007**
- **SEPP (Rural Lands) 2008**
- **SEPP (Exempt and Complying Development Codes) 2008**
- **SEPP (Affordable Rental Housing) 2009**

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

**Nil**

c. *The name of each development control plan that applies to the carrying out of development on the land:*

- **DCP Exempt and Complying Development**
- **DCP Landfill Development**
- **DCP Notification Policy**
- **DCP Outdoor Advertising**
- **DCP Parking Code**
- **DCP Subdivision Code**
- **DCP Transportable Homes**
- **DCP Water Supply to Buildings**
- **DCP Drainage to Buildings**
- **DCP Building Line**
- **DCP Encroachment onto Public Roads**
- **DCP Building near Sewer and Stormwater mains**

**Note:** In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

## **2 Zoning and land use under relevant LEPs**

*For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):*

- (a) *the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Area") or by reference to a number (such as "Zone No 2 (a)"),*

### **1 (a) (General Rural) Zone.**

- (b) *the purposes for which the instrument provides that development may be carried out within the zone without the need for development consent,*

**Agriculture (other than ancillary dwellings and intensive livestock keeping establishments); forestry (other than ancillary dwellings and pine plantations); rural levees.**

- (c) *the purposes for which the instrument provides that development may not be carried out within the zone except with development consent,*

### **Any purpose other than a purpose included in item 2 or 4.**

- (d) *the purposes for which the instrument provides that development is prohibited within the zone,*

**Motor showrooms; residential flat buildings; shops (other than general stores not exceeding 100 square metres in gross floor area).**

- (e) *whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed,*

### **100 hectares or more (Clause 17 of the LEP).**

**Note:** There are other provisions within the LEP where a dwelling may be permissible subject to consent on smaller allotments.

- (f) *whether the land includes or comprises critical habitat,*

### **The land does not include or comprise a critical habitat.**

- (g) *whether the land is in a conservation area (however described),*

### **The land is not within a conservation area.**

- (h) *whether an item of environmental heritage (however described) is situated on the land.*

### **There is not an item of environmental heritage situated on the land.**



### **3 Complying Development**

*Whether or not the land is land on which complying development may be carried out under each of the codes for complying development in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.*

**Yes**

*If complying development may not be carried out on that land because of one or more of the requirements under clause 1.19 of that Policy, why it may not be carried out.*

- **Not Applicable**

### **4 Coastal protection**

*Whether or not the land is affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that the council has been so notified by the Department of Public Works.*

**Not applicable.**

### **5 Mine subsidence**

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

**The land isn't proclaimed to be in a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.**

### **6 Road widening and road realignment**

The land isn't affected by any road widening or road realignment under:

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

### **7 Council and other public authority policies on hazard risk restrictions**

The land isn't affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

## **7A Flood related development controls information**

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

**No**

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

**No**

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

## **8 Land reserved for acquisition**

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

**Nil**

## **9 Contributions plans**

*The name of each contributions plan applying to the land.*

**Narrabri Section 94 Contributions Plan**

## **10 (Repealed)**

## **11 Bush fire prone land**

**None of the subject land is identified as being bushfire prone land.**

## **12 Property vegetation plans**

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

**There isnt a property vegetation plan under the *Native Vegetation Act 2002* applicable to the land.**

**Note:** This advice is based on information provided by the relevant Catchment Management Authority.

### **13 Orders under Trees (Disputes Between Neighbours) Act 2006**

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

**An order has not been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land**

**Note:** This advice is based on information provided to the Council.

### **14 Directions under Part 3A**

There has been no directions by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

### **15 Site compatibility certificates and conditions for seniors housing**

There is no current site compatibility certificate (of which the council is aware), issued under clause 25 of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* in respect of proposed development on the land

There has been no development consent granted by Council for Housing for Seniors or People with a Disability on the land.

### **16 Site compatibility certificates for infrastructure**

There is no valid site compatibility certificate (of which the council is aware), issued under clause 19 of *State Environmental Planning Policy (Infrastructure) 2007* in respect of proposed development on the land.

### **17 Site compatibility certificates and conditions for affordable rental housing**

There is no current site compatibility certificate (affordable rental housing) of which the council is aware, in respect of proposed development on the land.

There has been no development consent granted by Council for affordable rental housing on the land.

### **Contaminated Land Management Act 1997**

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

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

**Council has no record that the land is significantly contaminated land at the date or the issue of this certificate.**

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

**Council has no record that the land is subject to a management order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an approved voluntary management proposal within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an ongoing maintenance order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of a site audit statement within the meaning of that Act at the date of the issue of this certificate.**

### **Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009**

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

**Council is not aware of any exemption under section 23 or authorization under section 24 of the Act.**

Nicholas Wilton  
**Manager Planning and Development Services**

**Date of Certificate:** 6 June 2011



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Website: www.narrabri.nsw.gov.au

## PLANNING CERTIFICATE

Issued under Section 149(2)  
*Environmental Planning and Assessment Act 1979*

### Applicant

Resource Strategies Pty Ltd  
Level 3  
37 McDougall Street  
MILTON QLD 4064

Applicant Reference:

### Administration

Amount Paid: \$40  
Receipt No.: 146268  
Receipt Date: 1 June 2011  
(DD NA)

Certificate Number: **480/2011**

### Description of Land

1006 Goonbri Road, Boggabri  
Lot 88 DP 754953  
Assessment Number: 00956-11010000-000

### Owner

Whitehaven Coal Mining Pty Ltd

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

### 1 Names of relevant planning instruments and DCPs

- a. *The name of each environmental planning instrument that applies to the carrying out of development on the land:*

Local Environmental Plan (LEP)

***Narrabri Local Environmental Plan 1992***

Regional Environmental Plan (REP)

Nil

State Environmental Planning Policy (SEPP)

- **SEPP No.1 – Development Standards**
- **SEPP No. 4 – Development without Consent & Miscellaneous Exempt and Complying Development**
- **SEPP No. 6 – Number of Storeys in a Building**
- **SEPP No. 21 – Caravan Parks**
- **SEPP No. 22 – Shops and Commercial Premises**
- **SEPP No. 30 – Intensive Agriculture**
- **SEPP No. 33 – Hazardous and Offensive Development**
- **SEPP No. 36 – Manufactured Home Estates**
- **SEPP No. 44 – Koala Habitat Protection**
- **SEPP No. 50 – Canal Estate Development**
- **SEPP No. 55 – Remediation of Land**
- **SEPP No. 62 – Sustainable Aquaculture**
- **SEPP No. 64 – Advertising and Signage**
- **SEPP No. 65 – Design Quality of Residential Flat Development**
- **SEPP (Housing for Seniors or People with a Disability) 2004**
- **SEPP (Building Sustainability Index: BASIX) 2004**
- **SEPP (Major Development) 2005**
- **SEPP (Mining, Petroleum Production and Extractive Industries) 2007**
- **SEPP (Temporary Structures) 2007**
- **SEPP (Infrastructure) 2007**
- **SEPP (Rural Lands) 2008**
- **SEPP (Exempt and Complying Development Codes) 2008**
- **SEPP (Affordable Rental Housing) 2009**

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

**Nil**

c. *The name of each development control plan that applies to the carrying out of development on the land:*

- **DCP Exempt and Complying Development**
- **DCP Landfill Development**
- **DCP Notification Policy**
- **DCP Outdoor Advertising**
- **DCP Parking Code**
- **DCP Subdivision Code**
- **DCP Transportable Homes**
- **DCP Water Supply to Buildings**
- **DCP Drainage to Buildings**
- **DCP Building Line**
- **DCP Encroachment onto Public Roads**
- **DCP Building near Sewer and Stormwater mains**

**Note:** In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

## **2 Zoning and land use under relevant LEPs**

*For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):*

- (a) *the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Area") or by reference to a number (such as "Zone No 2 (a)"),*

### **1 (a) (General Rural) Zone.**

- (b) *the purposes for which the instrument provides that development may be carried out within the zone without the need for development consent,*

**Agriculture (other than ancillary dwellings and intensive livestock keeping establishments); forestry (other than ancillary dwellings and pine plantations); rural levees.**

- (c) *the purposes for which the instrument provides that development may not be carried out within the zone except with development consent,*

### **Any purpose other than a purpose included in item 2 or 4.**

- (d) *the purposes for which the instrument provides that development is prohibited within the zone,*

**Motor showrooms; residential flat buildings; shops (other than general stores not exceeding 100 square metres in gross floor area).**

- (e) *whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed,*

### **100 hectares or more (Clause 17 of the LEP).**

**Note:** There are other provisions within the LEP where a dwelling may be permissible subject to consent on smaller allotments.

- (f) *whether the land includes or comprises critical habitat,*

### **The land does not include or comprise a critical habitat.**

- (g) *whether the land is in a conservation area (however described),*

### **The land is not within a conservation area.**

- (h) *whether an item of environmental heritage (however described) is situated on the land.*

### **There is not an item of environmental heritage situated on the land.**

### **3 Complying Development**

*Whether or not the land is land on which complying development may be carried out under each of the codes for complying development in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.*

**No**

*If complying development may not be carried out on that land because of one or more of the requirements under clause 1.19 of that Policy, why it may not be carried out.*

- ***Bushfire Prone Land***

### **4 Coastal protection**

*Whether or not the land is affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that the council has been so notified by the Department of Public Works.*

**Not applicable.**

### **5 Mine subsidence**

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

**The land isn't proclaimed to be in a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.**

### **6 Road widening and road realignment**

The land isn't affected by any road widening or road realignment under:

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

### **7 Council and other public authority policies on hazard risk restrictions**

The land isn't affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).



## **7A Flood related development controls information**

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

**No**

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

**No**

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

## **8 Land reserved for acquisition**

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

**Nil**

## **9 Contributions plans**

*The name of each contributions plan applying to the land.*

**Narrabri Section 94 Contributions Plan**

## **10 (Repealed)**

## **11 Bush fire prone land**

**Some of the subject land is identified as being bushfire prone land.**

## **12 Property vegetation plans**

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

**There isnt a property vegetation plan under the *Native Vegetation Act 2002* applicable to the land.**

**Note:** This advice is based on information provided by the relevant Catchment Management Authority.

### **13 Orders under Trees (Disputes Between Neighbours) Act 2006**

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

**An order has not been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land**

**Note:** This advice is based on information provided to the Council.

### **14 Directions under Part 3A**

There has been no directions by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

### **15 Site compatibility certificates and conditions for seniors housing**

There is no current site compatibility certificate (of which the council is aware), issued under clause 25 of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* in respect of proposed development on the land

There has been no development consent granted by Council for Housing for Seniors or People with a Disability on the land.

### **16 Site compatibility certificates for infrastructure**

There is no valid site compatibility certificate (of which the council is aware), issued under clause 19 of *State Environmental Planning Policy (Infrastructure) 2007* in respect of proposed development on the land.

### **17 Site compatibility certificates and conditions for affordable rental housing**

There is no current site compatibility certificate (affordable rental housing) of which the council is aware, in respect of proposed development on the land.

There has been no development consent granted by Council for affordable rental housing on the land.

### **Contaminated Land Management Act 1997**

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

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

**Council has no record that the land is significantly contaminated land at the date or the issue of this certificate.**

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

**Council has no record that the land is subject to a management order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an approved voluntary management proposal within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an ongoing maintenance order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of a site audit statement within the meaning of that Act at the date of the issue of this certificate.**

### **Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009**

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

**Council is not aware of any exemption under section 23 or authorization under section 24 of the Act.**

Nicholas Wilton  
**Manager Planning and Development Services**

**Date of Certificate:** 6 June 2011



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Website: www.narrabri.nsw.gov.au

## PLANNING CERTIFICATE

Issued under Section 149(2)  
*Environmental Planning and Assessment Act 1979*

### Applicant

Resource Strategies Pty Ltd  
Level 3  
38 McDougall Street  
MILTON QLD 4064

Applicant Reference:

### Administration

Amount Paid: \$40  
Receipt No.: 146268  
Receipt Date: 1 June 2011  
(DD NA)

Certificate Number: **481/2011**

### Description of Land

103 Dripping Rock Road, Boggabri  
Lot 69 DP 754953  
Assessment Number: 03059-30000000-000

### Owner

Whitehaven Coal Mining Pty Ltd

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

### 1 Names of relevant planning instruments and DCPs

- a. *The name of each environmental planning instrument that applies to the carrying out of development on the land:*

Local Environmental Plan (LEP)

***Narrabri Local Environmental Plan 1992***

Regional Environmental Plan (REP)

Nil

State Environmental Planning Policy (SEPP)

- **SEPP No.1 – Development Standards**
- **SEPP No. 4 – Development without Consent & Miscellaneous Exempt and Complying Development**
- **SEPP No. 6 – Number of Storeys in a Building**
- **SEPP No. 21 – Caravan Parks**
- **SEPP No. 22 – Shops and Commercial Premises**
- **SEPP No. 30 – Intensive Agriculture**
- **SEPP No. 33 – Hazardous and Offensive Development**
- **SEPP No. 36 – Manufactured Home Estates**
- **SEPP No. 44 – Koala Habitat Protection**
- **SEPP No. 50 – Canal Estate Development**
- **SEPP No. 55 – Remediation of Land**
- **SEPP No. 62 – Sustainable Aquaculture**
- **SEPP No. 64 – Advertising and Signage**
- **SEPP No. 65 – Design Quality of Residential Flat Development**
- **SEPP (Housing for Seniors or People with a Disability) 2004**
- **SEPP (Building Sustainability Index: BASIX) 2004**
- **SEPP (Major Development) 2005**
- **SEPP (Mining, Petroleum Production and Extractive Industries) 2007**
- **SEPP (Temporary Structures) 2007**
- **SEPP (Infrastructure) 2007**
- **SEPP (Rural Lands) 2008**
- **SEPP (Exempt and Complying Development Codes) 2008**
- **SEPP (Affordable Rental Housing) 2009**

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

**Nil**

c. *The name of each development control plan that applies to the carrying out of development on the land:*

- **DCP Exempt and Complying Development**
- **DCP Landfill Development**
- **DCP Notification Policy**
- **DCP Outdoor Advertising**
- **DCP Parking Code**
- **DCP Subdivision Code**
- **DCP Transportable Homes**
- **DCP Water Supply to Buildings**
- **DCP Drainage to Buildings**
- **DCP Building Line**
- **DCP Encroachment onto Public Roads**
- **DCP Building near Sewer and Stormwater mains**

**Note:** In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

## **2 Zoning and land use under relevant LEPs**

*For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):*

- (a) *the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Area") or by reference to a number (such as "Zone No 2 (a)"),*

### **1 (a) (General Rural) Zone.**

- (b) *the purposes for which the instrument provides that development may be carried out within the zone without the need for development consent,*

**Agriculture (other than ancillary dwellings and intensive livestock keeping establishments); forestry (other than ancillary dwellings and pine plantations); rural levees.**

- (c) *the purposes for which the instrument provides that development may not be carried out within the zone except with development consent,*

### **Any purpose other than a purpose included in item 2 or 4.**

- (d) *the purposes for which the instrument provides that development is prohibited within the zone,*

**Motor showrooms; residential flat buildings; shops (other than general stores not exceeding 100 square metres in gross floor area).**

- (e) *whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed,*

### **100 hectares or more (Clause 17 of the LEP).**

**Note:** There are other provisions within the LEP where a dwelling may be permissible subject to consent on smaller allotments.

- (f) *whether the land includes or comprises critical habitat,*

### **The land does not include or comprise a critical habitat.**

- (g) *whether the land is in a conservation area (however described),*

### **The land is not within a conservation area.**

- (h) *whether an item of environmental heritage (however described) is situated on the land.*

### **There is not an item of environmental heritage situated on the land.**

### **3 Complying Development**

*Whether or not the land is land on which complying development may be carried out under each of the codes for complying development in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.*

**No**

*If complying development may not be carried out on that land because of one or more of the requirements under clause 1.19 of that Policy, why it may not be carried out.*

- ***Bushfire Prone Land***

### **4 Coastal protection**

*Whether or not the land is affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that the council has been so notified by the Department of Public Works.*

**Not applicable.**

### **5 Mine subsidence**

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

**The land isn't proclaimed to be in a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.**

### **6 Road widening and road realignment**

The land isn't affected by any road widening or road realignment under:

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

### **7 Council and other public authority policies on hazard risk restrictions**

The land isn't affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

## **7A Flood related development controls information**

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

**No**

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

**No**

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

## **8 Land reserved for acquisition**

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

**Nil**

## **9 Contributions plans**

*The name of each contributions plan applying to the land.*

**Narrabri Section 94 Contributions Plan**

## **10 (Repealed)**

## **11 Bush fire prone land**

**Some of the subject land is identified as being bushfire prone land.**

## **12 Property vegetation plans**

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

**There isnt a property vegetation plan under the *Native Vegetation Act 2002* applicable to the land.**

**Note:** This advice is based on information provided by the relevant Catchment Management Authority.



### **13 Orders under Trees (Disputes Between Neighbours) Act 2006**

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

**An order has not been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land**

**Note:** This advice is based on information provided to the Council.

### **14 Directions under Part 3A**

There has been no directions by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

### **15 Site compatibility certificates and conditions for seniors housing**

There is no current site compatibility certificate (of which the council is aware), issued under clause 25 of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* in respect of proposed development on the land

There has been no development consent granted by Council for Housing for Seniors or People with a Disability on the land.

### **16 Site compatibility certificates for infrastructure**

There is no valid site compatibility certificate (of which the council is aware), issued under clause 19 of *State Environmental Planning Policy (Infrastructure) 2007* in respect of proposed development on the land.

### **17 Site compatibility certificates and conditions for affordable rental housing**

There is no current site compatibility certificate (affordable rental housing) of which the council is aware, in respect of proposed development on the land.

There has been no development consent granted by Council for affordable rental housing on the land.

### **Contaminated Land Management Act 1997**

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

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

**Council has no record that the land is significantly contaminated land at the date or the issue of this certificate.**

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

**Council has no record that the land is subject to a management order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an approved voluntary management proposal within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an ongoing maintenance order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of a site audit statement within the meaning of that Act at the date of the issue of this certificate.**

### **Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009**

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

**Council is not aware of any exemption under section 23 or authorization under section 24 of the Act.**

Nicholas Wilton  
**Manager Planning and Development Services**

**Date of Certificate:** 6 June 2011



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Website: www.narrabri.nsw.gov.au

## PLANNING CERTIFICATE

Issued under Section 149(2)  
*Environmental Planning and Assessment Act 1979*

### Applicant

Resource Strategies Pty Ltd  
Level 3  
39 McDougall Street  
MILTON QLD 4064

Applicant Reference:

### Administration

Amount Paid: \$40  
Receipt No.: 146268  
Receipt Date: 1 June 2011  
(DD NA)

Certificate Number: **482/2011**

### Description of Land

94 Dripping Rock Road, Boggabri  
Lot 33 DP 754953  
Assessment Number: 03055-20000000-000

### Owner

Whitehaven Coal Mining Pty Ltd

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

### 1 Names of relevant planning instruments and DCPs

- a. *The name of each environmental planning instrument that applies to the carrying out of development on the land:*

Local Environmental Plan (LEP)

***Narrabri Local Environmental Plan 1992***

Regional Environmental Plan (REP)

Nil

State Environmental Planning Policy (SEPP)

- **SEPP No.1 – Development Standards**
- **SEPP No. 4 – Development without Consent & Miscellaneous Exempt and Complying Development**
- **SEPP No. 6 – Number of Storeys in a Building**
- **SEPP No. 21 – Caravan Parks**
- **SEPP No. 22 – Shops and Commercial Premises**
- **SEPP No. 30 – Intensive Agriculture**
- **SEPP No. 33 – Hazardous and Offensive Development**
- **SEPP No. 36 – Manufactured Home Estates**
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- **SEPP No. 50 – Canal Estate Development**
- **SEPP No. 55 – Remediation of Land**
- **SEPP No. 62 – Sustainable Aquaculture**
- **SEPP No. 64 – Advertising and Signage**
- **SEPP No. 65 – Design Quality of Residential Flat Development**
- **SEPP (Housing for Seniors or People with a Disability) 2004**
- **SEPP (Building Sustainability Index: BASIX) 2004**
- **SEPP (Major Development) 2005**
- **SEPP (Mining, Petroleum Production and Extractive Industries) 2007**
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- **SEPP (Infrastructure) 2007**
- **SEPP (Rural Lands) 2008**
- **SEPP (Exempt and Complying Development Codes) 2008**
- **SEPP (Affordable Rental Housing) 2009**

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

**Nil**

c. *The name of each development control plan that applies to the carrying out of development on the land:*

- **DCP Exempt and Complying Development**
- **DCP Landfill Development**
- **DCP Notification Policy**
- **DCP Outdoor Advertising**
- **DCP Parking Code**
- **DCP Subdivision Code**
- **DCP Transportable Homes**
- **DCP Water Supply to Buildings**
- **DCP Drainage to Buildings**
- **DCP Building Line**
- **DCP Encroachment onto Public Roads**
- **DCP Building near Sewer and Stormwater mains**

**Note:** In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

## **2 Zoning and land use under relevant LEPs**

*For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):*

- (a) *the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Area") or by reference to a number (such as "Zone No 2 (a)"),*

### **1 (a) (General Rural) Zone.**

- (b) *the purposes for which the instrument provides that development may be carried out within the zone without the need for development consent,*

**Agriculture (other than ancillary dwellings and intensive livestock keeping establishments); forestry (other than ancillary dwellings and pine plantations); rural levees.**

- (c) *the purposes for which the instrument provides that development may not be carried out within the zone except with development consent,*

### **Any purpose other than a purpose included in item 2 or 4.**

- (d) *the purposes for which the instrument provides that development is prohibited within the zone,*

**Motor showrooms; residential flat buildings; shops (other than general stores not exceeding 100 square metres in gross floor area).**

- (e) *whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed,*

### **100 hectares or more (Clause 17 of the LEP).**

**Note:** There are other provisions within the LEP where a dwelling may be permissible subject to consent on smaller allotments.

- (f) *whether the land includes or comprises critical habitat,*

### **The land does not include or comprise a critical habitat.**

- (g) *whether the land is in a conservation area (however described),*

### **The land is not within a conservation area.**

- (h) *whether an item of environmental heritage (however described) is situated on the land.*

### **There is not an item of environmental heritage situated on the land.**

### **3 Complying Development**

*Whether or not the land is land on which complying development may be carried out under each of the codes for complying development in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.*

**Yes**

*If complying development may not be carried out on that land because of one or more of the requirements under clause 1.19 of that Policy, why it may not be carried out.*

- **Not Applicable**

### **4 Coastal protection**

*Whether or not the land is affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that the council has been so notified by the Department of Public Works.*

**Not applicable.**

### **5 Mine subsidence**

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

**The land isn't proclaimed to be in a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.**

### **6 Road widening and road realignment**

The land isn't affected by any road widening or road realignment under:

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

### **7 Council and other public authority policies on hazard risk restrictions**

The land isn't affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

## **7A Flood related development controls information**

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

**No**

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

**No**

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

## **8 Land reserved for acquisition**

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

**Nil**

## **9 Contributions plans**

*The name of each contributions plan applying to the land.*

**Narrabri Section 94 Contributions Plan**

## **10 (Repealed)**

## **11 Bush fire prone land**

**None of the subject land is identified as being bushfire prone land.**

## **12 Property vegetation plans**

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

**There is not a property vegetation plan under the *Native Vegetation Act 2002* applicable to the land.**

**Note:** This advice is based on information provided by the relevant Catchment Management Authority.

### **13 Orders under Trees (Disputes Between Neighbours) Act 2006**

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

**An order has not been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land**

**Note:** This advice is based on information provided to the Council.

### **14 Directions under Part 3A**

There has been no directions by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

### **15 Site compatibility certificates and conditions for seniors housing**

There is no current site compatibility certificate (of which the council is aware), issued under clause 25 of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* in respect of proposed development on the land

There has been no development consent granted by Council for Housing for Seniors or People with a Disability on the land.

### **16 Site compatibility certificates for infrastructure**

There is no valid site compatibility certificate (of which the council is aware), issued under clause 19 of *State Environmental Planning Policy (Infrastructure) 2007* in respect of proposed development on the land.

### **17 Site compatibility certificates and conditions for affordable rental housing**

There is no current site compatibility certificate (affordable rental housing) of which the council is aware, in respect of proposed development on the land.

There has been no development consent granted by Council for affordable rental housing on the land.

### **Contaminated Land Management Act 1997**

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

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

**Council has no record that the land is significantly contaminated land at the date or the issue of this certificate.**



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

**Council has no record that the land is subject to a management order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an approved voluntary management proposal within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of an ongoing maintenance order within the meaning of that Act at the date of the issue of this certificate.**

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

**Council has no record that the land is the subject of a site audit statement within the meaning of that Act at the date of the issue of this certificate.**

### **Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009**

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

**Council is not aware of any exemption under section 23 or authorization under section 24 of the Act.**

Nicholas Wilton  
**Manager Planning and Development Services**

**Date of Certificate:** 6 June 2011

# APPENDIX B

## BORELOGS



# Soil Bore Log / Monitoring Well Log

<b>Soil Bore/Monitoring Well #</b> BH-2		Sheet    1    of 1	F-1-55-d							
<b>Job Number:</b> 11-719	<b>Client:</b> Whitehaven Coal		Logged by:    LK							
<b>Time &amp; Date:</b> 15/6/11	<b>Site Location:</b> _____		<b>Drilling Company:</b> _____							
		<b>Easting:</b> 150.18979°								
		<b>South:</b> 30.63923°								
		<b>Elevation:</b> 296m	Checked by:    _____							
<b>Surface Cover:</b> Concrete: Bitumen: ( ) mm    Gravel: ( ) mm    Roadbase: ( ) mm    Other: ( Grass ) mm										
<b>Drilling Method:</b> _____ Hand Trowel (X) <u>Hand Auger</u> ( ) mm dia.    Push Tube ( ) mm dia.    Other e.g. Test Pit ( ) Size (m)										
Profile Depth in (m bgl)	Sampled Collected  Mark (X)	Soil Type  C = CLAY M = SILT S = SAND G = GRAVEL R = ROCK  F = FILL	Colour  e.g. black, red, grey, orange, yellow, dark, pale, mottled.	Consistency		Particle / Soil Description  Particles Very Angular Sub-Angular Well Rounded  Matrix Poorly Sorted Well Sorted	Plasticity  V.High High Medium Low	Moisture  S = Saturated V = Very Moist  M = Moist SM = Slightly Moist D = Dry	Observations and Comments  e.g. report the presence of shells, organic matter, staining, odour mottling PID / FID reading in (ppm)	Monitoring Well Installation
				CLAY v. soft (vs) soft (s) m. stiff (ms) stiff (st) v.stiff (v.st) hard (h)	SAND v.loose loose m.dense dense v.dense					
Sandy clay    0.2	X	SC	Brown	L			Low	DRY	Roots	
Sandy clay    0.5	X	SC	Lt Brown	L			Low	DRY	Roots/rocks	
<b>Borehole Abandonment:</b> ( Y ) Backfilled & Compacted    ( ) Resurfaced (Concrete/Bitumen)    ( ) Monitoring Well Installed								<b>Waste Management/Disposal:</b> (Describe )		
Sandy Silt     Sandy Clay     Sand     Fill								Soil _____		
Sand Silt Clay     Clay Sand     Rock     Gravel								Water _____		
<b>Well Development Method</b> _____    Volume Purged:    _____								<b>Quality Control Samples No</b>		
								List:    _____		
								_____		
								_____		

# Soil Bore Log / Monitoring Well Log

<b>Soil Bore/Monitoring Well #</b> BH-3								Sheet 1 of 1	F-1-55-d	
Job Number: 11-719								Logged by: LK		
Client: Whitehaven Coal			Easting 150.18972°							
Time & Date: 15/6/11								Checked by: _____		
Site Location:			Drilling Company:		South 30.63921°			Elevation 290m		
Surface Cover: Concrete: Bitumen: ( ) mm Gravel: ( ) mm Roadbase: ( ) mm Other: ( Grass ) mm										
Drilling Method: Hand Trowel (X) <u>Hand Auger</u> ( ) mm dia. Push Tube ( ) mm dia. Other e.g. Test Pit ( ) Size (m)										
Profile Depth in (m bgl)	Sampled Collected	Soil Type	Colour	Consistency		Particle / Soil Description	Plasticity	Moisture	Observations and Comments <small>e.g. report the presence of shells, organic matter, staining, odour mottling PID / FID reading in (ppm)</small>	Monitoring Well Installation
		C = CLAY M = SILT S = SAND G = GRAVEL R = ROCK F = FILL	e.g. black, red, grey, orange, yellow, dark, pale, mottled.	CLAY v. soft (vs) soft (s) m. stiff (ms) stiff (st) v.stiff (v.st) hard (h)	SAND v.loose loose m.dense dense v.dense	Particles Very Angular Sub-Angular Well Rounded Matrix Poorly Sorted Well Sorted	V.High High Medium Low	S = Saturated V = Very Moist M = Moist SM = Slightly Moist D = Dry		
Sandy clay	X	SC	Brown	L			Low	DRY	Roots	
Sandy clay	X	SC	Brown	L			Low	DRY	Roots	
<b>Borehole Abandonment:</b> ( Y ) Backfilled & Compacted ( ) Resurfaced (Concrete/Bitumen) ( ) Monitoring Well Installed Sandy Silt  Sandy Clay  Sand  Fill Sand Silt Clay  Clay Sand  Rock  Gravel									<b>Waste Management/Disposal:</b> (Describe ) Soil _____ Water _____	
Well Development Method _____ Volume Purged: _____									<b>Quality Control Samples</b> No _____ List: _____	

# Soil Bore Log / Monitoring Well Log

<b>Soil Bore/Monitoring Well #</b> BH-4						Sheet 1 of 1	F-1-55-d			
<b>Job Number:</b> 11-719						Logged by: <u>      LK      </u>  Checked by: <u>                                </u>				
<b>Client:</b> Whitehaven Coal								Easting <u>150.18972°</u> South <u>30.63921°</u>		
<b>Time &amp; Date:</b> 15/6/11								Elevation <u>290m</u>		
<b>Site Location:</b>						<b>Drilling Company:</b>				
<b>Surface Cover:</b> Concrete: Bitumen: ( ) mm      Gravel: ( ) mm      Roadbase: ( ) mm      Other: ( Grass ) mm										
<b>Drilling Method:</b> Hand Trowel (X) <u>Hand Auger</u> ( ) mm dia.    Push Tube ( ) mm dia.      Other e.g. Test Pit ( ) Size (m)										
Profile Depth in (m bgl)	Sampled Collected	Soil Type	Colour	Consistency		Particle / Soil Description	Plasticity	Moisture	Observations and Comments	Monitoring Well Installation
				CLAY	SAND					
<small>Note: Record the depth that groundwater is encountered, depth of any fill</small>	C = CLAY M = SILT S = SAND G = GRAVEL R = ROCK F = FILL	e.g. black, red, grey, orange, yellow, dark, pale, mottled.	v. soft (vs) soft (s) m. stiff (ms) stiff (st) v.stiff (v.st) hard (h)	v.loose loose m.dense dense v.dense	Very Angular Sub-Angular Well Rounded  Matrix Poorly Sorted Well Sorted	V.High High Medium Low	S = Saturated V = Very Moist M = Moist SM = Slightly Moist D = Dry	e.g. report the presence of shells, organic matter, staining, odour mottling PID / FID reading in (ppm)		
Silt/Gravel  0.2	X	GM	Brown / orange	L		VA	Low	MOIST	Roots/Stones	
<b>Borehole Abandonment:</b> ( Y ) Backfilled & Compacted    ( ) Resurfaced (Concrete/Bitumen)    ( ) Monitoring Well Installed						<b>Waste Management/Disposal:</b> (Describe )				
Sandy Silt     Sandy Clay     Sand     Fill Sand Silt Clay     Clay Sand     Rock     Gravel						Soil _____				
						Water _____				
						<b>Quality Control Samples No</b>				
						List: _____				
<b>Well Development Method</b> _____						Volume Purged: _____				

# Soil Bore Log / Monitoring Well Log

<b>Soil Bore/Monitoring Well # BH-5</b>						Sheet 1 of 1	F-1-55-d																
Job Number: 11-719						Logged by: LK																	
Client: Whitehaven Coal																							
Time & Date 15/6/11						Easting 150.19093°																	
Site Location: _____						South 30.63754°																	
Drilling Company _____						Elevation 295m																	
Surface Cover: Concrete: Bitumen: ( ) mm Gravel: ( ) mm Roadbase: ( ) mm Other: ( Grass ) mm																							
Drilling Method: _____						Other e.g. Test Pit ( ) Size (m)																	
Profile Depth in (m bgl)  <small>Note: Record the depth that groundwater is encountered, depth of any fill</small>	Sampled Collected  Mark (X)	Soil Type C = CLAY M = SILT S = SAND G = GRAVEL R = ROCK F = FILL	Colour e.g. black, red, grey, orange, yellow, dark, pale, mottled.	Consistency <table border="0" style="font-size: 0.8em; width: 100%;"> <tr> <td style="width: 50%;">CLAY</td> <td style="width: 50%;">SAND</td> </tr> <tr> <td>v. soft (vs)</td> <td>v. loose</td> </tr> <tr> <td>soft (s)</td> <td>loose</td> </tr> <tr> <td>m. stiff (ms)</td> <td>m. dense</td> </tr> <tr> <td>stiff (st)</td> <td>dense</td> </tr> <tr> <td>v. stiff (v.st)</td> <td>v. dense</td> </tr> <tr> <td>hard (h)</td> <td></td> </tr> </table>	CLAY	SAND	v. soft (vs)	v. loose	soft (s)	loose	m. stiff (ms)	m. dense	stiff (st)	dense	v. stiff (v.st)	v. dense	hard (h)		Particle / Soil Description  Particles Very Angular Sub-Angular Well Rounded Matrix Poorly Sorted Well Sorted	Plasticity V.High High Medium Low	Moisture S = Saturated V = Very Moist M = Moist SM = Slightly Moist D = Dry	Observations and Comments  e.g. report the presence of shells, organic matter, staining, odour mottling PID / FID reading in (ppm)	Monitoring Well Installation
CLAY	SAND																						
v. soft (vs)	v. loose																						
soft (s)	loose																						
m. stiff (ms)	m. dense																						
stiff (st)	dense																						
v. stiff (v.st)	v. dense																						
hard (h)																							
Silt/Gravel  0.2	X	GM	L	VA	Low	MOIST	Roots/Rocks																
Borehole Abandonment: ( Y ) Backfilled & Compacted ( ) Resurfaced (Concrete/Bitumen) ( ) Monitoring Well Installed						Waste Management/Disposal: (Describe )																	
<table border="0" style="font-size: 0.8em;"> <tr> <td>Sandy Silt </td> <td>Sandy Clay </td> <td>Sand </td> <td>Fill </td> </tr> <tr> <td>Sand Silt Clay </td> <td>Clay Sand </td> <td>Rock </td> <td>Gravel </td> </tr> </table>						Sandy Silt	Sandy Clay	Sand	Fill	Sand Silt Clay	Clay Sand	Rock	Gravel	Soil _____									
Sandy Silt	Sandy Clay	Sand	Fill																				
Sand Silt Clay	Clay Sand	Rock	Gravel																				
						Water _____																	
Well Development Method _____ Volume Purged: _____						Quality Control Samples No _____																	
						List: _____																	
						_____																	





# Soil Bore Log / Monitoring Well Log

**Soil Bore/Monitoring Well #** BH-7

**Job Number:** 11-719

**Client:** Whitehaven Coal

**Time & Date:** 15/6/11

**Site Location:** \_\_\_\_\_ **Drilling Company:** \_\_\_\_\_

**Easting** 150.19100°  
**South** 30.63746°  
**Elevation** 294m

**Surface Cover:** Concrete: Bitumen: ( ) mm    Gravel: ( ) mm    Roadbase: ( ) mm    Other: ( Grass ) mm

**Drilling Method:** Hand Trowel (X)    Hand Auger ( ) mm dia.    Push Tube ( ) mm dia.    Other e.g. Test Pit ( ) Size (m)

Profile Depth in (m bgl)  Note: Record the depth that groundwater is encountered, depth of any fill	Sampled Collected  Mark (X)	Soil Type  C = CLAY M = SILT S = SAND G = GRAVEL R = ROCK F = FILL	Colour  e.g. black, red, grey, orange, yellow, dark, pale, mottled.	Consistency		Particle / Soil Description  Particles Very Angular Sub-Angular Well Rounded  Matrix Poorly Sorted Well Sorted	Plasticity  V.High High Medium Low	Moisture  S = Saturated V = Very Moist M = Moist SM = Slightly Moist D = Dry	Observations and Comments  e.g. report the presence of shells, organic matter, staining, odour mottling PID / FID reading in (ppm)	Monitoring Well Installation
				CLAY v. soft (vs) soft (s) m. stiff (ms) stiff (st) v.stiff (v.st) hard (h)	SAND v.loose loose m.dense dense v.dense					
Silt/Gravel  0.2	X	M	Brown	L			Low	DRY	Roots/Stones	

**Borehole Abandonment:** ( Y ) Backfilled & Compacted    ( ) Resurfaced (Concrete/Bitumen)    ( ) Monitoring Well Installed

**Waste Management/Disposal: (Describe )**

Sandy Silt Sandy Clay Sand Fill   
 Sand Silt Clay Clay Sand Rock Gravel

Soil \_\_\_\_\_  
 Water \_\_\_\_\_

**Quality Control Samples No**

List: \_\_\_\_\_

**Well Development Method** \_\_\_\_\_ **Volume Purged:** \_\_\_\_\_

# Soil Bore Log / Monitoring Well Log

Soil Bore/Monitoring Well # BH-8							Sheet 1 of 1	F-1-55-d	
Job Number:	11-719					Easting 150.19543°		Logged by: LK	
Client:	Whitehaven Coal					South 30.63242°			
Time & Date:	15/6/11					Elevation 289m		Checked by:	
Site Location:	Drilling Company								
Surface Cover:	Concrete: Bitumen: ( ) mm		Gravel: ( ) mm	Roadbase: ( ) mm	Other: ( Grass ) mm				
Drilling Method:	Hand Trowel (X)	Hand Auger ( ) mm dia.		Push Tube ( ) mm dia.	Other e.g. Test Pit ( ) Size (m)				

Profile Depth in (m bgl)  <small>Note: Record the depth that groundwater is encountered, depth of any fill</small>	Sampled Collected   Mark (X)	Soil Type C = CLAY M = SILT S = SAND G = GRAVEL R = ROCK F = FILL	Colour e.g. black, red, grey, orange, yellow, dark, pale, mottled.	Consistency		Particle / Soil Description  Very Angular Sub-Angular Well Rounded  Matrix Poorly Sorted Well Sorted	Plasticity  V.High High Medium Low	Moisture  S = Saturated V = Very Moist M = Moist SM = Slightly Moist D = Dry	Observations and Comments  e.g. report the presence of shells, organic matter, staining, odour mottling PID / FID reading in (ppm)	Monitoring Well Installation
				CLAY	SAND					
				v. soft (vs) soft (s) m. stiff (ms) stiff (st) v.stiff (v.st) hard (h)	v.loose loose m.dense dense v.dense					
Silt/Gravel  0.2	X	M,S,G	Brown	L			Low	DRY	Roots/Pebbles	

Borehole Abandonment: ( Y ) Backfilled & Compacted ( ) Resurfaced (Concrete/Bitumen) ( ) Monitoring Well Installed				Waste Management/Disposal: (Describe )	
Sandy Silt	Sandy Clay	Sand	Fill	Soil _____ Water _____  Quality Control Samples No _____ List: _____ _____	
Sand Silt Clay	Clay Sand	Rock	Gravel		
Well Development Method _____ Volume Purged: _____					





# Soil Bore Log / Monitoring Well Log

Soil Bore/Monitoring Well # <b>BH-1-1</b>		Next to ASTs driveway			Sheet 1 of 1	F-1-55-d				
Job Number: 11-719		Client: Whitehaven Coal			Logged by: _____ LK _____					
Time & Date: 14/07/2011		Site Location: _____			Checked by: _____					
Drilling Method: _____		Drilling Company: _____			Excavator: _____					
Surface Cover: Concrete: Bitumen: ( ) mm    Gravel: ( ) mm    Roadbase: ( ) mm    Other: ( Grass ) mm										
Drilling Method: _____ Hand Trowel ( ) <u>Hand Auger ( X ) mm dia.</u> Push Tube ( ) mm dia. Test pit ( )    Other e.g. Test Pit ( ) Size (m)										
Profile Depth in (m bgl)  Note: Record the depth that groundwater is encountered, depth of any fill	Sampled Collected	Soil Type	Colour	Consistency		Particle / Soil Description	Plasticity	Moisture	Observations and Comments  e.g. report the presence of shells, organic matter, staining, odour mottling PID / FID reading in (ppm)	Monitoring Well Installation
		C = CLAY M = SILT S = SAND G = GRAVEL R = ROCK F = FILL	e.g. black, red, grey, orange, yellow, dark, pale, mottled.	CLAY v. soft (vs) soft (s) m. stiff (ms) stiff (st) v.stiff (v.st) hard (h)	SAND v.loose loose m.dense dense v.dense	Particles Very Angular Sub-Angular Well Rounded  Matrix Poorly Sorted Well Sorted	V.High High Medium Low	S = Saturated V = Very Moist  M = Moist SM = Slightly Moist D = Dry		
Silt  0.5	X	M = SILT	Brown	L		Matrix	Low	D = Dry	No smell	
Borehole Abandonment: ( Y ) Backfilled & Compacted ( ) Resurfaced (Concrete/Bitumen) ( ) Monitoring Well Installed										Waste Management/Disposal: (Describe )
Sandy Silt     Sandy Clay     Sand     Fill Sand Silt Clay     Clay Sand     Rock     Gravel										Soil _____
Well Development Method _____ Volume Purged: _____										Water _____
Quality Control Samples No _____										List: _____

# Soil Bore Log / Monitoring Well Log

<b>Soil Bore/Monitoring Well #</b> BH-2-1			Cattle Spray Race				Sheet 1 of 1		F-1-55-d	
<b>Job Number:</b> 11-719								<b>Logged by:</b> LK		
<b>Client:</b> Whitehaven Coal						<b>South:</b> 30.645411				
<b>Time &amp; Date:</b> 14/07/2011						<b>Easting:</b> 150.194308		<b>Checked by:</b> _____		
<b>Site Location:</b>		<b>Drilling Company:</b>		<b>Excavator:</b>		<b>Elevation:</b>				
<b>Surface Cover:</b> Concrete: Bitumen: ( ) mm Gravel: ( ) mm Roadbase: ( ) mm Other: ( Grass ) mm										
<b>Drilling Method:</b>	<b>Hand Trowel ( ) Hand Auger ( X ) mm dia. Push Tube ( ) mm dia. Test pit (X) Other e.g. Test Pit ( ) Size (m)</b>									
Profile Depth in (m bgl)	Sampled Collected	Soil Type	Colour	Consistency		Particle / Soil Description	Plasticity	Moisture	Observations and Comments	Monitoring Well Installation
				CLAY	SAND					
				C = CLAY M = SILT S = SAND G = GRAVEL R = ROCK F = FILL	e.g. black, red, grey, orange, yellow, dark, pale, mottled.					
Gravel	X	M = SILT	Brown	L		Particles	Low	D = Dry	Relatively new metal bottom	
<b>Borehole Abandonment:</b> ( Y ) Backfilled & Compacted ( ) Resurfaced (Concrete/Bitumen) ( ) Monitoring Well Installed								<b>Waste Management/Disposal:</b> (Describe )		
Sandy Silt  Sandy Clay  Sand  Fill Sand Silt Clay  Clay Sand  Rock  Gravel								Soil _____		
								Water _____		
								<b>Quality Control Samples No</b>		
								List: _____		
<b>Well Development Method</b> _____								Volume Purged: _____		

# Soil Bore Log / Monitoring Well Log

<b>Soil Bore/Monitoring Well # TP1</b>		Same as BH3			Sheet 1 of 1	F-1-55-d
Job Number: 11-719		Client: Whitehaven Coal		South: 30.63921	Logged by: LK	
Time & Date: 14/07/2011		Site Location: BH3		Easting: 150.18972	Checked by: _____	
Drilling Method: Hand Trowel ( )		Hand Auger ( ) mm dia.		Push Tube ( ) mm dia.		Test Pit (X) ( ) Size (m)
Surface Cover: Concrete: Bitumen: ( ) mm		Gravel: ( ) mm		Roadbase: ( ) mm		Other: ( Grass ) mm

Profile Depth in (m bgl)	Sampled Collected Mark (X)	Soil Type C = CLAY M = SILT S = SAND G = GRAVEL R = ROCK F = FILL	Colour e.g. black, red, grey, orange, yellow, dark, pale, mottled.	Consistency		Particle / Soil Description Particles Very Angular Sub-Angular Well Rounded Matrix Poorly Sorted Well Sorted	Plasticity V.High High Medium Low	Moisture S = Saturated V = Very Moist M = Moist SM = Slightly Moist D = Dry	Observations and Comments e.g. report the presence of shells, organic matter, staining, odour mottling PID / FID reading in (ppm)	Monitoring Well Installation
				CLAY	SAND					
				v. soft (vs) soft (s) m. stiff (ms) stiff (st) v.stiff (v.st) hard (h)	v.loose loose m.dense dense v.dense					
Gravel 1	X	G = GRAVEL	Brown	L		Very Angular	Low	D = Dry	Lots of rock	
Sand Gravel 1.5	X	S/G	Lt Brown	L		Very Angular	Low	D = Dry	Sandy, lots or rock	
Sand Gravel 2	X	S/G	Brown	L		Very Angular	Low	D = Dry	Sandy, lots or rock, some fill	
				Refusal (End of reach)						

Borehole Abandonment: ( Y ) Backfilled & Compacted ( ) Resurfaced (Concrete/Bitumen) ( ) Monitoring Well Installed			Waste Management/Disposal: (Describe ) Soil _____ Water _____  Quality Control Samples No _____ List: _____
<div style="display: flex; justify-content: space-between;"> <div> <p>Sandy Silt </p> <p>Sand Silt Clay </p> </div> <div> <p>Sandy Clay </p> <p>Clay Sand </p> </div> <div> <p>Sand </p> <p>Rock </p> </div> <div> <p>Fill </p> <p>Gravel </p> </div> </div>			
Well Development Method _____ Volume Purged: _____			

# Soil Bore Log / Monitoring Well Log

<b>Soil Bore/Monitoring Well #</b> TP2		Eastern wall for test pit			Sheet 1 of 1	F-1-55-d				
<b>Job Number:</b> 11-719					<b>Logged by:</b> _____ LK _____					
<b>Client:</b> Whitehaven Coal										
<b>Time &amp; Date</b> 14/07/2011					<b>Checked by:</b> _____					
<b>Site Location:</b> BH3		<b>Drilling Company</b>								
		<b>South</b> 30.63921								
		<b>Easting</b> 150.189729								
		<b>Elevation</b> _____								
<b>Surface Cover:</b> Concrete: Bitumen: ( ) mm Gravel: ( ) mm Roadbase: ( ) mm Other: ( Grass ) mm										
<b>Drilling Method:</b> Hand Trowel ( ) <u>Hand Auger</u> ( ) mm dia. Push Tube ( ) mm dia. Other e.g. Test Pit ( X ) Size (m)										
Profile Depth in (m bgl)	Sampled Collected	Soil Type	Colour	Consistency		Particle / Soil Description	Plasticity	Moisture	Observations and Comments	Monitoring Well Installation
				CLAY	SAND					
				C = CLAY M = SILT S = SAND G = GRAVEL R = ROCK F = FILL	e.g. black, red, grey, orange, yellow, dark, pale, mottled.					
<p><b>Note:</b> Record the depth that groundwater is encountered, depth of any fill</p> <p><b>Moisture Legend:</b> S = Saturated, V = Very Moist, M = Moist, SM = Slightly Moist, D = Dry</p> <p><b>Observations:</b> e.g. report the presence of shells, organic matter, staining, odour mottling PID / FID reading in (ppm)</p>										
	0.2	X	CMS	Brown	L	Poorly Sorted	Low	D = Dry	Organic Matter	
	0.5	X	S/G	Brown	L	Very Angular	Low	D = Dry	Organic matter, rocks	
	1	X	S/G	Brown	L	Very Angular	Low	D = Dry	Rocks	
	2	X	S/G	Brown	L	Very Angular	Low	D = Dry	Rocks	
<b>Borehole Abandonment:</b> ( Y ) Backfilled & Compacted ( ) Resurfaced (Concrete/Bitumen) ( ) Monitoring Well Installed										
<b>Waste Management/Disposal:</b> (Describe ) Soil _____ Water _____										
<b>Quality Control Samples</b> Yes List: 2m _____ TP2-Q-2.0 _____										
<b>Well Development Method</b> _____ <b>Volume Purged:</b> _____										



# Soil Bore Log / Monitoring Well Log

<b>Soil Bore/Monitoring Well #</b> TP3		Western wall of BH3			Sheet 1 of 1	F-1-55-d					
<b>Job Number:</b> 11-719		<b>Client:</b> Whitehaven Coal			<b>Logged by:</b> LK						
<b>Time &amp; Date:</b> 14/07/2011					<b>Easting:</b> 150.189712		<b>Checked by:</b> _____				
<b>Site Location:</b> _____		<b>Drilling Company:</b> _____			<b>Excavator:</b> _____						
<b>Surface Cover:</b>		Concrete: Bitumen: ( ) mm		Gravel: ( ) mm		Roadbase: ( ) mm		Other: ( Grass ) mm			
<b>Drilling Method:</b>		Hand Trowel ( )		Hand Auger ( X ) mm dia.		Push Tube ( ) mm dia.		Test pit ( X )		Other e.g. Test Pit ( ) Size (m)	
Profile Depth in (m bgl)	Sampled Collected	Soil Type	Colour	Consistency		Particle / Soil Description	Plasticity	Moisture	Observations and Comments	Monitoring Well Installation	
				CLAY	SAND						Particles
	X	M/S	Lt Brown	v. soft (vs)	v.loose	Sub-Angular	Low	D = Dry	Roots		
		S/G	Lt Brown	m. stiff (ms)	m.dense	Very Angular	Low	D = Dry	Roots, rocks		
		S/G	Lt Brown	stiff (st)	dense	Very Angular	Low	D = Dry	Rocks/roots		
		S/G	Lt Brown	v.stiff (v.st)	v.dense	Very Angular	Low	D = Dry	Rock/roots		
				hard (h)		Poorly Sorted					
						Well Sorted					
<b>Borehole Abandonment:</b> ( Y ) Backfilled & Compacted ( ) Resurfaced (Concrete/Bitumen) ( ) Monitoring Well Installed											
<b>Waste Management/Disposal:</b> (Describe ) Soil _____ Water _____											
<b>Quality Control Samples No</b> List: _____											
<b>Well Development Method</b> _____ <b>Volume Purged:</b> _____											

# Soil Bore Log / Monitoring Well Log

Soil Bore/Monitoring Well # <b>TP4</b>			Farmers creek				Sheet 1 of 1	F-1-55-d		
Job Number: 11-719		Client: Whitehaven Coal			Easting 150.193604		Logged by: LK			
Time & Date 14/07/2011		Site Location: Drilling Company Excavator			South 30.645001		Checked by:			
Elevation		Surface Cover: Concrete: Bitumen: ( ) mm Gravel: ( ) mm Roadbase: ( ) mm Other: ( Grass ) mm								
Drilling Method:		Hand Trowel ( ) <u>Hand Auger ( X ) mm dia.</u> Push Tube ( ) mm dia. Test pit (X)			Other e.g. Test Pit ( ) Size (m)					
Profile Depth in (m bgl)  Note: Record the depth that groundwater is encountered, depth of any fill	Sampled Collected	Soil Type C = CLAY M = SILT S = SAND G = GRAVEL R = ROCK F = FILL	Colour e.g. black, red, grey, orange, yellow, dark, pale, mottled.	Consistency		Particle / Soil Description Particles Very Angular Sub-Angular Well Rounded Matrix Poorly Sorted Well Sorted	Plasticity V.High High Medium Low	Moisture S = Saturated V = Very Moist M = Moist SM = Slightly Moist D = Dry	Observations and Comments e.g. report the presence of shells, organic matter, staining, odour mottling PID / FID reading in (ppm)	Monitoring Well Installation
				CLAY v. soft (vs) soft (s) m. stiff (ms) stiff (st) v.stiff (v.st) hard (h)	SAND v.loose loose m.dense dense v.dense					
<div style="border: 1px solid black; padding: 2px; width: fit-content;">Clay Silt</div> 0.2	X	CMS	Dk Brown	L		Matrix	Low	SM = Slightly Mois	Old 44 gl drum on top of sample TPH & metals	
<b>Borehole Abandonment:</b> ( Y ) Backfilled & Compacted ( ) Resurfaced (Concrete/Bitumen) ( ) Monitoring Well Installed								<b>Waste Management/Disposal:</b> (Describe )		
Sandy Silt  Sandy Clay  Sand  Fill Sand Silt Clay  Clay Sand  Rock  Gravel								Soil _____ Water _____		
Well Development Method _____ Volume Purged: _____								Quality Control Samples No _____ List: _____		

# Soil Bore Log / Monitoring Well Log

<b>Soil Bore/Monitoring Well #</b> TP5		Farmers shed next to sheep shearing area			Sheet 1 of 1	F-1-55-d				
<b>Job Number:</b> 11-719		<b>Client:</b> Whitehaven Coal		<b>Easting</b> 150.194538	<b>Logged by:</b> _____ LK _____ <b>Checked by:</b> _____					
<b>Time &amp; Date</b> 14/07/2011		<b>Site Location:</b> Drilling Company		<b>South</b> 30.645161						
				<b>Elevation</b> _____						
<b>Surface Cover:</b> Concrete: Bitumen: ( ) mm Gravel: ( ) mm Roadbase: ( ) mm Other: ( Grass ) mm										
<b>Drilling Method:</b> Hand Trowel ( ) <u>Hand Auger ( X ) mm dia.</u> Push Tube ( ) mm dia. Test pit (X) Other e.g. Test Pit ( ) Size (m)										
Profile Depth in (m bgl)  Note: Record the depth that groundwater is encountered, depth of any fill	Sampled Collected  Mark (X)	Soil Type	Colour	Consistency		Particle / Soil Description	Plasticity	Moisture	Observations and Comments  e.g. report the presence of shells, organic matter, staining, odour mottling PID / FID reading in (ppm)	Monitoring Well Installation
		C = CLAY M = SILT S = SAND G = GRAVEL R = ROCK F = FILL	e.g. black, red, grey, orange, yellow, dark, pale, mottled.	CLAY v. soft (vs) soft (s) m. stiff (ms) stiff (st) v.stiff (v.st) hard (h)	SAND v.loose loose m.dense dense v.dense	Particles Very Angular Sub-Angular Well Rounded Matrix Poorly Sorted Well Sorted	V.High High Medium Low	S = Saturated V = Very Moist M = Moist SM = Slightly Moist D = Dry		
	X	CMS	Brown	M.D.		Matrix	Low	M	Surface staining TPH Engine oil appeared to extend to approx 0.5m	
	X	S/G	Lt Brown	L		Very Angular	Low	M		
<b>Borehole Abandonment:</b> ( Y ) Backfilled & Compacted ( ) Resurfaced (Concrete/Bitumen) ( ) Monitoring Well Installed										
<b>Waste Management/Disposal:</b> (Describe )										
Soil _____										
Water _____										
<b>Quality Control Samples No</b>										
List: _____										
Well Development Method _____ Volume Purged: _____										

# Soil Bore Log / Monitoring Well Log

<b>Soil Bore/Monitoring Well #</b> TP6-1		Area in front of ASTs			Sheet 1 of 1	F-1-55-d				
<b>Job Number:</b> 11-719		<b>Client:</b> Whitehaven Coal		<b>Easting</b> 150.194626	<b>Logged by:</b> _____ LK _____					
<b>Time &amp; Date</b> 14/07/2011		<b>Drilling Company</b> _____		<b>South</b> 30.646359						
<b>Site Location:</b> _____		<b>Excavator</b> _____		<b>Elevation</b> _____	<b>Checked by:</b> _____					
<b>Surface Cover:</b> Concrete: Bitumen: ( ) mm Gravel: ( ) mm Roadbase: ( ) mm Other: ( Grass ) mm										
<b>Drilling Method:</b> Hand Trowel ( ) <u>Hand Auger</u> ( ) mm dia. Push Tube ( ) mm dia. Test pit (X) Other e.g. Test Pit ( ) Size (m)										
Profile Depth in (m bgl)	Sampled Collected Mark (X)	Soil Type C = CLAY M = SILT S = SAND G = GRAVEL R = ROCK F = FILL	Colour e.g. black, red, grey, orange, yellow, dark, pale, mottled.	Consistency		Particle / Soil Description Particles Very Angular Sub-Angular Well Rounded Matrix Poorly Sorted Well Sorted	Plasticity V.High High Medium Low	Moisture S = Saturated V = Very Moist M = Moist SM = Slightly Moist D = Dry	Observations and Comments e.g. report the presence of shells, organic matter, staining, odour mottling PID / FID reading in (ppm)	Monitoring Well Installation
				CLAY v. soft (vs) soft (s) m. stiff (ms) stiff (st) v.stiff (v.st) hard (h)	SAND v.loose loose m.dense dense v.dense					
	X	CMS	Brown	L		P	Low	SM = Slightly Mois		
	X	CMS	Brown, orange mottle	m. stiff (ms)		Matrix	Medium	M = Moist		
	X	S/G		L		Poorly Sorted	Low	D = Dry		
				Refusal						
				Test pit extended in front of 3 ASTs						
				Nomenclature		TP6-1)	Tanks left to right facing west			
						TP6-2)				
						TP6-3)				
<b>Borehole Abandonment:</b> ( Y ) Backfilled & Compacted ( ) Resurfaced (Concrete/Bitumen) ( ) Monitoring Well Installed							<b>Waste Management/Disposal:</b> (Describe )			
							Soil _____			
							Water _____			
							<b>Quality Control Samples No</b>			
							List: _____			
<b>Well Development Method</b> _____							Volume Purged: _____			

# Soil Bore Log / Monitoring Well Log

<b>Soil Bore/Monitoring Well #</b> TP6-2		Area in front of ASTs			Sheet 1 of 1	F-1-55-d				
<b>Job Number:</b> 11-719		<b>Client:</b> Whitehaven Coal			<b>Easting</b> 150.194626					
<b>Time &amp; Date</b> 14/07/2011					<b>South</b> 30.646359					
<b>Site Location:</b>		<b>Drilling Company</b>			<b>Excavator</b>					
<b>Surface Cover:</b>		Concrete: Bitumen: ( ) mm		Gravel: ( ) mm		Roadbase: ( ) mm				
<b>Drilling Method:</b>		Hand Trowel ( )		Hand Auger ( ) mm dia.		Push Tube ( ) mm dia. Test pit (X)				
						Other e.g. Test Pit ( ) Size (m)				
<b>Profile Depth</b> in (m bgl)	<b>Sampled Collected</b>	<b>Soil Type</b>	<b>Colour</b>	<b>Consistency</b>		<b>Particle / Soil Description</b>	<b>Plasticity</b>	<b>Moisture</b>	<b>Observations and Comments</b>	<b>Monitoring Well Installation</b>
		C = CLAY M = SILT S = SAND G = GRAVEL R = ROCK F = FILL	e.g. black, red, grey, orange, yellow, dark, pale, mottled.	CLAY v. soft (vs) soft (s) m. stiff (ms) stiff (st) v.stiff (v.st) hard (h)	SAND v.loose loose m.dense dense v.dense	Particles Very Angular Sub-Angular Well Rounded Matrix Poorly Sorted Well Sorted	V.High High Medium Low	S = Saturated V = Very Moist M = Moist SM = Slightly Moist D = Dry	e.g. report the presence of shells, organic matter, staining, odour mottling PID / FID reading in (ppm)	
Note: Record the depth that groundwater is encountered, depth of any fill	<b>Mark (X)</b>									
Clay Silt Sand	0.2	X	CMS	Brown	L	P	Low	SM = Slightly Mois		
	0.5	X	CMS	Brown, orange mottle	m. stiff (ms)	Matrix	Medium	M = Moist		
Sand Gravel	1	X	S/G		L	Poorly Sorted	Low	D = Dry		
					Refusal					
					Test pit extended in front of 3 ASTs					
					Nomenclature	TP6-1)	Tanks left to right facing west			
						TP6-2)				
						TP6-3)				
<b>Borehole Abandonment:</b>		( Y ) Backfilled & Compacted		( ) Resurfaced (Concrete/Bitumen)		( ) Monitoring Well Installed		<b>Waste Management/Disposal:</b> (Describe )		
Sandy Silt  Sandy Clay  Sand  Fill Sand Silt Clay  Clay Sand  Rock  Gravel		Soil _____		Water _____		Quality Control Samples No _____		List: _____		
<b>Well Development Method</b> _____		Volume Purged: _____								

# Soil Bore Log / Monitoring Well Log

<b>Soil Bore/Monitoring Well #</b> TP6-3				Area in front of ASTs			Sheet 1 of 1			
<b>Job Number:</b> 11-719				Easting 150.194626 South 30.646359 Elevation _____			Logged by: _____ LK _____			
<b>Client:</b> Whitehaven Coal							Checked by: _____			
<b>Time &amp; Date:</b> 14/07/2011										
<b>Site Location:</b> _____		<b>Drilling Company:</b> _____		<b>Excavator:</b> _____						
<b>Surface Cover:</b> Concrete: Bitumen: ( ) mm Gravel: ( ) mm Roadbase: ( ) mm Other: ( Grass ) mm										
<b>Drilling Method:</b> Hand Trowel ( ) <u>Hand Auger</u> ( ) mm dia. Push Tube ( ) mm dia. Test pit (X) Other e.g. Test Pit ( ) Size (m)										
Profile Depth <small>in (m bgl)</small>	Sampled Collected	Soil Type	Colour	Consistency		Particle / Soil Description	Plasticity	Moisture	Observations and Comments <small>e.g. report the presence of shells, organic matter, staining, odour mottling PID / FID reading in (ppm)</small>	Monitoring Well Installation
		C = CLAY M = SILT S = SAND G = GRAVEL R = ROCK F = FILL	e.g. black, red, grey, orange, yellow, dark, pale, mottled.	CLAY	SAND	Particles Very Angular Sub-Angular Well Rounded Matrix Poorly Sorted Well Sorted	V.High High Medium Low	S = Saturated V = Very Moist M = Moist SM = Slightly Moist D = Dry		
				v. soft (vs) soft (s) m. stiff (ms) stiff (st) v.stiff (v.st) hard (h)	v.loose loose m.dense dense v.dense					
<b>Note:</b> Record the depth that groundwater is encountered, depth of any fill	<b>Mark (X)</b>									
	X	CMS	Brown	L	P	Low	SM = Slightly Mois			
	X	CMS	Brown, orange mottle	m. stiff (ms)	Matrix	Medium	M = Moist			
	X	S/G		L	Poorly Sorted	Low	D = Dry			
				Refusal						
				Test pit extended in front of 3 ASTs						
				Nomenclature TP6-1)		Tanks left to right facing west				
				TP6-2)						
				TP6-3)						
<b>Borehole Abandonment:</b> ( Y ) Backfilled & Compacted ( ) Resurfaced (Concrete/Bitumen) ( ) Monitoring Well Installed								<b>Waste Management/Disposal:</b> (Describe )		
								Soil _____ Water _____		
<b>Quality Control Samples No</b>								List: _____		
<b>Well Development Method</b> _____								Volume Purged: _____		












# APPENDIX C

**DIAL BEFORE YOU DIG**



Overhead wires not shown LOOK UP & LIVE!

### LEGEND

-  LV Underground Cable
-  HV Underground Cable
-  Underground Pipe
-  Underground Earth or Wires
-  Ground Substation
-  Pole
-  Cubicle
-  Pit
-  Proposed Construction
-  Critical\* Underground Cable
-  Critical\* Zone Substation

\* Critical Assets: Contact Essential Energy on 13 23 91

THE INFORMATION ON THIS MAP MAY NOT BE ACCURATE. If details are incorrect, please notify Essential Energy on 13 23 91 (or fax 1800 354 636)

ISSUE DATE: 01/06/2011

You must resubmit your request if you have not started work within 4 weeks of the 'Issue Date' above

A4 SCALE: 1:1054







Telstra Corporation Limited

## **DUTY OF CARE**

### **IMPORTANT:**

Please read and understand all the information and disclaimers provided below.

Sketches and Plans provided by Telstra are circuit diagrams only and indicate the presence of telecommunications plant in the general vicinity of the geographical area shown; exact ground cover and alignments cannot be given with any certainty and cover may alter over time. Telecommunications plant seldom follow straight lines and careful on site investigation is essential to uncover and reveal its exact position.

Due to the nature of Telstra plant and the age of some cables and records, it is impossible to ascertain the location of all Telstra plant. The accuracy and/or completeness of the information can not be guaranteed and, accordingly Telstra plans are intended to be indicative only.

### **"DUTY OF CARE"**

When working in the vicinity of telecommunications plant you have a legal "Duty of Care" that must be observed.

It is the responsibility of the owner and any consultant engaged by the owner, including an architect, consulting engineer, developer, and head contractor to design for minimal impact and protection of Telstra plant. Telstra will provide plans and sketches showing the presence of its network to assist at this design stage.

It is the owner's (or constructor's) responsibility to:-

- a) request plans of Telstra plant for a particular location at a reasonable time before construction begins. If you have any doubts as to the exact location of Telstra Plant, we strongly recommend that you engage an Accredited plant Locator in your area;
- b) visually locate Telstra plant by hand digging or using non destructive water jet method (pot holing) where construction activities may damage or interfere with Telstra plant (see "Essential Precautions and Approach Distances" section for more information); and
- c) contact Telstra's **Plan Services** (see below for details) if Telstra plant is wholly or partly located near planned construction activities.

### **DAMAGE:**

**ANY DAMAGE TO TELSTRA'S NETWORK MUST BE REPORTED TO 132203 IMMEDIATELY.**

The owner is responsible for all plant damage when works commence prior to obtaining Telstra plans, or failure to follow agreed instructions.

Telstra reserves all rights to recover compensation for loss or damage to its cable network or other property including consequential losses.

### **EMERGENCY SITUATIONS**

Emergency situations are unplanned and include (amongst other things):

- damaged or faulty underground or aerial power cables / poles
- burst/leaking water mains
- burst/leaking sewer mains.
- burst/leaking gas pipes
- any other emergency situation that may impact Telstra network.

**NOTE:** failure to lodge requests in time for normal maintenance work is not deemed as an emergency.

**During working hours** - in emergency situations, urgent requests for plans or information relating to the location of Telstra network are to be made direct to the Dial Before You Dig Service.  
Note that a fast response can be provided if a request is made on line with a supplied return email address between 5am-10pm AEST 7days a week.

**Outside Normal Business hours or outside hours of automated responses** - in emergency situations, urgent requests for plans or information relating to the location of Telstra network are to be made direct to Telstra on phone **1800 801 801**

## **NATURAL DISASTERS**

Natural Disasters include (amongst other things):

- Earthquakes
- Cyclones
- Floods; and
- Tsunami

In the case of such events, urgent requests for plans or information relating to the location of Telstra network can be made directly to Telstra Network Integrity Team Managers as follows:

NSW - Peter Garth 0419 263 445

QLD - Tony Kent 0419 727 397

VIC/TAS - David Povazan 0417 300 947

SA/NT/WA - Dave Ballard 0419 807 901

## **PLAN SERVICES**

For all Telstra DBYD (Dial Before You Dig) map enquiries please contact Telstra Plan Services

email - [Telstra.Plans@team.telstra.com](mailto:Telstra.Plans@team.telstra.com)

fax - (02) 4961 3714

phone - **1800 653 935** (for urgent, onsite or optic fibre enquiries)

**Please note - to make an enquiry the plans must be current (within 60 days of issue). If your plans have expired you will need to submit a new request via DBYD.**

## **ASSET RELOCATIONS**

You are not permitted to relocate or alter any Telstra assets or network under any circumstance.

For all enquiries relating to the relocation of Telstra assets please phone **1800 810 443** or email [F1102490@team.telstra.com](mailto:F1102490@team.telstra.com)

## **CONCERNING TELSTRA PLANS:**

Please note the following:

- For plans of Telstra locations contact **Dial Before You Dig** at least 2 business days prior to digging. ([www.1100.com.au](http://www.1100.com.au) or phone **1100**)
- Fast response can be provided by Telstra if an email address is supplied. (if posted, this may take up to one week or longer to receive plans)
- Telstra plans and information provided are **valid for 60 days** from the date of issue.
- Telstra owns and retains the copyright in all plans and details provided in conjunction with the applicant's request. The applicant is authorised to use the plans and details only for the purpose indicated in the applicant's request. The applicant must not use the plans or details for any other purpose. The plans and details should be disposed of by shredding or any other secure disposal method after use.
- Telstra plans or other details are provided only for the use of the applicant, its servants, or agents. **The applicant may not give the plans or details to other parties, and may not generate profit from commercialising the plans or details.**
- Please contact Telstra **Plan Services** (see above for details) immediately should you locate Telstra assets not indicated on these plans.
- Telstra, its servants or agents shall not be liable for any loss or damage caused or occasioned by the use of plans and or details so supplied to the applicant, its servants and agents, and the applicant agrees to indemnify Telstra against any claim or demand for any such loss or damage.
- Please ensure Telstra plans and information provided remains on-site at all times throughout your construction phase.

## **ESSENTIAL PRECAUTIONS and APPROACH DISTANCES:**

**NOTE:** If the following clearances cannot be maintained, please contact Telstra Plan Services (see above for details) for advice on how best to resolve this situation.

1. On receipt of plans and sketches and before commencing excavation work or similar activities near Telstra's plant, **carefully locate this plant first** to avoid damage. Undertake prior manual exposure such as potholing when intending to excavate or work **closer** to Telstra plant than the following approach distances.

Where Telstra's plant is in an area where road and footpaths are well defined by kerbs or other features a minimum clear distance of 600mm must be maintained from where it could be reasonably presumed that plant would reside.

In non established or unformed reserves and terrain, this approach distance must be at least 1.5 metres.

In country/rural areas which may have wider variations in reasonably presumed plant presence, the following minimum approach distances apply:

- a) Parallel to major plant: 10 metres (for IEN, optic fibre and copper cable over 300 pairs)
- b) Parallel to other plant: 5 metres

**NOTE:** Even manual pot-holing needs to be undertaken with extreme care, commonsense and employing techniques least likely to damage cables. For example, orientate shovel blades and trowels parallel to the cable rather than digging across the cable.

If construction work is parallel to Telstra plant, then careful hand digging or using non destructive water jet method (pot-holing) at least every 5m is required to establish the location of all plant, hence confirming nominal locations before work can commence.

2. Maintain the following minimum clearance between construction activity and **actual location** of Telstra Plant.

<b>Jackhammers/Pneumatic Breakers</b>	<i>Not within 1.0m of <b>actual location</b>.</i>
<b>Vibrating Plate or Wacker Packer Compactor</b>	<i>Not within 0.5m of Telstra ducts. 300mm compact clearance cover before compactor can be used across Telstra ducts.</i>
<b>Boring Equipment (in-line, horizontal and vertical)</b>	<i>Not within 2.0m of <b>actual location</b>. Constructor to hand dig or use non-destructive water jet method (pot-hole) and expose plant.</i>
<b>Heavy Vehicle Traffic (over 3 tonnes)</b>	<i>Not to be driven across Telstra ducts (or plant) with less than 600mm cover. Constructor to check depth via hand digging.</i>
<b>Mechanical Excavators, Farm ploughing, Boring and Tree Removal</b>	<i>Not within 1.0m of <b>actual location</b>. Constructor to hand dig or use non-destructive water jet method (pot-hole) and expose plant.</i>

All Telstra pits and manholes should be a minimum of 1.2m in from the back of kerb after the completion of your work.

All Telstra conduit should have the following minimum depth of cover **after the completion of your work:-**

- **Footway 450mm**
- **Roadway 450mm at drain invert and 600mm at road centre crown**

For clearance distances relating to Telstra pillars, cabinets and RIMs/RCMs please contact Telstra Plan Services (see above for details).

### **FURTHER ASSISTANCE:**

Assistance can be obtained by contacting Telstra **Plan Services**

Where on-site location is provided, the owner is responsible for all hand digging or use non-destructive water jet method (pot-holing) to visually locate and expose Telstra plant.

If plant location plans or visual location of Telstra plant by digging reveals that the location of Telstra plant is situated wholly or partly where the owner plans to work, then **Telstra's Network Integrity Group** must be contacted through Telstra **Plan Services** to discuss possible engineering solutions.

### **NOTE:**

If Telstra relocation or protection works are part of the agreed solution, then payment to Telstra for the cost of this work shall be the responsibility of the principal developer or constructor. The principal developer or constructor will be required to provide Telstra with the details of their proposed work showing how Telstra's plant is to be accommodated and these details must be approved by the Regional Network Integrity Manager prior to the commencement of site works.

## **RURAL LANDOWNERS - IMPORTANT INFORMATION**

Where Telstra owned cable crosses agricultural land, Telstra may provide a once off free on-site electronic cable location. The Telstra Plan Services operator will provide assistance in determining whether a free on-site location is required.


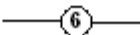

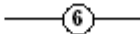






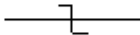

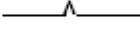



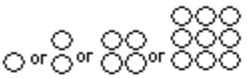
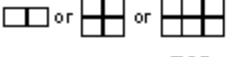
Please note:

- The exact location, including depth of cables can only be verified by pot holing, which is not covered by this service.
- This service is only available to assist private rural land owners.
- This service covers one hour on-site only. Additional time can be purchased directly from the Accredited Plant Locator.

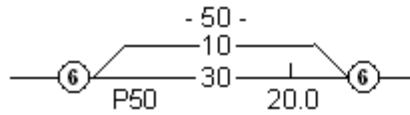
For further information including terms and conditions, please contact Telstra Plan Services on phone **1800 653 935**.

## **PRIVACY NOTE**

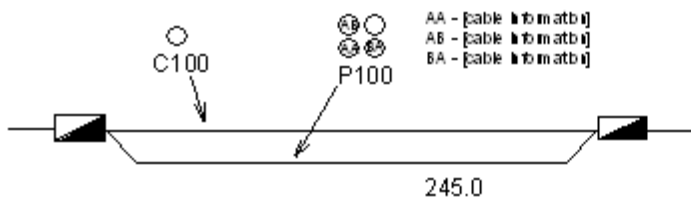
Your information has been provided to Telstra by DBYD to enable Telstra to respond to your DBYD request. Telstra keeps your information in accordance with its privacy statement entitled "Protecting Your Privacy" which can be obtained from Telstra either by calling 1800 039 059 or visiting our website at [www.telstra.com.au/privacy](http://www.telstra.com.au/privacy)

A GUIDE TO READING  PLANS		Telstra Corporation Limited ABN 33 05 1175 556									
	<b>Exchange</b> (major cable present)		<b>Cable jointing pit</b> (number indicating pit type)								
	<b>Footway access chamber</b> (can vary from 1-lid to 12-lid)		<b>Buried cable jointing pit</b> (number indicating pit type)								
	<b>Roadway access chamber</b>		<b>Elevated cable joint</b> (above ground joint on buried cable)								
 or 	<b>Pillar/cabinet</b> (above the ground / free standing)		<b>Cable loop</b> (direct buried)								
	<b>Above ground complex equipment housing</b> (eg RIM) <b>Please Note:</b> This equipment is powered by 240V electricity.		<b>Telstra Plant in shared utility trench</b>								
	<b>PT</b> Public telephone <b>Please Note:</b> This equipment is powered by 240V electricity.		<b>Aerial Cable</b> (above ground)								
	<b>Direct buried cable</b>		<b>Aerial cable</b> (attached to joint use pole e.g. power)								
	<b>Optical fibre cable direct buried</b>										
	<b>Single to multiple round conduit</b> Configurations 1, 2, 4, 9 respectively (Attached text denotes conduit type and size) P100	<p style="text-align: center;"><b>Some examples of conduit type and size:</b></p> <p>A - Asbestos cement, P - PVC / plastic, C - Concrete, GI - Galvanised iron, E - Earthenware. Conduit sizes <i>nominally</i> range from 20mm to 100mm.</p> <table style="width: 100%; border: none;"> <tr><td>P50</td><td>50mm PVC conduit</td></tr> <tr><td>P100</td><td>100mm PVC conduit</td></tr> <tr><td>A100</td><td>100mm asbestos cement conduit</td></tr> <tr><td>E 85</td><td>85mm square earthenware conduit</td></tr> </table>		P50	50mm PVC conduit	P100	100mm PVC conduit	A100	100mm asbestos cement conduit	E 85	85mm square earthenware conduit
P50	50mm PVC conduit										
P100	100mm PVC conduit										
A100	100mm asbestos cement conduit										
E 85	85mm square earthenware conduit										
	<b>Multiple square conduit</b> Configurations 2, 4, 6 respectively (Attached text denotes conduit type and size) E85										

## Some examples of how to read Telstra plans:



One 50mm PVC conduit (P50) containing a 50-pair and a 10-pair cable between two 6-pits, 20.0m apart, with a direct buried 30-pair cable along the same route.



Two separate conduit runs between two footway access chambers (manholes) 245m apart. A nest of four 100mm PVC conduits (P100) containing assorted cables in three ducts (one being empty) and one empty 100mm concrete duct (C100) along the same route.

**WARNING:** Telstra's plans show only the presence of cables and plant. They only show their position relative to road boundaries, property fences etc. at the time of installation and Telstra does not warrant or hold out that such plans are accurate thereafter due to changes that may occur over time.

DO NOT ASSUME DEPTH OR ALIGNMENT of cables or plant as these vary significantly.

The customer has a DUTY OF CARE when excavating near Telstra cables and plant. Before using machine excavators TELSTRA PLANT MUST FIRST BE PHYSICALLY EXPOSED BY SOFT DIG (potholing) to identify its location.

Telstra will seek compensation for damages caused to its property and losses caused to Telstra and its customers.

## Electronic plans - PDF and DWF maps

If you have received Telstra maps via email you will have received the maps as either a PDF file (for smaller areas) or DWF file (for larger area requests). If you are unable to launch any one of the softcopy files for viewing and printing, you may need to download and install one or more of the free viewing and printing products such as Adobe Acrobat Reader (for PDF files) or Autodesk Design Review 2010 (for DWF files) available from the internet.

### PDF files

PDF is the default softcopy format for all requests that range in size from 0 metres (eg point requests) to requests up to approx \*500m in length. (\*depends on geographic location of request). The PDF file is formatted to A3 portrait sheet however it can be printed on any size sheet including from A4 to AO, either as the full sheet or selected areas to suit needs and legibility. (to print a selected area zoom up and print "current view"). If there are multiple layers of Telstra network you may receive up to 2 sheets in the single PDF file attachment supplied. There are three types or layers of network normally recorded - local network, mains cables or a combined layer of local and mains (usually displayed in rural or semi rural areas). If mains cable network is present in addition to local cables (ie as separate layer in a particular area), the mains will be shown on a separate sheet. The mains cable information should be read in conjunction with the local cable information.

### DWF files

This is the default softcopy format for all requests that are over 500m in length. Maximum length for a DWF automated response is approx 2500m - depending on geographic location of request (non automated longer). The DWF files differ from PDF in that DWF are vector files made up of layers that can be turned on or off and are not formatted to a specific sheet size. This makes them ideal for larger areas and for transmitting over email etc.

#### **How to view Telstra DWF files -**

Telstra DWF files come with all layers turned on. You may need to turn individual layers on or off for viewing and printing clarity. Individual layer names are CC (main cable/conduit), DA (distribution or local area network) and sometimes a combined layer - CAC. Layer details can be viewed by either picking off the side menu or by selecting 'window' then 'layers' off the top menu bar. Use 'layers' to turn individual layers off or on. (double click or right click on layer icon.)

#### **How to print Telstra DWF files -**

DWF files can be printed on any size sheet. They can be printed in their entirety or by selected areas of interest. Some DWF coverage areas are large and are not suited to printing legibly on a single A4 sheet - you may need several prints if you only have an A4 printer. Alternately an A3, A1 or larger printer should be used. To print, zoom in or out and then by changing the 'print range' settings you can print what is displayed on your screen to suit your paper size. If you only have a small printer eg A4 you may need to zoom until the text legible on your screen for it to be legible on the print. (which is why you may need several prints). To print what is displayed on your screen the 'view' setting should be changed from 'full page' to 'current view'. The 'current sheet' setting should also be selected. You may need to print layers separately for clarity and legibility. (details above on how to turn layers on or off)

#### **How to change the background colour from white to black (when viewing) Telstra DWF files -**

If using Autodesk Design Review the background colour can be changed by selecting "Tools" then "options" then "sheet". Tick the box "override published paper colors" and select the colour required using the tab provided.

### Further information

If you require further assistance with supplied PDF or DWF plans eg with legibility or you believe there maybe missing information please contact Telstra Plan Services. (contact details above - you will need to supply the Telstra sequence number of the plan request.)

### Telstra automated plan service

Telstra provides an automated plan response for the majority of DBYD requests received (currently around 80%). Requestors must supply a current email address on their request to DBYD and must also be able to accept a standard format ie PDF or DWF. An automated response can be provided a lot faster than the alternative which is a mailed hardcopy. This can avoid unnecessary

delays in waiting to arrive. Being sought directly to a worksite and can be available 7 days a week. The automated system can be configured for individual requestors to receive either PDF/DWF (where small requests are PDF and larger requests are DWF) or alternately all in DWF (both small and large requests). Please contact Plan Services for further details or to be configured. Please note all requests over \*500m (approx) in size can only be supplied in DWF format and there are size limits on what can be provided. (\* actual size depends on geographic location of requested area)

## **Data Extraction Fees**

In some instances a data extraction fee may be applicable for the supply of Telstra information. Typically a data extraction fee may apply to - large projects, requests to be supplied in non standard formats, excessive hardcopy printing or requests for non digging purposes. Further details can be obtained by contacting Telstra Plan Services.

## **ACCREDITED PLANT LOCATORS (For your area)**

On-site assistance should be sought from an **Accredited Plant Locator** if the telecommunications plant cannot be located within 2.5 metres of the locations indicated on the drawings provided.

On-site advice should be obtained from a Telstra accredited Asset Plant Locator who is highly skilled in locating Telstra plant. In the case where Telstra plant is outside a recognised road reserve Telstra recommends that Telstra Plan Services are contacted for assistance prior to engaging an accredited Asset Plant Locator.

Telstra does not permit external parties (non-Telstra) to conduct work on our network. Only Telstra staff or Telstra contractors are allowed to enter our manholes, open our pits, ducts, etc.

**Please note it is a criminal offence under the *Criminal Code Act 1995(Cth)* to tamper or interfere with communication facilities owned by a carrier. Heavy penalties may apply for breach of this prohibition, and any damages suffered, or costs incurred by Telstra as a result of any such unauthorised works may be claimed against you.**

Should your projects require cable location, you **MUST** engage an accredited Asset Plant Locator (a list of which is provided with the Dial Before You Dig plans). Alternatively you may seek your own accreditation through our registered training partner Coates Hire Training which is the only approved training provider for Asset Plant Location accreditation for Telstra's network. You may contact Coates Hire Training on

**1300 657 867** or visit **[www.coateshire.com.au](http://www.coateshire.com.au)**

For the assistance of customers an accredited Asset Plant Locator can perform any of the following activities if requested to do so by the owner:

- review Telstra's plans to assess the approximate location of Telstra plant;
- advise owners of the approximate location of Telstra plant according to the plans;
- advise owners of the best method for locating Telstra plant;
- advise owners of the hazards of unqualified persons attempting to find the exact location of Telstra plant and working in the vicinity of Telstra plant without first locating its exact position; and
- perform trial hole explorations by hand digging (pot-holing) to expose Telstra plant with a high degree of skill, competence and efficiency and utilising all necessary safety equipment.

**A list of Accredited Plant Locators operating in your area is attached. Accredited Plant Locators are certified by Telstra to perform the tasks listed above. Owners may engage Accredited Plant Locators to perform these services, however Telstra does not give any warranty in relation to these services that Accredited Plant Locators are competent or experienced to perform any other services.**

The attached list provides the names and contact details for Accredited Plant Locators who service your area and can provide you with assistance in locating Telstra plant on site. These organisations have been able to satisfy Telstra that they have a sound knowledge of telecommunications plant and its sensitivity to disturbance; appropriate equipment for locating telecommunications plant and competent personnel who are able to interpret telecommunications plans and sketches and understand safety issues relevant to working around telecommunications plant. They are also able to advise you on the actions which should be taken if the work you propose will/could result in a relocation of the telecommunications plant and/or its means of support.

We recommend that you engage the assistance of one of these Accredited Plant Locators as a step towards discharging your Duty of Care obligations when seeking the location of Telstra's telecommunications plant.

### **Please Note:**

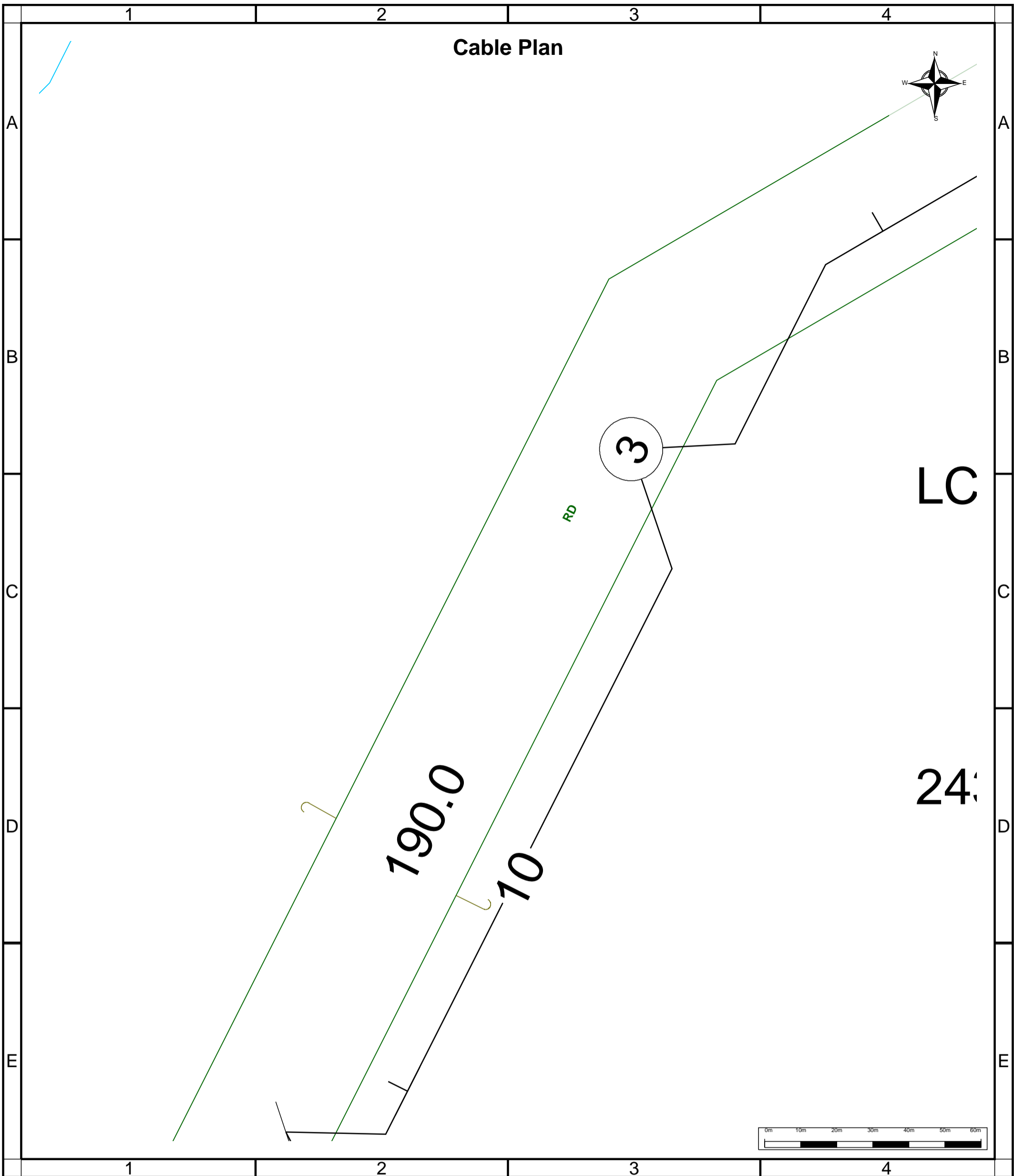
- Each Accredited Plant Locator is NOT permitted to provide depth of communications plant unless physically exposed by hand digging.
- The details of any contract, agreement or retainer for site assistance to locate telecommunications plant shall be for you to decide and agree with the organisation engaged. Telstra is not a party to any contract entered into between an owner and an Accredited Plant Locator. The Accredited Plant Locators are able to provide guidance concerning the extent of site investigations required.
- Payment for the site assistance will be your responsibility and payment details should be agreed before the engagement is confirmed.
- Telstra does not accept any liability or responsibility for the performance of or advice given by an Accredited Plant Locator. Accreditation is an initiative taken by Telstra towards the establishment and maintenance of competency standards. However, performance and the advice given will always depend on the nature of the individual engagement.
- Each Accredited Plant Locator has been issued with a certificate which confirms the Accreditation. Every 2 years Telstra will reassess the accreditation and where appropriate will issue a letter confirming the accreditation for the next 2 years. You


have the right to request the organisation you engage to show evidence of their ID card.

- Neither the Accredited Plant Locator nor any of its employees are an employee or agent for Telstra and Telstra is not liable for any damage or loss caused by the Accredited Plant Locator or its employees.
- The attached list contains the current names and contact details of Accredited Plant Locators who service your area, however, these details are subject to change.

**IDEA FOR CONSIDERATION:**

Telstra offer free Cable Awareness Presentations & Advanced Cable Reading Presentations, if you believe you or your company would benefit from this offer please contact Network Integrity on 1800 810 442 or **F1102490@team.telstra.com**



	For all Telstra DBYD plan enquiries - email - Telstra.Plans@team.telstra.com For urgent onsite contact only - ph 1800 653 935 (bus hrs)	Sequence Number: 21668343
	TELSTRA CORPORATION LIMITED A.C.N. 051 775 556	Exchange Area: BOGI
Generated On 01/06/2011 14:23:12		

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

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

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












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





Overhead wires not shown LOOK UP & LIVE!

### LEGEND

-  LV Underground Cable
-  HV Underground Cable
-  Underground Pipe
-  Underground Earth or Wires
-  Ground Substation
-  Pole
-  Cubicle
-  Pit
-  Proposed Construction
-  Critical\* Underground Cable
-  Critical\* Zone Substation

\* Critical Assets: Contact Essential Energy on 13 23 91

THE INFORMATION ON THIS MAP MAY NOT BE ACCURATE.  
If details are incorrect, please notify Essential Energy on 13 23 91 (or fax 1800 354 636)

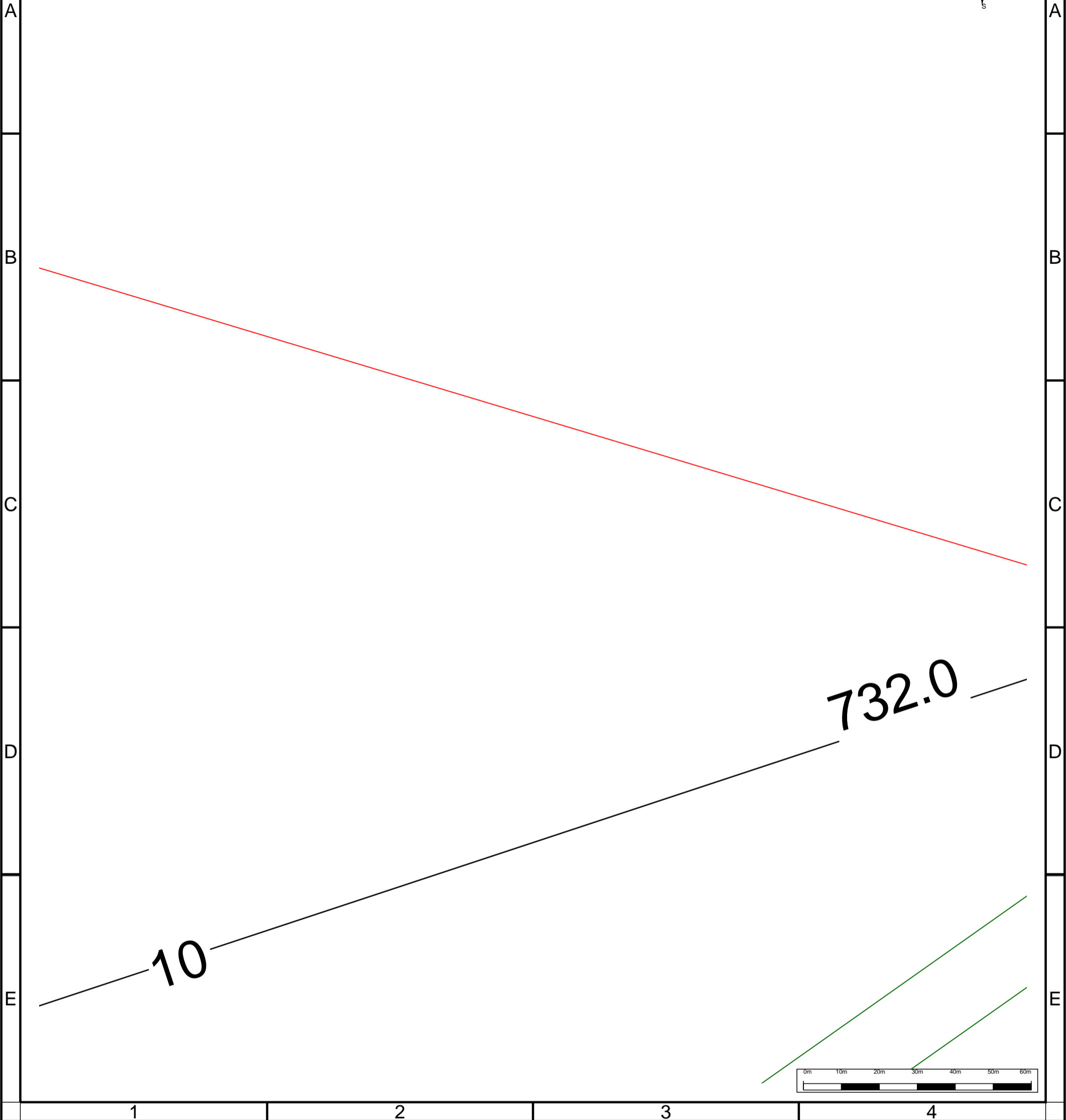
ISSUE DATE: 01/06/2011


You must resubmit your request if you have not started work within 4 weeks of the 'Issue Date' above

A4 SCALE: 1:1054



# Cable Plan



	For all Telstra DBYD plan enquiries - email - <a href="mailto:Telstra.Plans@team.telstra.com">Telstra.Plans@team.telstra.com</a> For urgent onsite contact only - ph 1800 653 935 (bus hrs)	Sequence Number: 21668308
	TELSTRA CORPORATION LIMITED A.C.N. 051 775 556	Exchange Area: BOGI
Generated On 01/06/2011 14:23:25		

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

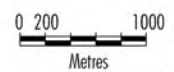
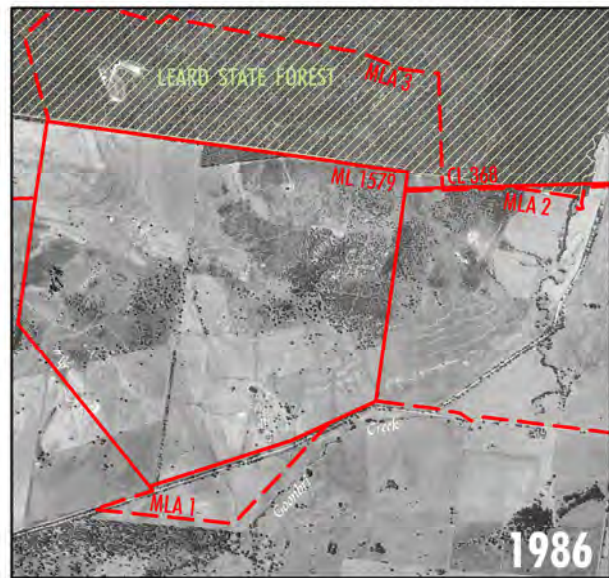
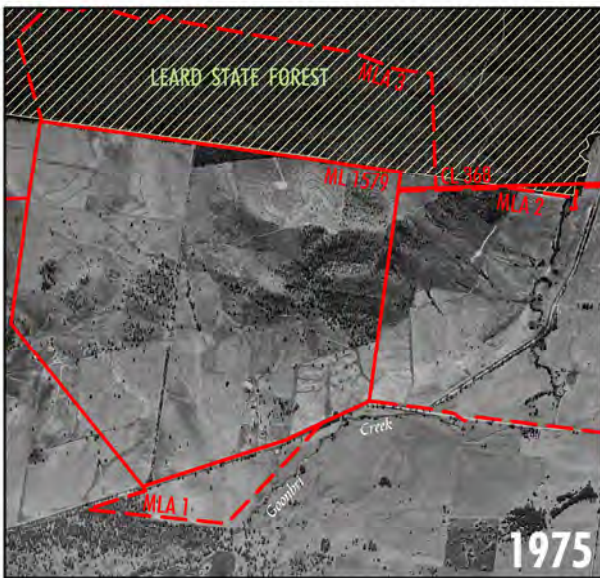
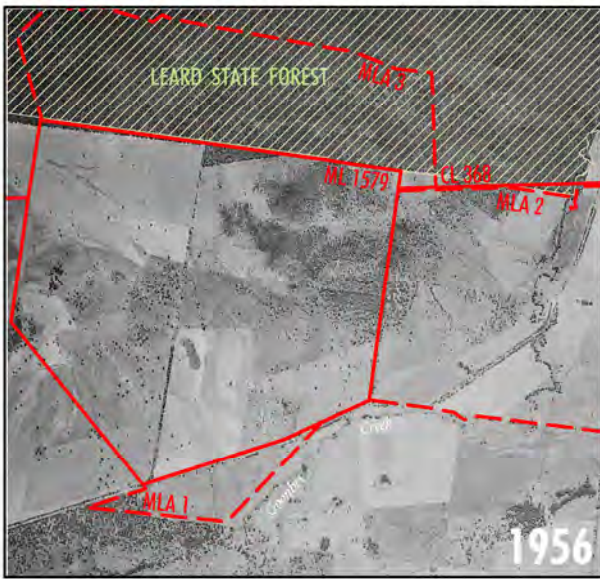
It is your responsibility to locate Telstra's underground plant by careful hand pot-holing prior to any excavation in the vicinity and to exercise due care during that excavation.

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

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

# APPENDIX D

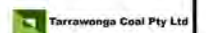
## HISTORICAL PHOTOGRAPHS



Source: Ortho-Geo-Spectrum Australia (Flown August 2010)  
and Airphotos - Land & Property Information (2011)

**TARRAWONGA COAL PROJECT**

Historic Photography



# APPENDIX E

## CALIBRATION CERTIFICATES

# RENTALS

## Equipment Report - MINIRAE 2000 PID

This PID has been performance checked / calibrated\* as follows:

Calibration	Actual Value	Reading	Pass?		
Zero – fresh air	0.0 ppm	0.0 ppm	<input checked="" type="checkbox"/>		
Span – Isobutylene	100 ppm	103 ppm	<input checked="" type="checkbox"/>		
Set Alarm limits to	High	100 ppm	Low	50 ppm	
<b>Operations Check</b>					
<input checked="" type="checkbox"/>	Performance Check (pump, lamp, sensor & battery voltage check)				
<input checked="" type="checkbox"/>	Battery Charged	<input checked="" type="checkbox"/>	Filters Check	<input checked="" type="checkbox"/>	Spare battery Voltage (5.5v minimum) 6.4 V
<input type="checkbox"/>	Electrical Safety Tag attached (AS/NZS 3760)		Tag No:.....	Valid to:.....	
<input checked="" type="checkbox"/>	Bump test / Date: 10/6/11				

\* Calibration gas traceability information is available upon request.

Date: 10/6/11 Checked by: ROBERT

Signed: RBLK

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum \$20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
<input checked="" type="checkbox"/>	<input type="checkbox"/>	MiniRae 2000 PID / Operational Check, plus Battery Voltage @ ____ V
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Lamp Voltage @ ____ V Compound Set to: ____ C/factor: ____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Protective yellow rubber boot
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Inlet probe (attached to PID)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Spare water trap filter(s) Qty <u>2</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Charger 240V to 12V 500mA
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Instruction Manual behind foam on the lid of case "
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Quick Guide Sheet behind foam on the lid of case "
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Spare Alkaline Battery Compartment with batteries
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Inline Moisture trap Filter Guide Laminated
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Calibration regulator & tubing (optional)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Carry Case
<input type="checkbox"/>	<input type="checkbox"/>	Check to confirm electrical safety (tag must be valid)

Processors Signature/ Initials \_\_\_\_\_

TFS Quote Reference	Condition on return
Customer Ref	
Equipment ID	PIDMIN21
Equipment serial no.	
Return Date	/ /
Return Time	

"We do more than give you great equipment... We give you great solutions!"

Phone: (Free Call) 1300 735 295		Environmental Assessment Technologies		Fax: (Free Call) 1800 675 123	
Melbourne Branch 5 Caribbean Drive, Scoresby 3179 Email: RentalsEnviroVIC@thermofisher.com	Sydney Branch Level 1, 4 Talavera Road, North Ryde 2113 Email: RentalsEnviroNSW@thermofisher.com	Adelaide Branch 27 Beulah Road, Norwood, South Australia 5067 Email: RentalsEnviroSA@thermofisher.com	Brisbane Branch Unit 2/5 Ross St Newstead 4006 Email: RentalsEnviroQLD@thermofisher.com	Perth Branch 121 Berlingarra Ave Majaga WA 6090 Email: RentalsEnviroWA@thermofisher.com	

# RENTALS

## EQUIPMENT CERTIFICATION REPORT

AMS SOIL SAMPLING AUGER KIT 70BA

This Soil Sampling Kit has been cleaned and checked:

Date: 10/6/11

Checked by: ROBERT

Signature: RBLK

Please check that the following items are received and all items are returned. Please clean equipment before returning. A \$20 service / repair charge applies to any unclean or damaged items.

Sent	Received	Returned	Description
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 Regular Auger Head
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 Clay Auger Head
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 Sand Auger Head
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 Tee Handle
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Qty <u>4</u> extensions of 0.9 metre
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 Finger Ring for disconnecting extensions
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 canvas carry bag
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>1 x Sawn off Screwdriver</u>

Processors Signature/ Initials

CLIENT'S REF: P/O NO: \_\_\_\_\_  
CLIENT'S REF: Job NO: \_\_\_\_\_

QUOTE NO.: \_\_\_\_\_

ID: AMS70BB

RETURN DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_  
TIME

Phone: (Free Call) 1300 735 295		Environmental Assessment Technologies		Fax: (Free Call) 1800 657 123	
Melbourne Branch 5 Conlbean Drive, Scoresby 3179 Email: RentalsEnviroVIC@thermofisher.com	Sydney Branch Level 1, 4 Talavera Road, North Ryde 2113 Email: RentalsEnviroNSW@thermofisher.com	Adelaide Branch 27 Beulah Road, Norwood, South Australia 5067 Email: RentalsEnviroSA@thermofisher.com	Brisbane Branch Unit 2/6 Ross St Newstead 4006 Email: RentalsEnviroQLD@thermofisher.com	Perth Branch 121 Beringarra Ave Malga WA 6090 Email: RentalsEnviroWA@thermofisher.com	

# RENTALS

## Equipment Report - TPS 90FLMV Water Quality Meter

This Water Quality Meter has been performance checked / calibrated\* as follows:

pH  pH 6.88     pH 7.00     pH 4.00     pH 10.00     pH  
 Conductivity  0.0mS/cm     2.76mS/cm     12.88mS/cm     58.6mS/cm     mS/cm  
 TDS  0.0 ppk     36 ppk     ppk  
 Dissolved Oxygen  0.00ppm in Sodium Sulphite     100% Saturation in Air  
 Redox (ORP)\*\*  Electrode operability test 240mV +/- 10%. Actual: **241** mV  
 Electrodes cleaned/checked     Charged **8.2** v (min 7.2V)     Temperature  
 Electrical Safety Tag attached (AS/NZS 3760)    Tag No: .....    Valid To: .....

\* Calibration solution traceability information is available upon request.

Date: 12/7/11    Checked by: ROBERT  
 Signed: RBLT

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum \$20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Received	Returned	Item
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	90FLMV Unit. Ops check / Battery Voltage @ _____
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	pH sensor 5m
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Conductivity / TDS / Temperature k=10 sensor 5m
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Dissolved Oxygen YSI5739 sensor 5m
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Redox (ORP) sensor 5m
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Battery charger: 240V AC to 12V DC 200mA
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Instruction Manual
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Quick Guide
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Syringe with storage solution for pH & ORP sensors
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Carry Case

Processors Signature/ Initials \_\_\_\_\_

TFS Quote Reference	Condition on return
Customer Ref	
Equipment ID	90FLMVBN
Equipment serial no.	T7934
Return Date	/ /
Return Time	

"We do more than give you great equipment... We give you great solutions!"

Phone: (Free Call) 1300 735 295		Environmental Assessment Technologies		Fax: (Free Call) 1800 675 123	
Melbourne Branch 5 Caribbean Drive, Scoresby 3179 Email: RentalsEnviroVIC@thermofisher.com	Sydney Branch Level 1, 4 Talavera Road, North Ryde 2113 Email: RentalsEnviroNSW@thermofisher.com	Adelaide Branch 27 Beulah Road, Norwood, South Australia 5087 Email: RentalsEnviroSA@thermofisher.com	Brisbane Branch Unit 2/5 Ross St Newstead 4006 Email: RentalsEnviroQLD@thermofisher.com	Perth Branch 121 Beringarra Ave Malaga WA 6090 Email: RentalsEnviroWA@thermofisher.com	



# APPENDIX F

## SOIL AND SURFACE WATER ANALYSIS RESULTS

## Soil Results

Table 1 - Metals and BTEX Results

Site	Sample ID	Date	pH	Moisture Content (dried @ 103°C)	Metals								BTEX					BTEXN		
					Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury	Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Sum of BTEX	Total Xylenes	Naphthalene
<b>STAGE 1</b>																				
Site 1	BH1 (0.2)	15/06/2011	6.3	12.9	7	<1	24	<5	14	6	20	<0.1	-	-	-	-	-	-	-	-
Site 1	BH1-2 (BH3 [0.5]*)	15/06/2011	6.6	29.3	<5	4	8	11	2720	9	1430	<0.1	-	-	-	-	-	-	-	-
Site 1	BH2 (0.2)	15/06/2011	6.3	12.6	<5	<1	11	6	44	6	132	0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1
Site 1	BH2 (0.5)	15/06/2011	6.5	17.8	<5	<1	11	6	83	7	107	<0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1
Site 1	BH3 (0.2)	15/06/2011	6.8	44.5	6	2	15	9	1500	9	817	<0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1
Site 1	BH (0.2)	15/06/2011	6.6	14	<5	<1	8	6	25	7	164	<0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1
Site 1	BH5 (0.2)	15/06/2011	6.2	13.4	<5	<1	12	5	14	6	55	<0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1
Site 2	BH8 (0.2)	15/06/2011	6.4	22.1	<5	<1	19	5	25	7	12	<0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1
Site 2	BH8 (0.2)-D	15/06/2011	6.4	20.2	<5	<1	18	<5	20	7	13	<0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1
Site 3	BH6 (0.2)	15/06/2011	6	18.9	<5	<1	26	<5	11	4	8	<0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1
Site 3	BH7 (0.2)	15/06/2011	6.1	11.7	<5	<1	10	<5	6	4	6	<0.1	-	-	-	-	-	-	-	-
Site 4	BH9 (0.2)	15/06/2011	9.8	20.7	<5	<1	10	6	16	7	12	<0.1	-	-	-	-	-	-	-	-
Site 5	TP4 (0.2)	14/07/2011	6.6	13.3	6	<1	16	10	15	11	72	<0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1
Site 6	TP5 (0.5)	14/07/2011	-	9.7	<5	<1	16	<5	8	5	12	<0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1
Site 7	TP6 (0.2)	14/07/2011	-	11.6	6	<1	17	14	12	10	49	<0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1
Site 7	TP6-1 (0.5)	14/07/2011	-	12.9	6	<1	16	14	12	13	45	<0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1
Site 7	TP6-2 (0.5)	14/07/2011	-	15.4	6	<1	17	14	10	15	38	<0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1
Site 7	BH1-1 (0.5)	14/07/2011	5.8	10.1	<5	<1	14	12	21	8	128	<0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1
Site 8	BH2-1 (0.1)	14/07/2011	7.9	9.4	<5	<1	9	13	10	6	132	-	-	-	-	-	-	-	-	-
Background	BH10 (0.2)	15/06/2011	5.8	12.8	<5	<1	10	<5	8	5	9	<0.1	-	-	-	-	-	-	-	-
<b>STAGE 2</b>																				
Site 1	TP1 (1.0)	14/07/2011	7.4	5.7	5	<1	10	<5	74	5	104	<0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1
Site 1	TP2 (0.2)	14/07/2011	6.4	4.8	5	<1	10	6	16	6	18	<0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1
Site 1	TP2 (2.0)-Q	14/07/2011	7.1	5.5	5	<1	9	<5	68	5	30	<0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1
Site 1	TP3 (0.5)	14/07/2011	6.9	4.7	<5	<1	8	<5	11	5	24	<0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<1
	LOR		0.1	1	5	1	2	5	5	2	5	0.1	-	-	-	-	-	-	-	-
<b>NEPM HIL-E</b>					200	40	200	2000	600	600	14000	30								
<b>NEPM HIL-F</b>					500	100	500	5000	1500	3000	35000	75								
<b>USEPA Industrial</b>																				
<b>OEH</b>													1	130						

\*This sample was mislabelled BH1-2 and was actually collected at 0.5 m at location 3 and therefore should have been labelled BH3 (0.5)

Table 2 - Organochlorine Pesticides Results

Organochlorine Pesticides (OC)																										
Site	Sample ID	Date	alpha-BHC	Hexachlorobenzene (HCB)	beta-BHC	gamma-BHC	delta-BHC	Heptachlor	Aldrin	Heptachlor epoxide	trans-Chlordane	alpha-Endosulfan	cis-Chlordane	Dieldrin	4,4'-DDE	Endrin	beta-Endosulfan	4,4'-DDD	Endrin aldehyde	Endosulfan sulfate	4,4'-DDT	Endrin ketone	Methoxychlor	Sum of DDT, DDD & DDE		
<b>STAGE 1</b>																										
Site 3	BH6 (0.2)	15/06/2011	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<0.12
Site 3	BH7 (0.2)	15/06/2011	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<0.12
Site 4	BH9 (0.2)	15/06/2011	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<0.12
Site 8	BH2-1 (0.1)	14/07/2011	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	-
Background	BH10 (0.2)	15/06/2011	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<0.12
	LOR		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	0.05	0.2	-
<b>NEPM HIL-E</b>								20	20											100						400
<b>NEPM HIL-F</b>								50	50											250						1000
<b>USEPA Industrial</b>																										
<b>OEH</b>																										

Table 3 - Organophosphorous Pesticides Results

Organophosphorus Pesticides (OP)																					
Site	Sample ID	Date	Dichlorvos	Demeton-S-methyl	Monocrotophos	Dimethoate	Diazinon	Chlorpyrifos-methyl	Parathion-methyl	Malathion	Fenthion	Chlorpyrifos	Parathion	Pirimphos-ethyl	Chlorfenvinphos	Bromophos-ethyl	Fenamiphos	Prothiofos	Ethion	Carbophenothion	Azinphos Methyl
<b>STAGE 1</b>																					
Site 3	BH6 (0.2)	15/06/2011	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Site 3	BH7 (0.2)	15/06/2011	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Site 4	BH9 (0.2)	15/06/2011	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Site 8	BH2-1 (0.1)	14/07/2011	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Background	BH10 (0.2)	15/06/2011	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	LOR		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>NEPM HIL-E</b>																					
<b>NEPM HIL-F</b>																					
<b>USEPA Industrial</b>																					
<b>OEH</b>			5.9	25		120	430	6200		12000		1800	3700	6200			150		310		

Table 4 - Polynuclear Aromatic Hydrocarbon Results

			Polynuclear Aromatic Hydrocarbons																
Site	Sample ID	Date	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1.2.3-cd)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	Sum of polycyclic aromatic hydrocarbons
<b>STAGE 1</b>																			
Site 1	BH2 (0.2)	15/06/2011	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Site 1	BH2 (0.5)	15/06/2011	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Site 1	BH3 (0.2)	15/06/2011	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Site 1	BH4 (0.2)	15/06/2011	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Site 1	BH5 (0.2)	15/06/2011	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Site 2	BH8 (0.2)	15/06/2011	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Site 2	BH8 (0.2)-D	15/06/2011	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Site 3	BH6 (0.2)	15/06/2011	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
<b>LOR</b>			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>NEPM HIL-E</b>																2	40		
<b>NEPM HIL-F</b>																5	100		
<b>USEPA Industrial</b>																			
<b>OEH</b>																			

Table 5 - Total Petroleum Hydrocabons Results

Site	Sample ID	Date	Total Petroleum Hydrocarbons					Total Recoverable Hydrocarbons - NEPM 2010 Draft						
			C6 - C9 Fraction	C10 - C14 Fraction	C15 - C28 Fraction	C29 - C36 Fraction	C10 - C36 Fraction (sum)	C6 - C10 Fraction	Fraction minus BTEX (F1)	>C10 - C16 Fraction	>C16 - C34 Fraction	>C34 - C40 Fraction	>C10 - C40 Fraction (sum)	
<b>STAGE 1</b>														
Site 1	BH2 (0.2)	15/06/2011	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	
Site 1	BH2 (0.5)	15/06/2011	<10	<50	470	140	610	<10	<10	<50	520	130	650	
Site 1	BH3 (0.2)	15/06/2011	<10	<50	750	420	1170	<10	<10	70	960	380	1410	
Site 1	BH4 (0.2)	15/06/2011	<10	<50	250	<100	250	<10	<10	<50	280	<100	280	
Site 1	BH5 (0.2)	15/06/2011	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	
Site 2	BH8 (0.2)	15/06/2011	<10	<50	200	<100	200	<10	<10	<50	210	<100	210	
Site 2	BH8 (0.2)-D	15/06/2011	<10	<50	120	<100	120	<10	<10	<50	140	<100	140	
Site 3	BH6 (0.2)	15/06/2011	<10	<50	180	<100	180	<10	<10	<50	190	<100	190	
Site 5	TP4 (0.2)	14/07/2011	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	
Site 6	TP5 (0.5)	14/07/2011	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	
Site 7	TP6 (0.2)	14/07/2011	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	
Site 7	BH1-1 (0.5)	14/07/2011	<10	<50	360	<100	360	<10	<10	<50	330	<100	330	
<b>STAGE 2</b>														
Site 1	TP1-1.0	14/07/2011	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	
Site 1	TP2-0.2	14/07/2011	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	
Site 1	TP2 (2.0)-Q	14/07/2011	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	
Site 1	TP3-0.5	14/07/2011	<10	<50	<100	<100	<50	<10	<10	<50	<100	<100	<50	
	LOR		10	50	100	100	50	10	10	50	100	100	50	
<b>NEPM HIL-E</b>														
<b>NEPM HIL-F</b>														
<b>USEPA Industrial</b>														
<b>OEH</b>			65				1000							



Table 9 - Nitrogen

Nitrogen					
Site	Sample ID	Date	Total Kjeldahl Nitrogen mg/L	Nitrite & Nitrate mg/L	Total Nitrogen mg/L
<b>STAGE 1</b>					
Site 4	D1	14/07/2011	4.6	0.11	4.7
Site 4	D2	14/07/2011	3.8	0.1	3.9
Site 4	D3	14/07/2011	1.5	0.42	1.9
Site 9	D4	14/07/2011	0.8	0.27	1.1
Site 9	D5	14/07/2011	1.1	0.46	1.6
Site 9	Q-D4	14/07/2011	0.7	0.26	1
	LOR		0.1	0.01	0.1
ANZACC 90% protection				3.4*	
NSW Namoi River Lowland River					0.35

\* nitrate only

Table 10 - Alkalinity

Alkalinity						
Site	Sample ID	Date	Hydroxide Alkalinity mg/L	Carbonate Alkalinity mg/L	Bicarbonate Alkalinity mg/L	Total Alkalinity mg/L
<b>STAGE 1</b>						
Site 4	D1	14/07/2011	<1	<1	57	57
Site 4	D2	14/07/2011	<1	<1	56	56
Site 4	D3	14/07/2011	<1	<1	169	169
Site 9	D4	14/07/2011	<1	<1	97	97
Site 9	D5	14/07/2011	<1	<1	100	100
Site 9	Q-D4	14/07/2011	<1	<1	97	97
	LOR		1	1	1	1
ANZACC 90% protection						

Table 11 - Major Cations & Sulfate, Chloride

Major Cations & Sulfate, Chloride								
Site	Sample ID	Date	Calcium mg/L	Magnesium mg/L	Sodium mg/L	Potassium mg/L	Sulfate mg/L	Chloride mg/L
<b>STAGE 1</b>								
Site 4	D1	14/07/2011	2	4	30	12	16	17
Site 4	D2	14/07/2011	2	2	39	5	9	22
Site 4	D3	14/07/2011	4	9	75	5	18	11
Site 9	D4	14/07/2011	12	6	68	10	26	60
Site 9	D5	14/07/2011	9	6	31	14	3	14
Site 9	Q-D4	14/07/2011	12	6	70	11	26	63
	LOR		1	1	1	1	1	1
ANZACC 90% protection								

# APPENDIX G

## LABORATORY DOCUMENTATION




**Chain of Custody**

Laboratory Details ALS Division  
 Lab Quote Ref. BN / 299 / 10  
 Ph: 07 3243 7222  
 Email: samples.bnsb@alsenviro.com

CLIENT: Lloyd Consulting	TURNAROUND REQUIREMENTS: <input checked="" type="checkbox"/> Standard TAT (List due date): <input type="checkbox"/> Non Standard or urgent TAT (List due date):	FOR LABORATORY USE ONLY (Circle)	
OFFICE: 30 Heather Street, Wilston, Q, 4051.		Custody Seal Intact? Yes No N/A	
PROJECT: 11-719	QUOTE NO.: BN/299/10	Free ice / frozen ice bricks present upon receipt? Yes No N/A	
ORDER NUMBER:		Random Sample Temperature on Receipt: °C	
PROJECT MANAGER: Trevor Lloyd	CONTACT PH: 07 3352 7300	Other comment:	
SAMPLER: LK	SAMPLER MOBILE: 0410068996	RELINQUISHED BY: LK	RECEIVED BY: Sam
COC emailed to ALS? ( YES / NO )	EDD FORMAT (or default):	DATE/TIME: 15.6.11 2.45	DATE/TIME: 17/6/11 12:00
Email Reports to (PM firstname@lloydconsulting.com.au):			
Email Invoice to (as above): leona@lloydconsulting.com.au.			

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (filtered bottle required).				Additional Information	
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	Metals	TRH/PAH/BTEX	OC/OP	P/H S:1	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.	
1	BH1-1		S		1	X			+	<div style="font-size: 2em; font-weight: bold; margin-bottom: 10px;">HT</div> <div style="text-align: center;">                     Environmental Division                      Sydney                      Work Order  <b>ES1112949</b> </div> <div style="text-align: center; margin-top: 10px;">  </div> <div style="text-align: center; margin-top: 5px;">                     Telephone : + 61-2-8784 8555                 </div>	
2	BH1-2		"		1	X			+		
3	BH2-1		"		1	X	X		X		
4	BH2-2		"		1	X	X		X		
5	BH3-1		"		1	X	X		X		
6	BH4-1		"		1	X	X		X		
7	BH5-1		"		1	X	X		X		
8	BH6-1		"		1	X	X	X	X		
9	BH7-1		"		1	X	X	X	X		
10	BH8-1		"		1	X	X		X		
11	BH8-1D		"		1	X	X		X		
12	BH9-1		"		1	X	X	X	X		
TOTAL					10						

Water Container Codes: P = Unpreserved Plastic, N = Nitric Preserved Plastic, ORC = Nitric Preserved ORC, SH = Sodium Hydroxide/Cd Preserved, S = Sodium Hydroxide Preserved Plastic, AG = Amber Glass Unpreserved, AP - Airfreight Unpreserved Plastic  
 V = VOA Vial HCl Preserved, VB = VOA Vial Sodium Bisulphate Preserved, VS = VOA Vial Sulfuric Preserved, AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic, HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle, E = EDTA Preserved Bottles, ST = Sterile Bottle, ASS = Plastic Bag for Acid Sulphate Soils, B = Unpreserved Bag

**Chain of Custody**



**Laboratory Details**  
 ALS ~~brisbane~~ **sydney**  
 Lab Quote Ref.  
 BN / 299 / 10      Ph 07 3243 7222  
 Email: samples.brisbane@alsenviro.com

<b>CLIENT:</b> Lloyd Consulting		<b>TURNAROUND REQUIREMENTS:</b> <input checked="" type="checkbox"/> Standard TAT (List due date): _____		<b>FOR LABORATORY USE ONLY (Circle)</b>	
<b>OFFICE:</b> 30 Heather Street, Wilston, Q, 4051.		<input type="checkbox"/> Non-Standard or urgent TAT (List due date): _____		Custody Seal Intact?      Yes      No      N/A	
<b>PROJECT:</b> 11-719		<b>QUOTE NO.:</b> BN/299/10		Free ice / frozen ice bricks present upon receipt?      Yes      No      N/A	
<b>ORDER NUMBER:</b>		<b>COC SEQUENCE NUMBER (Circle)</b>		Random Sample Temperature on Receipt:      °C	
<b>PROJECT MANAGER:</b> TREVOR LLOYD		<b>CONTACT PH:</b> 07 3352 7300		Other comment:	
<b>SAMPLER:</b> LK		<b>SAMPLER MOBILE:</b> 0410068796		<b>RELINQUISHED BY:</b> LK	
<b>COC emailed to ALS? (YES / NO)</b> (NO)		<b>EDD FORMAT (or default):</b>		<b>RECEIVED BY:</b>	
<b>Email Reports to (PM firstname)@lloydconsulting.com.au;</b>		<b>DATE/TIME:</b> 15-6-11		<b>DATE/TIME:</b> 2.45	
<b>Email Invoice to (as above)</b> leona@lloydconsulting.com.au				<b>RECEIVED BY:</b> Sam	
				<b>DATE/TIME:</b> 17/6/11 12:00	

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION	ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (acid filtered bottle required).							Additional Information	
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	Metals 8	TPH/BTEX/PAH	OC/OS	Metals	OC/OS	EC, TDS, PH, DO	PH 5:1	
13	B410-1		S		1	X		X				X	
14	R1		W		1	X							
15	D1		W		3				X		X	X	
16	D2		W		3				X	X	X	X	
17	D3		W		3				X		X	X	
<b>TOTAL</b>													

Water Container Codes: P = Unpreserved Plastic, N = Nitric Preserved Plastic, ORC = Nitric Preserved ORC, SH = Sodium Hydroxide/Cd Preserved, S = Sodium Hydroxide Preserved Plastic, AG = Amber Glass Unpreserved, AP = Airfreight Unpreserved Plastic  
 V = VOA Vial HCl Preserved, VB = VOA Vial Sodium Bisulphate Preserved, VS = VOA Vial Sulfuric Preserved, AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass, H = HCl preserved Plastic, HS = HCl preserved Speciation bottle, SP = Sulfuric Preserved Plastic, F = Formaldehyde Preserved Glass,  
 Z = Zinc Acetate Preserved Bottle, E = EDTA Preserved Bottles, ST = Sterile Bottle, ASS = Plastic Bag for Acid Sulphate Soils, B = Unpreserved Bag



Food/Pharmaceutical Division

**CERTIFICATE OF ANALYSIS**

<b>Work Order</b>	: <b>ES1112949</b>	<b>Page</b>	: 1 of 21
<b>Client</b>	: <b>LLOYD CONSULTING</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: <b>TREVOR LLOYD</b>	<b>Contact</b>	: Client Services
<b>Address</b>	: <b>PO BOX 320 WILSTON QLD, AUSTRALIA 4057</b>	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: <b>trevor@lloydconsulting.com.au</b>	<b>E-mail</b>	: <b>sydney@alsglobal.com</b>
<b>Telephone</b>	: <b>+61 07 33527300</b>	<b>Telephone</b>	: <b>+61-2-8784 8555</b>
<b>Facsimile</b>	: <b>----</b>	<b>Facsimile</b>	: <b>+61-2-8784 8500</b>
<b>Project</b>	: <b>11-719</b>	<b>Quote number</b>	: <b>BN/299/10</b>
<b>Order number</b>	: <b>----</b>	<b>Date Samples Received</b>	: <b>17-JUN-2011</b>
<b>No. of samples received</b>	: <b>17</b>	<b>Issue Date</b>	: <b>27-JUN-2011</b>
<b>No. of samples analysed</b>	: <b>17</b>		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory  
825/14610

This document is issued in  
accordance with NATA  
accreditation requirements.

Accredited for compliance with  
ISO/IEC 17025.

**Signatories**

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Spectroscopist	Sydney Inorganics
Edwandy Fadjar	Senior Organic Chemist	Sydney Organics
Evie.Sidarta	Inorganic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Organics Co-ordinator	Sydney Organics
Sarah Millington	Senior Inorganic Chemist	Sydney Inorganics
Wisam Marassa	Metals Coordinator	Sydney Inorganics



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**Environmental Division Sydney**

Part of the **ALS Laboratory Group**

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## **General Comments**

The analytical procedures used by the Food and Pharmaceutical Division have been developed from established internationally recognized procedures such as those published by the BP, USP, FCC and AOAC. In house developed procedures are employed in the absence of documented standards or by client request.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

- **EG-005T:LCS recovery for Chromium & Nickel falls outside ALS Dynamic Control Limit. However, they are within the acceptance criteria based on ALS DQO. No further action is required.**
- **EG020A-T: Positive results for sample ES1112949 # 014 have been confirmed by redigestion and reanalysis**
- **TDS by method EA-015 may bias high for various samples due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper. ( Confirmed by re-analysis ).**



## Analytical Results

Reporting Category: **SOIL**

		Client sample ID : <b>BH1-1</b>		
		Client sampling date / time : 15-JUN-2011 15:00		
		Client sample ID : <b>BH1-2</b>		
		Client sampling date / time : 15-JUN-2011 15:00		
		Client sample ID : <b>BH2-1</b>		
		Client sampling date / time : 15-JUN-2011 15:00		
Compound	Unit	ES1112949-001	ES1112949-002	ES1112949-003
<b>EA002 : pH (Soils)</b>				
pH Value	pH Unit	6.3	6.6	6.3
<b>EA055: Moisture Content</b>				
Moisture Content (dried @ 103°C)	%	12.9	29.3	12.6
<b>EG005T: Total Metals by ICP-AES</b>				
Arsenic	mg/kg	7	<5	<5
Cadmium	mg/kg	<1	4	<1
Chromium	mg/kg	24	8	11
Copper	mg/kg	<5	11	6
Lead	mg/kg	14	2720	44
Nickel	mg/kg	6	9	6
Zinc	mg/kg	20	1430	132
<b>EG035T: Total Recoverable Mercury by FIMS</b>				
Mercury	mg/kg	<0.1	<0.1	0.1
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>				
Naphthalene	mg/kg	----	----	<0.5
Acenaphthylene	mg/kg	----	----	<0.5
Acenaphthene	mg/kg	----	----	<0.5
Fluorene	mg/kg	----	----	<0.5
Phenanthrene	mg/kg	----	----	<0.5
Anthracene	mg/kg	----	----	<0.5
Fluoranthene	mg/kg	----	----	<0.5
Pyrene	mg/kg	----	----	<0.5
Benz(a)anthracene	mg/kg	----	----	<0.5
Chrysene	mg/kg	----	----	<0.5
Benzo(b)fluoranthene	mg/kg	----	----	<0.5
Benzo(k)fluoranthene	mg/kg	----	----	<0.5
Benzo(a)pyrene	mg/kg	----	----	<0.5
Indeno(1.2.3.cd)pyrene	mg/kg	----	----	<0.5
Dibenz(a.h)anthracene	mg/kg	----	----	<0.5
Benzo(g,h,i)perylene	mg/kg	----	----	<0.5
Sum of polycyclic aromatic hydrocarbons	mg/kg	----	----	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>				
C6 - C9 Fraction	mg/kg	----	----	<10
C10 - C14 Fraction	mg/kg	----	----	<50
C15 - C28 Fraction	mg/kg	----	----	<100
C29 - C36 Fraction	mg/kg	----	----	<100
C10 - C36 Fraction (sum)	mg/kg	----	----	<50



## Analytical Results

Reporting Category: **SOIL**

		Client sample ID :	BH1-1	BH1-2	BH2-1
		Client sampling date / time :	15-JUN-2011 15:00	15-JUN-2011 15:00	15-JUN-2011 15:00
Compound	Unit		ES1112949-001	ES1112949-002	ES1112949-003
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft</b>					
C6 - C10 Fraction	mg/kg		----	----	<10
C6 - C10 Fraction minus BTEX (F1)	mg/kg		----	----	<10
>C10 - C16 Fraction	mg/kg		----	----	<50
>C16 - C34 Fraction	mg/kg		----	----	<100
>C34 - C40 Fraction	mg/kg		----	----	<100
>C10 - C40 Fraction (sum)	mg/kg		----	----	<50
<b>EP080: BTEX</b>					
Benzene	mg/kg		----	----	<0.2
Toluene	mg/kg		----	----	<0.5
Ethylbenzene	mg/kg		----	----	<0.5
meta- & para-Xylene	mg/kg		----	----	<0.5
ortho-Xylene	mg/kg		----	----	<0.5
<b>EP080: BTEXN</b>					
Sum of BTEX	mg/kg		----	----	<0.2
Total Xylenes	mg/kg		----	----	<0.5
Naphthalene	mg/kg		----	----	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>					
Phenol-d6	%		----	----	101
2-Chlorophenol-D4	%		----	----	97.2
2,4,6-Tribromophenol	%		----	----	86.0
<b>EP075(SIM)T: PAH Surrogates</b>					
2-Fluorobiphenyl	%		----	----	103
Anthracene-d10	%		----	----	102
4-Terphenyl-d14	%		----	----	108
<b>EP080S: TPH(V)/BTEX Surrogates</b>					
1,2-Dichloroethane-D4	%		----	----	130
Toluene-D8	%		----	----	94.1
4-Bromofluorobenzene	%		----	----	91.7



## Analytical Results

Reporting Category: **SOIL**

		Client sample ID :		
		BH2-2	BH3-1	BH4-1
		Client sampling date / time :		
		15-JUN-2011 15:00	15-JUN-2011 15:00	15-JUN-2011 15:00
Compound	Unit	ES1112949-004	ES1112949-005	ES1112949-006
<b>EA002 : pH (Soils)</b>				
pH Value	pH Unit	6.5	6.8	6.6
<b>EA055: Moisture Content</b>				
Moisture Content (dried @ 103°C)	%	17.8	44.5	14.0
<b>EG005T: Total Metals by ICP-AES</b>				
Arsenic	mg/kg	<5	6	<5
Cadmium	mg/kg	<1	2	<1
Chromium	mg/kg	11	15	8
Copper	mg/kg	6	9	6
Lead	mg/kg	83	1500	25
Nickel	mg/kg	7	9	7
Zinc	mg/kg	107	817	164
<b>EG035T: Total Recoverable Mercury by FIMS</b>				
Mercury	mg/kg	<0.1	<0.1	<0.1
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>				
Naphthalene	mg/kg	<0.5	<0.5	<0.5
Acenaphthylene	mg/kg	<0.5	<0.5	<0.5
Acenaphthene	mg/kg	<0.5	<0.5	<0.5
Fluorene	mg/kg	<0.5	<0.5	<0.5
Phenanthrene	mg/kg	<0.5	<0.5	<0.5
Anthracene	mg/kg	<0.5	<0.5	<0.5
Fluoranthene	mg/kg	<0.5	<0.5	<0.5
Pyrene	mg/kg	<0.5	<0.5	<0.5
Benz(a)anthracene	mg/kg	<0.5	<0.5	<0.5
Chrysene	mg/kg	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	mg/kg	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene	mg/kg	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	mg/kg	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	mg/kg	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	mg/kg	<0.5	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	mg/kg	<0.5	<0.5	<0.5
<b>EP080/071: Total Petroleum Hydrocarbons</b>				
C6 - C9 Fraction	mg/kg	<10	<10	<10
C10 - C14 Fraction	mg/kg	<50	<50	<50
C15 - C28 Fraction	mg/kg	470	750	250
C29 - C36 Fraction	mg/kg	140	420	<100
C10 - C36 Fraction (sum)	mg/kg	610	1170	250





## Analytical Results

Reporting Category: **SOIL**

Client sample ID :

Client sampling date / time :

Compound	Unit	BH2-2	BH3-1	BH4-1
		15-JUN-2011 15:00	15-JUN-2011 15:00	15-JUN-2011 15:00
		ES1112949-004	ES1112949-005	ES1112949-006
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft</b>				
C6 - C10 Fraction	mg/kg	<10	<10	<10
C6 - C10 Fraction minus BTEX (F1)	mg/kg	<10	<10	<10
>C10 - C16 Fraction	mg/kg	<50	70	<50
>C16 - C34 Fraction	mg/kg	520	960	280
>C34 - C40 Fraction	mg/kg	130	380	<100
>C10 - C40 Fraction (sum)	mg/kg	650	1410	280
<b>EP080: BTEX</b>				
Benzene	mg/kg	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<0.5	<0.5	<0.5
meta- & para-Xylene	mg/kg	<0.5	<0.5	<0.5
ortho-Xylene	mg/kg	<0.5	<0.5	<0.5
<b>EP080: BTEXN</b>				
Sum of BTEX	mg/kg	<0.2	<0.2	<0.2
Total Xylenes	mg/kg	<0.5	<0.5	<0.5
Naphthalene	mg/kg	<1	<1	<1
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>				
Phenol-d6	%	103	99.3	112
2-Chlorophenol-D4	%	99.3	96.4	107
2,4,6-Tribromophenol	%	92.7	89.0	98.5
<b>EP075(SIM)T: PAH Surrogates</b>				
2-Fluorobiphenyl	%	104	100	110
Anthracene-d10	%	108	101	114
4-Terphenyl-d14	%	112	104	117
<b>EP080S: TPH(V)/BTEX Surrogates</b>				
1,2-Dichloroethane-D4	%	114	103	125
Toluene-D8	%	92.1	97.6	112
4-Bromofluorobenzene	%	88.3	84.8	105



## Analytical Results

Reporting Category: **SOIL**

		Client sample ID : <b>BH5-1</b>		
		Client sampling date / time : 15-JUN-2011 15:00		
		Client sample ID : <b>BH6-1</b>		
		Client sampling date / time : 15-JUN-2011 15:00		
		Client sample ID : <b>BH7-1</b>		
		Client sampling date / time : 15-JUN-2011 15:00		
Compound	Unit	ES1112949-007	ES1112949-008	ES1112949-009
<b>EA002 : pH (Soils)</b>				
pH Value	pH Unit	6.2	6.0	6.1
<b>EA055: Moisture Content</b>				
Moisture Content (dried @ 103°C)	%	13.4	18.9	11.7
<b>EG005T: Total Metals by ICP-AES</b>				
Arsenic	mg/kg	<5	<5	<5
Cadmium	mg/kg	<1	<1	<1
Chromium	mg/kg	12	26	10
Copper	mg/kg	5	<5	<5
Lead	mg/kg	14	11	6
Nickel	mg/kg	6	4	4
Zinc	mg/kg	55	8	6
<b>EG035T: Total Recoverable Mercury by FIMS</b>				
Mercury	mg/kg	<0.1	<0.1	<0.1
<b>EP068A: Organochlorine Pesticides (OC)</b>				
alpha-BHC	mg/kg	----	<0.05	<0.05
Hexachlorobenzene (HCB)	mg/kg	----	<0.05	<0.05
beta-BHC	mg/kg	----	<0.05	<0.05
gamma-BHC	mg/kg	----	<0.05	<0.05
delta-BHC	mg/kg	----	<0.05	<0.05
Heptachlor	mg/kg	----	<0.05	<0.05
Aldrin	mg/kg	----	<0.05	<0.05
Heptachlor epoxide	mg/kg	----	<0.05	<0.05
trans-Chlordane	mg/kg	----	<0.05	<0.05
alpha-Endosulfan	mg/kg	----	<0.05	<0.05
cis-Chlordane	mg/kg	----	<0.05	<0.05
Dieldrin	mg/kg	----	<0.05	<0.05
4,4'-DDE	mg/kg	----	<0.05	<0.05
Endrin	mg/kg	----	<0.05	<0.05
beta-Endosulfan	mg/kg	----	<0.05	<0.05
4,4'-DDD	mg/kg	----	<0.05	<0.05
Endrin aldehyde	mg/kg	----	<0.05	<0.05
Endosulfan sulfate	mg/kg	----	<0.05	<0.05
4,4'-DDT	mg/kg	----	<0.2	<0.2
Endrin ketone	mg/kg	----	<0.05	<0.05
Methoxychlor	mg/kg	----	<0.2	<0.2
<b>EP068B: Organophosphorus Pesticides (OP)</b>				
Dichlorvos	mg/kg	----	<0.05	<0.05



## Analytical Results

Reporting Category: **SOIL**

		Client sample ID :	BH5-1	BH6-1	BH7-1
		Client sampling date / time :	15-JUN-2011 15:00	15-JUN-2011 15:00	15-JUN-2011 15:00
Compound	Unit		ES1112949-007	ES1112949-008	ES1112949-009
<b>EP068B: Organophosphorus Pesticides (OP)</b>					
Demeton-S-methyl	mg/kg		----	<0.05	<0.05
Monocrotophos	mg/kg		----	<0.2	<0.2
Dimethoate	mg/kg		----	<0.05	<0.05
Diazinon	mg/kg		----	<0.05	<0.05
Chlorpyrifos-methyl	mg/kg		----	<0.05	<0.05
Parathion-methyl	mg/kg		----	<0.2	<0.2
Malathion	mg/kg		----	<0.05	<0.05
Fenthion	mg/kg		----	<0.05	<0.05
Chlorpyrifos	mg/kg		----	<0.05	<0.05
Parathion	mg/kg		----	<0.2	<0.2
Pirimphos-ethyl	mg/kg		----	<0.05	<0.05
Chlorfenvinphos	mg/kg		----	<0.05	<0.05
Bromophos-ethyl	mg/kg		----	<0.05	<0.05
Fenamiphos	mg/kg		----	<0.05	<0.05
Prothiofos	mg/kg		----	<0.05	<0.05
Ethion	mg/kg		----	<0.05	<0.05
Carbophenothion	mg/kg		----	<0.05	<0.05
Azinphos Methyl	mg/kg		----	<0.05	<0.05
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>					
Naphthalene	mg/kg		<0.5	<0.5	----
Acenaphthylene	mg/kg		<0.5	<0.5	----
Acenaphthene	mg/kg		<0.5	<0.5	----
Fluorene	mg/kg		<0.5	<0.5	----
Phenanthrene	mg/kg		<0.5	<0.5	----
Anthracene	mg/kg		<0.5	<0.5	----
Fluoranthene	mg/kg		<0.5	<0.5	----
Pyrene	mg/kg		<0.5	<0.5	----
Benz(a)anthracene	mg/kg		<0.5	<0.5	----
Chrysene	mg/kg		<0.5	<0.5	----
Benzo(b)fluoranthene	mg/kg		<0.5	<0.5	----
Benzo(k)fluoranthene	mg/kg		<0.5	<0.5	----
Benzo(a)pyrene	mg/kg		<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	mg/kg		<0.5	<0.5	----
Dibenz(a.h)anthracene	mg/kg		<0.5	<0.5	----
Benzo(g.h.i)perylene	mg/kg		<0.5	<0.5	----
Sum of polycyclic aromatic hydrocarbons	mg/kg		<0.5	<0.5	----



## Analytical Results

Reporting Category: **SOIL**

Client sample ID :  
 Client sampling date / time :

Compound	Unit	BH5-1	BH6-1	BH7-1
		15-JUN-2011 15:00	15-JUN-2011 15:00	15-JUN-2011 15:00
		ES1112949-007	ES1112949-008	ES1112949-009
<b>EP080/071: Total Petroleum Hydrocarbons</b>				
C6 - C9 Fraction	mg/kg	<10	<10	----
C10 - C14 Fraction	mg/kg	<50	<50	----
C15 - C28 Fraction	mg/kg	<100	180	----
C29 - C36 Fraction	mg/kg	<100	<100	----
C10 - C36 Fraction (sum)	mg/kg	<50	180	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft</b>				
C6 - C10 Fraction	mg/kg	<10	<10	----
C6 - C10 Fraction minus BTEX (F1)	mg/kg	<10	<10	----
>C10 - C16 Fraction	mg/kg	<50	<50	----
>C16 - C34 Fraction	mg/kg	<100	190	----
>C34 - C40 Fraction	mg/kg	<100	<100	----
>C10 - C40 Fraction (sum)	mg/kg	<50	190	----
<b>EP080: BTEX</b>				
Benzene	mg/kg	<0.2	<0.2	----
Toluene	mg/kg	<0.5	<0.5	----
Ethylbenzene	mg/kg	<0.5	<0.5	----
meta- & para-Xylene	mg/kg	<0.5	<0.5	----
ortho-Xylene	mg/kg	<0.5	<0.5	----
<b>EP080: BTEXN</b>				
Sum of BTEX	mg/kg	<0.2	<0.2	----
Total Xylenes	mg/kg	<0.5	<0.5	----
Naphthalene	mg/kg	<1	<1	----
<b>EP068S: Organochlorine Pesticide Surrogate</b>				
Dibromo-DDE	%	----	87.7	91.0
<b>EP068T: Organophosphorus Pesticide Surrogate</b>				
DEF	%	----	103	88.5
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>				
Phenol-d6	%	104	94.4	----
2-Chlorophenol-D4	%	98.3	89.8	----
2,4,6-Tribromophenol	%	92.0	84.2	----
<b>EP075(SIM)T: PAH Surrogates</b>				
2-Fluorobiphenyl	%	104	98.9	----
Anthracene-d10	%	104	99.2	----
4-Terphenyl-d14	%	110	104	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>				
1,2-Dichloroethane-D4	%	125	121	----



### Analytical Results

Reporting Category: **SOIL**

		Client sample ID :	BH5-1	BH6-1	BH7-1
		Client sampling date / time :	15-JUN-2011 15:00	15-JUN-2011 15:00	15-JUN-2011 15:00
Compound	Unit		ES1112949-007	ES1112949-008	ES1112949-009
<b>EP080S: TPH(V)/BTEX Surrogates</b>					
Toluene-D8	%		103	88.5	----
4-Bromofluorobenzene	%		99.2	91.7	----



## Analytical Results

Reporting Category: **SOIL**

		Client sample ID : <b>BH8-1</b>		
		Client sampling date / time : 15-JUN-2011 15:00		
		<b>BH8-1D</b>	<b>BH8-1D</b>	<b>BH9-1</b>
		15-JUN-2011 15:00		
Compound	Unit	ES1112949-010	ES1112949-011	ES1112949-012
<b>EA002 : pH (Soils)</b>				
pH Value	pH Unit	6.4	6.4	9.8
<b>EA055: Moisture Content</b>				
Moisture Content (dried @ 103°C)	%	22.1	20.2	20.7
<b>EG005T: Total Metals by ICP-AES</b>				
Arsenic	mg/kg	<5	<5	<5
Cadmium	mg/kg	<1	<1	<1
Chromium	mg/kg	19	18	10
Copper	mg/kg	5	<5	6
Lead	mg/kg	25	20	16
Nickel	mg/kg	7	7	7
Zinc	mg/kg	12	13	12
<b>EG035T: Total Recoverable Mercury by FIMS</b>				
Mercury	mg/kg	<0.1	<0.1	<0.1
<b>EP068A: Organochlorine Pesticides (OC)</b>				
alpha-BHC	mg/kg	----	----	<0.05
Hexachlorobenzene (HCB)	mg/kg	----	----	<0.05
beta-BHC	mg/kg	----	----	<0.05
gamma-BHC	mg/kg	----	----	<0.05
delta-BHC	mg/kg	----	----	<0.05
Heptachlor	mg/kg	----	----	<0.05
Aldrin	mg/kg	----	----	<0.05
Heptachlor epoxide	mg/kg	----	----	<0.05
trans-Chlordane	mg/kg	----	----	<0.05
alpha-Endosulfan	mg/kg	----	----	<0.05
cis-Chlordane	mg/kg	----	----	<0.05
Dieldrin	mg/kg	----	----	<0.05
4,4'-DDE	mg/kg	----	----	<0.05
Endrin	mg/kg	----	----	<0.05
beta-Endosulfan	mg/kg	----	----	<0.05
4,4'-DDD	mg/kg	----	----	<0.05
Endrin aldehyde	mg/kg	----	----	<0.05
Endosulfan sulfate	mg/kg	----	----	<0.05
4,4'-DDT	mg/kg	----	----	<0.2
Endrin ketone	mg/kg	----	----	<0.05
Methoxychlor	mg/kg	----	----	<0.2
<b>EP068B: Organophosphorus Pesticides (OP)</b>				
Dichlorvos	mg/kg	----	----	<0.05



## Analytical Results

Reporting Category: **SOIL**

		Client sample ID :	BH8-1	BH8-1D	BH9-1
		Client sampling date / time :	15-JUN-2011 15:00	15-JUN-2011 15:00	15-JUN-2011 15:00
Compound	Unit		ES1112949-010	ES1112949-011	ES1112949-012
<b>EP068B: Organophosphorus Pesticides (OP)</b>					
Demeton-S-methyl	mg/kg		----	----	<0.05
Monocrotophos	mg/kg		----	----	<0.2
Dimethoate	mg/kg		----	----	<0.05
Diazinon	mg/kg		----	----	<0.05
Chlorpyrifos-methyl	mg/kg		----	----	<0.05
Parathion-methyl	mg/kg		----	----	<0.2
Malathion	mg/kg		----	----	<0.05
Fenthion	mg/kg		----	----	<0.05
Chlorpyrifos	mg/kg		----	----	<0.05
Parathion	mg/kg		----	----	<0.2
Pirimphos-ethyl	mg/kg		----	----	<0.05
Chlorfenvinphos	mg/kg		----	----	<0.05
Bromophos-ethyl	mg/kg		----	----	<0.05
Fenamiphos	mg/kg		----	----	<0.05
Prothiofos	mg/kg		----	----	<0.05
Ethion	mg/kg		----	----	<0.05
Carbophenothion	mg/kg		----	----	<0.05
Azinphos Methyl	mg/kg		----	----	<0.05
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>					
Naphthalene	mg/kg		<0.5	<0.5	----
Acenaphthylene	mg/kg		<0.5	<0.5	----
Acenaphthene	mg/kg		<0.5	<0.5	----
Fluorene	mg/kg		<0.5	<0.5	----
Phenanthrene	mg/kg		<0.5	<0.5	----
Anthracene	mg/kg		<0.5	<0.5	----
Fluoranthene	mg/kg		<0.5	<0.5	----
Pyrene	mg/kg		<0.5	<0.5	----
Benz(a)anthracene	mg/kg		<0.5	<0.5	----
Chrysene	mg/kg		<0.5	<0.5	----
Benzo(b)fluoranthene	mg/kg		<0.5	<0.5	----
Benzo(k)fluoranthene	mg/kg		<0.5	<0.5	----
Benzo(a)pyrene	mg/kg		<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	mg/kg		<0.5	<0.5	----
Dibenz(a.h)anthracene	mg/kg		<0.5	<0.5	----
Benzo(g.h.i)perylene	mg/kg		<0.5	<0.5	----
Sum of polycyclic aromatic hydrocarbons	mg/kg		<0.5	<0.5	----



## Analytical Results

Reporting Category: **SOIL**

Client sample ID :  
 Client sampling date / time :

Compound	Unit	BH8-1	BH8-1D	BH9-1
		15-JUN-2011 15:00	15-JUN-2011 15:00	15-JUN-2011 15:00
		ES1112949-010	ES1112949-011	ES1112949-012
<b>EP080/071: Total Petroleum Hydrocarbons</b>				
C6 - C9 Fraction	mg/kg	<10	<10	----
C10 - C14 Fraction	mg/kg	<50	<50	----
C15 - C28 Fraction	mg/kg	200	120	----
C29 - C36 Fraction	mg/kg	<100	<100	----
C10 - C36 Fraction (sum)	mg/kg	200	120	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft</b>				
C6 - C10 Fraction	mg/kg	<10	<10	----
C6 - C10 Fraction minus BTEX (F1)	mg/kg	<10	<10	----
>C10 - C16 Fraction	mg/kg	<50	<50	----
>C16 - C34 Fraction	mg/kg	210	140	----
>C34 - C40 Fraction	mg/kg	<100	<100	----
>C10 - C40 Fraction (sum)	mg/kg	210	140	----
<b>EP080: BTEX</b>				
Benzene	mg/kg	<0.2	<0.2	----
Toluene	mg/kg	<0.5	<0.5	----
Ethylbenzene	mg/kg	<0.5	<0.5	----
meta- & para-Xylene	mg/kg	<0.5	<0.5	----
ortho-Xylene	mg/kg	<0.5	<0.5	----
<b>EP080: BTEXN</b>				
Sum of BTEX	mg/kg	<0.2	<0.2	----
Total Xylenes	mg/kg	<0.5	<0.5	----
Naphthalene	mg/kg	<1	<1	----
<b>EP068S: Organochlorine Pesticide Surrogate</b>				
Dibromo-DDE	%	----	----	96.8
<b>EP068T: Organophosphorus Pesticide Surrogate</b>				
DEF	%	----	----	106
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>				
Phenol-d6	%	101	99.1	----
2-Chlorophenol-D4	%	96.8	93.8	----
2,4,6-Tribromophenol	%	88.9	92.1	----
<b>EP075(SIM)T: PAH Surrogates</b>				
2-Fluorobiphenyl	%	101	100	----
Anthracene-d10	%	104	105	----
4-Terphenyl-d14	%	108	111	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>				
1,2-Dichloroethane-D4	%	119	121	----





### Analytical Results

Reporting Category: **SOIL**

		Client sample ID :	BH8-1	BH8-1D	BH9-1
		Client sampling date / time :	15-JUN-2011 15:00	15-JUN-2011 15:00	15-JUN-2011 15:00
Compound	Unit		ES1112949-010	ES1112949-011	ES1112949-012
<b>EP080S: TPH(V)/BTEX Surrogates</b>					
Toluene-D8	%		93.2	98.6	----
4-Bromofluorobenzene	%		95.0	93.1	----



## Analytical Results

Reporting Category: **SOIL**

Client sample ID : **BH10-1**  
 Client sampling date / time : 15-JUN-2011 15:00

Compound	Unit	ES1112949-013		
<b>EA002 : pH (Soils)</b>				
pH Value	pH Unit	5.8		
<b>EA055: Moisture Content</b>				
Moisture Content (dried @ 103°C)	%	12.8		
<b>EG005T: Total Metals by ICP-AES</b>				
Arsenic	mg/kg	<5		
Cadmium	mg/kg	<1		
Chromium	mg/kg	10		
Copper	mg/kg	<5		
Lead	mg/kg	8		
Nickel	mg/kg	5		
Zinc	mg/kg	9		
<b>EG035T: Total Recoverable Mercury by FIMS</b>				
Mercury	mg/kg	<0.1		
<b>EP068A: Organochlorine Pesticides (OC)</b>				
alpha-BHC	mg/kg	<0.05		
Hexachlorobenzene (HCB)	mg/kg	<0.05		
beta-BHC	mg/kg	<0.05		
gamma-BHC	mg/kg	<0.05		
delta-BHC	mg/kg	<0.05		
Heptachlor	mg/kg	<0.05		
Aldrin	mg/kg	<0.05		
Heptachlor epoxide	mg/kg	<0.05		
trans-Chlordane	mg/kg	<0.05		
alpha-Endosulfan	mg/kg	<0.05		
cis-Chlordane	mg/kg	<0.05		
Dieldrin	mg/kg	<0.05		
4,4'-DDE	mg/kg	<0.05		
Endrin	mg/kg	<0.05		
beta-Endosulfan	mg/kg	<0.05		
4,4'-DDD	mg/kg	<0.05		
Endrin aldehyde	mg/kg	<0.05		
Endosulfan sulfate	mg/kg	<0.05		
4,4'-DDT	mg/kg	<0.2		
Endrin ketone	mg/kg	<0.05		
Methoxychlor	mg/kg	<0.2		
<b>EP068B: Organophosphorus Pesticides (OP)</b>				
Dichlorvos	mg/kg	<0.05		



**Analytical Results**

Reporting Category: **SOIL**

Client sample ID :

**BH10-1**

Client sampling date / time :

15-JUN-2011 15:00

Compound	Unit	ES1112949-013		
<b>EP068B: Organophosphorus Pesticides (OP)</b>				
Demeton-S-methyl	mg/kg	<0.05		
Monocrotophos	mg/kg	<0.2		
Dimethoate	mg/kg	<0.05		
Diazinon	mg/kg	<0.05		
Chlorpyrifos-methyl	mg/kg	<0.05		
Parathion-methyl	mg/kg	<0.2		
Malathion	mg/kg	<0.05		
Fenthion	mg/kg	<0.05		
Chlorpyrifos	mg/kg	<0.05		
Parathion	mg/kg	<0.2		
Pirimphos-ethyl	mg/kg	<0.05		
Chlorfenvinphos	mg/kg	<0.05		
Bromophos-ethyl	mg/kg	<0.05		
Fenamiphos	mg/kg	<0.05		
Prothiofos	mg/kg	<0.05		
Ethion	mg/kg	<0.05		
Carbophenothion	mg/kg	<0.05		
Azinphos Methyl	mg/kg	<0.05		
<b>EP068S: Organochlorine Pesticide Surrogate</b>				
Dibromo-DDE	%	<b>91.6</b>		
<b>EP068T: Organophosphorus Pesticide Surrogate</b>				
DEF	%	<b>79.0</b>		



## Analytical Results

Reporting Category: **WATER**

		Client sample ID :	R1	D1	D2
		Client sampling date / time :	15-JUN-2011 15:00	15-JUN-2011 15:00	15-JUN-2011 15:00
Compound	Unit		ES1112949-014	ES1112949-015	ES1112949-016
<b>EA005: pH</b>					
pH Value	pH Unit		----	7.15	7.42
<b>EA010P: Conductivity by PC Titrator</b>					
Electrical Conductivity @ 25°C	µS/cm		----	158	221
<b>EA015: Total Dissolved Solids</b>					
Total Dissolved Solids @180°C	mg/L		----	564	371
<b>EG020T: Total Metals by ICP-MS</b>					
Arsenic	mg/L		<0.001	0.002	0.006
Cadmium	mg/L		<0.0001	<0.0001	<0.0001
Chromium	mg/L		<0.001	0.004	0.007
Copper	mg/L		<b>0.001</b>	<b>0.006</b>	<b>0.006</b>
Nickel	mg/L		<0.001	0.005	0.011
Lead	mg/L		<0.001	0.004	0.006
Zinc	mg/L		<0.005	0.012	0.021
<b>EG035T: Total Recoverable Mercury by FIMS</b>					
Mercury	mg/L		<0.0001	<0.0001	<0.0001
<b>EP025: Oxygen - Dissolved (DO)</b>					
Dissolved Oxygen	mg/L		----	7.2	8.0
<b>EP068A: Organochlorine Pesticides (OC)</b>					
alpha-BHC	µg/L		----	----	<0.5
Hexachlorobenzene (HCB)	µg/L		----	----	<0.5
beta-BHC	µg/L		----	----	<0.5
gamma-BHC	µg/L		----	----	<0.5
delta-BHC	µg/L		----	----	<0.5
Heptachlor	µg/L		----	----	<0.5
Aldrin	µg/L		----	----	<0.5
Heptachlor epoxide	µg/L		----	----	<0.5
trans-Chlordane	µg/L		----	----	<0.5
alpha-Endosulfan	µg/L		----	----	<0.5
cis-Chlordane	µg/L		----	----	<0.5
Dieldrin	µg/L		----	----	<0.5
4,4'-DDE	µg/L		----	----	<0.5
Endrin	µg/L		----	----	<0.5
beta-Endosulfan	µg/L		----	----	<0.5
4,4'-DDD	µg/L		----	----	<0.5
Endrin aldehyde	µg/L		----	----	<0.5
Endosulfan sulfate	µg/L		----	----	<0.5
4,4'-DDT	µg/L		----	----	<2



## Analytical Results

Reporting Category: **WATER**

		Client sample ID :	R1	D1	D2
		Client sampling date / time :	15-JUN-2011 15:00	15-JUN-2011 15:00	15-JUN-2011 15:00
Compound	Unit		ES1112949-014	ES1112949-015	ES1112949-016
<b>EP068A: Organochlorine Pesticides (OC)</b>					
Endrin ketone	µg/L		----	----	<0.5
Methoxychlor	µg/L		----	----	<2
<b>EP068B: Organophosphorus Pesticides (OP)</b>					
Dichlorvos	µg/L		----	----	<0.5
Demeton-S-methyl	µg/L		----	----	<0.5
Monocrotophos	µg/L		----	----	<2
Dimethoate	µg/L		----	----	<0.5
Diazinon	µg/L		----	----	<0.5
Chlorpyrifos-methyl	µg/L		----	----	<0.5
Parathion-methyl	µg/L		----	----	<2
Malathion	µg/L		----	----	<0.5
Fenthion	µg/L		----	----	<0.5
Chlorpyrifos	µg/L		----	----	<0.5
Parathion	µg/L		----	----	<2
Pirimphos-ethyl	µg/L		----	----	<0.5
Chlorfenvinphos	µg/L		----	----	<0.5
Bromophos-ethyl	µg/L		----	----	<0.5
Fenamiphos	µg/L		----	----	<0.5
Prothiofos	µg/L		----	----	<0.5
Ethion	µg/L		----	----	<0.5
Carbophenothion	µg/L		----	----	<0.5
Azinphos Methyl	µg/L		----	----	<0.5
<b>EP068S: Organochlorine Pesticide Surrogate</b>					
Dibromo-DDE	%		----	----	89.6
<b>EP068T: Organophosphorus Pesticide Surrogate</b>					
DEF	%		----	----	105



## Analytical Results

Reporting Category: **WATER**

Client sample ID : **D3**  
 Client sampling date / time : 15-JUN-2011 15:00

Compound	Unit	ES1112949-017		
<b>EA005: pH</b>				
pH Value	pH Unit	7.98		
<b>EA010P: Conductivity by PC Titrator</b>				
Electrical Conductivity @ 25°C	µS/cm	334		
<b>EA015: Total Dissolved Solids</b>				
Total Dissolved Solids @180°C	mg/L	1420		
<b>EG020T: Total Metals by ICP-MS</b>				
Arsenic	mg/L	0.010		
Cadmium	mg/L	<0.0001		
Chromium	mg/L	0.016		
Copper	mg/L	0.009		
Nickel	mg/L	0.018		
Lead	mg/L	0.012		
Zinc	mg/L	0.035		
<b>EG035T: Total Recoverable Mercury by FIMS</b>				
Mercury	mg/L	<0.0001		
<b>EP025: Oxygen - Dissolved (DO)</b>				
Dissolved Oxygen	mg/L	9.0		



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP068S: Organochlorine Pesticide Surrogate</b>			
Dibromo-DDE	21655-73-2	19.5	167.0
<b>EP068T: Organophosphorus Pesticide Surrogate</b>			
DEF	78-48-8	22.7	163.5
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	56.3	133.3
2-Chlorophenol-D4	93951-73-6	53.8	133.8
2,4,6-Tribromophenol	118-79-6	23.1	134.9
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	58.9	132.7
Anthracene-d10	1719-06-8	55.0	137.6
4-Terphenyl-d14	1718-51-0	54.0	147.8
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0
Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP068S: Organochlorine Pesticide Surrogate</b>			
Dibromo-DDE	21655-73-2	33.6	142.5
<b>EP068T: Organophosphorus Pesticide Surrogate</b>			
DEF	78-48-8	28.1	147.7



Environmental Division

**QUALITY CONTROL REPORT**

<b>Work Order</b>	<b>: ES1112949</b>	<b>Page</b>	: 1 of 14
<b>Client</b>	<b>: LLOYD CONSULTING</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	<b>: TREVOR LLOYD</b>	<b>Contact</b>	: Client Services
<b>Address</b>	<b>: PO BOX 320 WILSTON QLD, AUSTRALIA 4057</b>	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	<b>: trevor@lloydconsulting.com.au</b>	<b>E-mail</b>	: sydney@alsglobal.com
<b>Telephone</b>	<b>: +61 07 33527300</b>	<b>Telephone</b>	: +61-2-8784 8555
<b>Facsimile</b>	<b>: ----</b>	<b>Facsimile</b>	: +61-2-8784 8500
<b>Project</b>	<b>: 11-719</b>	<b>QC Level</b>	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	<b>: ----</b>	<b>Date Samples Received</b>	: 17-JUN-2011
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	: 27-JUN-2011
<b>Sampler</b>	<b>: ----</b>	<b>No. of samples received</b>	: 17
<b>Order number</b>	<b>: ----</b>	<b>No. of samples analysed</b>	: 17
<b>Quote number</b>	<b>: BN/299/10</b>		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

**Signatories**

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ashesh Patel	Inorganic Chemist	Sydney Inorganics
Celine Conceicao	Spectroscopist	Sydney Inorganics
Edwandy Fadjar	Senior Organic Chemist	Sydney Organics
Evie.Sidarta	Inorganic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Organics Co-ordinator	Sydney Organics
Sarah Millington	Senior Inorganic Chemist	Sydney Inorganics
Wisam Marassa	Metals Coordinator	Sydney Inorganics





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### **General Comments**

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

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :            Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
                  CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
                  LOR = Limit of reporting  
                  RPD = Relative Percentage Difference  
                  # = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA055: Moisture Content (QC Lot: 1838257)</b>									
EP1103778-046	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	19.2	13.8	32.6	0% - 50%
EP1103812-007	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	15.6	16.2	3.8	0% - 50%
<b>EA055: Moisture Content (QC Lot: 1838258)</b>									
ES1112949-008	BH6-1	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	18.9	19.8	4.6	0% - 50%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 1838834)</b>									
ES1112803-008	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
ES1112949-003	BH2-1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	11	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	6	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	44	45	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	132	121	8.5	0% - 20%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 1838836)</b>									
ES1112964-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	17	18	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	19	18	7.9	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	34	30	11.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	159	143	10.5	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	883	848	4.1	0% - 20%
ES1112964-010	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	31	21	38.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	13	6	79.3	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	15	11	35.1	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	6	5	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1838835)</b>									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1838835) - continued</b>									
ES1112803-008	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1112949-003	BH2-1	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	0.1	0.0	No Limit
<b>EP068A: Organochlorine Pesticides (OC) (QC Lot: 1839308)</b>									
ES1112911-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
<b>EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1839308)</b>									
ES1112911-001	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1839308) - continued</b>									
ES1112911-001	Anonymous	EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1836685)</b>									
ES1112911-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES1112949-008	BH6-1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1836606)</b>									



Sub-Matrix: <b>SOIL</b>				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1836606) - continued</b>										
ES1112549-072	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1112959-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1836684)</b>										
ES1112911-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
ES1112949-008	BH6-1	EP071: C15 - C28 Fraction	----	100	mg/kg	180	150	13.5	No Limit	
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 1836606)</b>										
ES1112549-072	Anonymous	EP080: C6 - C10 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
ES1112959-002	Anonymous	EP080: C6 - C10 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 1836684)</b>										
ES1112911-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
ES1112949-008	BH6-1	EP071: >C16 - C34 Fraction	----	100	mg/kg	190	160	15.4	No Limit	
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit	
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 1836606)</b>										
ES1112549-072	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
ES1112959-002	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit			

Sub-Matrix: <b>WATER</b>				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA005: pH (QC Lot: 1835362)</b>									
ES1112947-007	Anonymous	EA005: pH Value	----	0.01	pH Unit	6.07	6.05	0.3	0% - 20%
ES1112949-017	D3	EA005: pH Value	----	0.01	pH Unit	7.98	8.02	0.5	0% - 20%



Sub-Matrix: **WATER**

Laboratory Duplicate (DUP) Report

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA010P: Conductivity by PC Titrator (QC Lot: 1836984)</b>									
ES1112896-004	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	86	84	2.1	0% - 20%
ES1112949-017	D3	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	334	326	2.2	0% - 20%
<b>EA015: Total Dissolved Solids (QC Lot: 1836605)</b>									
ES1112628-012	Anonymous	EA015H: Total Dissolved Solids @180°C	GIS-210-010	5	mg/L	500	600	18.2	0% - 20%
ES1112868-002	Anonymous	EA015H: Total Dissolved Solids @180°C	GIS-210-010	5	mg/L	644	696	7.8	0% - 20%
<b>EA015: Total Dissolved Solids (QC Lot: 1840684)</b>									
ES1112949-016	D2	EA015H: Total Dissolved Solids @180°C	GIS-210-010	5	mg/L	371	380	2.4	0% - 20%
<b>EG020T: Total Metals by ICP-MS (QC Lot: 1838025)</b>									
ES1112864-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.045	0.045	0.0	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.004	0.003	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.092	0.096	4.2	0% - 50%
ES1113012-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1842193)</b>									
ES1112777-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	0.0002	0.0006	84.3	No Limit
ES1113087-010	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	1.29	1.29	0.3	0% - 20%



## Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 1838834)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	13.11 mg/kg	127	70	130	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	2.76 mg/kg	89.5	83.3	111	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	60.93 mg/kg	# 123	89.2	117	
EG005T: Copper	7440-50-8	5	mg/kg	<5	54.68 mg/kg	109	90.1	114	
EG005T: Lead	7439-92-1	5	mg/kg	<5	54.76 mg/kg	110	85.2	111	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.23 mg/kg	# 124	88.3	116	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	103.88 mg/kg	108	88.9	112	
<b>EG005T: Total Metals by ICP-AES (QCLot: 1838836)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	13.11 mg/kg	126	70	130	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	2.76 mg/kg	94.9	83.3	111	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	60.93 mg/kg	# 121	89.2	117	
EG005T: Copper	7440-50-8	5	mg/kg	<5	54.68 mg/kg	112	90.1	114	
EG005T: Lead	7439-92-1	5	mg/kg	<5	54.76 mg/kg	111	85.2	111	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.23 mg/kg	# 121	88.3	116	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	103.88 mg/kg	109	88.9	112	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 1838835)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	1.4 mg/kg	90.6	67	118	
<b>EP068A: Organochlorine Pesticides (OC) (QCLot: 1839308)</b>									
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	87.7	60.8	116	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	99.2	59.4	115	
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	92.1	59.8	117	
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	89.7	59.8	118	
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	93.0	65.8	114	
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	65.6	115	
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	110	67	113	
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	94.0	65.6	113	
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	98.7	60.7	113	
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	106	65.8	116	
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	111	57.3	120	
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	110	67.4	116	
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	106	67.5	114	
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	63	121	
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	108	66.1	117	
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	65.3	116	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP068A: Organochlorine Pesticides (OC) (QCLot: 1839308) - continued</b>									
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	90.0	57.3	115	
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	109	63.6	119	
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	112	58.4	127	
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	102	63.6	117	
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	107	50.4	132	
<b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 1839308)</b>									
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	85.4	25.5	124	
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.4	10.1	159	
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	82.5	2.88	149	
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	100	48.6	126	
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	107	64.9	111	
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	101	65.1	111	
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	112	61.4	113	
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	102	60.4	127	
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	110	64.7	110	
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	110	64.2	111	
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	106	60	116	
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	110	64.8	111	
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	108	61.4	123	
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	106	64.3	114	
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	111	45.5	128	
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	107	65.4	111	
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	105	62	116	
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	97.3	59.5	119	
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	110	29.8	137	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1836685)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	4 mg/kg	106	81.9	113	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	4 mg/kg	91.1	79.6	113	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	4 mg/kg	109	81.5	112	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	4 mg/kg	110	79.9	112	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	4 mg/kg	109	79.4	114	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	4 mg/kg	108	81.1	112	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	4 mg/kg	110	78.8	113	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	4 mg/kg	110	78.9	113	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	4 mg/kg	106	77.2	112	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	4 mg/kg	103	79.8	114	
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	4 mg/kg	92.4	71.8	118	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	4 mg/kg	92.1	74.2	117	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	4 mg/kg	106	76.4	113	





Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	High
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1836685) - continued</b>									
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	4 mg/kg	97.7	71	113	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	4 mg/kg	96.1	71.7	113	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	4 mg/kg	95.3	72.4	114	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1836606)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	85.0	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1836684)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	90.0	59	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	250 mg/kg	128	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	99.0	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 1836606)</b>									
EP080: C6 - C10 Fraction	----	10	mg/kg	<10	31 mg/kg	87.4	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 1836684)</b>									
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	250 mg/kg	95.2	59	131	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	104	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	81.3	63	131	
<b>EP080: BTEXN (QCLot: 1836606)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	91.0	63	121	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	71.6	69	122	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	81.6	61	117	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	86.5	62	118	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	85.9	63	117	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	115	63	131	

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	High
<b>EA005: pH (QCLot: 1835362)</b>									
EA005: pH Value	----	0.01	pH Unit	<0.01	----	----	----	----	
<b>EA010P: Conductivity by PC Titrator (QCLot: 1836984)</b>									
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	2000 µS/cm	107	86.3	112	
<b>EA015: Total Dissolved Solids (QCLot: 1836605)</b>									
EA015H: Total Dissolved Solids @180°C	GIS-210-010	5	mg/L	<5	293 mg/L	112	70	130	
<b>EA015: Total Dissolved Solids (QCLot: 1840684)</b>									
EA015H: Total Dissolved Solids @180°C	GIS-210-010	5	mg/L	<5	293 mg/L	94.2	70	130	
<b>EG020T: Total Metals by ICP-MS (QCLot: 1838025)</b>									
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.2	85	111	



Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
Method: Compound	CAS Number	LOR	Unit		Result	Spike	Spike Recovery (%)		Recovery Limits (%)
				Concentration		LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 1838025) - continued</b>									
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.8	88	108	
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	99.8	92	114	
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	100	89	115	
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.8	91	113	
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	100	91	113	
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.6	78	116	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 1842193)</b>									
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	93.4	81	119	
<b>EP068A: Organochlorine Pesticides (OC) (QCLot: 1837320)</b>									
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	97.0	59.5	123	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	95.0	58.4	121	
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	94.7	59.3	122	
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	108	59.1	121	
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	84.9	68	116	
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	97.4	67.1	116	
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	92.9	68.5	114	
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	94.1	69.8	113	
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	93.4	68.3	112	
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	91.7	68.5	116	
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	93.5	66.5	117	
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	90.6	68.8	116	
EP068: 4,4'-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	81.6	68.9	114	
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	101	66.2	122	
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	89.3	68	117	
EP068: 4,4'-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	93.7	68.2	117	
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	92.7	66.6	117	
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	111	65.9	119	
EP068: 4,4'-DDT	50-29-3	2.0	µg/L	<2	5 µg/L	105	57.6	123	
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	104	65	118	
EP068: Methoxychlor	72-43-5	2.0	µg/L	<2	5 µg/L	104	49.6	134	
<b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 1837320)</b>									
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	85.6	56.9	128	
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	87.6	26.8	154	
EP068: Monocrotophos	6923-22-4	0.5	µg/L	----	5 µg/L	21.4	10	89.1	
		2.0	µg/L	<2	----	----	----	----	
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	101	48.6	126	
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	101	66.5	115	
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	104	69.5	112	
EP068: Parathion-methyl	298-00-0	2.0	µg/L	<2	5 µg/L	93.2	63.9	115	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 1837320) - continued</b>									
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	98.4	59.8	127	
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	96.9	69.8	114	
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	101	70	112	
EP068: Parathion	56-38-2	2.0	µg/L	<2	5 µg/L	94.1	62.5	116	
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	102	67.1	112	
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	96.3	64	127	
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	99.1	67.7	114	
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	108	50.5	129	
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	91.2	69.2	111	
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	97.5	67	116	
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	106	65	121	
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	103	45.6	138	



## Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

				Matrix Spike (MS) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)		Recovery Limits (%)		
				Concentration	MS	Low	High		
<b>EG005T: Total Metals by ICP-AES (QCLot: 1838834)</b>									
ES1112803-008	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	85.3	70	130		
		EG005T: Cadmium	7440-43-9	50 mg/kg	96.4	70	130		
		EG005T: Chromium	7440-47-3	50 mg/kg	104	70	130		
		EG005T: Copper	7440-50-8	250 mg/kg	96.8	70	130		
		EG005T: Lead	7439-92-1	250 mg/kg	96.5	70	130		
		EG005T: Nickel	7440-02-0	50 mg/kg	101	70	130		
		EG005T: Zinc	7440-66-6	250 mg/kg	94.0	70	130		
<b>EG005T: Total Metals by ICP-AES (QCLot: 1838836)</b>									
ES1112964-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	95.8	70	130		
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	70	130		
		EG005T: Chromium	7440-47-3	50 mg/kg	101	70	130		
		EG005T: Copper	7440-50-8	250 mg/kg	101	70	130		
		EG005T: Lead	7439-92-1	250 mg/kg	98.5	70	130		
		EG005T: Nickel	7440-02-0	50 mg/kg	99.6	70	130		
		EG005T: Zinc	7440-66-6	250 mg/kg	83.9	70	130		
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 1838835)</b>									
ES1112803-008	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	97.9	70	130		
<b>EP068A: Organochlorine Pesticides (OC) (QCLot: 1839308)</b>									
ES1112911-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	95.6	70	130		
		EP068: Heptachlor	76-44-8	0.5 mg/kg	98.8	70	130		
		EP068: Aldrin	309-00-2	0.5 mg/kg	95.9	70	130		
		EP068: Dieldrin	60-57-1	0.5 mg/kg	95.3	70	130		
		EP068: Endrin	72-20-8	2 mg/kg	92.4	70	130		
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	110	70	130		
<b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 1839308)</b>									
ES1112911-001	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	100	70	130		
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	104	70	130		
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	97.7	70	130		
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	95.5	70	130		
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	86.4	70	130		
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1836685)</b>									
ES1112911-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	103	70	130		
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	116	70	130		
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1836606)</b>									



Sub-Matrix: SOIL				Matrix Spike (MS) Report				
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Low	High			
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1836606) - continued</b>								
ES1112549-072	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	85.1	70	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1836684)</b>								
ES1112911-001	Anonymous	EP071: C10 - C14 Fraction	----	640 mg/kg	96.2	73	137	
		EP071: C15 - C28 Fraction	----	3140 mg/kg	107	53	131	
		EP071: C29 - C36 Fraction	----	2860 mg/kg	95.2	52	132	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 1836606)</b>								
ES1112549-072	Anonymous	EP080: C6 - C10 Fraction	----	37.5 mg/kg	80.7	70	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 1836684)</b>								
ES1112911-001	Anonymous	EP071: >C10 - C16 Fraction	----	850 mg/kg	104	73	137	
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	102	53	131	
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	84.8	52	132	
<b>EP080: BTEXN (QCLot: 1836606)</b>								
ES1112549-072	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	97.4	70	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	77.0	70	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	80.2	70	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	80.9	70	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	84.7	70	130	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	88.8	70	130	

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Low	High		
<b>EG020T: Total Metals by ICP-MS (QCLot: 1838025)</b>							
ES1112750-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	91.8	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	92.7	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	93.2	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	93.0	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	91.4	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	88.2	70	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	96.0	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 1842193)</b>							
ES1112788-001	Anonymous	EG035T: Mercury	7439-97-6	0.010 mg/L	73.6	70	130



## Environmental Division

### INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: <b>ES1112949</b>	Page	: 1 of 10
Client	: LLOYD CONSULTING	Laboratory	: Environmental Division Sydney
Contact	: TREVOR LLOYD	Contact	: Client Services
Address	: PO BOX 320 WILSTON QLD, AUSTRALIA 4057	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: trevor@lloydconsulting.com.au	E-mail	: sydney@alsglobal.com
Telephone	: +61 07 33527300	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 11-719	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 17-JUN-2011
Sampler	: ----	Issue Date	: 27-JUN-2011
Order number	: ----		
Quote number	: BN/299/10	No. of samples received	: 17
		No. of samples analysed	: 17

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

This Interpretive Quality Control Report contains the following information:

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

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## Analysis Holding Time Compliance

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non-volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA002 : pH (Soils)</b>								
<b>Soil Glass Jar - Unpreserved</b> BH1-1, BH2-1, BH3-1, BH5-1, BH7-1, BH8-1D, BH10-1	BH1-2, BH2-2, BH4-1, BH6-1, BH8-1, BH9-1	15-JUN-2011	21-JUN-2011	22-JUN-2011	✓	21-JUN-2011	21-JUN-2011	✓
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved</b> BH1-1, BH2-1, BH3-1, BH5-1, BH7-1, BH8-1D, BH10-1	BH1-2, BH2-2, BH4-1, BH6-1, BH8-1, BH9-1	15-JUN-2011	----	----	----	21-JUN-2011	29-JUN-2011	✓
<b>EG005T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved</b> BH1-1, BH2-1, BH3-1, BH5-1, BH7-1, BH8-1D, BH10-1	BH1-2, BH2-2, BH4-1, BH6-1, BH8-1, BH9-1	15-JUN-2011	21-JUN-2011	12-DEC-2011	✓	22-JUN-2011	12-DEC-2011	✓



Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved</b> BH1-1, BH2-1, BH3-1, BH5-1, BH7-1, BH8-1D, BH10-1	BH1-2, BH2-2, BH4-1, BH6-1, BH8-1, BH9-1	15-JUN-2011	21-JUN-2011	13-JUL-2011	✓	22-JUN-2011	13-JUL-2011	✓
<b>EP068A: Organochlorine Pesticides (OC)</b>								
<b>Soil Glass Jar - Unpreserved</b> BH6-1, BH9-1	BH7-1, BH10-1	15-JUN-2011	21-JUN-2011	29-JUN-2011	✓	23-JUN-2011	31-JUL-2011	✓
<b>EP068B: Organophosphorus Pesticides (OP)</b>								
<b>Soil Glass Jar - Unpreserved</b> BH6-1, BH9-1	BH7-1, BH10-1	15-JUN-2011	21-JUN-2011	29-JUN-2011	✓	23-JUN-2011	31-JUL-2011	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved</b> BH2-1, BH3-1, BH5-1, BH8-1	BH2-2, BH4-1, BH6-1, BH8-1D	15-JUN-2011	20-JUN-2011	29-JUN-2011	✓	20-JUN-2011	30-JUL-2011	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved</b> BH2-1, BH3-1, BH5-1, BH8-1	BH2-2, BH4-1, BH6-1, BH8-1D	15-JUN-2011	20-JUN-2011	29-JUN-2011	✓	20-JUN-2011	30-JUL-2011	✓
<b>Soil Glass Jar - Unpreserved</b> BH2-1, BH3-1, BH5-1, BH8-1	BH2-2, BH4-1, BH6-1, BH8-1D	15-JUN-2011	20-JUN-2011	29-JUN-2011	✓	21-JUN-2011	29-JUN-2011	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft</b>								
<b>Soil Glass Jar - Unpreserved</b> BH2-1, BH3-1, BH5-1, BH8-1	BH2-2, BH4-1, BH6-1, BH8-1D	15-JUN-2011	20-JUN-2011	29-JUN-2011	✓	20-JUN-2011	30-JUL-2011	✓
<b>Soil Glass Jar - Unpreserved</b> BH2-1, BH3-1, BH5-1, BH8-1	BH2-2, BH4-1, BH6-1, BH8-1D	15-JUN-2011	20-JUN-2011	29-JUN-2011	✓	21-JUN-2011	29-JUN-2011	✓





Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080: BTEX</b>								
<b>Soil Glass Jar - Unpreserved</b> BH2-1, BH3-1, BH5-1, BH8-1,	BH2-2, BH4-1, BH6-1, BH8-1D	15-JUN-2011	20-JUN-2011	29-JUN-2011	✓	21-JUN-2011	29-JUN-2011	✓
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved</b> BH2-1, BH3-1, BH5-1, BH8-1,	BH2-2, BH4-1, BH6-1, BH8-1D	15-JUN-2011	20-JUN-2011	29-JUN-2011	✓	21-JUN-2011	29-JUN-2011	✓

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA005: pH</b>								
<b>Clear Plastic Bottle - Natural</b> D1, D3	D2,	15-JUN-2011	----	----	----	17-JUN-2011	15-JUN-2011	*
<b>EA010P: Conductivity by PC Titrator</b>								
<b>Clear Plastic Bottle - Natural</b> D1, D3	D2,	15-JUN-2011	---	13-JUL-2011	----	23-JUN-2011	13-JUL-2011	✓
<b>EA015: Total Dissolved Solids</b>								
<b>Clear Plastic Bottle - Natural</b> D1, D3	D2,	15-JUN-2011	----	----	----	20-JUN-2011	22-JUN-2011	✓
<b>EG020T: Total Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Natural</b> R1		15-JUN-2011	21-JUN-2011	12-DEC-2011	✓	21-JUN-2011	12-DEC-2011	✓
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered</b> D1, D3	D2,	15-JUN-2011	21-JUN-2011	12-DEC-2011	✓	21-JUN-2011	12-DEC-2011	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Clear Plastic Bottle - Natural</b> R1		15-JUN-2011	----	----	----	23-JUN-2011	13-JUL-2011	✓
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered</b> D1, D3	D2,	15-JUN-2011	----	----	----	23-JUN-2011	13-JUL-2011	✓
<b>EP025: Oxygen - Dissolved (DO)</b>								
<b>Clear Plastic Bottle - Natural</b> D1, D3	D2,	15-JUN-2011	----	----	----	17-JUN-2011	15-JUN-2011	*



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP068A: Organochlorine Pesticides (OC)</b>							
<b>Amber Glass Bottle - Unpreserved</b> D2	15-JUN-2011	20-JUN-2011	22-JUN-2011	✓	21-JUN-2011	30-JUL-2011	✓
<b>EP068B: Organophosphorus Pesticides (OP)</b>							
<b>Amber Glass Bottle - Unpreserved</b> D2	15-JUN-2011	20-JUN-2011	22-JUN-2011	✓	21-JUN-2011	30-JUL-2011	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	3	26	11.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	13	15.4	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	9	11.1	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	40	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	15	13.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	19	10.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	13	7.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	9	11.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	15	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	13	7.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	9	11.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	15	6.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (SIM)	EP075(SIM)	1	13	7.7	5.0	✓	ALS QCS3 requirement
Pesticides by GCMS	EP068	1	9	11.1	5.0	✓	ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	15	6.7	5.0	✓	ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	ALS QCS3 requirement

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Conductivity by PC Titrator	EA010-P	2	10	20.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH	EA005	2	12	16.7	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	3	23	13.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	19	10.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	19	10.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							



Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Control Samples (LCS) - Continued</b>							
Conductivity by PC Titrator	EA010-P	1	10	10.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	3	33.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	2	23	8.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Conductivity by PC Titrator	EA010-P	1	10	10.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	3	33.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH	EA005	1	12	8.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	2	23	8.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Total Mercury by FIMS	EG035T	1	19	5.3	5.0	✓	ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	5.3	5.0	✓	ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (1999) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2010 Draft) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (1999) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3)
Pesticides by GCMS	EP068	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (1999) Schedule B(3) (Method 504,505)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (1999) Schedule B(3) (Method 506.1)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Method 502 and 507)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Method 501)
pH	EA005	WATER	APHA 21st ed. 4500 H+ B. pH of water samples is determined by ISE either manually or by automated pH meter. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Conductivity by PC Titrator	EA010-P	WATER	APHA 21st ed., 2510 B This procedure determines conductivity by automated ISE. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Dissolved Solids (High Level)	EA015H	WATER	APHA 21st ed., 2540C A gravimetric procedure that determines the amount of 'filterable' residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)



Analytical Methods	Method	Matrix	Method Descriptions
Oxygen - Dissolved	EP025	WATER	APHA 21st ed., 4500-O G. Dissolved Oxygen Probe. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Pesticides by GCMS	EP068	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (1999) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 500 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Laboratory Control Spike (LCS) Recoveries</b>							
EG005T: Total Metals by ICP-AES	2166659-002	----	<b>Chromium</b>	7440-47-3	123 %	89.2-117%	<b>Recovery greater than upper control limit</b>
EG005T: Total Metals by ICP-AES	2166659-032	----	<b>Chromium</b>	7440-47-3	121 %	89.2-117%	<b>Recovery greater than upper control limit</b>
EG005T: Total Metals by ICP-AES	2166659-032	----	<b>Nickel</b>	7440-02-0	121 %	88.3-116%	<b>Recovery greater than upper control limit</b>
EG005T: Total Metals by ICP-AES	2166659-002	----	<b>Nickel</b>	7440-02-0	124 %	88.3-116%	<b>Recovery greater than upper control limit</b>

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

#### Regular Sample Surrogates

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

### Outliers : Analysis Holding Time Compliance

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

Matrix: **WATER**

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis			
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue	
<b>EA005: pH</b>							
<b>Clear Plastic Bottle - Natural</b> D1, D3	D2,	----	----	----	17-JUN-2011	15-JUN-2011	<b>2</b>
<b>EP025: Oxygen - Dissolved (DO)</b>							
<b>Clear Plastic Bottle - Natural</b> D1, D3	D2,	----	----	----	17-JUN-2011	15-JUN-2011	<b>2</b>

### Outliers : Frequency of Quality Control Samples

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

- No Quality Control Sample Frequency Outliers exist.

**Chain of Custody**

<b>Laboratory Details</b>	ALS Brisbane
<b>Lab Quote Ref.</b>	28 Shand St, Stafford QLD 4053
<b>BN / 299 / 10</b>	Ph: 07 3243 7222
	Email: samples.brisbane@alsenviro.com

<b>CLIENT:</b> Lloyd Consulting	<b>TURNAROUND REQUIREMENTS :</b> <input type="checkbox"/> Standard TAT (List due date): _____		<b>FOR LABORATORY USE ONLY (Circle)</b>	
<b>OFFICE:</b> 30 Heather Street, Wilston, Q, 4051.	<input type="checkbox"/> Non Standard or urgent TAT (List due date): _____		Custody Seal Intact? Yes No N/A	
<b>PROJECT:</b>	<b>QUOTE NO.:</b>	<b>COC SEQUENCE NUMBER (Circle)</b>		Free ice / frozen ice bricks present upon receipt? Yes No N/A
<b>ORDER NUMBER:</b>		COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C	
<b>PROJECT MANAGER:</b>	<b>CONTACT PH:</b> 07 3352 7300	OF: 1 2 3 4 5 6 7	Other comment:	
<b>SAMPLER:</b>	<b>SAMPLER MOBILE:</b>	<b>RELINQUISHED BY:</b> <i>[Signature]</i>	<b>RECEIVED BY:</b> <i>[Signature]</i>	<b>RELINQUISHED BY:</b>
<b>COC emailed to ALS? ( YES / NO)</b>	<b>EDD FORMAT (or default):</b>	<b>DATE/TIME:</b> 15/7/11	<b>DATE/TIME:</b> 15/7/11	<b>RECEIVED BY:</b> David
<b>Email Reports to (PM firstname)@lloydconsulting.com.au;</b>				<b>DATE/TIME:</b> 19/7 1200
<b>Email Invoice to (as above)</b>				

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).							Additional Information
	LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	W-1 (7)	W-2 (8)	W-12	W-7	major cations	major anions	
	1	D1	15/7/11	W		1	✓				✓	✓	✓
	2	D2	15/7/11	W		1	✓				✓	✓	✓
	3	D3	14/7/11	W		1	✓				✓	✓	✓
	4	D4	15/7/11	W		1		✓	✓		✓	✓	✓
	5	D5	15/7/11	W		1		✓	✓		✓	✓	✓
	6	Q-D4	15/7/11	W		1		✓	✓		✓	✓	✓
	<b>TOTAL:</b>												

Environmental Division  
Sydney  
Work Order  
**ES1115401**



Telephone : + 61-2-8784 8555

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic  
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag





## Food/Pharmaceutical Division

### CERTIFICATE OF ANALYSIS

Work Order	: <b>ES1115401</b>	Page	: 1 of 7
Client	: <b>LLOYD CONSULTING</b>	Laboratory	: Environmental Division Sydney
Contact	: <b>TREVOR LLOYD</b>	Contact	: Client Services
Address	: <b>PO BOX 320 WILSTON QLD, AUSTRALIA 4057</b>	Address	: <b>277-289 Woodpark Road Smithfield NSW Australia 2164</b>
E-mail	: <b>trevor@lloydconsulting.com.au</b>	E-mail	: <b>sydney@alsglobal.com</b>
Telephone	: <b>+61 07 33527300</b>	Telephone	: <b>+61-2-8784 8555</b>
Facsimile	: <b>----</b>	Facsimile	: <b>+61-2-8784 8500</b>
Project	: <b>----</b>	Quote number	: <b>BN/299/10</b>
Order number	: <b>----</b>	Date Samples Received	: <b>19-JUL-2011</b>
No. of samples received	: <b>6</b>	Issue Date	: <b>27-JUL-2011</b>
No. of samples analysed	: <b>6</b>		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory  
825/14610

This document is issued in  
accordance with NATA  
accreditation requirements.

Accredited for compliance with  
ISO/IEC 17025.

#### Signatories

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

Signatories	Position	Accreditation Category
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Edwandy Fadjar	Senior Organic Chemist	Sydney Organics
Greg Vogel	Laboratory Manager	Brisbane Inorganics
Sarah Millington	Senior Inorganic Chemist	Sydney Inorganics





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### **General Comments**

The analytical procedures used by the Food and Pharmaceutical Division have been developed from established internationally recognized procedures such as those published by the BP, USP, FCC and AOAC. In house developed procedures are employed in the absence of documented standards or by client request.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

- **EN055 - PG: Ionic balance for sample ID' D3' outside acceptable limits due to analytes not determined for this work order.**



## Analytical Results

Reporting Category: **WATER**

		Client sample ID :		
		D1	D2	D3
		Client sampling date / time :		
		15-JUL-2011 15:00	15-JUL-2011 15:00	15-JUL-2011 15:00
Compound	Unit	ES1115401-001	ES1115401-002	ES1115401-003
<b>ED037P: Alkalinity by PC Titrator</b>				
Hydroxide Alkalinity as CaCO <sub>3</sub>	mg/L	<1	<1	<1
Carbonate Alkalinity as CaCO <sub>3</sub>	mg/L	<1	<1	<1
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	57	56	169
Total Alkalinity as CaCO <sub>3</sub>	mg/L	57	56	169
<b>ED041G: Sulfate (Turbidimetric) as SO<sub>4</sub> 2- by DA</b>				
Sulfate as SO <sub>4</sub> - Turbidimetric	mg/L	16	9	18
<b>ED045G: Chloride Discrete analyser</b>				
Chloride	mg/L	17	22	11
<b>ED093F: Dissolved Major Cations</b>				
Calcium	mg/L	2	2	4
Magnesium	mg/L	4	2	9
Sodium	mg/L	30	39	75
Potassium	mg/L	12	5	5
<b>EG020F: Dissolved Metals by ICP-MS</b>				
Arsenic	mg/L	0.001	0.002	0.008
Cadmium	mg/L	<0.0001	<0.0001	0.0004
Chromium	mg/L	<0.001	0.001	<0.001
Copper	mg/L	0.004	0.005	0.003
Nickel	mg/L	0.002	0.003	0.002
Lead	mg/L	<0.001	<0.001	<0.001
Zinc	mg/L	<0.005	0.008	0.005
<b>EK059G: Nitrite plus Nitrate as N (NO<sub>x</sub>) by Discrete Analyser</b>				
Nitrite + Nitrate as N	mg/L	0.11	0.10	0.42
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>				
Total Kjeldahl Nitrogen as N	mg/L	4.6	3.8	1.5
<b>EK062G: Total Nitrogen as N (TKN + NO<sub>x</sub>) by Discrete Analyser</b>				
Total Nitrogen as N	mg/L	4.7	3.9	1.9
<b>EN055: Ionic Balance</b>				
Total Anions	meq/L	1.95	1.93	4.06
Total Cations	meq/L	2.04	2.09	4.33
Ionic Balance	%	----	----	3.15



## Analytical Results

Reporting Category: **WATER**

		Client sample ID :		
		D4	D5	Q-D4
		Client sampling date / time :		
		15-JUL-2011 15:00	15-JUL-2011 15:00	15-JUL-2011 15:00
Compound	Unit	ES1115401-004	ES1115401-005	ES1115401-006
<b>ED037P: Alkalinity by PC Titrator</b>				
Hydroxide Alkalinity as CaCO <sub>3</sub>	mg/L	<1	<1	<1
Carbonate Alkalinity as CaCO <sub>3</sub>	mg/L	<1	<1	<1
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	97	100	97
Total Alkalinity as CaCO <sub>3</sub>	mg/L	97	100	97
<b>ED041G: Sulfate (Turbidimetric) as SO<sub>4</sub> 2- by DA</b>				
Sulfate as SO <sub>4</sub> - Turbidimetric	mg/L	26	3	26
<b>ED045G: Chloride Discrete analyser</b>				
Chloride	mg/L	60	14	63
<b>ED093F: Dissolved Major Cations</b>				
Calcium	mg/L	12	9	12
Magnesium	mg/L	6	6	6
Sodium	mg/L	68	31	70
Potassium	mg/L	10	14	11
<b>EG020F: Dissolved Metals by ICP-MS</b>				
Arsenic	mg/L	<0.001	0.001	0.001
Cadmium	mg/L	<0.0001	<0.0001	<0.0001
Chromium	mg/L	<0.001	<0.001	<0.001
Copper	mg/L	0.003	0.002	0.003
Nickel	mg/L	0.003	0.002	0.003
Lead	mg/L	<0.001	<0.001	<0.001
Zinc	mg/L	<0.005	<0.005	<0.005
<b>EG035F: Dissolved Mercury by FIMS</b>				
Mercury	mg/L	<0.0001	<0.0001	<0.0001
<b>EK059G: Nitrite plus Nitrate as N (NO<sub>x</sub>) by Discrete Analyser</b>				
Nitrite + Nitrate as N	mg/L	0.27	0.46	0.26
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>				
Total Kjeldahl Nitrogen as N	mg/L	0.8	1.1	0.7
<b>EK062G: Total Nitrogen as N (TKN + NO<sub>x</sub>) by Discrete Analyser</b>				
Total Nitrogen as N	mg/L	1.1	1.6	1.0
<b>EN055: Ionic Balance</b>				
Total Anions	meq/L	4.17	2.46	4.26
Total Cations	meq/L	4.31	2.65	4.42
Ionic Balance	%	1.56	----	1.85
<b>EP068A: Organochlorine Pesticides (OC)</b>				
alpha-BHC	µg/L	<0.5	<0.5	<0.5
Hexachlorobenzene (HCB)	µg/L	<0.5	<0.5	<0.5



## Analytical Results

Reporting Category: **WATER**

		Client sample ID :		
		D4	D5	Q-D4
		Client sampling date / time :		
		15-JUL-2011 15:00	15-JUL-2011 15:00	15-JUL-2011 15:00
Compound	Unit	ES1115401-004	ES1115401-005	ES1115401-006
<b>EP068A: Organochlorine Pesticides (OC)</b>				
beta-BHC	µg/L	<0.5	<0.5	<0.5
gamma-BHC	µg/L	<0.5	<0.5	<0.5
delta-BHC	µg/L	<0.5	<0.5	<0.5
Heptachlor	µg/L	<0.5	<0.5	<0.5
Aldrin	µg/L	<0.5	<0.5	<0.5
Heptachlor epoxide	µg/L	<0.5	<0.5	<0.5
trans-Chlordane	µg/L	<0.5	<0.5	<0.5
alpha-Endosulfan	µg/L	<0.5	<0.5	<0.5
cis-Chlordane	µg/L	<0.5	<0.5	<0.5
Dieldrin	µg/L	<0.5	<0.5	<0.5
4,4'-DDE	µg/L	<0.5	<0.5	<0.5
Endrin	µg/L	<0.5	<0.5	<0.5
beta-Endosulfan	µg/L	<0.5	<0.5	<0.5
4,4'-DDD	µg/L	<0.5	<0.5	<0.5
Endrin aldehyde	µg/L	<0.5	<0.5	<0.5
Endosulfan sulfate	µg/L	<0.5	<0.5	<0.5
4,4'-DDT	µg/L	<2	<2	<2
Endrin ketone	µg/L	<0.5	<0.5	<0.5
Methoxychlor	µg/L	<2	<2	<2
<b>EP068B: Organophosphorus Pesticides (OP)</b>				
Dichlorvos	µg/L	<0.5	<0.5	<0.5
Demeton-S-methyl	µg/L	<0.5	<0.5	<0.5
Monocrotophos	µg/L	<2	<2	<2
Dimethoate	µg/L	<0.5	<0.5	<0.5
Diazinon	µg/L	<0.5	<0.5	<0.5
Chlorpyrifos-methyl	µg/L	<0.5	<0.5	<0.5
Parathion-methyl	µg/L	<2	<2	<2
Malathion	µg/L	<0.5	<0.5	<0.5
Fenthion	µg/L	<0.5	<0.5	<0.5
Chlorpyrifos	µg/L	<0.5	<0.5	<0.5
Parathion	µg/L	<2	<2	<2
Pirimphos-ethyl	µg/L	<0.5	<0.5	<0.5
Chlorfenvinphos	µg/L	<0.5	<0.5	<0.5
Bromophos-ethyl	µg/L	<0.5	<0.5	<0.5
Fenamiphos	µg/L	<0.5	<0.5	<0.5
Prothiofos	µg/L	<0.5	<0.5	<0.5
Ethion	µg/L	<0.5	<0.5	<0.5



**Analytical Results**

Reporting Category: **WATER**

		Client sample ID :	D4	D5	Q-D4
		Client sampling date / time :	15-JUL-2011 15:00	15-JUL-2011 15:00	15-JUL-2011 15:00
Compound	Unit		ES1115401-004	ES1115401-005	ES1115401-006
<b>EP068B: Organophosphorus Pesticides (OP)</b>					
Carbophenothion	µg/L		<0.5	<0.5	<0.5
Azinphos Methyl	µg/L		<0.5	<0.5	<0.5
<b>EP068S: Organochlorine Pesticide Surrogate</b>					
Dibromo-DDE	%		73.4	65.1	63.2
<b>EP068T: Organophosphorus Pesticide Surrogate</b>					
DEF	%		98.9	85.4	83.0



## Surrogate Control Limits

Sub-Matrix: <b>WATER</b>		<i>Recovery Limits (%)</i>	
<i>Compound</i>	<i>CAS Number</i>	<i>Low</i>	<i>High</i>
<b>EP068S: Organochlorine Pesticide Surrogate</b>			
<b>Dibromo-DDE</b>	21655-73-2	33.6	142.5
<b>EP068T: Organophosphorus Pesticide Surrogate</b>			
<b>DEF</b>	78-48-8	28.1	147.7



Environmental Division

**QUALITY CONTROL REPORT**

<b>Work Order</b>	<b>: ES1115401</b>	<b>Page</b>	: 1 of 7
<b>Client</b>	<b>: LLOYD CONSULTING</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	<b>: TREVOR LLOYD</b>	<b>Contact</b>	: Client Services
<b>Address</b>	<b>: PO BOX 320 WILSTON QLD, AUSTRALIA 4057</b>	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	<b>: trevor@lloydconsulting.com.au</b>	<b>E-mail</b>	: sydney@alsglobal.com
<b>Telephone</b>	<b>: +61 07 33527300</b>	<b>Telephone</b>	: +61-2-8784 8555
<b>Facsimile</b>	<b>: ----</b>	<b>Facsimile</b>	: +61-2-8784 8500
<b>Project</b>	<b>: ----</b>	<b>QC Level</b>	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	<b>: ----</b>	<b>Date Samples Received</b>	: 19-JUL-2011
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	: 27-JUL-2011
<b>Sampler</b>	<b>: ----</b>	<b>No. of samples received</b>	: 6
<b>Order number</b>	<b>: ----</b>	<b>No. of samples analysed</b>	: 6
<b>Quote number</b>	<b>: BN/299/10</b>		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

**Signatories**

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Edwandy Fadjar	Senior Organic Chemist	Sydney Organics
Greg Vogel	Laboratory Manager	Brisbane Inorganics
Sarah Millington	Senior Inorganic Chemist	Sydney Inorganics





## General Comments

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

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :  
Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
RPD = Relative Percentage Difference  
# = Indicates failed QC



## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>ED037P: Alkalinity by PC Titrator (QC Lot: 1880222)</b>									
ES1115167-001	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	36	35	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	36	35	0.0	0% - 20%
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 1880095)</b>									
ES1115167-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	18	19	0.0	0% - 50%
ES1115401-001	D1	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	16	16	0.0	0% - 50%
<b>ED045G: Chloride Discrete analyser (QC Lot: 1880094)</b>									
ES1115167-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	30	29	0.0	0% - 20%
ES1115401-004	D4	ED045G: Chloride	16887-00-6	1	mg/L	60	62	3.4	0% - 20%
<b>ED093F: Dissolved Major Cations (QC Lot: 1880093)</b>									
ES1115162-013	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	24	24	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	6	6	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	21	21	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	2	2	0.0	No Limit
ES1115162-023	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	11	11	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	24	25	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	821	824	0.3	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	12	12	0.0	0% - 50%
<b>ED093F: Dissolved Major Cations (QC Lot: 1880096)</b>									
ES1115401-003	D3	ED093F: Calcium	7440-70-2	1	mg/L	5	4	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	10	8	29.6	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	80	78	2.4	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	12	9	23.6	No Limit
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 1885070)</b>									
ES1115337-004	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.013	0.005	91.3	No Limit
ES1115395-005	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0007	0.0007	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.001	0.002	0.0	No Limit



Sub-Matrix: **WATER**

Laboratory Duplicate (DUP) Report

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 1885070) - continued</b>									
ES1115395-005	Anonymous	EG020A-F: Copper	7440-50-8	0.001	mg/L	0.020	0.020	0.0	0% - 20%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.013	0.013	0.0	0% - 50%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.080	0.078	2.0	0% - 50%
<b>EG035F: Dissolved Mercury by FIMS (QC Lot: 1885067)</b>									
ES1115152-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1115337-005	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 1883058)</b>									
ES1115270-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.03	0.03	0.0	No Limit
ES1115271-004	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.01	0.0	No Limit
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 1881198)</b>									
ES1115168-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.1	0.1	0.0	No Limit
ES1115285-031	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	<0.1	0.0	No Limit



## Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: WATER

				Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Low			High	
<b>ED037P: Alkalinity by PC Titrator (QCLot: 1880222)</b>								
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	----	200 mg/L	92.6	80.2	108
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1880095)</b>								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	73.9	70	130
<b>ED045G: Chloride Discrete analyser (QCLot: 1880094)</b>								
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	95.2	70	130
<b>ED093F: Dissolved Major Cations (QCLot: 1880093)</b>								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	99.8	88	110
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	101	90	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	96.7	81	107
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	96.3	89	109
<b>ED093F: Dissolved Major Cations (QCLot: 1880096)</b>								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	98.2	88	110
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	99.7	90	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	95.7	81	107
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	95.9	89	109
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 1885070)</b>								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.100 mg/L	97.8	86	124
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.100 mg/L	94.5	89	117
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.100 mg/L	101	88	127
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.200 mg/L	100	86	115
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.100 mg/L	100	91	113
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.100 mg/L	101	88	115
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.200 mg/L	98.8	86	120
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 1885067)</b>								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	105	84	116
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 1883058)</b>								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	91.4	76.9	122
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 1881198)</b>								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	98.5	62.4	140
<b>EP068A: Organochlorine Pesticides (OC) (QCLot: 1881409)</b>								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	104	59.5	123
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	90.5	58.4	121
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	108	59.3	122



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP068A: Organochlorine Pesticides (OC) (QCLot: 1881409) - continued</b>									
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	105	59.1	121	
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	105	68	116	
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	92.6	67.1	116	
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	102	68.5	114	
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	105	69.8	113	
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	103	68.3	112	
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	100	68.5	116	
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	103	66.5	117	
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	103	68.8	116	
EP068: 4,4'-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	102	68.9	114	
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	113	66.2	122	
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	108	68	117	
EP068: 4,4'-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	109	68.2	117	
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	109	66.6	117	
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	105	65.9	119	
EP068: 4,4'-DDT	50-29-3	2.0	µg/L	<2	5 µg/L	109	57.6	123	
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	111	65	118	
EP068: Methoxychlor	72-43-5	2.0	µg/L	<2	5 µg/L	106	49.6	134	
<b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 1881409)</b>									
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	111	56.9	128	
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	96.1	26.8	154	
EP068: Monocrotophos	6923-22-4	0.5	µg/L	----	5 µg/L	26.3	10	89.1	
		2.0	µg/L	<2	----	----	----	----	
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	111	48.6	126	
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	109	66.5	115	
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	99.6	69.5	112	
EP068: Parathion-methyl	298-00-0	2.0	µg/L	<2	5 µg/L	110	63.9	115	
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	106	59.8	127	
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	109	69.8	114	
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	109	70	112	
EP068: Parathion	56-38-2	2.0	µg/L	<2	5 µg/L	86.8	62.5	116	
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	105	67.1	112	
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	101	64	127	
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	110	67.7	114	
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	111	50.5	129	
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	109	69.2	111	
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	107	67	116	
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	111	65	121	
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	107	45.6	138	



### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: WATER

				Matrix Spike (MS) Report			
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike	Spike Recovery (%)	Recovery Limits (%)	
				Concentration	MS	Low	High
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 1880095)</b>							
ES1115167-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	77.2	70	130
<b>ED045G: Chloride Discrete analyser (QCLot: 1880094)</b>							
ES1115167-001	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	101	70	130
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 1885070)</b>							
ES1115337-005	Anonymous	EG020A-F: Arsenic	7440-38-2	0.100 mg/L	107	70	130
		EG020A-F: Cadmium	7440-43-9	0.100 mg/L	95.4	70	130
		EG020A-F: Chromium	7440-47-3	0.100 mg/L	95.0	70	130
		EG020A-F: Copper	7440-50-8	0.200 mg/L	98.0	70	130
		EG020A-F: Lead	7439-92-1	0.100 mg/L	91.2	70	130
		EG020A-F: Nickel	7440-02-0	0.100 mg/L	99.5	70	130
		EG020A-F: Zinc	7440-66-6	0.200 mg/L	101	70	130
<b>EG035F: Dissolved Mercury by FIMS (QCLot: 1885067)</b>							
ES1115152-003	Anonymous	EG035F: Mercury	7439-97-6	0.010 mg/L	105	70	130
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 1883058)</b>							
ES1115270-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	79.8	70	130
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 1881198)</b>							
ES1115168-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	102	70	130



Environmental Division

**INTERPRETIVE QUALITY CONTROL REPORT**

Work Order	: <b>ES1115401</b>	Page	: 1 of 7
Client	: LLOYD CONSULTING	Laboratory	: Environmental Division Sydney
Contact	: TREVOR LLOYD	Contact	: Client Services
Address	: PO BOX 320 WILSTON QLD, AUSTRALIA 4057	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: trevor@lloydconsulting.com.au	E-mail	: sydney@alsglobal.com
Telephone	: +61 07 33527300	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: ----	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 19-JUL-2011
Sampler	: ----	Issue Date	: 27-JUL-2011
Order number	: ----		
Quote number	: BN/299/10	No. of samples received	: 6
		No. of samples analysed	: 6

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

This Interpretive Quality Control Report contains the following information:

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



## Analysis Holding Time Compliance

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non-volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

Matrix: WATER

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>ED037P: Alkalinity by PC Titrator</b>							
Clear Plastic Bottle - Natural D1, D2, D3, D4, D5, Q-D4	15-JUL-2011	---	29-JUL-2011	----	21-JUL-2011	29-JUL-2011	✓
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA</b>							
Clear Plastic Bottle - Natural D1, D2, D3, D4, D5, Q-D4	15-JUL-2011	---	12-AUG-2011	----	20-JUL-2011	12-AUG-2011	✓
<b>ED045G: Chloride Discrete analyser</b>							
Clear Plastic Bottle - Natural D1, D2, D3, D4, D5, Q-D4	15-JUL-2011	---	12-AUG-2011	----	20-JUL-2011	12-AUG-2011	✓
<b>ED093F: Dissolved Major Cations</b>							
Clear Plastic Bottle - Natural D1, D2, D3, D4, D5, Q-D4	15-JUL-2011	---	22-JUL-2011	----	20-JUL-2011	22-JUL-2011	✓
<b>EG020F: Dissolved Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Filtered D1, D2, D3, D4, D5, Q-D4	15-JUL-2011	---	11-JAN-2012	----	25-JUL-2011	11-JAN-2012	✓
<b>EG035F: Dissolved Mercury by FIMS</b>							
Clear Plastic Bottle - Nitric Acid; Filtered D4, D5, Q-D4	15-JUL-2011	---	12-AUG-2011	----	25-JUL-2011	12-AUG-2011	✓
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>							
Clear Plastic Bottle - Sulfuric Acid D1, D2, D3, D4, D5, Q-D4	15-JUL-2011	---	12-AUG-2011	----	22-JUL-2011	12-AUG-2011	✓





Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>								
<b>Clear Plastic Bottle - Sulfuric Acid</b> D1, D3, D5,	D2, D4, Q-D4	15-JUL-2011	21-JUL-2011	12-AUG-2011	✓	21-JUL-2011	12-AUG-2011	✓
<b>EP068A: Organochlorine Pesticides (OC)</b>								
<b>Clear Plastic Bottle - Natural</b> D4, Q-D4	D5,	15-JUL-2011	21-JUL-2011	22-JUL-2011	✓	21-JUL-2011	30-AUG-2011	✓
<b>EP068B: Organophosphorus Pesticides (OP)</b>								
<b>Clear Plastic Bottle - Natural</b> D4, Q-D4	D5,	15-JUL-2011	21-JUL-2011	22-JUL-2011	✓	21-JUL-2011	30-AUG-2011	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Alkalinity by PC Titrator	ED037-P	1	7	14.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	12	16.7	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	3	14	21.4	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	19	10.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Alkalinity by PC Titrator	ED037-P	1	7	14.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	12	16.7	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	2	14	14.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	9	11.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Chloride by Discrete Analyser	ED045G	1	12	8.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	2	14	14.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	9	11.1	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Chloride by Discrete Analyser	ED045G	1	12	8.3	5.0	✓	ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	20	5.0	5.0	✓	ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.0	5.0	✓	ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.0	5.0	✓	ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.0	5.0	✓	ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	19	5.3	5.0	✓	ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by PC Titrator	ED037-P	WATER	APHA 21st ed., 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Sulfate (Turbidimetric) as SO <sub>4</sub> <sup>2-</sup> by Discrete Analyser	ED041G	WATER	APHA 21st ed., 4500-SO <sub>4</sub> Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO <sub>4</sub> suspension is measured by a photometer and the SO <sub>4</sub> <sup>2-</sup> concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Chloride by Discrete Analyser	ED045G	WATER	APHA 21st ed., 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	APHA 21st ed., 3120; USEPA SW 846 - 6010 The ICPAES technique ionises the 0.45um filtered sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Nitrite and Nitrate as N (NO <sub>x</sub> ) by Discrete Analyser	EK059G	WATER	APHA 21st ed., 4500-NO <sub>3</sub> - F. Combined oxidised Nitrogen (NO <sub>2</sub> +NO <sub>3</sub> ) is determined by Cadmium Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	APHA 21st ed., 4500-Norg D. 25mL water samples are digested using a traditional Kjeldahl digestion followed by determination by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Nitrogen as N (TKN + No <sub>x</sub> ) By Discrete Analyser	EK062G	WATER	APHA 21st ed., 4500-Norg / 4500-NO <sub>3</sub> -. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Ionic Balance by PCT DA and ICPAES	EN055 - PG	WATER	APHA 21st Ed. 1030F. The Ionic Balance is calculated based on the major Anions and Cations. The major anions include Alkalinity, Chloride and Sulfate which determined by PCT and DA. The Cations are determined by ICPAES. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Pesticides by GCMS	EP068	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	APHA 21st ed., 4500 Norg - D; APHA 21st ed., 4500 P - H. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

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Client : LLOYD CONSULTING  
Project : ----



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 500 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

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

#### **Regular Sample Surrogates**

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

### Outliers : Analysis Holding Time Compliance

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

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

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

- No Quality Control Sample Frequency Outliers exist.

**Chain of Custody**



**Laboratory Details** ALS Brisbane  
**Lab Quote Ref.** 23 Simons St, Stalford QLD 4053  
 BN / 299 / 10  
 Ph: 07 3243 7222  
 Email: samples.brisbane@alsenviro.com

<b>CLIENT:</b> Lloyd Consulting	<b>TURNAROUND REQUIREMENTS:</b> <input checked="" type="checkbox"/> Standard TAT (List due date): <input type="checkbox"/> Non Standard or urgent TAT (List due date):	<b>FOR LABORATORY USE ONLY (Circle)</b>	
<b>OFFICE:</b> 30 Heather Street, Wilston, Q, 4051.		Custody Seal Intact? Yes No N/A	
<b>PROJECT:</b>	<b>QUOTE NO.:</b>	Free ice / frozen ice bricks present upon receipt? Yes No N/A	
<b>ORDER NUMBER:</b>		Random Sample Temperature on Receipt: °C	
<b>PROJECT MANAGER:</b>	<b>CONTACT PH:</b> 07 3352 7300	<b>Other comment:</b>	
<b>SAMPLER:</b>	<b>SAMPLER MOBILE:</b>	<b>RELINQUISHED BY:</b>	<b>RECEIVED BY:</b>
<b>COC emailed to ALS? ( YES / NO)</b>	<b>EDD FORMAT (or default):</b>	<i>[Signature]</i>	<i>[Signature]</i>
<b>Email Reports to (PM firstname)@lloydconsulting.com.au:</b>	<b>DATE/TIME:</b>	<b>DATE/TIME:</b>	<b>DATE/TIME:</b>
<b>Email Invoice to (as above):</b> leona@lloydconsulting.com.au	15/7/11 2:10	15/7/11	19/7 1200
<b>COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:</b>			

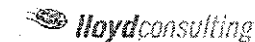
ALS USE ONLY		SAMPLE DETAILS MATRIX: Solid(S) Water(W)		CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).				Additional Information		
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES						Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.	
1	BH1-1	15/7/11	S		1	S-1	S-12	S-07	PH 5:1	TPH/BTEX	8 METALS	
2	BH2-1	"	"		1	✓	✓					
3	TP1-1.0	14/7/11	"		1	<del>ON HOLD</del>			✓	✓		
12	TP1-1.5	"	"		1	ON HOLD						
13	TP1-2.0	"	"		1	ON HOLD						
4	TP2-0.2	"	"		1				✓	✓		
14	TP2-0.5	"	"		1	ON HOLD						
15	TP2-1.0	"	"		1	ON HOLD						
5	TP2-Q-2.0	"	"		1				✓	✓		
16	TP3-0.2	"	"		1	ON HOLD						
6	TP3-0.5	"	"		1				✓	✓		
17	TP3-1.0	"	"		1	ON HOLD						
					<b>TOTAL</b>	12						

Environmental Division  
 Sydney  
 Work Order  
**ES1115438**

Telephone : +61-2-8784 8555

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

# Chain of Custody



**Laboratory Details**  
 ALS Brisbane  
 Lab Quote Ref. 30 Chand St, Stafford QLD 4053.  
 BN / 299 / 10 Ph: 07 3243 7222  
 Email: samples.brisbane@alsenviro.com

<b>CLIENT:</b> Lloyd Consulting	<b>TURNAROUND REQUIREMENTS:</b> <input checked="" type="checkbox"/> Standard TAT (List due date): _____ <input type="checkbox"/> Non Standard or urgent TAT (List due date): _____	<b>FOR LABORATORY USE ONLY (Circle)</b>	
<b>OFFICE:</b> 30 Heather Street, Wilston, Q, 4051.		Custody Seal Intact? Yes No N/A	
<b>PROJECT:</b>	<b>QUOTE NO.:</b>	Free ice / frozen ice bricks present upon receipt? Yes No N/A	
<b>ORDER NUMBER:</b>		Random Sample Temperature on Receipt: °C	
<b>PROJECT MANAGER:</b>	<b>CONTACT PH:</b> 07 3352 7300	Other comment:	
<b>SAMPLER:</b>	<b>SAMPLER MOBILE:</b>	<b>RELINQUISHED BY:</b> <i>[Signature]</i>	<b>RECEIVED BY:</b> <i>[Signature]</i>
<b>COC emailed to ALS? ( YES / NO)</b>	<b>EDD FORMAT (or default):</b>	<b>DATE/TIME:</b> 15/7/11	<b>DATE/TIME:</b> 15/7/11
<b>Email Reports to (PM firstname)@lloydconsulting.com.au;</b>		<b>RELINQUISHED BY:</b>	<b>RECEIVED BY:</b> <i>[Signature]</i>
<b>Email Invoice to (as above)</b>		<b>DATE/TIME:</b>	<b>DATE/TIME:</b> 19/7 1200

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)				Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES					Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
18	TP3-1.5	14/7/11	S		1	S-1				
7	TP4-0.2	15/7/11	S		1	S-12				
8	TP5-0.5	15/7/11	S		1	S-07				
19	TP5-1.0	"	"		1					
20	TP6-1-0.2	"	"		1					
21	TP6-2-0.2	"	"		1					
9	TP6-3-0.2	"	"		1					
10	TP6-1-0.5	"	"		1					
11	TP6-2-0.5	"	"		1					
22	TP6-3-0.5	"	"		1					
23	TP6-1-1.5	"	"		1					
24	TP6-2-1.5	"	"		1					
<b>TOTAL</b>										

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.







Food/Pharmaceutical Division

**CERTIFICATE OF ANALYSIS**

<b>Work Order</b>	<b>: ES1115438</b>	<b>Page</b>	: 1 of 12
<b>Client</b>	<b>: LLOYD CONSULTING</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	<b>: MS LEONA KOPITTKE</b>	<b>Contact</b>	: Client Services
<b>Address</b>	<b>: PO BOX 320 WILSTON QLD, AUSTRALIA 4057</b>	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	<b>: leona@lloydconsulting.com.au</b>	<b>E-mail</b>	: sydney@alsglobal.com
<b>Telephone</b>	<b>: +61 07 33527300</b>	<b>Telephone</b>	: +61-2-8784 8555
<b>Facsimile</b>	<b>: ----</b>	<b>Facsimile</b>	: +61-2-8784 8500
<b>Project</b>	<b>: ----</b>	<b>Quote number</b>	: BN/299/10
<b>Order number</b>	<b>: ----</b>	<b>Date Samples Received</b>	: 19-JUL-2011
<b>No. of samples received</b>	<b>: 26</b>	<b>Issue Date</b>	: 26-JUL-2011
<b>No. of samples analysed</b>	<b>: 11</b>		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory  
825/14610

This document is issued in  
accordance with NATA  
accreditation requirements.

Accredited for compliance with  
ISO/IEC 17025.

**Signatories**

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Spectroscopist	Sydney Inorganics
Edwandy Fadjar	Senior Organic Chemist	Sydney Organics
Evie.Sidarta	Inorganic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Sarah Millington	Senior Inorganic Chemist	Sydney Inorganics





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### **General Comments**

The analytical procedures used by the Food and Pharmaceutical Division have been developed from established internationally recognized procedures such as those published by the BP, USP, FCC and AOAC. In house developed procedures are employed in the absence of documented standards or by client request.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.



## Analytical Results

Reporting Category: **SOIL**

		Client sample ID :		
		BH1-1	BH2-1	TP1-1.0
		Client sampling date / time :		
		15-JUL-2011 15:00	15-JUL-2011 15:00	14-JUL-2011 15:00
Compound	Unit	ES1115438-001	ES1115438-002	ES1115438-003
<b>EA002 : pH (Soils)</b>				
pH Value	pH Unit	5.8	7.9	7.4
<b>EA055: Moisture Content</b>				
Moisture Content (dried @ 103°C)	%	10.1	9.4	5.7
<b>EG005T: Total Metals by ICP-AES</b>				
Arsenic	mg/kg	<5	<5	5
Cadmium	mg/kg	<1	<1	<1
Chromium	mg/kg	14	9	10
Copper	mg/kg	12	13	<5
Lead	mg/kg	21	10	74
Nickel	mg/kg	8	6	5
Zinc	mg/kg	128	132	104
<b>EG035T: Total Recoverable Mercury by FIMS</b>				
Mercury	mg/kg	<0.1	----	<0.1
<b>EP068A: Organochlorine Pesticides (OC)</b>				
alpha-BHC	mg/kg	----	<0.05	----
Hexachlorobenzene (HCB)	mg/kg	----	<0.05	----
beta-BHC	mg/kg	----	<0.05	----
gamma-BHC	mg/kg	----	<0.05	----
delta-BHC	mg/kg	----	<0.05	----
Heptachlor	mg/kg	----	<0.05	----
Aldrin	mg/kg	----	<0.05	----
Heptachlor epoxide	mg/kg	----	<0.05	----
trans-Chlordane	mg/kg	----	<0.05	----
alpha-Endosulfan	mg/kg	----	<0.05	----
cis-Chlordane	mg/kg	----	<0.05	----
Dieldrin	mg/kg	----	<0.05	----
4,4'-DDE	mg/kg	----	<0.05	----
Endrin	mg/kg	----	<0.05	----
beta-Endosulfan	mg/kg	----	<0.05	----
4,4'-DDD	mg/kg	----	<0.05	----
Endrin aldehyde	mg/kg	----	<0.05	----
Endosulfan sulfate	mg/kg	----	<0.05	----
4,4'-DDT	mg/kg	----	<0.2	----
Endrin ketone	mg/kg	----	<0.05	----
Methoxychlor	mg/kg	----	<0.2	----
<b>EP068B: Organophosphorus Pesticides (OP)</b>				
Dichlorvos	mg/kg	----	<0.05	----



## Analytical Results

Reporting Category: **SOIL**

Client sample ID :  
 Client sampling date / time :

Compound	Unit	BH1-1	BH2-1	TP1-1.0
		15-JUL-2011 15:00	15-JUL-2011 15:00	14-JUL-2011 15:00
		ES1115438-001	ES1115438-002	ES1115438-003
<b>EP068B: Organophosphorus Pesticides (OP)</b>				
Demeton-S-methyl	mg/kg	----	<0.05	----
Monocrotophos	mg/kg	----	<0.2	----
Dimethoate	mg/kg	----	<0.05	----
Diazinon	mg/kg	----	<0.05	----
Chlorpyrifos-methyl	mg/kg	----	<0.05	----
Parathion-methyl	mg/kg	----	<0.2	----
Malathion	mg/kg	----	<0.05	----
Fenthion	mg/kg	----	<0.05	----
Chlorpyrifos	mg/kg	----	<0.05	----
Parathion	mg/kg	----	<0.2	----
Pirimphos-ethyl	mg/kg	----	<0.05	----
Chlorfenvinphos	mg/kg	----	<0.05	----
Bromophos-ethyl	mg/kg	----	<0.05	----
Fenamiphos	mg/kg	----	<0.05	----
Prothiofos	mg/kg	----	<0.05	----
Ethion	mg/kg	----	<0.05	----
Carbophenothion	mg/kg	----	<0.05	----
Azinphos Methyl	mg/kg	----	<0.05	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>				
C6 - C9 Fraction	mg/kg	<10	----	<10
C10 - C14 Fraction	mg/kg	<50	----	<50
C15 - C28 Fraction	mg/kg	<b>360</b>	----	<b>&lt;100</b>
C29 - C36 Fraction	mg/kg	<100	----	<100
C10 - C36 Fraction (sum)	mg/kg	<b>360</b>	----	<b>&lt;50</b>
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft</b>				
C6 - C10 Fraction	mg/kg	<10	----	<10
C6 - C10 Fraction minus BTEX (F1)	mg/kg	<10	----	<10
>C10 - C16 Fraction	mg/kg	<50	----	<50
>C16 - C34 Fraction	mg/kg	<b>330</b>	----	<b>&lt;100</b>
>C34 - C40 Fraction	mg/kg	<100	----	<100
>C10 - C40 Fraction (sum)	mg/kg	<b>330</b>	----	<b>&lt;50</b>
<b>EP080: BTEX</b>				
Benzene	mg/kg	<0.2	----	<0.2
Toluene	mg/kg	<0.5	----	<0.5
Ethylbenzene	mg/kg	<0.5	----	<0.5
meta- & para-Xylene	mg/kg	<0.5	----	<0.5
ortho-Xylene	mg/kg	<0.5	----	<0.5



## Analytical Results

Reporting Category: **SOIL**

		Client sample ID :	BH1-1	BH2-1	TP1-1.0
		Client sampling date / time :	15-JUL-2011 15:00	15-JUL-2011 15:00	14-JUL-2011 15:00
Compound	Unit		ES1115438-001	ES1115438-002	ES1115438-003
<b>EP080: BTEXN</b>					
Sum of BTEX	mg/kg		<0.2	----	<0.2
Total Xylenes	mg/kg		<0.5	----	<0.5
Naphthalene	mg/kg		<1	----	<1
<b>EP068S: Organochlorine Pesticide Surrogate</b>					
Dibromo-DDE	%		----	100	----
<b>EP068T: Organophosphorus Pesticide Surrogate</b>					
DEF	%		----	88.0	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>					
1,2-Dichloroethane-D4	%		105	----	113
Toluene-D8	%		107	----	112
4-Bromofluorobenzene	%		111	----	110



## Analytical Results

Reporting Category: **SOIL**

		Client sample ID :	TP2-0.2	TP2-Q-2.0	TP3-0.5
		Client sampling date / time :	14-JUL-2011 15:00	14-JUL-2011 15:00	14-JUL-2011 15:00
Compound	Unit	ES1115438-004	ES1115438-005	ES1115438-006	
<b>EA002 : pH (Soils)</b>					
pH Value	pH Unit	6.4	7.1	6.9	
<b>EA055: Moisture Content</b>					
Moisture Content (dried @ 103°C)	%	4.8	5.5	4.7	
<b>EG005T: Total Metals by ICP-AES</b>					
Arsenic	mg/kg	5	5	<5	
Cadmium	mg/kg	<1	<1	<1	
Chromium	mg/kg	10	9	8	
Copper	mg/kg	6	<5	<5	
Lead	mg/kg	16	68	11	
Nickel	mg/kg	6	5	5	
Zinc	mg/kg	18	30	24	
<b>EG035T: Total Recoverable Mercury by FIMS</b>					
Mercury	mg/kg	<0.1	<0.1	<0.1	
<b>EP080/071: Total Petroleum Hydrocarbons</b>					
C6 - C9 Fraction	mg/kg	<10	<10	<10	
C10 - C14 Fraction	mg/kg	<50	<50	<50	
C15 - C28 Fraction	mg/kg	<100	<100	<100	
C29 - C36 Fraction	mg/kg	<100	<100	<100	
C10 - C36 Fraction (sum)	mg/kg	<50	<50	<50	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft</b>					
C6 - C10 Fraction	mg/kg	<10	<10	<10	
C6 - C10 Fraction minus BTEX (F1)	mg/kg	<10	<10	<10	
>C10 - C16 Fraction	mg/kg	<50	<50	<50	
>C16 - C34 Fraction	mg/kg	<100	<100	<100	
>C34 - C40 Fraction	mg/kg	<100	<100	<100	
>C10 - C40 Fraction (sum)	mg/kg	<50	<50	<50	
<b>EP080: BTEX</b>					
Benzene	mg/kg	<0.2	<0.2	<0.2	
Toluene	mg/kg	<0.5	<0.5	<0.5	
Ethylbenzene	mg/kg	<0.5	<0.5	<0.5	
meta- & para-Xylene	mg/kg	<0.5	<0.5	<0.5	
ortho-Xylene	mg/kg	<0.5	<0.5	<0.5	
<b>EP080: BTEXN</b>					
Sum of BTEX	mg/kg	<0.2	<0.2	<0.2	
Total Xylenes	mg/kg	<0.5	<0.5	<0.5	
Naphthalene	mg/kg	<1	<1	<1	



### Analytical Results

Reporting Category: **SOIL**

		Client sample ID :	TP2-0.2	TP2-Q-2.0	TP3-0.5
		Client sampling date / time :	14-JUL-2011 15:00	14-JUL-2011 15:00	14-JUL-2011 15:00
Compound	Unit		ES1115438-004	ES1115438-005	ES1115438-006
<b>EP080S: TPH(V)/BTEX Surrogates</b>					
1,2-Dichloroethane-D4	%		111	111	112
Toluene-D8	%		113	108	110
4-Bromofluorobenzene	%		114	108	111



## Analytical Results

Reporting Category: **SOIL**

		Client sample ID :	TP4-0.2	TP5-0.5	TP6-3-0.2
		Client sampling date / time :	15-JUL-2011 15:00	15-JUL-2011 15:00	15-JUL-2011 15:00
Compound	Unit	ES1115438-007	ES1115438-008	ES1115438-009	
<b>EA002 : pH (Soils)</b>					
pH Value	pH Unit	6.6	----	----	
<b>EA055: Moisture Content</b>					
Moisture Content (dried @ 103°C)	%	13.3	9.7	11.6	
<b>EG005T: Total Metals by ICP-AES</b>					
Arsenic	mg/kg	6	<5	6	
Cadmium	mg/kg	<1	<1	<1	
Chromium	mg/kg	16	16	17	
Copper	mg/kg	10	<5	14	
Lead	mg/kg	15	8	12	
Nickel	mg/kg	11	5	10	
Zinc	mg/kg	72	12	49	
<b>EG035T: Total Recoverable Mercury by FIMS</b>					
Mercury	mg/kg	<0.1	<0.1	<0.1	
<b>EP080/071: Total Petroleum Hydrocarbons</b>					
C6 - C9 Fraction	mg/kg	<10	<10	<10	
C10 - C14 Fraction	mg/kg	<50	<50	<50	
C15 - C28 Fraction	mg/kg	<100	<100	<100	
C29 - C36 Fraction	mg/kg	<100	<100	<100	
C10 - C36 Fraction (sum)	mg/kg	<50	<50	<50	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft</b>					
C6 - C10 Fraction	mg/kg	<10	<10	<10	
C6 - C10 Fraction minus BTEX (F1)	mg/kg	<10	<10	<10	
>C10 - C16 Fraction	mg/kg	<50	<50	<50	
>C16 - C34 Fraction	mg/kg	<100	<100	<100	
>C34 - C40 Fraction	mg/kg	<100	<100	<100	
>C10 - C40 Fraction (sum)	mg/kg	<50	<50	<50	
<b>EP080: BTEX</b>					
Benzene	mg/kg	<0.2	<0.2	<0.2	
Toluene	mg/kg	<0.5	<0.5	<0.5	
Ethylbenzene	mg/kg	<0.5	<0.5	<0.5	
meta- & para-Xylene	mg/kg	<0.5	<0.5	<0.5	
ortho-Xylene	mg/kg	<0.5	<0.5	<0.5	
<b>EP080: BTEXN</b>					
Sum of BTEX	mg/kg	<0.2	<0.2	<0.2	
Total Xylenes	mg/kg	<0.5	<0.5	<0.5	
Naphthalene	mg/kg	<1	<1	<1	





## Analytical Results

Reporting Category: **SOIL**

		Client sample ID :	TP4-0.2	TP5-0.5	TP6-3-0.2
		Client sampling date / time :	15-JUL-2011 15:00	15-JUL-2011 15:00	15-JUL-2011 15:00
Compound	Unit		ES1115438-007	ES1115438-008	ES1115438-009
<b>EP080S: TPH(V)/BTEX Surrogates</b>					
1,2-Dichloroethane-D4	%		105	106	106
Toluene-D8	%		108	105	107
4-Bromofluorobenzene	%		108	105	108



## Analytical Results

Reporting Category: **SOIL**

Client sample ID :  
 Client sampling date / time :

Compound	Unit	TP6-1-0.5	TP6-2-0.5
		15-JUL-2011 15:00	15-JUL-2011 15:00
		ES1115438-010	ES1115438-011
<b>EA055: Moisture Content</b>			
Moisture Content (dried @ 103°C)	%	12.9	15.4
<b>EG005T: Total Metals by ICP-AES</b>			
Arsenic	mg/kg	6	6
Cadmium	mg/kg	<1	<1
Chromium	mg/kg	16	17
Copper	mg/kg	14	14
Lead	mg/kg	12	10
Nickel	mg/kg	13	15
Zinc	mg/kg	45	38
<b>EG035T: Total Recoverable Mercury by FIMS</b>			
Mercury	mg/kg	<0.1	<0.1
<b>EP080/071: Total Petroleum Hydrocarbons</b>			
C6 - C9 Fraction	mg/kg	<10	<10
C10 - C14 Fraction	mg/kg	<50	<50
C15 - C28 Fraction	mg/kg	<100	<100
C29 - C36 Fraction	mg/kg	<100	<100
C10 - C36 Fraction (sum)	mg/kg	<50	<50
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft</b>			
C6 - C10 Fraction	mg/kg	<10	<10
C6 - C10 Fraction minus BTEX (F1)	mg/kg	<10	<10
>C10 - C16 Fraction	mg/kg	<50	<50
>C16 - C34 Fraction	mg/kg	<100	<100
>C34 - C40 Fraction	mg/kg	<100	<100
>C10 - C40 Fraction (sum)	mg/kg	<50	<50
<b>EP080: BTEX</b>			
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<0.5	<0.5
meta- & para-Xylene	mg/kg	<0.5	<0.5
ortho-Xylene	mg/kg	<0.5	<0.5
<b>EP080: BTEXN</b>			
Sum of BTEX	mg/kg	<0.2	<0.2
Total Xylenes	mg/kg	<0.5	<0.5
Naphthalene	mg/kg	<1	<1
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	%	99.6	90.4
Toluene-D8	%	104	106

Page : 11 of 12  
 Work Order : ES1115438  
 Client : LLOYD CONSULTING  
 Project : ----



**Analytical Results**

Reporting Category: **SOIL**

		Client sample ID :	TP6-1-0.5	TP6-2-0.5	
		Client sampling date / time :	15-JUL-2011 15:00	15-JUL-2011 15:00	
Compound	Unit		ES1115438-010	ES1115438-011	
<b>EP080S: TPH(V)/BTEX Surrogates</b>					
<b>4-Bromofluorobenzene</b>	%		<b>103</b>	<b>96.3</b>	



## Surrogate Control Limits

Sub-Matrix: <b>SOIL</b>		<i>Recovery Limits (%)</i>	
<i>Compound</i>	<i>CAS Number</i>	<i>Low</i>	<i>High</i>
<b>EP068S: Organochlorine Pesticide Surrogate</b>			
<b>Dibromo-DDE</b>	21655-73-2	19.5	167.0
<b>EP068T: Organophosphorus Pesticide Surrogate</b>			
<b>DEF</b>	78-48-8	22.7	163.5
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
<b>1,2-Dichloroethane-D4</b>	17060-07-0	72.8	133.2
<b>Toluene-D8</b>	2037-26-5	73.9	132.1
<b>4-Bromofluorobenzene</b>	460-00-4	71.6	130.0



Environmental Division

**QUALITY CONTROL REPORT**

<b>Work Order</b>	<b>: ES1115438</b>	<b>Page</b>	: 1 of 10
<b>Client</b>	<b>: LLOYD CONSULTING</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	<b>: MS LEONA KOPITTKKE</b>	<b>Contact</b>	: Client Services
<b>Address</b>	<b>: PO BOX 320 WILSTON QLD, AUSTRALIA 4057</b>	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	<b>: leona@lloydconsulting.com.au</b>	<b>E-mail</b>	: sydney@alsglobal.com
<b>Telephone</b>	<b>: +61 07 33527300</b>	<b>Telephone</b>	: +61-2-8784 8555
<b>Facsimile</b>	<b>: ----</b>	<b>Facsimile</b>	: +61-2-8784 8500
<b>Project</b>	<b>: ----</b>	<b>QC Level</b>	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	<b>: ----</b>	<b>Date Samples Received</b>	: 19-JUL-2011
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	: 26-JUL-2011
<b>Sampler</b>	<b>: ----</b>	<b>No. of samples received</b>	: 26
<b>Order number</b>	<b>: ----</b>	<b>No. of samples analysed</b>	: 11
<b>Quote number</b>	<b>: BN/299/10</b>		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

**Signatories**

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Celine Conceicao	Spectroscopist	Sydney Inorganics
Edwandy Fadjar	Senior Organic Chemist	Sydney Organics
Evie.Sidarta	Inorganic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Sarah Millington	Senior Inorganic Chemist	Sydney Inorganics



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## General Comments

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

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :            Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
                  CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
                  LOR = Limit of reporting  
                  RPD = Relative Percentage Difference  
                  # = Indicates failed QC



### Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EA002 : pH (Soils) (QC Lot: 1882347)</b>									
ES1115438-001	BH1-1	EA002: pH Value	----	0.1	pH Unit	5.8	6.0	2.2	0% - 20%
<b>EA055: Moisture Content (QC Lot: 1882555)</b>									
ES1115438-003	TP1-1.0	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	5.7	5.9	3.0	No Limit
ES1115477-065	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	14.8	14.7	0.8	0% - 50%
<b>EG005T: Total Metals by ICP-AES (QC Lot: 1882245)</b>									
ES1115438-001	BH1-1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	14	14	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	8	8	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	12	12	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	21	19	12.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	128	121	5.4	0% - 20%
ES1115438-011	TP6-2-0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	17	16	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	15	15	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	6	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	14	14	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	10	10	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	38	37	3.0	No Limit
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1882246)</b>									
ES1115438-001	BH1-1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1115438-011	TP6-2-0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP068A: Organochlorine Pesticides (OC) (QC Lot: 1883268)</b>									
ES1115099-010	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit



Sub-Matrix: **SOIL**

Laboratory Duplicate (DUP) Report

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP068A: Organochlorine Pesticides (OC) (QC Lot: 1883268) - continued</b>									
ES1115099-010	Anonymous	EP068: 4.4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
ES1115491-014	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
<b>EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1883268)</b>									
ES1115099-010	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		





Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1883268) - continued</b>									
ES1115099-010	Anonymous	EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
ES1115491-014	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1882317)</b>									
ES1115438-001	BH1-1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1115491-004	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1882465)</b>									
ES1115438-001	BH1-1	EP071: C15 - C28 Fraction	----	100	mg/kg	360	470	25.2	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1115604-021	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1882465) - continued</b>									
ES1115604-021	Anonymous	EP071: C10 - C14 Fraction	----	50	mg/kg	90	90	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 1882317)</b>									
ES1115438-001	BH1-1	EP080: C6 - C10 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1115491-004	Anonymous	EP080: C6 - C10 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 1882465)</b>									
ES1115438-001	BH1-1	EP071: >C16 - C34 Fraction	----	100	mg/kg	330	430	26.1	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES1115604-021	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	60	60	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 1882317)</b>									
ES1115438-001	BH1-1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1115491-004	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit



## Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
<b>EG005T: Total Metals by ICP-AES (QCLot: 1882245)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	13.11 mg/kg	116	70	130	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	2.76 mg/kg	92.2	83.3	111	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	60.93 mg/kg	103	89.2	117	
EG005T: Copper	7440-50-8	5	mg/kg	<5	54.68 mg/kg	100	90.1	114	
EG005T: Lead	7439-92-1	5	mg/kg	<5	54.76 mg/kg	96.9	85.2	111	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.23 mg/kg	104	88.3	116	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	103.88 mg/kg	96.4	88.9	112	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 1882246)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	1.4 mg/kg	109	67	118	
<b>EP068A: Organochlorine Pesticides (OC) (QCLot: 1883268)</b>									
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	102	60.8	116	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	96.1	59.4	115	
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	103	59.8	117	
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	105	59.8	118	
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	100	65.8	114	
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.7	65.6	115	
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	103	67	113	
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	99.7	65.6	113	
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	102	60.7	113	
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	105	65.8	116	
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	100	57.3	120	
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	99.2	67.4	116	
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.8	67.5	114	
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	109	63	121	
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	66.1	117	
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	65.3	116	
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	98.5	57.3	115	
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	63.6	119	
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	93.9	58.4	127	
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	109	63.6	117	
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	84.4	50.4	132	
<b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 1883268)</b>									
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	92.9	25.5	124	
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	111	10.1	159	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Recovery Limits (%)	
					Concentration	LCS	Low	High	
<b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 1883268) - continued</b>									
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	85.3	2.88	149	
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.3	48.6	126	
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	107	64.9	111	
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	111	65.1	111	
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	91.0	61.4	113	
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	97.8	60.4	127	
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	100	64.7	110	
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	109	64.2	111	
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	96.1	60	116	
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	101	64.8	111	
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	100	61.4	123	
EP068: Bromofenoxethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	105	64.3	114	
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	111	45.5	128	
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	102	65.4	111	
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	104	62	116	
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	107	59.5	119	
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	65.7	29.8	137	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1882317)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	88.0	68.4	128	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1882465)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	97.0	59	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	105	74	138	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	87.8	63	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 1882317)</b>									
EP080: C6 - C10 Fraction	----	10	mg/kg	<10	31 mg/kg	87.2	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 1882465)</b>									
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	250 mg/kg	101	59	131	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	94.8	74	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
		50	mg/kg	----	150 mg/kg	64.4	63	131	
<b>EP080: BTEXN (QCLot: 1882317)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	80.8	63	121	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	99.5	69	122	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	100	61	117	
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	99.2	62	118	
	106-42-3								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	105	63	117	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	115	63	131	



## Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
					MS	Low	High
<b>EG005T: Total Metals by ICP-AES (QCLot: 1882245)</b>							
ES1115438-001	BH1-1	EG005T: Arsenic	7440-38-2	50 mg/kg	97.8	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	94.6	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	101	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	108	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	96.9	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	98.5	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	90.1	70	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 1882246)</b>							
ES1115438-001	BH1-1	EG035T: Mercury	7439-97-6	5 mg/kg	112	70	130
<b>EP068A: Organochlorine Pesticides (OC) (QCLot: 1883268)</b>							
ES1115099-010	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	102	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	91.6	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	94.0	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	98.0	70	130
		EP068: Endrin	72-20-8	2 mg/kg	103	70	130
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	93.3	70	130
<b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 1883268)</b>							
ES1115099-010	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	103	70	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	100	70	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	103	70	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	98.1	70	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	96.6	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1882317)</b>							
ES1115438-001	BH1-1	EP080: C6 - C9 Fraction	----	32.5 mg/kg	107	70	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1882465)</b>							
ES1115438-001	BH1-1	EP071: C10 - C14 Fraction	----	640 mg/kg	99.5	73	137
		EP071: C15 - C28 Fraction	----	3140 mg/kg	104	53	131
		EP071: C29 - C36 Fraction	----	2860 mg/kg	108	52	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 1882317)</b>							
ES1115438-001	BH1-1	EP080: C6 - C10 Fraction	----	37.5 mg/kg	106	70	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 1882465)</b>							
ES1115438-001	BH1-1	EP071: >C10 - C16 Fraction	----	850 mg/kg	105	73	137
		EP071: >C16 - C34 Fraction	----	4800 mg/kg	106	53	131
		EP071: >C34 - C40 Fraction	----	2400 mg/kg	95.6	52	132



Sub-Matrix: **SOIL**

				<i>Matrix Spike (MS) Report</i>			
<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>Spike</i>	<i>Spike Recovery (%)</i>	<i>Recovery Limits (%)</i>	
				<i>Concentration</i>	<i>MS</i>	<i>Low</i>	<i>High</i>
<b>EP080: BTEXN (QCLot: 1882317)</b>							
ES1115438-001	BH1-1	EP080: Benzene	71-43-2	2.5 mg/kg	77.7	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	88.3	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	86.5	70	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	86.6	70	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	89.7	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	85.6	70	130



## Environmental Division

### INTERPRETIVE QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: ES1115438</b>	<b>Page</b>	: 1 of 6
<b>Client</b>	: LLOYD CONSULTING	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: MS LEONA KOPITTKÉ	<b>Contact</b>	: Client Services
<b>Address</b>	: PO BOX 320 WILSTON QLD, AUSTRALIA 4057	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>E-mail</b>	: leona@lloydconsulting.com.au	<b>E-mail</b>	: sydney@alsglobal.com
<b>Telephone</b>	: +61 07 33527300	<b>Telephone</b>	: +61-2-8784 8555
<b>Facsimile</b>	: ----	<b>Facsimile</b>	: +61-2-8784 8500
<b>Project</b>	: ----	<b>QC Level</b>	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
<b>Site</b>	: ----		
<b>C-O-C number</b>	: ----	<b>Date Samples Received</b>	: 19-JUL-2011
<b>Sampler</b>	: ----	<b>Issue Date</b>	: 26-JUL-2011
<b>Order number</b>	: ----		
<b>Quote number</b>	: BN/299/10	<b>No. of samples received</b>	: 26
		<b>No. of samples analysed</b>	: 11

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

This Interpretive Quality Control Report contains the following information:

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



## Analysis Holding Time Compliance

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non-volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA002 : pH (Soils)</b>								
<b>Soil Glass Jar - Unpreserved</b> TP1-1.0, TP2-Q-2.0, TP2-0.2, TP3-0.5	14-JUL-2011	21-JUL-2011	21-JUL-2011	✓	21-JUL-2011	21-JUL-2011	✓	
<b>Soil Glass Jar - Unpreserved</b> BH1-1, TP4-0.2, BH2-1,	15-JUL-2011	21-JUL-2011	22-JUL-2011	✓	21-JUL-2011	21-JUL-2011	✓	
<b>EA055: Moisture Content</b>								
<b>Soil Glass Jar - Unpreserved</b> TP1-1.0, TP2-Q-2.0, TP2-0.2, TP3-0.5	14-JUL-2011	----	----	----	21-JUL-2011	28-JUL-2011	✓	
<b>Soil Glass Jar - Unpreserved</b> BH1-1, TP4-0.2, TP6-3-0.2, TP6-2-0.5, BH2-1, TP5-0.5, TP6-1-0.5,	15-JUL-2011	----	----	----	21-JUL-2011	29-JUL-2011	✓	
<b>EG005T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved</b> TP1-1.0, TP2-Q-2.0, TP2-0.2, TP3-0.5	14-JUL-2011	21-JUL-2011	10-JAN-2012	✓	22-JUL-2011	10-JAN-2012	✓	
<b>Soil Glass Jar - Unpreserved</b> BH1-1, TP4-0.2, TP6-3-0.2, TP6-2-0.5, BH2-1, TP5-0.5, TP6-1-0.5,	15-JUL-2011	21-JUL-2011	11-JAN-2012	✓	22-JUL-2011	11-JAN-2012	✓	
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved</b> TP1-1.0, TP2-Q-2.0, TP2-0.2, TP3-0.5	14-JUL-2011	21-JUL-2011	11-AUG-2011	✓	22-JUL-2011	11-AUG-2011	✓	
<b>Soil Glass Jar - Unpreserved</b> BH1-1, TP5-0.5, TP6-1-0.5, TP4-0.2, TP6-3-0.2, TP6-2-0.5	15-JUL-2011	21-JUL-2011	12-AUG-2011	✓	22-JUL-2011	12-AUG-2011	✓	





Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP068A: Organochlorine Pesticides (OC)</b>								
Soil Glass Jar - Unpreserved BH2-1	15-JUL-2011	22-JUL-2011	29-JUL-2011	✓	22-JUL-2011	31-AUG-2011	✓	
<b>EP068B: Organophosphorus Pesticides (OP)</b>								
Soil Glass Jar - Unpreserved BH2-1	15-JUL-2011	22-JUL-2011	29-JUL-2011	✓	22-JUL-2011	31-AUG-2011	✓	
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
Soil Glass Jar - Unpreserved TP1-1.0, TP2-Q-2.0,	TP2-0.2, TP3-0.5	14-JUL-2011	21-JUL-2011	28-JUL-2011	✓	22-JUL-2011	28-JUL-2011	✓
Soil Glass Jar - Unpreserved BH1-1, TP5-0.5, TP6-1-0.5,	TP4-0.2, TP6-3-0.2, TP6-2-0.5	15-JUL-2011	21-JUL-2011	29-JUL-2011	✓	22-JUL-2011	29-JUL-2011	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft</b>								
Soil Glass Jar - Unpreserved TP1-1.0, TP2-Q-2.0,	TP2-0.2, TP3-0.5	14-JUL-2011	21-JUL-2011	28-JUL-2011	✓	22-JUL-2011	30-AUG-2011	✓
Soil Glass Jar - Unpreserved BH1-1, TP5-0.5, TP6-1-0.5,	TP4-0.2, TP6-3-0.2, TP6-2-0.5	15-JUL-2011	21-JUL-2011	29-JUL-2011	✓	22-JUL-2011	30-AUG-2011	✓
<b>EP080: BTEX</b>								
Soil Glass Jar - Unpreserved TP1-1.0, TP2-Q-2.0,	TP2-0.2, TP3-0.5	14-JUL-2011	21-JUL-2011	28-JUL-2011	✓	22-JUL-2011	28-JUL-2011	✓
Soil Glass Jar - Unpreserved BH1-1, TP5-0.5, TP6-1-0.5,	TP4-0.2, TP6-3-0.2, TP6-2-0.5	15-JUL-2011	21-JUL-2011	29-JUL-2011	✓	22-JUL-2011	29-JUL-2011	✓
<b>EP080: BTEXN</b>								
Soil Glass Jar - Unpreserved TP1-1.0, TP2-Q-2.0,	TP2-0.2, TP3-0.5	14-JUL-2011	21-JUL-2011	28-JUL-2011	✓	22-JUL-2011	28-JUL-2011	✓
Soil Glass Jar - Unpreserved BH1-1, TP5-0.5, TP6-1-0.5,	TP4-0.2, TP6-3-0.2, TP6-2-0.5	15-JUL-2011	21-JUL-2011	29-JUL-2011	✓	22-JUL-2011	29-JUL-2011	✓



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type <i>Analytical Methods</i>	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	2	13	15.4	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH (1:5)	EA002	1	7	14.3	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	12	16.7	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	19	10.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
<b>Laboratory Control Samples (LCS)</b>							
Pesticides by GCMS	EP068	1	13	7.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	12	8.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
<b>Method Blanks (MB)</b>							
Pesticides by GCMS	EP068	1	13	7.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	12	8.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
<b>Matrix Spikes (MS)</b>							
Pesticides by GCMS	EP068	1	13	7.7	5.0	✓	ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	5.0	5.0	✓	ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✓	ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	12	8.3	5.0	✓	ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	19	5.3	5.0	✓	ALS QCS3 requirement



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	(APHA 21st ed., 4500H+) pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (1999) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2010 Draft) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (1999) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3)
Pesticides by GCMS	EP068	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (1999) Schedule B(3) (Method 504,505)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (1999) Schedule B(3) (Method 506.1)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Method 501)
Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (1999) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.



## Summary of Outliers

### Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

#### **Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes**

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

#### **Regular Sample Surrogates**

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

### Outliers : Analysis Holding Time Compliance

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

- No Analysis Holding Time Outliers exist.

### Outliers : Frequency of Quality Control Samples

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

- No Quality Control Sample Frequency Outliers exist.

# APPENDIX H

## RELATIVE PERCENT DIFFERENCE CALCULATIONS

### Stage 1 Soil RPD Calculations

Analyte	Units	BH8-1	BH8-1D	RPD
Arsenic	mg/kg	<5	<5	0
Cadmium	mg/kg	<1	<1	0
Chromium	mg/kg	19	18	5
Copper	mg/kg	5	<5	<b>200</b>
Lead	mg/kg	25	20	22
Nickel	mg/kg	7	7	0
Zinc	mg/kg	12	13	8
Mercury	mg/kg	<0.1	<0.1	0
C6-C9	mg/kg	<10	<10	0
C10-C14	mg/kg	<50	<50	0
C15-C28	mg/kg	200	120	<b>50</b>
C29-C36	mg/kg	<10	<10	0
C10-C36	mg/kg	200	120	<b>50</b>
C6-C10 (new NEPM)	mg/kg	<10	<10	0
>C10-C16	mg/kg	<50	<50	0
>C16-C34	mg/kg	210	140	40
>C34-C40	mg/kg	<100	<100	0
>C10-C40 (Sum)	mg/kg	210	140	40
Benzene	mg/kg	<0.2	<0.2	0
Toluene	mg/kg	<5	<5	0
Ethyl benzene	mg/kg	<5	<5	0
meta- & para- Xylene	mg/kg	<5	<5	0
ortho-Xylene	mg/kg	<5	<5	0
Sum of BTEX	mg/kg	<0.2	<0.2	0
Total Xylenes	mg/kg	<5	<5	0
Naphthalene	mg/kg	<5	<5	0
Acenaphthylene	mg/kg	<5	<5	0
Acenaphthene	mg/kg	<5	<5	0
Fluorene	mg/kg	<5	<5	0
Phenanthrene	mg/kg	<5	<5	0
Anthracene	mg/kg	<5	<5	0
Flouranthene	mg/kg	<5	<5	0
Pyrene	mg/kg	<5	<5	0
Benz(a)anthracene	mg/kg	<5	<5	0
Chrysene	mg/kg	<5	<5	0
Benzo(b)flouranthene	mg/kg	<5	<5	0
Benzo(k)flouranthene	mg/kg	<5	<5	0
Benzo(a)pyrene	mg/kg	<5	<5	0
Indeno(1.2.3.cd)pyrene	mg/kg	<5	<5	0
Dibenz(a.h)anthracene	mg/kg	<5	<5	0
Benzo(g.h.i)perylene	mg/kg	<5	<5	0
Sum of Polycyclic aromatic hydrocarbons	mg/kg	<5	<5	0

## Stage 2 Soil RPD Calculations

Analyte	Units	TP2-0.2	TP2-Q-2.0	RPD
Arsenic	mg/kg	5	5	0
Cadmium	mg/kg	<1	<1	NA
Chromium	mg/kg	10	9	11
Copper	mg/kg	6	<5	18
Lead	mg/kg	16	68	124
Nickel	mg/kg	6	5	18
Zinc	mg/kg	18	30	50
Mercury	mg/kg	<0.1	<0.1	NA
C6 - C9 Fraction	mg/kg	<10	<10	NA
C10 - C14 Fraction	mg/kg	<50	<50	NA
C15 - C28 Fraction	mg/kg	<100	<100	NA
C29 - C36 Fraction	mg/kg	<100	<100	NA
C10 - C36 Fraction (sum)	mg/kg	<50	<50	NA
C6 - C10 Fraction	mg/kg	<10	<10	NA
C6 - C10 Fraction minus BTEX (F1)	mg/kg	<10	<10	NA
>C10 - C16 Fraction	mg/kg	<50	<50	NA
>C16 - C34 Fraction	mg/kg	<100	<100	NA
>C34 - C40 Fraction	mg/kg	<100	<100	NA
>C10 - C40 Fraction (sum)	mg/kg	<50	<50	NA
Benzene	mg/kg	<0.2	<0.2	NA
Toluene	mg/kg	<0.5	<0.5	NA
Ethylbenzene	mg/kg	<0.5	<0.5	NA
meta- & para-Xylene	mg/kg	<0.5	<0.5	NA
ortho-Xylene	mg/kg	<0.5	<0.5	NA
Sum of BTEX	mg/kg	<0.2	<0.2	NA
Total Xylenes	mg/kg	<0.5	<0.5	NA
Naphthalene	mg/kg	<1	<1	NA

## Stage 2 Surface Water RPD Calculations

Analyte	Units	D4	Q-D4	RPD
Hydroxide Alkalinity as CaCO <sub>3</sub>	mg/L	<1	<1	NA
Carbonate Alkalinity as CaCO <sub>3</sub>	mg/L	<1	<1	NA
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	97	97	0
Total Alkalinity as CaCO <sub>3</sub>	mg/L	97	97	0
Sulfate as SO <sub>4</sub> - Turbidimetric	mg/L	26	26	0
Chloride	mg/L	60	63	5
Calcium	mg/L	12	12	0
Magnesium	mg/L	6	6	0
Sodium	mg/L	68	70	3
Potassium	mg/L	10	11	10
Arsenic	mg/L	<0.001	0.001	0
Cadmium	mg/L	<0.0001	<0.0001	NA
Chromium	mg/L	<0.001	<0.001	NA
Copper	mg/L	0.003	0.003	0
Nickel	mg/L	0.003	0.003	0
Lead	mg/L	<0.001	<0.001	NA
Zinc	mg/L	<0.005	<0.005	NA
Mercury	mg/L	<0.0001	<0.0001	NA
Nitrite + Nitrate as N	mg/L	0.27	0.26	4
Total Kjeldahl Nitrogen as N	mg/L	0.8	0.7	13
Total Nitrogen as N	mg/L	1.1	1.0	10
Total Anions	meq/L	4.17	4.26	2
Total Cations	meq/L	4.31	4.42	3
Ionic Balance	%	1.56	1.85	17
alpha-BHC	µg/L	<0.5	<0.5	NA
Hexachlorobenzene (HCB)	µg/L	<0.5	<0.5	NA
beta-BHC	µg/L	<0.5	<0.5	NA
gamma-BHC	µg/L	<0.5	<0.5	NA
delta-BHC	µg/L	<0.5	<0.5	NA
Heptachlor	µg/L	<0.5	<0.5	NA
Aldrin	µg/L	<0.5	<0.5	NA
Heptachlor epoxide	µg/L	<0.5	<0.5	NA
trans-Chlordane	µg/L	<0.5	<0.5	NA
alpha-Endosulfan	µg/L	<0.5	<0.5	NA
cis-Chlordane	µg/L	<0.5	<0.5	NA
Dieldrin	µg/L	<0.5	<0.5	NA
4,4'-DDE	µg/L	<0.5	<0.5	NA
Endrin	µg/L	<0.5	<0.5	NA
beta-Endosulfan	µg/L	<0.5	<0.5	NA
4,4'-DDD	µg/L	<0.5	<0.5	NA
Endrin aldehyde	µg/L	<0.5	<0.5	NA
Endosulfan sulfate	µg/L	<0.5	<0.5	NA
4,4'-DDT	µg/L	<2	<2	NA
Endrin ketone	µg/L	<0.5	<0.5	NA
Methoxychlor	µg/L	<2	<2	NA
Dichlorvos	µg/L	<0.5	<0.5	NA
Demeton-S-methyl	µg/L	<0.5	<0.5	NA
Monocrotophos	µg/L	<2	<2	NA
Dimethoate	µg/L	<0.5	<0.5	NA
Diazinon	µg/L	<0.5	<0.5	NA
Chlorpyrifos-methyl	µg/L	<0.5	<0.5	NA



Analyte	Units	D4	Q-D4	RPD
Parathion-methyl	µg/L	<2	<2	NA
Malathion	µg/L	<0.5	<0.5	NA
Fenthion	µg/L	<0.5	<0.5	NA
Chlorpyrifos	µg/L	<0.5	<0.5	NA
Parathion	µg/L	<2	<2	NA
Pirimphos-ethyl	µg/L	<0.5	<0.5	NA
Chlorfenvinphos	µg/L	<0.5	<0.5	NA
Bromophos-ethyl	µg/L	<0.5	<0.5	NA
Fenamiphos	µg/L	<0.5	<0.5	NA
Prothiofos	µg/L	<0.5	<0.5	NA
Ethion	µg/L	<0.5	<0.5	NA
Carbophenothion	µg/L	<0.5	<0.5	NA
Azinphos Methyl	µg/L	<0.5	<0.5	NA